



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

**AN EXPLORATION OF PSYCHOLOGICAL FACTORS THAT CONTRIBUTE TO WEIGHT
MAINTENANCE AFTER WEIGHT LOSS SURGERY**

By

MONIQUE BEZUIDENHOUT

Submitted in fulfilment of the requirements for the degree
PhD (Psychology)

in the

Faculty of Humanities

University of Pretoria

Supervisor: Prof Nicoleen Coetzee

November 2022

Copyright in this work rests with the author. Please ensure that any reproduction
or re-use is done in accordance with the relevant national copyright legislation.

Declaration

Name & Surname: **Monique Bezuidenhout**

Student Number: **04186575**

“I declare that the thesis, **AN EXPLORATION OF PSYCHOLOGICAL FACTORS THAT CONTRIBUTE TO WEIGHT MAINTENANCE AFTER WEIGHT LOSS SURGERY**, which I hereby submit for the degree PhD (Psychology) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution. In addition, that all the sources I have used or quoted have been indicated and acknowledged.



M. Bezuidenhout

28 November 2022
Date

Ethics Statement

The author, Monique Bezuidenhout, has obtained the applicable research ethics approval from the Research Ethics Committee at the University of Pretoria.

The author declares that the ethical standards in terms of the University of Pretoria's Policy guidelines for responsible research and Code of ethics for researchers were adhered to by the researcher.



M. Bezuidenhout

28 November 2022
Date

Acknowledgements

With extreme gratitude I would like to acknowledge all who have supported, assisted, guided and encouraged me through this journey:

- First and foremost, my absolute and humbling gratitude to God for His grace always. Thank you for my abilities You bestowed upon me, surrounding me with amazing family, loved ones and life that formed me to who I am through many hardships.
- My mother, Jana Bezuidenhout, who has been my rock, my safe place, my venting space and my world my whole life. Thank you for reading this thesis so many times, being my soundboard and my biggest support system.
- My supervisor, Dr Nicoleen Coetzee for her guidance throughout this process. I learned so much from you and I will be eternally grateful.
- Prof Dap Louw and Prof Anet Louw for being the most amazing examples of how academics should be. Even though you were not officially part of the PhD you were always interested, supportive and helped when you could.
- To loved ones who passed, the ones who inspired and shaped me: my grandparents, Mr H.F.M.L. Koen and Mrs Jacomina Koen; my dad, Mr A.J. Bezuidenhout and my best friend, Mr Johan de Jager. You are all sincerely missed. Wish you were here.
- My sister, Tasha Bezuidenhout. Thank you for loving me. I love you for eternity.
- My friend, Dr Vicky Timm, where we were one anothers support systems throughout the process of obtaining a PhD.
- My friend, Brandon Young. I don't know what I would have done without your support and true friendship!
- Dr Jacomien Muller for her guidance and help.
- Matt Herbst. Thank you for supporting me despite everything. I know it wasn't easy.
- To Juanita Haug thank you for your support, your motivation, and the formatting of my thesis.

Dedication

I dedicate this thesis to my mother, Jana Bezuidenhout, the most amazing and loving mother. Thank you for being the most awe-inspiring example of what a person should be. Thank you for all the sacrifices you made for me and my sister, Tasha Bezuidenhout. Thank you for teaching us about the value of education and always trying to be better human beings. Without you we wouldn't be who we are or where we are. I love you more than anything in this world. You are my best friend and confidant. You are my world!

Abstract

Research indicates that weight loss surgery (WLS) is the most effective and cost-effective treatment for obesity and weight-related comorbidities. However, twenty percent of individuals who have undergone WLS are not deemed successful. This study explores the subjective experience of individuals who had WLS to determine which factors contribute to weight maintenance after the surgery. In addition, the potential role of specific psychological factors namely locus of control, self-efficacy, sense of coherence and quality of life were investigated with regards to weight maintenance after WLS.

A mixed method convergent design was used with purposive and snowball sampling. The qualitative section made use of semi-structured interviews which was analysed using reflexive thematic analysis (N=6). The quantitative section made use of: a biographical questionnaire, the Generalised Self-efficacy Scale (GSE), Rotter's Locus of Control Scale, Sense of Coherence Scales (SOC-13) and the Impact of Weight on Quality of Life Questionnaire (IWQOL-Lite). The quantitative data was analysed using the Wilcoxon signed-ranked test, chi-square test for independence and the Spearman's Rho (N=12).

Qualitative findings indicated that factors that could contribute to weight maintenance were trepidations, area of residence, active lifestyle, quality of life, pre-operative education and keeping to postoperative requirements. Other factors identified that might impact weight maintenance were unexpected challenges such as discrimination after WLS from medical professionals, relationship breakdown and loneliness. The quantitative results indicated that only locus of control had an association with weight maintenance. Quality of life improved significantly in all domains after WLS. In addition, significant positive correlations were found between sexual functioning and self-esteem; public distress and self-esteem; public distress and sexual life; and work and public distress before WLS. After WLS significant positive correlations were indicated between physical functioning and public distress; work and physical functioning and between work before and after WLS. A significant inverse

correlation was further found between locus of control and self-esteem after WLS. A further significant positive correlation was indicated between self-efficacy and sense of coherence. To provide individuals who had WLS the best opportunity to succeed with weight maintenance various strategies should be addressed. The first is thorough pre-operative education which should also include information on possible loneliness after WLS, importance of postoperative requirements and dumping syndrome. On therapeutic level, focus should be on improving quality of life and enhancing intrapersonal strengths, specifically locus of control and self-esteem. In addition, unexpected challenges after WLS such as loneliness, relationship breakdown and the impact of new health-related factors, that might compromise weight maintenance success should be addressed as soon as possible. Sense of coherence and religion should also be considered for therapeutic intervention strategies. Support systems are crucial to successful weight maintenance, which include loved ones, psychologists and support groups. An active lifestyle should be encouraged as it contributes to weight maintenance and acts as an effective coping mechanism. Geographic area of residence was also identified to facilitate weight maintenance. It is suggested that these area characteristics should be investigated and replicated by the various WLS centres and support groups.

Key words: Locus of control, quality of life, salutogenesis, self-efficacy, sense of coherence, weight loss surgery, weight maintenance

Table of Contents

Declaration	i
Ethics Statement	ii
Acknowledgements	iii
Dedication	iv
Abstract	v
Chapter 1: Introduction to the Study	1
1.1 Introduction	1
1.2 Research Problem and Rationale of the Study.....	2
1.3 Aim and Objectives of the Study	4
1.4 Positioning of the Researcher.....	5
1.5 Theoretical Framework	6
1.6 Overview of Research Methodology.....	6
1.7 Definition of Terms.....	7
1.8 Layout of Thesis.....	10
Chapter 2: Literature Review	11
2.1 Introduction	11
2.2 Obesity.....	11
2.2.1 Body Mass Index (BMI)	13
2.2.2 The Physiological Impact of Obesity	14

2.2.3	The Psychological Impact of Obesity	16
2.3	Weight Loss Surgery (WLS).....	22
2.3.1	Weigh Loss Surgery Procedures.....	22
2.3.2	Reasons for WLS.....	29
2.3.3	Perceived Benefits of Weight Loss Surgery.....	30
2.3.4	Surgical Failure	31
2.3.5	Patient Evaluation and Selection	33
2.3.6	The Impact of WLS and Possible Effects on Weight Maintenance	37
2.4	Practical Factors That Contribute to Weight Maintenance After WLS	42
2.4.1	Adherence to Follow-up Visits.....	42
2.4.2	Support Systems	43
2.4.3	Patient Expectations.....	45
2.5	Psychological Factors Associated with the Outcome of WLS and Weight Maintenance	48
2.5.1	Quality of Life	49
2.5.2	Locus of Control.....	54
2.5.3	Self-efficacy	56
2.5.4	Sense of Coherence.....	59
2.6	Conclusion	62
Chapter 3: Theoretical Framework.....		63
3.1	Introduction	63
3.2	Salutogenesis.....	63

3.3	Distinguishing Between a Salutogenic and Pathogenic Orientation.....	67
3.4	Six Salutogenic Strengths	70
3.4.1	Sense of Coherence.....	71
3.4.1.1	Generalised Resistance Resources and Generalised Resistance Deficits.....	77
3.4.2	Locus of Control.....	83
3.4.3	Self-efficacy	86
3.4.4	Hardiness.....	88
3.4.5	Potency.....	90
3.4.6	Learned Resourcefulness.....	91
3.5	Conclusion	92
Chapter 4: Research Methodology		93
4.1	Introduction	93
4.2	Research Design: A Mixed Methods Design.....	93
4.3	Sampling Phase of the Study.....	95
4.4	Data Collection Procedure	100
4.4.1	Quantitative Data Collection.....	101
4.4.1.1	Biographical Questionnaire.....	102
4.4.1.2	The Generalised Self-Efficacy Scale (GSE).....	102
4.4.1.3	Rotter's Locus of Control Scale.....	103
4.4.1.4	Sense of Coherence Scale (SOC-13).....	104

4.4.1.5	Impact of Weight on Quality of Life Questionnaire—Lite Version (IWQOL-Lite).....	105
4.4.2	Qualitative Data Collection	107
4.5	Data Analysis.....	107
4.5.1	Quantitative Data Analysis	107
4.5.2	Qualitative Data Analysis.....	109
4.6	Methods Used to Ensure the Trustworthiness of Qualitative Data Analysis	111
4.6.1	Credibility	112
4.6.2	Transferability	113
4.6.3	Dependability	114
4.6.4	Confirmability	114
4.7	Ethical Considerations	115
4.8	Conclusion	116
	Chapter 5: Quantitative Results	117
5.1	Introduction	117
5.2	Obesity and WLS.....	117
5.3	Descriptive Statistics: Locus of Control, Sense of Coherence, Self-efficacy, and Quality of Life.....	122
5.4	Psychological Factors that Impact Weight Maintenance.....	124
5.4.1	Sense of Coherence and Weight Maintenance	124
5.4.2	Locus of Control and Weight Maintenance	126
5.4.3	Self-efficacy and Weight Maintenance.....	128

5.4.4	Quality of Life and Weight Maintenance	129
5.5	Relationships Between Sense of Coherence, Self-efficacy, Locus of Control, Quality of Life and Weight Maintenance	140
5.6	Relationships Between Sense of Coherence, Self-efficacy, Locus of Control and Quality of Life (Weight Maintenance Excluded).....	143
5.7	Quality of Life.....	146
5.8	Conclusion	150
Chapter 6: Qualitative Results		151
6.1	Introduction	151
6.2	The Reflexive Thematic Analysis Methodology	151
6.2.1	Phase 1: Familiarising Yourself with Your Data.....	151
6.2.2	Phase 2: Generating Initial Codes	152
6.2.3	Phase 3: Generating Initial Themes.....	153
6.2.4	Phase 4: Reviewing Potential Themes	155
6.2.5	Phase 5: Defining and Naming Themes	158
6.2.5.1	Preoperative Experienced Stressors.	158
6.2.5.1.1	Visibility and Invisibility to Self and Others.....	158
6.2.5.1.2	Medical and Health-Related Stressors.....	166
6.2.5.2	Expectations of WLS.....	172
6.2.5.2.1	Motives and Expected Outcomes of WLS.....	172
6.2.5.2.2	Unexpected Challenges After WLS.....	178
6.2.5.3	Who Was I and Who Am I Now (Still).	186

6.2.5.4	Other Factors that Contribute to Weight Maintenance.....	192
6.2.5.4.1	Trepidations.....	193
6.2.5.4.2	Preoperative Research and Postoperative Requirements	195
6.2.5.4.3	Support Systems.....	198
6.2.5.4.4	Geographic Area of Residence and Active Lifestyle.....	202
6.2.5.5	Sense of Coherence.....	204
6.2.5.6	Concluding Comments on Themes.....	212
6.2.6	Phase 6: Producing the Report	213
6.3	Conclusion	213
Chapter 7: Discussion, Conclusions and Recommendations.....		214
7.1	Introduction	214
7.2	Amalgamation of Results.....	214
7.3	Themes.....	215
7.3.1	Life as an Obese Individual	216
7.3.2	When WLS Became an Option	221
7.3.3	Life After WLS.....	227
7.3.3.1	Intrapersonal Experiences After WLS.....	228
7.3.3.2	Interpersonal Experiences After WLS.....	237
7.3.3.3	Other External Factors Affecting Life After WLS.	244
7.3.3.3.1	Medical and Health-Related Factors.....	244
7.3.3.3.2	Geographic Area of Residence.	248
7.4	Contribution of the Study	252

7.5	Limitations of the Study.....	255
7.6	Recommendations.....	256
7.7	Conclusion	258
7.8	Personal Reflection	260
	Reference List.....	263
	Appendix A: Biographical Questionnaire	321
	Appendix B: Interview Schedule	327
	Appendix C: Letter of Consent	328

List of Tables

Table 2.1	Body Mass Index Classification of Nutritional Status (Adaptation).....	14
Table 4.1	Biographical Information of the Quantitative and Qualitative Participants.....	98
Table 4.2	Biographical Information Related to WLS.....	99
Table 4.3	Descriptive Details of the Qualitative Participants.....	100
Table 5.1	Frequency Table: Age When Weight Problems Commenced.....	118
Table 5.2	Frequency Table: Number of Participants with Medical Conditions Due to Obesity Before WLS.....	118
Table 5.3	Frequency Table: Received Information from the Surgical Team Regarding Postoperative Requirements Before WLS	119
Table 5.4	Frequency Table: Keeping to postoperative requirements	120
Table 5.5	Frequency Table: Number of Participants Whose Medical Conditions Improved After WLS.....	120
Table 5.6	Frequency Table: Participants who had Plastic Surgery After WLS	121
Table 5.7	Frequency Table: Importance of Religion to Participants	121
Table 5.8	Descriptive Statistics of the Psychological Factors Under Investigation (N=12).....	123
Table 5.9	Crosstabulation Between Sense of Coherence and Weight Maintenance	125
Table 5.10	Chi-Square Test: Sense of Coherence and Weight Maintenance	125
Table 5.11	Symmetric Measure for Weight Maintenance and Sense of Coherence	126
Table 5.12	Crosstabulation Between Locus of Control and Weight Maintenance	126
Table 5.13	Chi-Square Test: Locus of Control and Weight Maintenance	127
Table 5.14	Symmetric Measure for Locus of Control and Weight Maintenance	127
Table 5.15	Crosstabulation Between Self-efficacy and Weight Maintenance	128
Table 5.16	Chi-Square Tests: Self-efficacy and Weight Maintenance.....	129
Table 5.17	Symmetric Measure for Weight Maintenance and Self-efficacy.....	129
Table 5.18	Descriptive Statistics: Quality of Life	130

Table 5.19	Crosstabulation Between Physical Functioning (as Part of Quality of Life) and Weight Maintenance.....	131
Table 5.20	Chi-Square Tests: Physical Functioning and Weight Maintenance.....	131
Table 5.21	Symmetric Measure for Weight Maintenance and Physical Functioning as Part of Quality of Life.....	132
Table 5.22	Crosstabulation Between Self-Esteem (as Part of Quality of Life) and Weight Maintenance	133
Table 5.23	Chi-Square Tests: Self-Esteem and Weight Maintenance.....	133
Table 5.24	Symmetric Measure for Weight Maintenance and Self-Esteem as Part of Quality of Life.....	134
Table 5.25	Crosstabulation Between Sexual Life (as Part of Quality of Life) and Weight Maintenance	135
Table 5.26	Chi-Square Test: Sexual Life and Weight Maintenance.....	135
Table 5.27	Symmetric Measure for Weight Maintenance and Sexual Life as Part of Quality of Life.....	136
Table 5.28	Crosstabulation Between Public Distress (as Part of Quality of Life) and Weight Maintenance.....	137
Table 5.29	Chi-Square Test: Public Distress and Weight Maintenance	137
Table 5.30	Symmetric Measure for Weight Maintenance and Public Distress as Part of Quality of Life.....	138
Table 5.31	Crosstabulation Between Work Life (as Part of Quality of Life) and Weight Maintenance	139
Table 5.32	Chi-Square Test: Work Life and Weight Maintenance.....	139
Table 5.33	Symmetric Measure for Weight Maintenance and Work Life as Part of Quality of Life	140
Table 5.34	Spearman Rho Correlation: Locus of Control, Self-Efficacy and Sense of Coherence.....	142
Table 5.35	Spearman Rho Correlation: All Scales – Locus of Control, Self-Efficacy, Sense of Coherence and Quality of Life	144
Table 5.36	Descriptive Statistics for IWQOL Before and After WLS	147

Table 5.37	Wilcoxon Signed-Rank Test Summary for IWQOL Physical Functioning Before and After WLS	147
Table 5.38	Wilcoxon Signed-Rank Test Summary for IWQOL Self-Esteem Before and After WLS	148
Table 5.39	Wilcoxon Signed-Rank Test Summary for IWQOL Sexual Life Before and After WLS.....	148
Table 5.40	Wilcoxon Signed-Rank Test Summary for IWQOL Public Distress Before and After WLS.....	149
Table 5.41	Wilcoxon Signed-Rank Test Summary for IWQOL Work Before and After WLS.....	149
Table 6.1	Summary of the Provisional Themes, Sub-Themes and Corresponding Codes.....	154
Table 6.2	Final Themes, Sub-Themes and Codes	157
Table 7.1	Structure of the Final Report.....	215

List of Figures

Figure 2.1:	Jejuno-ileal Bypass Procedure	23
Figure 2.2:	Sleeve Gastrectomy	25
Figure 2.3:	Roux-en-Y Gastric Bypass Procedure	26
Figure 2.4:	Biliopancreatic Diversion with Duodenal Switch	28
Figure 3.1:	The Ease-Dis/ease Continuum Mapping of Health	69
Figure 3.2:	Generalised Resistance Resources (GRR) Definition	78
Figure 3.3:	A simplified reproduction of the salutogenic model.....	84
Figure 4.1:	Application of the Convergent Model.....	95
Figure 4.2:	Identified Constructs and Weight Maintenance	101
Figure 6.1:	Summary of the Final Themes and Sub-themes.....	156
Figure 6.2:	Concluding summary of themes and overarching theme.....	212
Figure 7.1:	An adaptation of the salutogenic model to WLS factors impacting weight maintenance.....	251

Chapter 1: Introduction to the Study

1.1 Introduction

Weight loss surgery (WLS) has been shown to be the most effective treatment for morbid obesity, and obesity-related comorbidities, such as type 2 diabetes, coronary artery disease, obstructive sleep apnea, hyperlipidemia and hypertension (Arterburn et al., 2020; Courcoulas et al., 2018; Frühbeck, 2015; Nayak et al., 2020; Singh et al., 2020). Further benefits also include improvements in psychological aspects such as improved quality of life, self-esteem, self-confidence and body image (Blackburn et al., 2009; Buchwald et al., 2004; Greenberg et al., 2009; Kubik et al., 2013; Kopelman, 2007; Magdaleno et al., 2009; Nickel et al., 2017; Sarwer & Steffen, 2015).

WLS is also the most cost-effective treatment of obesity and weight-related comorbidities. It decreases direct and indirect costs involved with the treatment of obesity and weight-related comorbidities by 45% (Frühbeck, 2015; Magdaleno et al., 2009; Modaressi et al., 2013; Montesi et al., 2016). Despite evidence supporting the cost effectiveness of WLS, medical aid schemes in South Africa do not regard it as a treatment, instead perceiving it as a cosmetic procedure. Only a few private medical aid schemes assist in the payment of WLS (Urry et al., 2020). These schemes only contribute when the patient is on the most expensive plan and can provide a medical recommendation from the physician in charge of the WLS (Independent financial consultants, n.d). As a result, most patients undergoing WLS have to borrow money for the operation, adding a huge financial burden on themselves. Adding to their financial problems are covering the costs of pre- and postoperative consultations, annual blood tests and lifetime supplements for possible vitamin and mineral deficiencies postoperatively (Johnson et al., 2018).

Despite the proven success of WLS, about twenty percent of patients who have undergone WLS, fail to attain significant weight loss, do not show improvement of medical obesity-related comorbidities, are unable to maintain the weight loss, and even experience

weight regain (Ames et al., 2009; Biag et al., 2019; Batsis et al., 2009; Noria et al., 2023; Sarwer et al., 2008). This is defined as surgical failure. Reversal of a WLS procedure to normal anatomy could be necessary for various reasons including severe malnutrition, infections and motor deficits, which can also be regarded as surgical failure (Genser et al., 2017). Between two and ten years postoperatively, weight regain is a frequent occurrence, with some patients regaining up to 15% of their initial body weight (Ames et al., 2009; Batsis et al., 2009; Sarwer et al., 2008). This weight regain or surgical failure, could counter all the improvements made on the various levels of human functioning after WLS (Ames et al., 2009; Greenberg et al., 2009; Sarwer et al., 2008).

1.2 Research Problem and Rationale of the Study

Surgical failure has a huge physiological, psychological, and financial impact on the patient who had WLS (Blackburn et al., 2009; Greenberg et al., 2009). On a physiological level, surgical failure could counter the improvements made on the medical comorbidities or re-emergence thereof for patients that underwent WLS (Ames et al., 2009; Greenberg et al., 2009; Sarwer et al., 2008). In the same manner the psychological improvements achieved with regards to self-esteem, body image, self-confidence and quality of life could be negatively affected by surgical failure (Blackburn et al., 2009; Buchwald et al., 2004; Greenberg et al., 2009; Kopelman, 2007; Kubik et al., 2013; Magdaleno et al., 2009; Nickel et al., 2017; Sarwer & Steffen, 2015). As indicated in 1.1 above, patients can also not afford for the operation to fail due to the expenses associated with it. For these reasons, surgical failure has to be avoided at all costs, and focus should be placed on enhancing knowledge and implementing strategies to ensure successful surgical outcome.

The focus of this research was on exploring the subjective experiences of individuals who have undergone WLS and the psychological factors that contributed to weight maintenance, as this could aid in enhancing surgical success and countering surgical failure (Blackburn et al., 2009; Greenberg et al., 2009; Sheets et al., 2015). Various studies have been conducted in order to identify psychological factors that may enhance, impede or

compromise surgical outcome and emotional adjustment (Ames et al., 2009; Batsis et al., 2009; Collazo-Clavell et al., 2006; Flølo et al., 2019; Homer et al., 2016; Magdaleno et al., 2009; Marcus et al., 2009; Sarwer et al., 2008; Yermilov et al., 2009). However, the findings of these studies contradicted one another and hence no conclusive results were found (Ames et al., 2009; Batsis et al., 2009; Collazo-Clavell et al., 2006; Flølo et al., 2019; Homer et al., 2016; Magdaleno et al., 2009; Marcus et al., 2009; Sarwer et al., 2008; Yermilov et al., 2009). In addition, no research had been conducted within a South African context to the researcher's knowledge regarding specific psychological factors and how they might contribute to weight maintenance after WLS.

Research aimed at identifying specific and psychological factors will contribute significantly to the field of WLS and related areas in various ways. As previously mentioned, by identifying and understanding these specific and psychological factors, it can aid in enhancing surgical outcome. Various standardised measuring instruments could be used preoperatively to identify strengths and weaknesses of particular psychological factors. Identifying psychological factors may further aid and enable the psychologist within the treatment team to design an individualised treatment plan, pre- and postoperatively, focusing on enhancing these psychological strengths in order to optimise successful outcome and thus weight maintenance (Apovian et al., 2009; Blackburn et al., 2009; Greenberg et al., 2009). When incorporating these psychological strengths into psychotherapy with potential patients who would normally not qualify for WLS, such patients may work on enhancing these said factors, resulting in a change in eligibility status for surgery, and additionally optimising surgical outcome and weight maintenance (Greenberg et al., 2009).

In light of the discussion above, it is argued that this research could contribute to improving WLS success, thereby providing patients with greater opportunities for a better quality of life. In doing so, it will bring new original knowledge to the field.

1.3 Aim and Objectives of the Study

The primary aim of this study was to explore the subjective experience of individuals who have undergone WLS, as well as investigate whether a certain set of psychological factors could contribute to weight maintenance after WLS within salutogenesis, specifically sense of coherence. For the purpose of this study, the psychological factors included sense of coherence, self-efficacy, locus of control and quality of life. These factors were chosen for the following reasons: Firstly, it allowed the researcher to explore them from a salutogenic viewpoint, with specific focus on sense of coherence, as there is limited research combining these two fields despite the notion that they are interrelated. Secondly, discussions with experts within the field of WLS, an endocrinologist and bariatric surgeon, were consulted initially to ensure relevant and needed research in the field. They revealed that they agreed that research is needed on these factors as these psychological factors could be of importance when addressing surgical success and weight maintenance. These experts also noted that said factors could have an important role to play in the formation of therapeutic interventions. Their expert opinions were confirmed by Anastasiou et al. (2015), Flølo et al. (2019), Nilsen et al. (2015), and Odom et al. (2010), who noted that the psychological factors listed in this section are known to contribute to positive outcomes after WLS. Thirdly, various researchers indicated a need for research in this area to enhance surgical outcome (Collazo-Clavell et al., 2006; Biag et al., 2019; Magdaleno et al., 2009; Marcus et al., 2009; Yermilov et al., 2009). Lastly, the lack of research specific to the South African context in regards to psychological factors that could contribute to weight maintenance after WLS, necessitates research for enhancing successful surgical outcome.

Based on the aforementioned, the following objectives were set to attain the primary aim of the study.

- To gain understanding of the subjective experiences of patients who had WLS, and how these experiences could impact weight maintenance after WLS. This exploration also allowed the possibility of identifying specific factors that could contribute or negatively affect weight maintenance after WLS.

- To determine if associations exist between the identified psychological factors, namely sense of coherence, locus of control, self-efficacy, quality of life and weight maintenance;
- To determine the strength and direction of relationships between sense of coherence, locus of control, self-efficacy, quality of life, and weight maintenance;
- To determine if relationships exist between sense of coherence, locus of control, self-efficacy and quality of life among a sample of patients who had undergone WLS;
- To investigate if there are any differences in quality of life before and after WLS

1.4 Positioning of the Researcher

I am a clinical psychologist and lecturer with a particular interest in bariatric surgery and obesity. The passion for this field of interest and specific research was inspired by my personal experience of being obese since childhood and having WLS in adulthood. Obesity is also prominent in my family. I believe that this has provided me with a unique understanding of both experiences of being obese and having WLS and the specific challenges each entails. My research was guided by the desire to contribute to the existing knowledge in this field, specifically in weight maintenance after WLS. It is important to acknowledge that as the researcher, I may have had certain biases or preconceptions regarding obesity and WLS because of my personal experience thereof. However, I was committed to employ rigorous research methods, reflexivity, and triangulation of data sources to minimise the impact of any potential biases. Reflexivity was a critical aspect of this research. I continuously engaged in self-reflection and self-awareness to identify and mitigate any personal biases that arose during data collection, analysis, and interpretation. By actively addressing my own positionality and acknowledging the potential influence on the research, I aimed to enhance the validity and trustworthiness of the study.

1.5 Theoretical Framework

The theoretical point of departure of this study is founded in salutogenesis, which is the study of the origins of health (Antonovsky, 1979). Salutogenesis thus aids in our understanding of health and health-related behaviours, as well as the promotion thereof, even in the face of adversity (Mittelmark, 2017; Wainwright et al., 2007). The theory indicates that if the environment and personal resources allows the individual to adapt successfully to situations and learn to manage stress in the long term, even though stress is ever present, it could lead to better health and health-related behaviours (Antonovsky, 1979, 1996; Eriksson, 2017).

The theoretical point of focus of this study was on sense of coherence, the core component of salutogenesis, as developed by Aaron Antonovsky (1979; 1987; 1996). Antonovsky (1979; 1987; 1996) defined sense of coherence as the belief of an individual that their environment is ordered, structured and predictable; that they have the necessary resources available to meet situational demands; and that the energy spent on challenges faced is worth investing in (Antonovsky, 1987; 1996; Compton & Hoffman, 2013; Mittelmark & Bauer 2017, 2022; Zugravu, 2012).

A detailed discussion of this framework as theoretical point of departure for this study will be provided in chapter 3.

1.6 Overview of Research Methodology

The study followed a mixed method convergent design, where both qualitative and quantitative data were collected and analysed separately (Fetters et al., 2013; Guetterman et al., 2015; O’Cathain et al., 2010). Participants for both phases of the study were selected through purposive sampling. Quantitative data was analysed using IBM SPSS Statistics (Version 25). Qualitative data was analysed using reflexive thematic analysis (Braun & Clarke, 2006, 2012, 2021c; Byrne, 2022; Campbell et al., 2021; Clarke & Braun, 2017). The reflexive thematic analysis followed a combination of an inductive and deductive approach to data analysis (Braun & Clarke, 2021a, 2021b; Byrne, 2022). As both inductive and deductive

approaches were used for data analysis, it also followed an experiential orientation for the inductive analysis, with a constructionist epistemology for the deductive analysis (Braun & Clarke, 2012, 2013, 2021b, 2022; Byrne, 2022). After the data was analysed the results were amalgamated to address the research objectives set in 1.3. This will be discussed in more detail in 4.5.2.

1.7 Definition of Terms

In order to further understanding, key terms found within the study are defined below.

- *Body Mass Index (BMI)* is a measurement tool indicating the nutritional status of adults and risk to the health status in relation to weight. BMI is calculated by the following formula: $BMI = \text{kg/m}^2$ or $BMI = \text{lbs/in}^2$. In other words, weight (kg/lbs) divided by height (m/in) squared. An individual is defined as overweight when they have a BMI of 25 and above (Cruz et al., 2018; Kahan, 2018; Khwaja & Bonanomi, 2010; World Health Organisation [WHO], 2021).
- *Comprehensibility* refers to the capacity of an individual to experience their world as predictable, ordered and structured. It is the basis of the cognitive component of sense of coherence (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017, 2022).
- *Ease-dis/ease continuum*. Within salutogenesis an individual is considered in constant movement between the ease and dis/ease pole of the continuum, in contrast to the pathogenic orientation of diseased or nondiseased (Antonovsky, 1979, 1982; Langeland et al., 2022; Mittelmark, Bull & Bouwman, 2017; Vinje et al., 2017).
- *Dumping syndrome* occurs when undigested food, especially carbohydrates and/or sugars, reach the small intestine too quickly, overwhelming the small intestine. This is a common occurrence after WLS (Conceição et al., 2015; Emous et al., 2017; Ramadan et al., 2016; Van Beek et al., 2017). Symptoms can include tremors, irritability, bloating, nausea, fatigue, drowsiness, palpitations, tachycardia, perspiration,

confusion and diarrhoea (Emous et al., 2017; Ramadan et al., 2016; Van Beek et al., 2017).

- *Generalised resistance resources* are the characteristics of the environment, group, or individual that contribute to effective tension management, thus referring to comprehensibility, manageability and meaningfulness (Antonovsky, 1979, 1987; Breed et al., 2006; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017, 2022).
- *Generalised resistance deficits* refers to when the generalised resistance resources are not available and can become a stressor in itself or when life's challenges exceed the available resources (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017).
- *Locus of control* refers to an individual's belief that they have, or do not have, control over their own life. Locus of control is divided into internal locus of control and an external locus of control. Internal locus of control refers to those individuals who believe they have control over their own lives. External locus of control refers to individuals who believe they do not have control over their own lives, but rather ascribe it to external forces such as fate or luck (Buddelmeyer & Powdthavee, 2016; Cobb-Clark et al., 2014; Coetzee & Cilliers, 2001; Gore et al., 2016; Stubbs et al., 2011; Teixeira et al., 2005).
- *Manageability* refers to the conviction that one can adequately meet the situational demands through the resources available to the individual, whether it is internally or externally. Manageability is the behavioural component of sense of coherence (Antonovsky, 1987; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Richardson & Ratner, 2005; Vinje et al., 2017).
- *Meaningfulness*, the motivational component of sense of coherence, refers to an individual's conviction that life makes emotional and cognitive sense, and that the energy and commitment one invests into life's challenges are worthwhile (Antonovsky,

1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Idan et al., 2017; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017).

- *Obesity* is the excessive or abnormal accumulation of fat, which negatively affects health (WHO, 2021). Obesity and weight are also defined by BMI, where overweight is classified with a BMI of 25 and above (Cruz et al., 2018; Kahan, 2018; Khwaja & Bonanomi, 2010; WHO, 2021).
- *Quality of life (QoL)* refers to an individual's conscious subjective evaluation of their own experiences of life satisfaction within the context of their value and cultural system (Crosby & Kolotkin, 2009; Karimi & Brazier, 2016; Theofilou, 2013).
- *Sense of coherence (SOC)* refers to the ability of an individual to deal and adapt to life stressors, which consist of three components, namely comprehensibility, manageability and meaningfulness. The individual can thus adapt to life stressors when they feel the world is structured and predictable, that they have adequate resources available and that their struggles have meaning (Antonovsky 1987, 1996; Breed et al., 2006; Compton & Hoffman, 2013; Koelen et al., 2017; Mittelmark & Bauer 2017; Nilsen et al., 2015; Super et al., 2015; Vinje et al., 2017, 2022; Zugravu, 2012).
- *Self-efficacy* refers to belief in one's own ability to cope with, control and perform a specific task or behaviour, even when this task or behaviour is perceived as challenging (Azizli et al., 2015; Bandura, 1986, 1989, 1994; Batsis et al., 2009; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Jaensson et al., 2019; Rothmann, 2001).
- *Surgical failure* in relation to WLS, refers to the failure to improve comorbidities related to obesity as before WLS, the failure to attain or maintain significant weight loss after WLS. Reversal of a WLS procedure to normal anatomy also constitutes surgical failure (Ames et al., 2009; Batsis et al., 2009; Genser et al., 2017; Sarwer et al., 2008).

- *Weight cycling*, also known as yo-yo dieting, is the repetitive pattern of regaining weight after losing weight on a diet, just to enter another cycle of dieting, losing weight and then regaining the weight lost (Montani et al., 2015).
- *Weight loss surgery (WLS)* refers to various surgical procedures that are performed with the purpose to reduce weight. Other terms used are bariatric surgery or metabolic surgery (Frühbeck, 2015).

1.8 Layout of Thesis

Chapter 1: This chapter provided a broad overview and introduction to the research that were conducted, with specific reference to the research problem, the aim and rationale of the study, the theoretical point of departure, methodology used, and definition of terms.

The layout of the remainder of the thesis is as follow:

Chapter 2: A comprehensive literature review related to the constructs under investigation, as well as other research in terms of obesity, WLS, and aspects that could impact weight maintenance after WLS is provided.

Chapter 3: In this chapter the theoretical point of departure is discussed in detail, namely sense of coherence, which is the core component in salutogenesis. Within this chapter the application of the theory is also explained in terms of weight maintenance after WLS.

Chapter 4: The research methodology is discussed in terms of the research design, sampling, data gathering, data analysis and the ethical considerations.

Chapter 5: Within this chapter the quantitative analyses used in the study and the results it yielded is discussed.

Chapter 6: The step-by-step analysis process followed doing thematic analysis is shown within this chapter. The results of the thematic analysis are discussed, as well as the trustworthiness of the research.

Chapter 7: The amalgamated results of the quantitative and the qualitative are discussed. The concluding remarks with limitations of the study and possible further study areas are indicated.

Chapter 2: Literature Review

2.1 Introduction

In this chapter, attention will be paid to obesity and the impact thereof, as well as what weight loss surgery entails. The various psychological factors, namely sense of coherence, locus of control, quality of life and self-efficacy that possibly play a role in successful WLS, will also be explored.

2.2 Obesity

According to the World Health Organisation (WHO) (n/d), 53.8% of individuals 18-years and older qualified as being overweight in 2016 in South Africa. Obesity is defined as an accumulation of fat that is abnormal or excessive which impairs health (WHO, 2021). Weight and obesity are also defined by using the Body Mass Index (BMI), where BMI is calculated by weight (kg) divided by height (m) squared. For an individual to be defined as overweight, they will have a BMI of 25 and above (Cruz et al., 2010; WHO, 2021). See 2.2.1 for a more focused discussion of BMI.

Further statistics released in 2016 indicated that globally 1.9 billion people are overweight, of which 650 million people are considered obese. Thirty-nine million of these are children under the age of 5, and more than 340 million are aged between 5 and 19. These figures indicated that obesity has almost tripled since 1975 (WHO, 2021). Ng et al. (2014) found overweight and obesity has risen globally by 28% since 1980. This study showed that from 1980 to 2013 overweight and obesity increased from 28.8% to 36.9% for men, and 29.9% to 38% for women (Lundeen et al., 2016). Lim et al. (2012) estimated that overweight and obesity contributed to 3.4 million deaths in 2010 alone (Lim et al., 2012; Ng et al., 2014).

From the above statistics it is clear that obesity and morbid obesity is becoming an increasing problem globally. Besides medical and biological reasons, the rise in obesity could also be attributed to being chronically exposed to a life filled with stressors. Zugravu (2012)

noted that stress can influence food consumption, as food can be a stress reliever for some individuals. Other factors indicated to be responsible for the rise in obesity were food intake that is high in calories and sedentary lifestyles (Blümel et al., 2016; Zugravu, 2012). Sedentary lifestyles were attributed to technological advances and urban development. It is estimated that 60% of the world population now lives sedentary lifestyles, of which women and older individuals make up the most of this statistic (Blümel et al., 2016). Blümel et al. (2016) found an association between obesity and sedentary lifestyles, specifically abdominal obesity, which is also associated with higher mortality figures.

It is clear that obesity, and ever-increasing morbid obesity, is a global challenge that impacts health and place a strain on healthcare systems. It not only affects an individuals' physical health, but also their psychological functioning and psychosocial quality of life (Frühbeck, 2015; Homer et al., 2016). Psychosocial refers to the extent in which social factors may influence the behaviour and thoughts of an individual, as well as the reciprocal nature between social and behavioural factors (Martikainen et al., 2002).

Because of the impact and complications of obesity on psychological, biological and functional levels, the American and Canadian Medical Associations declared obesity as a chronic disease (American Medical Association, 2013; Montesi et al., 2016; Sharma & Campbell-Scherer, 2017). New diagnostic terminology has been proposed by the American College of Endocrinology and the American Association of Clinical Endocrinologists for obesity, namely Adiposity-Based Chronic Disease (ABCD) (Mechanick et al., 2016; Sharma & Campbell-Scherer, 2017). Adiposity refers to the fat tissue (adipose tissue or adipocytes), where relevance is placed on distribution, function and/or quantity thereof, as it relates to the impact it has on health (Mechanick et al., 2016). If changes within this distribution of adiposity occur, it could bring about metabolic syndrome, heart disease, and even changes in cognition (Mechanick et al., 2016). By defining obesity as a disease, it holds various benefits which include the following: it enhances healthcare practice; enhances the practice of diagnosis; it allows the obese individual to be viewed as worthy of effort and resources; it may decrease the stigmatisation and discrimination experienced by the obese; and it will contribute to a

context that allows multidisciplinary teams to focus more on individualised treatment (Mechanick et al., 2016; Montesi et al., 2016; Sharma & Campbell-Scherer, 2017). Within the disease framework of obesity, although BMI will still fulfil an important role, it will not be the only defining and diagnostic tool. A clinical interview, physical assessment, imaging and laboratory test relevant to the particular patient will complete the full assessment before a diagnosis is made. These comprehensive assessments and consideration of fat distribution, function and quantity, thus determine if a patient will be diagnosed with obesity and/or ABCD. It is thus possible for patients with a BMI of above 25 not to be diagnosed with ABCD (Mechanick et al., 2016; Sharma & Campbell-Scherer, 2017). As this is still under consideration, this study will still make use of the definition of obesity as defined by using BMI only.

2.2.1 Body Mass Index (BMI)

Weight and weight categories are calculated by the BMI. The BMI, or Quetelet Index, is a measurement tool to indicate nutritional status in adults of all ages and genders, as well as the risk of health problems in relation to weight. As was indicated in 2.2, the formula can be presented as follows: $BMI = \text{kg/m}^2$ or $BMI = \text{lbs/in}^2$, depending on whether using metric or imperial units of measurement. It is thus calculated by dividing the individual's weight, using kilograms (kg) or pounds (lbs), by the square of the individual's height in metres (m) or inches (in). From the results, adults will then fall into one of the specified categories indicated by the WHO (WHO, 2010). An adaptation of these categories is presented in Table 2.1.

Most researchers prefer to use different terminology for the categories indicated. For example, the use of the word "overweight" is used instead of pre-obesity, "severe obesity" is used instead of "obesity class II", and "morbidly obese" is used to refer to "obesity class III" (Cruz et al., 2018; Khwaja & Bonanomi, 2010). For the purpose of this study, the terminology used will include underweight (BMI of 18.5 and below), normal weight (BMI of 18.5 to 24.9), overweight (BMI of 25 to 29.9), obese (BMI of 30 to 34.9), severely obese (35 to 39.9), and morbidly obese (BMI of 40 and above) (Cruz et al., 2018; Ng et al., 2014).

Table 2.1

Body Mass Index Classification of Nutritional Status (Adaptation).

BMI	Nutritional Status
Below 18.5	Underweight
18.5 to 24.9	Normal weight
25 to 29.9	Overweight (Pre-obesity)
30 to 34.9	Obese (Obesity Class I)
35 to 39.9	Severe Obese (Obesity Class II)
40 and above	Morbidly Obese (Obesity Class III)

Note: Adapted from the World Health Organisation, A Healthy Lifestyle – WHO recommendations, 2010. Copyright 2022 by WHO. <http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/a-healthy-lifestyle/body-mass-index-bmi>

When working with BMI it is important to note that using it for diagnostic purposes has its limitations. BMI cannot determine the true adiposity (morbid obesity) or fat distribution of a specific individual, even after they have lost weight (Frühbeck, 2015; Previte & Gurrieri, 2015). As new developments are made for diagnostic consideration, such as ABCD, a more precise diagnosis and plan will be able to be made in regards to adiposity.

2.2.2 The Physiological Impact of Obesity

As mentioned in 1.1, obesity, and especially severe and morbid obesity, has various obesity-related comorbidities, such as cardiovascular disease, stroke, coronary heart disease, non-alcoholic fatty liver disease, osteoarthritis, dyslipidaemia, infertility, cancer and type 2 diabetes (Blackburn et al., 2009; Buchwald et al., 2004; Frühbeck, 2015; Greenberg et al., 2009; Kopelman, 2007; Kubik et al., 2013; NCD Risk Factor Collaboration, 2016; Ng et al., 2014; Thorell et al., 2016; Varban et al., 2017). These obesity-related comorbidities contributed to higher mortality rates and lowered life expectancy within the obese population (Frühbeck, 2015; De Lorenzo et al., 2020). Higher mortality rates and lowered life expectancy are especially true for individuals with a BMI of above 35, with a waist circumference of above 88 cm for women, and 102 cm for men (Frühbeck, 2015).

Obesity can also affect mobility, whether standing, walking or simply holding an object, as obesity affects skeletal muscle function (Tallis et al., 2018). Obesity can potentially lead to lower muscle mass and quality (Tallis et al., 2018). Jung et al. (2016) found that obesity, together with decreased muscle weakness, increased the chances of immobility by almost four times (Jung et al., 2016). Immobility of obese individuals could thus potentially lead to a further cycle of weight regain, as these individuals will not be able to participate in physical exercise which therefore impacts their levels of energy expenditure (Tallis et al., 2018). This in turn, could also have an impact on the possible development or worsening of existing medical comorbidities, as well as a negative impact on their psychological functioning and wellbeing. Megías and colleagues (2018) found in their qualitative study of the morbidly obese that immobility, stigmatisation and discrimination affected these individuals' need for affiliation, autonomy, and competence.

Another physiological issue that commonly occurs among the obese population, is sexual dysfunction (Mitchell et al., 2013; Steffen et al., 2017). Steffen et al. (2017), who conducted research on an obese population awaiting WLS, discovered that 26% of women and 12% of men experienced problems with sexual desire. The researchers also noted an absence of sexual activity that included auto-erogenous behaviour. It was further found that sexual activity was limited because of reasons such as low energy levels, disinterest, and difficulties in achieving arousal or orgasm (Steffen et al., 2017). In a similar vein, Poggiogalle et al. (2014) observed that erectile dysfunction in particular is common among obese males.

Steffen and colleagues' (2017) study found that correlations exist between sexual dysfunction and depressive symptoms. For many patients' antidepressants were prescribed, which in turn complicated matters more since antidepressants can also lead to sexual dysfunctions (Healy, 2020; Montejo et al., 2019). Correlations were also discovered between sexual dysfunction and age, where older individuals tend to experience more sexual dysfunction. In addition, correlations were found between sexual dysfunction and marital status. Being single appeared to be positively correlated to sexual dysfunction (Steffen et al., 2017).

Morbid obesity and its coexisting weight comorbidities (together with the treatment thereof), can also contribute to sexual activity being experienced as painful, unpleasant or even impossible (Poggiogalle et al., 2014; Sarwer & Steffen, 2015). On a psychological level obesity may impede sexual functioning, as the obese individual may not want his/her partner to see him/her naked or sexually active due to their poor self-esteem and body image (Sarwer & Steffen 2015). This will be discussed in more detail in 2.3.3.

From the above it is clear that obesity impacts various physiological spheres of the individual's life. It is important to recognise that obese individuals may struggle with medical complications which impede their daily, as well as their psychological functioning (Brewis et al., 2011; Makowski et al., 2019; Mechanick et al., 2016; Pearl, Wadden, et al., 2018; Previte & Gurrieri, 2015; Spahlholz et al., 2016; Wu & Berry, 2018). WLS therefore, based only on the physiological level, can contribute to better health and higher quality of life (Blackburn et al., Buchwald et al., 2004; Frühbeck, 2015; Greenberg et al., 2009; Kopelman, 2007; NCD Risk Factor Collaboration, 2016; Thorell et al., 2016; Varban et al., 2017).

2.2.3 *The Psychological Impact of Obesity*

The psychological impact of severe and morbid obesity is far-reaching and impacts the quality of life of the affected individuals in various aspects including work life, sexual functioning, relationships and physical functioning, to name but a few (Homer et al., 2016; Kubik et al., 2013). Some of these aspects will be explored further in this chapter (Homer et al., 2016; Kubik et al., 2013). It also appears that the higher the level of obesity experienced by an individual, the greater it impacts on their psychological health (Kubik et al., 2013; Wu & Berry, 2018). These obese individuals' quality of life, psychological health and life experiences are greatly impacted by stigmatisation and weight-related discrimination (Himmelstein et al., 2017; Homer et al., 2016; Kubik et al., 2013; Megías et al., 2018; Previte & Gurrieri, 2015; Sutin et al., 2015; van Leeuwen et al., 2015; Wu & Berry, 2018). Weight-related discrimination and stigmatisation appears to be a common occurrence and is considered a public health problem as it perpetuates the cycle of obesity (Giel et al., 2016). Weight-related stigmatisation

can be defined as discriminatory attitudes, behaviours, thoughts, and feelings towards individuals based on their weight (Alimoradi et al., 2020). Weight-related discrimination refers to the unfair treatment, bias or prejudice directed towards individuals based on their body weight. It can include a variety of behaviours including social exclusion, verbal abuse, stereotypes and prejudice, which negatively impact wellbeing (Sikorski et al., 2016). Spahlholz and colleagues (2016), who did a systematic review and meta-analysis on obesity and discrimination found that 19% of obese individuals (BMI between 30 and 35), and 42% of severe and morbidly obese individuals (BMI above 35) reported weight-related discrimination. Within most societies stigmatisation and the resultant discrimination is greatly influenced by society's lack of knowledge and understanding about the contributing factors that lead to obesity (Makowski et al., 2019). Various stigmas and stereotypes are even ascribed to the obese individual's personal character, such as lack of self-control, laziness, irresponsibility, unintelligence and emotionally unstable (Brewis et al., 2011; Makowski et al., 2019; Mechanick et al., 2016; Previte & Gurrieri, 2015).

These stigmatisations and weight-related discrimination not only affects the quality of life of these individuals, but it also contributes to feelings of incompetence, poor subjective health, lower life satisfaction, loneliness, lower self-esteem, poor body image, affected identity, anxiety and depression (Himmelstein et al., 2017; Megías et al., 2018; Previte & Gurrieri, 2015; Sutin et al., 2015; van Leeuwen et al., 2015).

Additionally, weight-related discrimination further impacts weight itself. Jackson et al. (2014) found that weight discrimination contributed to the onset of obesity and weight gain. However, no association was found between weight-related discrimination and weight maintenance of obesity (Himmelstein et al., 2017; Jackson, et al., 2014). Jackson et al. (2014) indicated that individuals could turn to eating as a coping mechanism because of the psychological distress experienced from discrimination and stigmatisation, bringing about short-term relief (Himmelstein et al., 2017; Jackson et al., 2014; Major et al., 2018). This finding indicated the complex interaction and feedback loop of obesity, discrimination and weight.

It appears that stigmatisation and weight-related discrimination can be found in most spheres of life for these obese individuals. These affected spheres include social interactions and activities, work and wages, education, interpersonal relationships with family and loved ones and the healthcare system (Homer et al., 2016; Makowski et al., 2019; Megías et al., 2018; Pearl, Wadden, et al., 2018; Puhl & Brownell, 2001; Puhl & Heuer, 2009; Roehling et al., 2007; Spahlholz et al., 2016).

Homer et al. (2016) found that most of the participants in their study experienced stigmatisation and weight-related discrimination not only from strangers, but also family members, loved ones and the healthcare system. Families, loved ones and healthcare professionals do not seem to understand these individuals' struggle with weight (Homer et al., 2016; Stanford et al., 2018). When WLS is considered as an option for treating obesity, these loved ones and healthcare professionals perceived WLS as a convenient solution, where the least amount of effort and responsibility will be on the obese individual (Homer et al., 2016). Within the healthcare system, this stigmatisation and weight-related discrimination contributes to the avoidance of the system by obese individuals and thus also the necessary treatment needed (Jackson et al., 2014; Stanford et al., 2018). Additionally, with these types of interaction and lack of understanding, support systems are negatively affected, as the obese individuals' feels marginalised and worthless, leading to avoidance of social situations, family and friends (Homer et al., 2016; Megías et al., 2018).

This avoidance of social situations is also related to feelings of embarrassment and the fear of humiliation in regards to their appearance (Hamer et al., 2021; Homer et al., 2016). This is especially true for the obese individual as they fear being humiliated by others or embarrassing themselves in some manner, as society tends to judge their obesity (Hamer et al., 2021).

Additionally, problems such as mobility (see 2.2.2), pain and other comorbidities negatively impact on daily activities such as walking from one place to another (Homer et al., 2016). Daily or outside activities, are often experienced with anxiety, because of the fear of being discriminated against through the scrutiny and judgement of others (Homer et al., 2016;

Toft et al., 2020). This may further strengthen their social avoidance where their home becomes the only safe environment (Homer et al., 2016; Toft et al., 2020). This avoidance leads to guilt as they feel that they are a burden to their family and limit their family's life experiences, further negatively impacting their self-esteem (Homer et al., 2016). These obese individuals seldom experience a sense of belonging or having been able to lead a normal life, or go where 'thin/normal' people go. This avoidance of places, where 'normal or thin' people go, includes places like the gym or centres where physical activity is encouraged (Himmelstein et al., 2017; Jackson et al., 2014; Toft et al., 2020). Because of the stigmatisation and weight-related discrimination, they do not feel competent in physical activity, and rather avoid it. This in turn impacts possible weight loss, weight maintenance or even weight gain (Himmelstein et al., 2017; Jackson et al., 2014; Toft et al., 2020).

Obesity also has an impact on the careers of affected individuals. In a study conducted by Homer et al. (2016), bariatric participants who were employed, reported that their careers provide them with positive self-esteem, purpose in life and an identity. Those who were unemployed indicated that because of their poor health and weight, they could not always apply or stay at work, weakening their self-esteem even further (Homer et al., 2016). These findings confirmed the psychological importance of being employed, as it is not just important for survival, but also contributes to the psychological wellbeing of obese individuals (Rumrill et al., 2020).

Being employed also has its disadvantages for the obese individual. Weight-related discrimination and stigmatisation in the workplace is a common and global occurrence (Obara-Golebiowska, 2016; Puhl & Brownell, 2001; Puhl & Heuer, 2009; Roehling et al., 2007). Puhl and Brownell (2001) noted that overweight individuals tend to experience employment prejudice, and when employed, more negative social interactions with colleagues and employers at work. In certain circumstances, obese individuals are offered less opportunities for promotion and are sometimes the victims of wage disparities (Obara-Golebiowska, 2016; Puhl & Brownell, 2001; Puhl & Heuer, 2009; Roehling et al., 2009). Research on wage disparities seems to produce contradictory findings (Baum & Ford, 2004; Chu & Ohinmaa,

2016; Lee et al., 2019; Moro et al., 2019; Phul & Heuer, 2009; Roehling et al., 2009). Chu and Ohinmaa (2016) found that obese women's income was lower than that of non-obese individuals. Their findings further indicated that being obese did not impact the income of the males who participated in the same study. Baum and Ford (2004), on the other hand, found that obese men had a wage penalty of between 0.7% to 3.4%, where obese women's penalty ranged from 2.3% to 6.1% (Baum & Ford, 2004; Phul & Heuer, 2009). Although researchers appear not to agree on whether obese males face wage disparities, their findings seem to suggest that obese women are more affected than their male counterparts. This notion was confirmed by Moro et al. (2019) who found that the wage penalty was directed at women in particular. Their study noted that wage penalties could be as high as 10%. In addition, Lee et al. (2019) established that overweight and obese women received 9% lower wages, will be 0.33 less likely to be employed in a service position and will have 50% less chance of being employed with bonuses in comparison with normal weight women (Lee et al., 2019). This might explain Roehling et al.'s (2009) findings which indicated that women reported weight-related discrimination in the workplace sixteen times more than men; confirming the notion once more that gender differences play a role in the experiences of obese men and women in the workplace.

Weight-related discrimination and stigmatisation involving women is not isolated to the workplace though (Fikkan & Rothblum, 2012; Puhl et al., 2008). Research noted that these negative behaviours are directed towards young girls from an early age where they are more prone to be teased than boys who have a similar weight (Almenara & Ježek, 2015; Puhl et al., 2008). Puhl et al. (2008) found weight-related discrimination in all spheres of life to be reported twice as likely for women in comparison to men. Puhl et al. (2008) also found that discrimination was mostly only experienced by men when they reached a BMI of 35 in contrast to women with a BMI of 27. This difference between genders in regards to weight discrimination and BMI dissipate when BMI is above 40, where both genders then experience discrimination equally (Puhl et al., 2008). These findings also emphasise the Western societal

pressure faced by females of the thinness ideal, even when they do not fall into the category of being obese (Makowski et al., 2019; Puhl et al., 2008; Sarwer & Steffen, 2015).

Research conducted by Makowski et al. (2019) did not support the notion that obese women experienced more weight-related discrimination from society as a whole than their male counterparts. They argued that obese males experienced more negative emotional reactions and social distance from the normal cohort (Makowski et al., 2019). This finding confirmed the shift that took place in Western society where pressure is also placed on males to achieve the ideal male body, where the emphasis is placed on having a trim and muscular body, leading to more discrimination and stigmatisation of those who does not fit this profile (Dakanalis et al., 2015; Lavender et al., 2017; Makowski et al., 2019). Because of this change in Western ideals, eating disorders among men have increased (Dakanalis et al., 2015; Lavender et al., 2017).

One of the contributors promoting the western vision of the ideal body is the media. The impact that the media, and specifically social media, should therefore not be ignored. We live in a time where beliefs and values on most subjects, such as health (in particular obesity), fashion and promotion of the self are shaped by exposure to the media on a daily basis (Previte & Gurrieri, 2015; Stanford et al., 2018). Through the media, western societies have even been able to convince many indigenous cultures, who believed that 'big is beautiful', that being overweight needs to be perceived in a negative manner (Brewis et al., 2011; Previte & Gurrieri, 2015; Swami, 2015). Previte and Gurrieri (2015) highlighted the impact of the media on perceptions of obesity and thus also on the obese individual. The media tend to characterise obese individuals as negligent, unintelligent, of weak character and without ambition (Heuer et al., 2011; Previte & Gurrieri, 2015; Stanford et al., 2018). They also portray obese individuals as people who are at fault for their own situation (Heuer et al., 2011; Previte & Gurrieri, 2015; Stanford et al., 2018). One could therefore argue that the media plays an active role with regards to the stereotypes and stigmas ascribed to the personal character of obese individuals by the general public. As a result of this, it is posited that social media partake in cyber-bullying with regards to weight-related discrimination. Evidence of such

behaviour can be found in articles published on/in media platforms, magazines or cyber platforms where obese individuals are ridiculed for being overweight (Previte & Gurriere, 2015). Because of this continuous negative publicity, obese individuals are ostracised by the general public. This in turn again enhances social avoidance by obese individuals (Previte & Gurriere, 2015; Stanford et al., 2018).

In light of the discussion presented above, one could assume that being obese, and especially morbidly obese, leads to social isolation where individuals are faced with discrimination and victimisation on a daily basis. This could contribute to additional stress on these individuals to address their weight problems. Dieting and changing eating habits unfortunately do not always work, and some individuals hence need to turn to other measures, such as weight loss surgery (Frühbeck, 2015; Homer et al., 2016).

2.3 Weight Loss Surgery (WLS)

Bariatric surgery is the most common term used for any surgical procedure to reduce weight (Frühbeck, 2015). Patients selected for bariatric surgery usually have to have a BMI of 40, or 35 with obesity-related comorbidities (Frühbeck, 2015; Khwaja & Bonanomi, 2010). Recently, these surgical procedures have been expanded to include patients who have a BMI of 30 and above. This is known as metabolic surgery, or diabetes surgery. The metabolic procedures utilised include the Roux-en-Y Gastric Bypass (RYGB) and the sleeve gastrectomy (SG) (see 2.3.1) (Frühbeck, 2015). For the purposes of this study, it was decided to use the term weight loss surgery (WLS) when referring to these procedures.

2.3.1 Weigh Loss Surgery Procedures

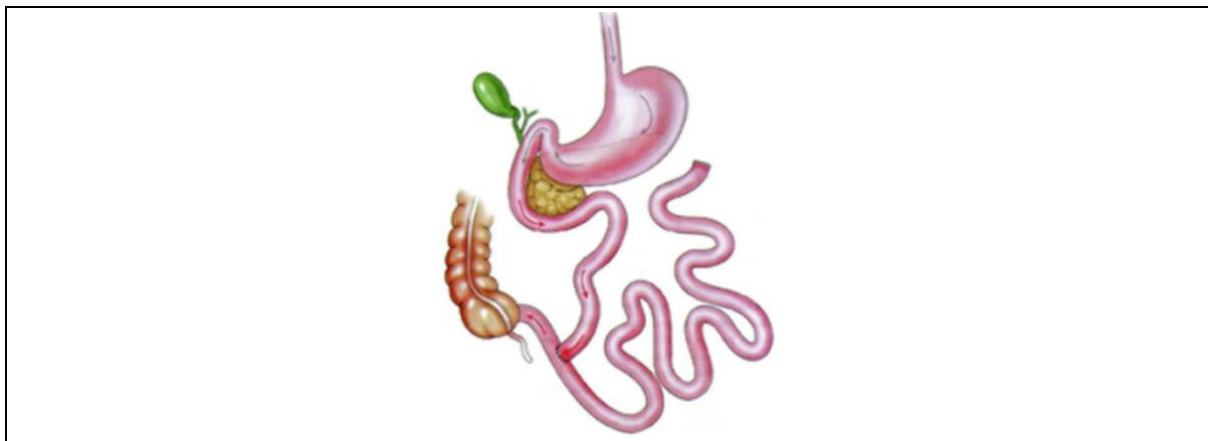
WLS procedures, specifically bariatric surgery, are usually classified as malabsorptive, restrictive or a mixture of these procedures. Each of these procedures has its own limitations, risks and merits (Eldar et al., 2011; Frühbeck, 2015).

Malabsorptive procedures include the jejunio-ileal bypass or duodenal-jejunal bypass, and entails that sections of the bowel are bypassed, creating temporary malabsorption to

various degrees of macronutrients (Frühbeck, 2015). The jejunio-ileal bypass is no longer performed today because of severe complications experienced by patients postoperatively (Jonnalagadda & Likhitsup, 2019; Mole et al., 2001; Singh et al., 2009). These complications included liver disease and liver failure, renal failure, malnutrition, vitamin deficiencies, and even death (Jonnalagadda & Likhitsup, 2019; Mole et al., 2001; Singh et al., 2009). It is still important to understand this surgery and its complications as many patients had this surgical procedure. Within the jejunio-ileal procedure, only 35cm of the jejunum and 10cm of the ileum were left for absorption of macronutrients, leaving the majority of the small bowel excluded (see Figure 2.1). The rest of the small intestine was then surgically connected to the caecum as a loop, which allowed for reversal of the procedure if required at a later stage (Jonnalagadda & Likhitsup, 2019; Mole et al., 2001). The jejunio-ileal procedure was successful with regards to weight loss, serum cholesterol reduction, improvement of blood pressure, as well as better tolerance of glucose (Jonnalagadda & Likhitsup, 2019; Mole et al., 2001; Singh et al., 2009). The jejunio-ileal bypass is illustrated in Figure 2.1.

Figure 2.1

Jejunio-ileal Bypass Procedure



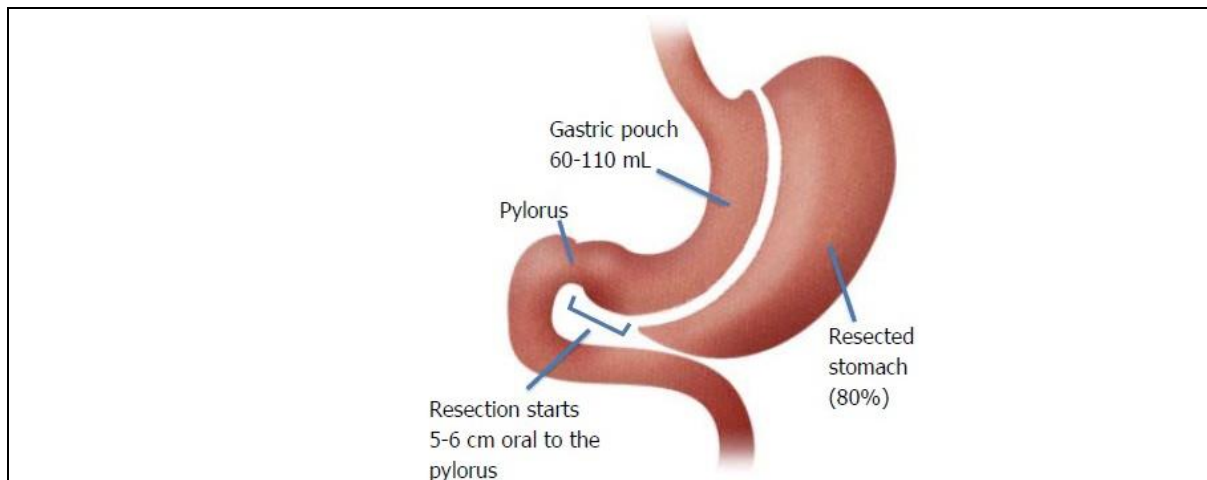
Note: From “Jejunioileal bypass: A surgery of the past and a review of its complications.” by D. Singh, A.S. Laya, W.K. Clarkston & M.J. Allen Singh, Dushyant, Alexandra S. Laya, Wendell K. Clarkston and Mark J. Allen, 2009, *World journal of gastroenterology*: 15 (18): 2277-2279 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2682245/>). Copyright 2009 The WJG Press and Baishideng.

Restrictive techniques include vertical banded gastroplasty (VBG), adjustable gastric banding (AGB), sleeve gastrectomy (SG) or gastric plication (Eldar et al., 2011; Frühbeck, 2015). Within these restrictive procedures the stomach is made smaller in order to stimulate a feeling of satiety after consuming much less food than before surgery (Frühbeck, 2015). It is important to note that gastric banding and SG also leads to malabsorption (Eldar et al., 2011). Maleckas et al. (2016) indicated that endoscopic refashioning of the gastric pouch or stoma has successful short-term results; however, after a period of three years weight regain is prominent.

As an example of restrictive techniques, the sleeve gastrectomy (SG), also known as a laparoscopic sleeve gastrectomy (LSG), will be discussed (see Figure 2.2). Within the SG procedure a significant section of the stomach is removed, following the natural curvature of the stomach. This leads to the stomach presenting as a sleeve or tube which has a capacity of between 65-110 ml (Benaiges et al., 2015; Peterli et al., 2018; Rosenthal & Panel, 2012). An advantage with this procedure is that no surgical procedure is thus performed on the small intestine, which leads to less postoperative complications (Peterli et al., 2018). Another advantage of the SG procedure is that it is less complicated procedure, and thus requires less time in surgery in comparison to RYGB for example. In addition, it has been found that weight loss is significant after surgery, with a lower morbidity, and occurrence of dumping syndrome (Benaiges et al., 2015; Nedelcu et al., 2015; Rosenthal & Panel, 2012; Peterli et al., 2018; Stenard & Iannelli, 2015). One disadvantage of SG is that it is irreversible (Peterli et al., 2018). Patients who are selected to have this procedure include at risk patients, morbidly obese adolescents, adults and elderly patients; individuals with a BMI of between 30 and 35 with weight-related comorbidities (Rosenthal & Panel, 2012).

Figure 2.2

Sleeve Gastrectomy



Note: From “Laparoscopic sleeve gastrectomy: More than a restrictive bariatric surgery procedure?” by D. Benaiges, A. Más-Lorenzo, A., J.M. Ramon, J.J. Chillarón, J. Pedro-Botet, and J.A. Flores-Le Roux, 2015, *World journal of gastroenterology*: 21(41): 11804–11814 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4631978/>). Copyright 2015 the authors.

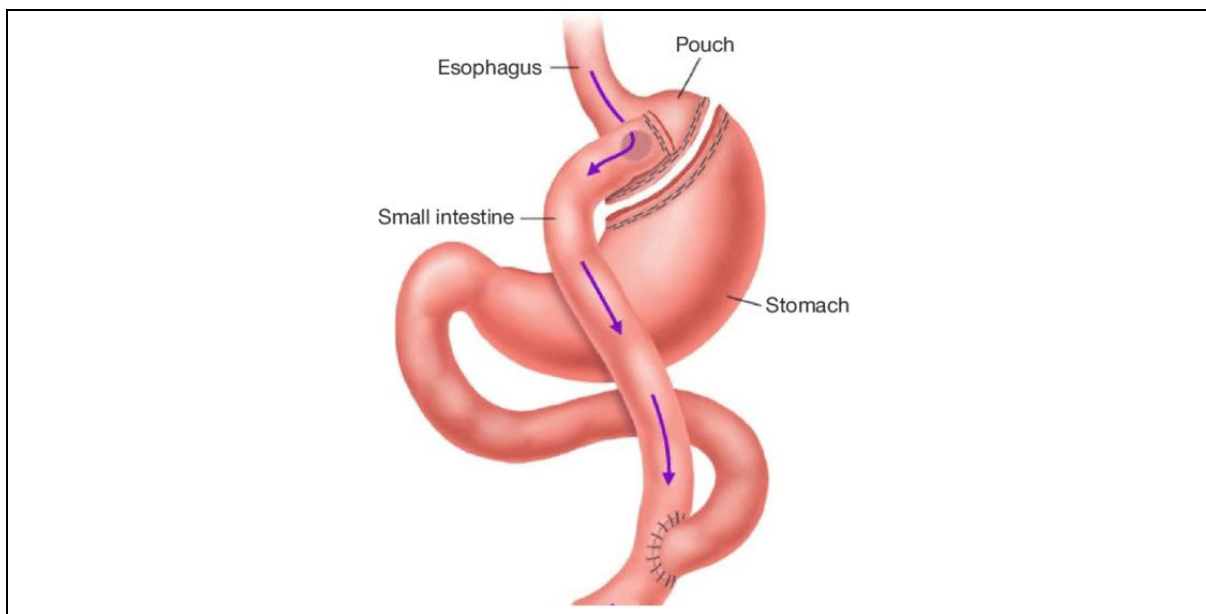
The *mixed procedures* of restriction and malabsorption includes procedures that include the biliopancreatic diversion (where the duodenal switch (DS) can be done or not) and the Roux-en-Y gastric bypass (RYGB) (Frühbeck, 2015). Here the WLS patient will experience a feeling of satiety after eating less food, together with malabsorption of macronutrients. The biliopancreatic diversion (BPD)/DS produces long-term weigh loss successes (Maleckas et al., 2016). Mixed procedures are usually more effective than restrictive techniques alone, especially in regards to weight loss, type 2 diabetes, hypertension and dyslipidaemia (Frühbeck, 2015).

The RYGB is a complex procedure where the gastrointestinal anatomy is rearranged, and the stomach is reduced by creating an upper small pouch of about 15 to 30 ml (Abdeen, & Le Roux, 2016; Huang et al., 2012; Peterli et al., 2018; Salinari et al., 2014). The rest of the stomach is not removed, but just separated from a gastric remnant (Abdeen & Le Roux, 2016; Peterli et al., 2018; Salinari et al., 2014). The duodenum, and thus calorie absorption, is then bypassed, where contents of the small pouch enters directly into the jejunum. This implies

that the food consumed will not be exposed to digestive liquids until it enters the entero-enterostomy. It is at this point of the entero-enterostomy, where the biliopancreatic limb is reconnected to the remaining small intestine (Abdeen & Le Roux, 2016; Peterli et al., 2018; Salinari et al., 2014) (See Figure 2.3).

Figure 2.3

Roux-en-Y Gastric Bypass Procedure



Note: Illustration of the Roux-en-Y Gastric Bypass Procedure. Adapted from “Perioperative patient care involved with robotic-assisted bariatric surgery.” by J.W. Levine, Z. Feng, D.P. Feng, & W.V. Melvin, 2017, *Annals of Laparoscopic and Endoscopic Surgery 2*: 136. Copyright 2017 by Annals of Laparoscopic and Endoscopic Surgery.

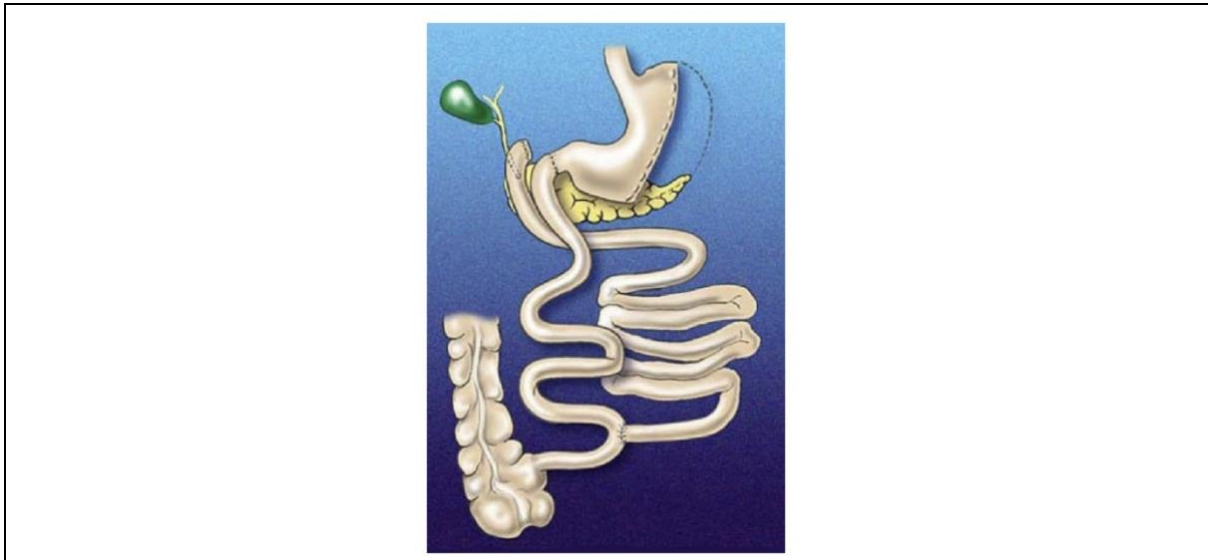
Patients selected for this procedure is usually above the age of 20, with a BMI of above 35 (Still et al., 2014). RYGB is associated with resolving or improving weight-related comorbidities such as type 2 diabetes, reduced occurrence of cancer, decreased mortality rate, reflux disease, hypertension, and arthritis (Li et al., 2014; Still et al., 2014). Another benefit of the RYGB procedure is that excess weight loss can be up to 60% to 70%, where weight loss can be maintained for ten years (Huang et al., 2012). However, some WLS patients do regain weight or fail to lose a significant amount of weight after surgery, which could be related to psychological factors, diabetes, or a lack of physical activity (Cooper et al.,

2015; Still et al., 2014). Al-Khyatt and colleagues (2017) found that factors such as being older, a higher initial BMI, and weight gain preoperatively predicted inadequate excess weight loss following the RYGB. Risks with this procedure can include iron deficiency anaemia and vitamin B12 deficiency (Kwon et al., 2014), dumping syndrome (Berg & McCallum, 2016; Ramadan et al., 2016), and ulcers (Coblijn et al., 2015).

With the biliopancreatic diversion (BPD), about 70% of the stomach is removed (Aasprang et al., 2013; Anderson et al., 2013). The alimentary limb is created by dividing the small intestine and then attaching the distal part of the small intestine to the stomach pouch. A link is then formed between a biliopancreatic limb and the alimentary limb, about 50 cm before the ileocecal valve, which forms the common channel. It is in this common channel where digestive juices come into contact with what was consumed (Aasprang et al., 2013; Anderson et al., 2013). Biliopancreatic division with duodenal switch (BPD/DS) (See Figure 2.4) is the same procedure but instead of removing 75% of the stomach, a SG (as explained in this section above) is done in combination with the BPD (Anderson et al., 2013). The reduction in the gastric pouch contributes to satiety and gastric restriction, where the diversion minimises absorption. Because the food is directly delivered to the small intestine, it causes changes in hormone secretion which influences weight loss and weight comorbidities (Parlee et al., 2015). This procedure is one of the best procedures in terms of weight loss and resolution of weight-related comorbidities, especially in the morbidly obese (Anderson et al., 2013). Additional benefits of this surgical procedure include resolution of metabolic syndrome with type 2 diabetes, and improvement of insulin and glucose sensitivity (Anderson et al., 2013; Parlee et al., 2015; Plourde et al., 2014). However, there are risks involved in doing a BPD/DS and it is an extremely complex and time-consuming procedure (Homan et al., 2015). Risks include dumping syndrome, anaemia, iron deficiency, deficiencies in vitamins D, E, A, K and B6 (Homan et al., 2015). Because of the deficiencies from these procedures, lifelong vitamin supplements need to be taken (Anderson et al., 2013).

Figure 2.4

Biliopancreatic Diversion with Duodenal Switch



Note: Illustration of a Biliopancreatic diversion with duodenal switch. Reprinted from “Biliopancreatic diversion: the effectiveness of duodenal switch and its limitations.” By B. Anderson, R.S. Gill, C.J. de Gara, S. Karmali, & M. Gagner, M., 2013, *Gastroenterology research and practice*, vol. 2013. Copyright 2013 Blaire Anderson et al.

As mentioned above, one risk factor that is a common occurrence after various WLS procedures, such as the SG, RYGB and BPD/DS, is dumping syndrome. Dumping syndrome refers to when the small intestine is overwhelmed by a significant amount of undigested food, because it reached the small intestine too quickly (Conceição et al., 2015; Emous et al., 2017; Ramadan et al., 2016; Van Beek et al., 2017). This occurs especially with excessive food consumption postoperatively, consumption of food with high carbohydrates or sugars, or both (Conceição et al., 2015). Dumping syndrome can be divided into early and late dumping syndrome. However, it is difficult to separate the two stages. Early dumping occurs within the first hour after food consumption and late dumping between one to three hours after consumption (Emous et al., 2017; Ramadan et al., 2016; Van Beek et al., 2017). Symptoms of early dumping include bloating, nausea, fatigue, drowsiness, palpitations, tachycardia, perspiration and diarrhoea. Late dumping symptoms include tremors, irritability, palpitations,

confusion, hunger and weakness (Emous et al., 2017; Ramadan et al., 2016; Van Beek et al., 2017).

Because of advances in medical knowledge and procedures, WLS procedures have changed significantly over the last twenty years (Mann et al., 2015). The most common procedures done are gastric banding, SG, BPD with the duodenal switch or without and RYGB (Eldar et al., 2011). The RYGB has been the most frequent procedure performed before 2014 (Angrisani et al., 2017). From 2014, the SG has globally become the most frequent procedure used because of the simplified surgical technique and long-term weight loss successes (Angrisani et al., 2017). The choice of procedure depends on the characteristics of the patient, as well as the preference and expertise of the surgeon (Frühbeck, 2015).

2.3.2 Reasons for WLS

The aim of WLS is to attain and maintain weight loss, to minimise the risk of complications related to obesity, metabolic illness treatments and to improve obesity-related comorbidities, as well as the improvement of quality of life (Bruze et al., 2018; Grover et al., 2019; Mann et al., 2015). Additional reasons for undergoing WLS are improved physical, psychological and social functioning (Bruze et al., 2018; Grover et al., 2019). These physiological, psychological and social reasons for WLS are closely linked to individual patient expectations, which are discussed in greater detail in 2.4.3.

What is noteworthy to mention here is that obese individuals, who choose to undergo WLS, usually have a vast dieting history, characterised by weight cycling (Barros et al., 2019; Montani et al., 2015; Varns et al., 2018). Weight cycling refers to a repetitive pattern where individuals will regain weight after dieting and losing weight, to enter another cycle of dieting and losing weight. It is also known as yo-yo dieting (Barros et al., 2019; Montani et al., 2015). Normal weight loss interventions, for example diets, lifestyle modifications and exercise programmes, usually do not have lasting or positive results for obese or morbidly obese individuals (Barros et al., 2019; Frühbeck, 2015; Homer et al., 2016). Research conducted by Homer et al. (2016) found that these unsuccessful attempts contributed to 50% of their

research participants feeling that life is not worth living; that WLS were the best option for their weight loss and maintenance and their last chance to a normal life. These feelings are also clearly linked to individual patient expectations of WLS, which will be discussed, as mentioned above in 2.4.3.

2.3.3 Perceived Benefits of Weight Loss Surgery

As indicated in 1.1, various studies indicated the benefits of WLS for the obese and morbidly obese individual (Blackburn et al., 2009; Buchwald et al., 2004; Frühbeck, 2015; Greenberg et al., 2009; Kopelman, 2007). These benefits include improvement in sustained weight loss, improved quality of life, improved body image, and a decrease in obesity-related comorbidities, such as diabetes, hyperlipidemia, cardiovascular disease, kidney disease, hypertension, infertility, cancer and obstructive sleep apnea (Blackburn et al., 2009; Buchwald et al., 2004; Frühbeck, 2015; Greenberg et al., 2009; Griauzde et al., 2018; Kopelman, 2007; NCD Risk Factor Collaboration, 2016; Thorell et al., 2016; Varban et al., 2017). Telem et al. (2015), as well as Arterburn et al. (2015) found that patients who had WLS had a lower all-cause mortality rate at 8- and 10-years follow-up respectively, than their control group who did not undergo WLS. Specific lowered mortality rates have been indicated for type 2 diabetes (Courcoulas et al., 2015; Dicker et al., 2016; Frühbeck, 2015; Mingrone et al., 2015) and cancer, especially in women (McCawley et al., 2009; Schauer et al., 2019; Zhou et al., 2016).

The effectiveness and cost-effectiveness of WLS has been proven, not only for sustained weight loss, remission of obesity-related comorbidities, but also the psychological benefits thereof (Blackburn et al., 2009; Buchwald et al., 2004; Frühbeck, 2015; Gloy et al., 2013; Greenberg et al., 2009; Homer et al., 2016; Kopelman, 2007; Mann et al., 2015; NCD Risk Factor Collaboration, 2016; Thorell et al., 2016; Varban et al., 2017). These psychological benefits include improved quality of life, body image, self-efficacy, self-confidence and self-esteem (Blackburn et al., 2009; Buchwald et al., 2004; Greenberg et al., 2009; Kubik et al., 2013; Kopelman, 2007; Magdaleno et al., 2009; Nickel et al., 2017; Sarwer & Steffen, 2015).

As a result of the positive impact of WLS, the prevalence of WLS has increased dramatically, showing an increase of 900% from 1998 to 2004, with an additional 11% increase between 2005 and 2006 (Blackburn et al., 2009). Thorell et al. (2016) indicated that WLS procedures increased from 146 000 to 340 000 between 2003 and 2011, where 75% of these procedures were either Roux-en-Y gastric bypass or a sleeve gastrectomy. Despite this increase in the number of cases per year, WLS is still only performed on a small percentage of obese individuals per year (Welbourn et al., 2019). Mann et al. (2015) found that only 1% of morbid obesity patients have WLS.

2.3.4 Surgical Failure

Despite its benefits, 20% of patients who had undergone WLS experience surgical failure (Elnahas et al., 2014; Mann et al., 2015). Surgical failure is defined as the failure to improve obesity-related comorbidities and attain significant weight loss, or the inability to maintain the weight loss (Ames et al., 2009; Batsis et al., 2009; Sarwer et al., 2008). It is important to note that other domains are just as important in defining success of WLS. These include resolution or improvements of weight-related comorbidities, quality of life, and adjustment postoperatively (Sogg & Friedman, 2015). Pearl and colleagues (2018) also suggested that success should include WLS patients being free of medical complications postoperatively, as well as consideration of psychiatric hospitalisation postoperatively.

Research has indicated that surgical failure is most often noted between two and ten years postoperatively, when weight regain is a frequent occurrence, with some WLS patients regaining up to 15% of their initial body weight (Ames et al., 2009; Batsis et al., 2009; Sarwer et al., 2008). As WLS has been shown to improve, and even diminish medical comorbidities, this possible weight regain could counter the improvements made on the medical comorbidities or re-emergence thereof (Ames et al., 2009; Greenberg et al., 2009; Maleckas et al., 2016; Sarwer et al., 2008). The emotional impact of weight regain on WLS patients is significant, where they describe their situation as intolerable (Maleckas et al., 2016). Various factors contribute to weight regain for example lifestyle, metabolic and hormonal factors,

psychological factors and mental health issues (Maleckas et al., 2016). It is thus important to investigate and address the factors that contribute to weight maintenance, in order to counter weight regain and thus surgical failure (Homer et al., 2016). In this study, particular focus will be placed on the subjective experience of those patients who have undergone WLS and the psychological factors that may contribute to weight maintenance. As indicated in 1.3, by identifying and understanding these factors, it can aid in enhancing surgical outcome and designing individualised treatment plans, pre- and postoperatively (Blackburn et al., 2009; Greenberg et al., 2009).

In addition, surgical failure also includes surgical reversal of a WLS procedure. A surgical reversal refers to when the primary WLS procedure is undone and restored to the original anatomy preoperatively (Hjorth et al., 2019; Patel et al., 2011; Pinto-Bastos et al., 2017). Surgical reversals are not possible with all WLS procedures, such as the sleeve gastrectomy (see 2.3.1) (Pinto-Bastos et al., 2017). Various weight loss surgical procedures could have long-term adverse complications for these patients who have undergone WLS. This is especially true for out-dated surgical procedures such as the jejunoileal bypass, non-adjustable gastric banding and vertical banded gastroplasty (see 2.3.1) (Patel et al., 2011). Currently used procedures could also lead to medical complications, such as the Roux-en-Y (Arman et al., 2018; Patel et al., 2011). Because of the medical complications experienced by these WLS patients, it is sometimes necessary to reverse the weight loss surgical procedure, or to consider a conversion to another WLS procedure, or a revision of the existing WLS procedure (Patel et al., 2011; Pinto-Bastos et al., 2017). The medical complications experienced that could necessitate a reversal or a conversion of the WLS procedure include ulcer disease, severe malnutrition, hypoglycemia, severe diarrhea, dumping syndrome, liver disease and failure, renal failure, obstruction, severe reflux, excessive nausea, and vomiting (Arman et al., 2018; Janik et al., 2019; Jonnalagadda & Likhitsup, 2019; Mole et al., 2001; Patel et al., 2011; Pinto-Bastos et al., 2017; Schulman & Thompson, 2017). Other reasons for performing a surgical reversal include weight gain and loss of restriction (Patel et al., 2011; Pinto-Bastos et al., 2017).

2.3.5 Patient Evaluation and Selection

Not only is the preoperative assessment of individuals important for selection of candidates to enhance successful surgical outcome and avoid surgical failure, but it also fulfils a crucial role in the holistic treatment protocol for WLS (Bauchowitz et al., 2005; Sogg & Friedman, 2015). The preoperative psychosocial-behavioural assessment contributes to successful surgical outcomes, as well as better functioning and adjustment postoperatively for those who undergo WLS (Bauchowitz et al., 2005; Sogg & Friedman, 2015). This assessment is especially important since WLS can have a significant psychosocial impact postoperatively (Sogg & Friedman, 2015). Semi-structured interviews and psychometric evaluations are usually utilised within the multidisciplinary team. The application of these assessments varies among healthcare professionals (Bauchowitz et al., 2005; Sogg & Friedman, 2015). Suggested preoperative assessment should include a physical examination, laboratory tests, an evaluation of the patient's environment, support systems, behavioural factors, as well as documenting their psychosocial history and medical history (Mechanick et al., 2013).

The NIH Consensus Development Conference Panel (1991) provided criteria for patient evaluation and selection. Various aspects are addressed by this evaluation. These include the suitability of patients for WLS, identification of possible risk factors that can compromise successful outcome and to formulate treatment plans for individual patients, pre- and postoperatively (Franks & Kaiser, 2008; Fried et al., 2007; Marcus et al., 2009; Nieves-Khouw et al., 2009; Sheets et al., 2015). The NIH Consensus Development Conference Panel (1991) also noted that patient evaluation and selection should be conducted by a multidisciplinary team that consists of a physician, surgeon, anaesthetist, psychologist and/or psychiatrist, nutritionist, dietician and a social worker (Collazo-Clavell et al., 2006; Frühbeck, 2015; Magdaleno et al., 2009; Marcus et al., 2009; Sogg & Friedman, 2015; Yermilov et al., 2009). Currently, most of the patients who request WLS are evaluated by a multidisciplinary team. As was mentioned before, these teams perform different assessments. As a result, an effort is being made to standardise this process of evaluation.

The multidisciplinary team's psychosocial-behavioural evaluation is done, pre- and postoperatively (Collazo-Clavell et al., 2006; Frühbeck, 2015; Magdaleno et al., 2009; Marcus et al., 2009; Sogg & Friedman, 2015; Yermilov et al., 2009). A critical function of the psychosocial-behavioural evaluation is to enhance the multidisciplinary teams' effectiveness of treatment for the individual who will still, and who has already, undergone WLS (Sogg & Friedman, 2015). These criteria are constantly being updated as new research becomes available.

Currently, the multidisciplinary team takes several criteria into account. The first relates to weight which is calculated by using the patients' BMI (see 2.2.1) (Khwaja & Bonanomi, 2010). A patient is considered for WLS when their BMI is greater than 40, or in certain cases 35 where there are one or more obesity-related comorbidities, such as diabetes mellitus, obstructive sleep apnoea, and coronary heart disease (Frühbeck, 2015; Homer et al., 2016; Khwaja & Bonanomi, 2010). Recently, because of the proven benefits of WLS on specifically diabetes mellitus, patients with diabetes mellitus only need a BMI of 30 to 35 to qualify for WLS (Frühbeck, 2015). Patients with a BMI of below 40, have a greater chance of having a BMI of below 30 after WLS, as well as remission of comorbidities. Because of this, WLS should not be postponed to where the BMI first have to exceed 50 (Varban et al., 2017).

Secondly, the team focus on patients showing a history of repeated failed treatment attempts at nonsurgical weight loss. Investigation into their physical activity, eating habits and possible eating pathology is also done (Collazo-Clavell et al., 2006; Magdaleno et al., 2009; Marcus et al., 2009; Tabesh et al., 2019; Yermilov, et al., 2009). Thirdly, the patients should have a thorough knowledge of the surgery and possible complications, be compliant and motivated (Coelho et al., 2021; Collazo-Clavell et al., 2006; Magdaleno et al., 2009; Marcus et al., 2009; Yermilov, et al., 2009). Patients are usually required by the multidisciplinary team, with specific aid of the dietician, to change their eating behaviours to a caloric restrictive diet (Mechanick et al., 2013; Pearl, Allison, et al., 2018). The main purpose of these changes is to prepare the patients for postoperative changes in diet and eating habits, and to show that they

can comply with the required diet postoperatively (Mechanick et al., 2013; Pearl, Allison, et al., 2018).

Patients could be found unsuitable due to undiagnosed psychopathology or impaired psychosocial functioning (Martikainen et al., 2002). As mentioned previously in 2.2, psychosocial refers to the reciprocal nature between behavioural and social factors, as well as the impact of various social factors on thoughts and behaviour (Martikainen et al., 2002). Some patients could be deferred for WLS on the basis of their psychological functioning at the time of evaluation, where after therapy may then be recommended. The aim of such therapy is to identify and treat the psychosocial factors to enable the patient to become eligible for WLS and thereby also enhancing successful surgical outcome (Greenberg et al., 2009). Once these factors are successfully addressed, it is believed that the patient would become eligible for surgery, thus providing an optimising successful outcome (Greenberg et al., 2009).

In addition to the above, patients could also be excluded if they have a lack of social support, the inability to make an informed decision and reluctance to abide by postoperative requirements (Collazo-Clavell et al., 2006; Fried et al., 2007; Greenberg et al., 2009; Marcus et al., 2009). Factors relating to the patient's ability to adhere to medical or previous treatment requirements and stressors currently experienced are also taken into consideration for exclusion purposes (Sogg & Friedman, 2015).

Other criteria used for exclusion for WLS include active substance abuse or dependency and psychiatric disorders that are ill managed or acute, such as psychotic disorders, severe depression and personality disorders (Dawes et al., 2016; Fuchs et al., 2016; Martikainen et al., 2002; Pearl, Allison, et al., 2018). Some researchers do not agree that the presence of psychiatric disorders should lead to exclusion (Dawes et al., 2016; Fuchs et al., 2016; Pearl, Allison, et al., 2018). Fuchs et al. (2016) compared two groups who underwent WLS to investigate differences in excess weight loss (%EWL). The first group did not display any psychiatric comorbidities while the second group exhibited psychiatric comorbidities. The group with psychiatric comorbidities included patients with depression, anxiety, bipolar disorder and schizophrenia. The results showed that there were no

differences found in the amount of excess weight loss between these two groups after WLS (Fuchs et al., 2016). In the same vein, Sala and colleagues (2017) found high motivational levels in patients with dysthymia to lose weight, as it would improve their overall quality of life and mood. Dawes et al. (2016) conducted a review of previous research and found that depressive symptoms are reduced in severity and frequency after WLS. They hypothesised that this could be due to the improvements in body image and interpersonal relationships or changes that occur on a biochemical level within the brain (Dawes et al., 2016). An added advantage is the fact that these WLS patients are also guaranteed psychiatric management by the multidisciplinary team as part of the requirements to undergo WLS (Pearl, Allison, et al., 2018; Sala et al., 2017).

Evaluating patients for possible WLS is not the only task of the multidisciplinary team. Preoperative education also forms a critical part of their selection process (Apovian et al., 2009; Sogg & Friedman, 2015). During preoperative education, many patients are made aware of the immense impact surgery will have on a wide array of aspects in their lives. These aspects include possible changes in relationships, required lifestyle changes, and the lifelong use of supplements (Apovian et al., 2009; Sogg & Friedman, 2015). It is believed that patients who possess relevant knowledge regarding WLS will comprehend the implications and possible complication that may arise from surgery, thereby enabling them to make an informed decision on whether they want to proceed with the WLS or not (Apovian et al., 2009; Homer et al., 2016; Mechanick et al., 2013; Sheets et al., 2015). Preoperative education also focuses on aspects such as the psychological implications of WLS, the risks and disadvantages involved, eating behaviour, lifestyle changes that will have to be made, required follow-up visits and laboratory tests that will need to be conducted. It also aims to dispel misperceptions and unrealistic expectations with regards to WLS (Apovian et al., 2009; Homer et al., 2016; Maleckas et al., 2016; Mechanick et al., 2013; Sheets et al., 2015). Sheets et al. (2015) also recommended that patients' strength and weakness should be identified and that specific support in areas of concern should be provided (Sheets et al., 2015).

It is important to note that knowledge with regards to the criteria applied by the multidisciplinary team are ever increasing, and hence the necessity to constantly update it accordingly (Collazo-Clavell et al., 2006; Magdaleno et al., 2009; Marcus et al., 2009; Pearl, Allison, et al., 2018; Yermilov et al., 2009).

2.3.6 *The Impact of WLS and Possible Effects on Weight Maintenance*

Even though WLS has been shown to be the most effective treatment of morbidly obesity, on a subjective level the procedure is also perceived by the morbidly obese individuals as the ultimate solution to all of their problems, including weight, health and relationships (Homer et al., 2016; Magdaleno et al., 2009). This view is reinforced for some time after WLS, as the patient observes their weight change, their ability to buy clothes in the 'normal' size section and receiving continuous positive feedback (Magdaleno et al., 2009). Some psychological benefits experienced include improvements in self-esteem, body image, self-confidence, self-efficacy, depression, anxiety and quality of life (Kubik et al., 2013; Nickel et al., 2017; Sarwer & Steffen, 2015). Magdaleno et al. (2009) referred to this as the honeymoon phase. Various aspects that were thought unattainable, such as falling in love and having children, become possibilities and create hope.

However, the length of the honeymoon phase often differs from individual to individual, and some patients who had undergone WLS begin to experience a variety of negative experiences such as the breakdown of romantic relationships and marriages (Bruze et al., 2018; Ferriby et al., 2019; Kalarchian & Marcus, 2019). Bruze et al. (2018) investigated relationship status change after WLS by comparing two postoperative WLS groups (1987 to 2001 and 2007 to 2012) to a control group taken from the general population. Their findings suggested that relationship status change was more likely for the patients who lost the most weight post WLS (Bruze et al., 2018). The study indicated that four years postoperatively, the WLS group (1987-2001) had a divorce/separation incidence of 9.4% in comparison to the 5.5% of the average general population control group (Bruze et al., 2018). Ten years postoperatively, the WLS group (1987-2001) divorce/separation incidence was 17.1% in

comparison to 11.6% of the control group (Bruze et al., 2018). In the second group of participants who undergone WLS between 2007 and 2017, divorce incidence was 14.4% in comparison to 8.2% of the average general population (Bruze et al., 2018). Aspects that contributed to the higher divorce rate were incidences of previous divorce or separation, getting married at a younger age, other relationships or marriages that were of shorter duration, prior family relationship problems and substance abuse (Bruze et al., 2018). However, Bruze et al. (2018) also found an increase in new relationships and marriages after WLS. At four years postoperatively, the first group who had WLS between 1987 and 2001, showed an incidence of 20.9% for marriage or new relationships in comparison to 11.2% in the control group; at ten years postoperative 34.8% of the WLS group had new relationships and marriages in comparison to 19.4% in the control group (Bruze et al., 2018). In the second group, marriage incidence was 14.6% in comparison to 11.8% of the average general population (Bruze et al., 2018). Griauzde et al. (2018) also found changes in relationship status after WLS in their study, indicating that some experienced divorce after WLS, while others who were single before WLS were now married (Griauzde et al., 2018).

From the research of Bruze et al. (2018) it is clear that relationships and relationship status may change after WLS, as the dynamics between marital partners may change (Bruze et al., 2018; Kalarchian & Marcus, 2019; Mitchell et al., 2013; Sarwer & Steffen, 2015). For single individuals, WLS may increase the chances of finding the right partner, and for some married couples it may lead to either divorce or a better quality of relationship (Bruze et al., 2018; Kalarchian & Marcus, 2019). Because of the gains made on a psychological level by the WLS patient, they might have the courage for the first time to walk away from an unhealthy relationship (Bruze et al., 2018).

In the same manner, a study conducted by Griauzde et al. (2018) found that some marriages or romantic relationships improved since the WLS patient found new self-confidence and couples could find activities to share (Griauzde et al., 2018). For other participants in the study, the weight loss post WLS negatively impacted their relationships, as

partners indicated that they preferred, for example, a bigger bodied woman, referring to how the patient appeared preoperatively (Griauzde et al., 2018).

It is however not just marriages or romantic relationships that are affected by weight loss after WLS, but also family relationships, work relationships and friendships (Griauzde et al., 2018). Some individuals are jealous of the amount of weight loss that patients display post WLS (Ferriby et al., 2019; Griauzde et al., 2018). Such individuals may include family members, friends and work colleagues. The jealousy experienced could lead to conflict or the end of relationships (Griauzde et al., 2018). As a result, WLS patients might find themselves without the necessary support systems after WLS (Griauzde et al., 2018). Additionally, the quality of relationships was found to contribute to weight loss and weight loss maintenance (Bruze et al., 2018; Clark et al., 2014; Ferriby et al., 2019). Clark et al. (2014) found that when relationships improved postoperatively, the percentage of weight loss were higher. Therefore, WLS patients are informed of the impact and possible risks of WLS on their relationships (Bruze et al., 2018; Clark et al., 2014). They are encouraged to work with their loved ones and significant others to ensure a successful relationship after WLS, especially since such relationships would guarantee the existence of the necessary support systems to further enhance the long-term outcome (Bruze et al., 2018; Clark et al., 2014).

Other problems experienced post WLS by patients are a loss of identity, unhappiness in career choice, and victimisation associated with their new physical appearance (Magdaleno et al., 2009; Snyder et al., 2010). Sudden feelings of anxiety, emptiness, depression and boredom, which increase the likelihood of eating, is also known to occur (Kubik et al., 2013; Magdaleno et al., 2009). Magdaleno et al. (2009) noted that some WLS patients described a tendency or a need to keep struggling as they did before WLS. These researchers furthermore noted that, once WLS patients realised that weight regain is possible, either one of two paths were followed (Magdaleno et al., 2009). The first path could lead to experiencing depression, whilst the second could lead back to the compulsion of eating, or the formation of other addictive behaviours, such as problematic alcohol use (Ivezaj et al., 2019; Magdaleno et al., 2009; Sogg, & Friedman, 2015). As many of these patients have used eating as a coping

mechanism before undergoing WLS, it is easy for some to revert back to this habit once problems are experienced after WLS (Magdaleno et al., 2009). This emphasises the importance of psychological and/or psychiatric therapy before and after WLS. Therapy can provide an opportunity for patients to discuss and work through problems, which aids in not reverting back to emotional eating, contributing to weight maintenance. It also promotes adherence to postoperative requirements and follow-up visits, which further aids weight maintenance (Magdaleno et al., 2009).

The afore-mentioned is confirmed by a study conducted by Wallace et al. (2019). These researchers found that not all WLS patients had a positive perspective of WLS afterwards. Wallace et al. (2019) noted that 10.9% of the patients from a Bariatric clinic who had undergone WLS indicated that they would not have had the surgery if they had a chance to do it over again. What stood out about the research is that these patients were the ones that regained weight after the surgery and hence did not meet postoperative weight loss expectations (Wallace et al., 2019). Most of them were also not married and experienced feelings of depression and dissatisfaction with their body image post WLS (Wallace et al., 2019). In addition, Wallace et al. (2019) determined that these patients felt that they were not properly prepared preoperatively for the outcomes of the WLS as the outcomes did not meet their expectations (see 2.4.3).

Another problem post WLS is that numerous patients experienced body dissatisfaction as a result of excess skin brought about by extreme weight loss (Sarwer & Steffen, 2015; Sogg & Friedman, 2015). Excess skin can contribute to further physical discomfort, affecting physical functioning, sexual functioning, quality of life and self-esteem (De Zwaan et al., 2014; Modaressi et al., 2013). These WLS patients will usually attempt to have body contouring surgery (De Zwaan et al., 2014; Sarwer & Steffen, 2015; Sogg & Friedman, 2015). De Zwaan et al. (2014) found that in a sample of bariatric patients, 19.2% of the patients had body contouring surgery, of which 88.7% had abdominoplasties, 24.2% thigh lifts, and 16.1% had breast lifts. Body contouring surgery contributed to improvements in physical functioning, quality of life, appearance evaluation, self-esteem, social life, sexual functioning and body

area satisfaction (De Zwaan et al., 2014; Modaressi et al., 2013). Unfortunately, in South Africa, medical aids do not cover body contouring surgery unless there are medical collaborating factors. Body contouring surgery is very expensive. For many WLS patients body contouring surgery is thus not an option, depriving them of the various psychological benefits and possibly further motivation for weight maintenance.

WLS could also have a profound impact on sexual functioning. Sexual functioning is closely related to quality of life (see 2.5.1) and body image. This in turn has been shown to be associated with weight loss, weight maintenance and even weight regain (Poggiogalle et al., 2014; Sarwer et al., 2012; Sarwer & Steffen, 2015; Teixeira et al., 2015). Research has shown that sexual functioning and intimacy improves after WLS, even to a level that can be compared to age-based norms (Griauzde et al., 2018; Mitchell et al., 2013). Improvements were found in desire, libido, sexual satisfaction, frequency and erectile dysfunction (Mitchell et al., 2013). Sarwer et al. (2014) found that overall sexual functioning of women improved significantly, who had undergone WLS at two years postoperatively. These improvements also included improvements in lubrication, arousal, sexual satisfaction, sexual desires, and satisfaction in romantic relationships (Sarwer et al., 2014). In contrast, when WLS patients maintained a negative body image post WLS, experienced infertility problems due to erectile dysfunction or regained weight after WLS, sexual functioning were impaired (Mitchell et al., 2013; Sarwer & Steffen, 2015). These changes of lowered sexual functioning and quality of life could further hamper the WLS patients' commitment and desire for further postoperative treatment, which could impact weight maintenance (Sarwer & Steffen, 2015).

In a study conducted by Modaressi et al. (2013), results indicated that sexual functioning showed the least amount of improvement post WLS, especially in the domain of quality of life (Modaressi et al., 2013). This finding was ascribed to the fact that most WLS patients indicated they were satisfied with their sexual life before and after surgery (Modaressi et al., 2013). Of the participants within this study, 48% felt that there were no changes in their sexual functioning after WLS while 11% indicated that their levels of sexual satisfaction decreased after WLS (Modaressi et al., 2013). Modaressi et al. (2013) purported that this

could be attributed to the patient's partner who might struggle to adapt to the new image of the patient. After WLS the patient may become more active and self-confident, changing the status quo of the relationship, and possibly giving rise to insecurities, not feeling needed, and jealousy in the partner, as mentioned before (Bruze et al., 2018; Mitchell et al., 2013; Modarressi et al., 2013). These possible tensions could impact sexual functioning, contributing to maintaining or even creating sexual dysfunctions (Mitchell et al., 2013; Sarwer & Steffen, 2015).

The above discussion confirms what was previously mentioned in this chapter namely that WLS has a profound effect on the psychological, physiological, and interpersonal levels of functioning. The complex interaction between these levels can also impact the outcome of surgery, as indicated for example by body image and sexual functioning or body dissatisfaction with excess skin. Many of these factors are also linked to patient expectations, which will be addressed in 2.4.3.

2.4 Practical Factors That Contribute to Weight Maintenance After WLS

Various factors have also been shown to have an effect on weight loss, weight maintenance, and even weight regain, as discussed within this chapter. Some of the other factors that will be highlighted in this section are adherence to follow-up visits postoperatively, support systems and patient expectations.

2.4.1 Adherence to Follow-up Visits

Compher and colleagues (2012) found that follow-up visits with the multidisciplinary team are of crucial importance for optimal weight loss and subsequent weight maintenance, especially during the first 24-month period after surgery. The results showed that WLS patients who attended follow-up visits, had a 3.3 greater chance of losing 50% and more of excess weight loss (%EWL) at 12 months, and 2.8 times greater chance at 24 months (Compher et al., 2012). In a study conducted by Sala et al. (2017), it was found that only 26.2% of patients still adhered to their follow-up visits two years postoperatively. Bariatric

clinics itself influences follow-up visits through their accessibility, ability to establish personalised rapport with the patient and available specialised services (Aarts et al., 2017). Research further indicated that WLS patients were more likely to attend follow-up visits if they had a gastric band which needed adjusting, had medical concerns, or were not satisfied with their postoperative outcomes (Montesi et al., 2016; Sala et al., 2017). When WLS patients are satisfied with their weight loss outcome, and more confident that they can maintain their weight loss by themselves, they are less inclined to attend follow-up visits (Montesi et al., 2016).

2.4.2 Support Systems

As was mentioned in 2.3.6, social support plays an important role for patients undergoing WLS. Social support comes in various forms, from spouses, family, friends, the health sector, work colleagues and even the community (Sharman et al., 2017). This cascade of support is crucial, as WLS is only part of a complex interaction of factors which contribute to weight loss and weight maintenance (Livhits et al., 2011; Rogerson et al., 2016; Sharman et al., 2017). Support systems can provide the WLS patient with reassurance and a stable environment, which can facilitate motivation to adhere to their diet and other postoperative requirements, thus contributing to weight loss, weight maintenance and a better quality of life (Montesi et al., 2016; Rogerson et al., 2016). These support systems also contribute in managing stress related to lifestyle changes, as well as preventing poor preoperative habits to resurface (Livhits et al., 2011). Social support is especially crucial in the first year postoperatively, as many changes in lifestyle and diet are taxing in this period (Rogerson et al., 2016). As discussed previously in 2.3.2, relationships can change dramatically after WLS, which then may affect weight maintenance and successful outcome of surgery (Bruze et al., 2018; Griauzde et al., 2018; Mitchell et al., 2013; Modarressi et al., 2013).

Support groups, providing support and motivation, can also contribute to long-term weight loss and weight maintenance (Das & Faxvaag, 2014; Livhits et al., 2011; Montesi et al., 2016; Sharman et al., 2017). Because patients within a bariatric support group have shared

experiences, before and after WLS, the value of these groups are indispensable for their members. These shared experiences provide an opportunity for problem solving and contribute to their own motivation to persevere in the weight loss and weight maintenance journey (Das & Faxvaag, 2014; Sharman et al., 2017). These support groups are also a great source of information, and can take the form of face-to-face interactions, or even be based on social media platforms (Das & Faxvaag, 2014; Livhits et al., 2011; Sharman et al., 2017). Social media support groups are found to be easily accessible and helpful in terms of providing information to various aspects such as dumping syndrome, diet and supplements. It also provides a sense of belonging and a platform where personal issues could be discussed, especially issues that WLS patients do not want to disclose to their doctor or other members of the multidisciplinary team (Das & Faxvaag, 2014; Rogerson et al., 2016). Such platforms furthermore provide members with a sense of personal acknowledgement and approval, as well as an environment where emotional support is given and personal insecurities can be addressed (Das & Faxvaag, 2014).

It should be noted that not all support systems in these individual's environment are positive. Weight and bariatric surgery discrimination and stigmatisation are present preoperatively and postoperatively for many patients, in work, family or health environments (Sharman et al., 2017). Many patients are unsure whether to disclose that they are going to have WLS to their significant others, as they fear that it might be considered as an easy way out or convenient way to deal with their weight problems (Sharman et al., 2017). This view of WLS being an easy way of losing weight is untrue. WLS requires a lifelong commitment, where the patients have to modify their lifestyle, adapt to psychological changes, while possibly experiencing various complications related to WLS (Bordignon et al., 2017; Gordon et al., 2014; McGrice & Paul, 2015; O'Kane et al., 2016; Wimmelmann et al., 2014). Again, emphasising the crucial role social support plays in weight loss and weight maintenance after WLS (Livhits et al., 2011; Rogerson et al., 2016; Sharman et al., 2017)

2.4.3 Patient Expectations

Dispelling unrealistic expectations that patients may hold regarding WLS is an integral part of preoperative education (Magdaleno et al., 2009; Marcus et al., 2009; Schowalter et al., 2008). This is especially important as WLS is considered by many patients to be the solution to all their problems, as was previously mentioned in 2.3.6 (Magdaleno et al., 2009; Schowalter et al., 2008). Patients who want to undergo WLS usually hold some unrealistic expectations of transformation on physical, health, interpersonal and emotional related aspects (Homer et al., 2016; Magdadeno et al., 2009; Opolski et al., 2015; Theunissen et al., 2020; Schowalter et al., 2008). These unrealistic expectations can include relational wellbeing (see 2.3.6), amount of weight loss after WLS, resolution of weight-related comorbidities and better eating control (Homer et al., 2016; Magdadeno et al., 2009; Opolski et al., 2015; Schowalter et al., 2008; Theunissen et al., 2020). Preoperative education is imperative to address these unrealistic expectations (Homer et al., 2016; Magdadeno et al., 2009; Schowalter et al., 2008). Patients are informed about the physiological, psychosocial and psychological risks involved. Some of these risks include marriages and relationships ending in divorce and breakups and the loss of social networks (see 2.3.6) (Marcus et al., 2009).

Magdaleno et al. (2009) observed that after patients realised that surgery has not solved their problems, they may become vulnerable to emotional and psychological complications. These included feelings of emptiness, heightened aggression and self-aggression, anxiety, sadness, boredom and meaninglessness. When these feelings were experienced, the WLS patient perceived that his/her expectations were not met (Magdaleno et al., 2009). These negative emotions and inability to deal with stress related to their unmet expectations, can then lead to emotional eating, possibly hampering successful outcome, negatively impacting weight maintenance (Griauzde et al., 2018; Opolski et al., 2015). Emotional eating is especially prominent in women and is mediated by the personality traits of neuroticism and low conscientiousness, as well as anxiety and depression (Conceição et al., 2015; Gade et al., 2014; Opolski et al., 2015).

Many patients also have unrealistic expectations about the amount of weight they will lose with WLS. Bauchowitz et al. (2005) found that 27% of patients had unrealistic weight loss expectations preoperatively. When weight starts to stabilise after WLS, the majority of patients will still fall in the obese range in accordance with BMI calculations (Ames et al., 2009). Teixeira and colleagues (2005) stated that the best weight loss results were deemed to emanate from a self-assured patient with positive and realistic expectations.

In a study conducted by Homer et al. (2016) it was found that all the participants reported unrealistic expectations preoperatively, which included improved health and improvement or resolution of weight-related comorbidities. The participants indicated that they enthusiastically waited for a time when they would not have to take medication for their weight-related comorbidities (Homer et al., 2016). Although health and various weight-related comorbidities do improve or are resolved after WLS, it cannot be guaranteed for all patients. Various difficulties can occur after WLS, such as adjusting to eating habits and new types of food, dumping syndrome, hypoglycemia, gastro-oesophageal reflux, and gastroduodenal ulcers (Bray et al., 2016; Jakobsen et al., 2018). Part of the postoperative aftercare and requirements is that WLS patients will have to take lifelong supplements to ensure that no vitamin or mineral deficiencies occur (Bray et al., 2016; Jakobsen et al., 2018). It is thus important that the expectation of these patients that no medication will be needed after WLS are dispelled.

Homer et al.'s study (2016) furthermore indicated that some participants held a perception that their usual behaviour, including eating habits, would not have to change drastically after WLS to still ensure weight loss. Some of the participants also considered WLS as a tool, where they would not have to take responsibility for their own eating habits, but believed that surgery will dictate if they will eat or not (Homer et al., 2016). The reality of WLS is that it requires a lifelong eating and lifestyle change, where the responsibility is on the patient self to determine the outcome and subsequent long-term weight maintenance (McGrice & Paul, 2015). This does not mean that there is no support available to the patient since the multidisciplinary team offers support through a dietician and a psychologist to assist the patient with their diet and psychological issues that may present itself. This ensures that

the patient will adapt their behaviour and their lifestyle in order to ensure optimum results after WLS (O'Kane et al., 2016).

Other patient expectations found by Homer et al. (2016) included hopes of being socially more active, meaning that participants wanted to feel confident when they engaged in social activities and be free from fear of scrutiny from others. These participants hence believed that they will be better able to manage negative comments after they lost weight (Homer et al., 2016). The participants were of the opinion that WLS will enable them to be viewed as normal by others and not as different anymore (Homer et al., 2016; Theunissen et al., 2020). They also believed that life and other emotional challenges will not be present after WLS, because the latter will cause improvements in health, weight and mobility (Homer et al., 2016).

One of the realities for most WLS patients after successful weight loss following WLS is excess skin (Homer et al., 2016; Sarwer & Steffen, 2015; Sogg & Friedman, 2015). As previously indicated in 2.3.6, excess skin can be distressing to the WLS patients, impacting physical and sexual functioning, quality of life, and self-esteem (De Zwaan et al., 2014; Homer et al., 2016; Modaressi et al., 2013). However, the participants in the study of Homer et al. (2016) believed they would not struggle with this problem, even though they had been made aware of the possibility of excess skin occurring.

Another patient expectation is that patients feel that they will think differently about themselves after WLS. This is dispelled by the notion that, despite undergoing WLS, most patients still hold onto a 'fat identity' (Faccio et al., 2016; Griauzde et al., 2018). Faccio et al. (2016) found that one year postoperative, patients still struggled to adapt their self-identity to align with their new thinner body. The researchers noted that only after the participants were made aware of the fact that they still behave, think and relate to themselves as obese, they were able to change their thought processes and subsequent behaviour (Faccio et al., 2016). Griauzde et al. (2018) also observed this conflict between the new thinner body and loss of self-identity experienced after WLS. Their findings found that some of the participants of their study experienced their mind and body as separate entities; no matter how much their body

changed. Apparently, they still thought and experienced themselves in the same manner as before WLS. Other participants indicated that they did not recognise themselves in a mirror, which for them contributed further to the question of their identity (Griauzde et al., 2018). These experiences illustrate how expectations do not always become reality without effort and consciousness. Just as losing and maintaining weight is a lifelong process and commitment after WLS, the same is true for psychological growth and self-identity.

In light of the above discussion, it is theorised that patient expectations are not a criterion that can always be adequately measured preoperatively to determine successful outcome. Each WLS patient is unique, and the consequences weight loss may have on patients' lives cannot always be predicted. One cannot predict how others will react to the WLS patients' weight loss, how relationships and interactions will change, or how it may affect career choice or satisfaction. Patient preparation does aid in addressing their expectations. Since these expectations are unique to each patient though, the extent of preparation will differ. As a result of this, Teixeira et al. (2015) recommended that a tailored approach, rather than a standardised approach, to treatment of WLS patients is necessary.

2.5 Psychological Factors Associated with the Outcome of WLS and Weight Maintenance

In 1.2 it was argued that certain psychological factors could contribute to weight maintenance after WLS. Despite the lengths undertaken by the multidisciplinary team to establish the psychological suitability of patients, some WLS patients might still be at risk to display nonconforming behaviour to postoperative requirements and lifestyle changes. These nonconforming behaviours can be due to the complex interaction of some psychological factors postoperatively (Magdaleno et al., 2009). As was stated in 1.3, the psychological factors investigated within this explorative study are sense of coherence, quality of life, locus of control and self-efficacy. With WLS, behavioural and psychological factors play an important role before and after the surgery and specifically impact the outcome of the surgery, and thus weight maintenance. It is thus crucial to understand the complex interplay between

the various psychological factors. As indicated in 1.3, the reasons for the selection of these specific factors were two-fold. The first reason relates to the need to explore salutogenesis within WLS, especially since research combining these two fields is extremely limited. As a result, it was deemed necessary to address the paucity in research. Secondly, after consultations with experts in the field of WLS, namely an endocrinologist and a bariatric surgeon, it appears that the chosen psychological factors were of importance to the field. Knowledge about these factors is important since it could contribute to our understanding of weight maintenance after WLS and result in tailored therapeutic interventions to aid successful WLS outcome. In addition to this, several researchers noted that more research is needed within this area (Collazo-Clavell et al., 2006; Dahlberg et al., 2022; Magdaleno et al., 2009; Marcus et al., 2009; Yermilov et al., 2009). Not only is more research needed in this area, but more research is specifically needed in the South African context where obesity and morbid obesity have become issues of grave concern. It is projected that by the year 2025 obesity prevalence in South Africa will be 23.3% for males, 47.7% for females and 22.1% for children (Lobstein & Brinsden, 2020; van Vollenstee & van der Merwe, 2021). In the next section, each of the chosen psychological factors will be discussed.

2.5.1 Quality of Life

Quality of life can be defined as an individual's conscious subjective evaluation of the satisfaction they experience in their life, which occurs in context of their value and cultural system (Crosby & Kolotkin, 2009; Karimi & Brazier, 2016; Theofilou, 2013). Individuals' quality of life is related to their expectations, beliefs, objectives, concerns and standards (Crosby & Kolotkin, 2009; Karimi & Brazier, 2016; Theofilou, 2013). Health-related quality of life (HRQoL) refers to the subjective assessments and reactions to the psychological, social and physical domains of health or illness (Crosby & Kolotkin, 2009; Kolotkin & Andersen, 2017). Impairments in quality of life are a natural occurrence for all individuals, whether they are obese or not. It is important to realise how many life domains are affected by obesity and how that affects these individuals' quality of life. As discussed previously (see 2.2.2 and

2.2.3), obesity affects physical functioning, sexual functioning, work environment, social interactions, self-esteem and numerous weight-related health comorbidities (Chu & Ohinmaa, 2016; Frühbeck, 2015; Homer et al., 2016; Jung et al., 2016; Steffen et al., 2017; Tallis et al., 2018). The psychosocial impact of obesity and subsequent impact on quality of life is evident, where 66% of patients requesting WLS base their motivation on psychosocial factors, while only 10% of these requests are related to medical reasons (Modarressi et al., 2013). After WLS, there are significant improvements in health- and weight-related quality of life, especially in the period of significant weight loss (Flølo et al., 2019; Sarwer & Steffen, 2015; Sarwer et al., 2014; Sheets et al., 2015). Such improvements have been statistically proven, with several researchers noting a positive association between HRQoL and weight loss following WLS (Flølo et al., 2019; Mitchell et al., 2013; Sarwer et al., 2014; Sheets et al., 2015). Flølo et al. (2019) found overall improvement in quality of life after WLS, with specific reference between eating self-efficacy and quality of life. Eating self-efficacy refers to an individual's ability to feel confident that they would be able to control their eating, even when facing challenging situations (Churchill et al., 2018; Flølo et al., 2019). Flølo et al. (2019) also indicated that increases in HRQoL lead to significant improvements in self-esteem. These findings confirmed those found in earlier research conducted by Sheets et al. (2015) and Sarwer et al. (2014). They noted an improvement of quality of life in self-esteem, social relationships, sexual functioning, physical activity and eating behaviours after WLS. Since sexual functioning and work was discussed in detail in 2.2.3 and 2.3.3 respectively, the remainder of this section will not focus on these two aspects.

Despite an increased HRQoL after WLS, Odom et al. (2010) found that postoperative scores of HRQoL correlated significantly with weight regain; therefore, the inability to maintain the weight lost. Patients who were thus most at risk of weight regain after WLS were the ones who scored lowest on postoperative wellbeing (Odom et al., 2010). However, the results of this study could not be generalised to the average general population as the response rate of the conducted survey was limited.

Other factors that affects obesity and HRQoL after WLS are gender and age, as both impact an individual on a psychological and physiological level. Gender differences have been found in quality of life among the obese population, where women have lower quality of life in comparison to men (Garner et al., 2012; Skär et al., 2014). Garner et al. (2012) found that underweight females in their younger years have a higher HRQoL than those in their later years. On the other hand, men who were underweight experienced a much lower HRQoL, which did not show change over time (Garner et al., 2012). For women, with each increase in BMI category, their HRQoL decreased (Garner et al., 2012). The HRQoL, especially for women in their 40s who were severely- or morbidly obese, were much lower than normal weight individuals (Garner et al., 2012). In comparison to normal weight men, overweight men experienced a higher HRQoL at the age of 57. However, age-related declines in HRQoL occurred in all weight categories with time (Garner et al., 2012). The reasons purported for these differences in quality of life by gender and age are psychologically and physiologically related (Garner et al., 2012; Skär et al., 2014). On the physiological side, women have more weight-related comorbidities than men, such as diabetes and hypertension (Skär et al., 2014). The occurrence of these have a negative impact on both womens' ability to socially engage and their perception of the comorbid illnesses they suffer. This negatively impacts their HRQoL (Skär et al., 2014). When looking at the psychological aspects of this phenomenon the influence of Western civilisation and weight-related discrimination needs to be considered (Dakanalis et al., 2015; Lavender et al., 2017; Makowski et al., 2019; Puhl et al., 2008; Sarwer & Steffen, 2015). In Western civilisations, the ideal of thinness is emphasised for women, which may affect their perception of their HRQoL; just as a muscular ideal exist for men, which will affect their HRQoL (Garner et al., 2012; Skär et al., 2014). Research conducted by Garner et al. (2012) discovered that women who were underweight displayed an increase in their sense of quality of life. In contrasts, males who were underweight experienced lower levels of quality of life since it does not conform to Western standards of what is deemed as attractive and acceptable (Garner et al., 2012; Makowski et al., 2019; Puhl et al., 2008; Sarwer & Steffen, 2015; Skär et al., 2014). Once obesity levels increased in women, the latter

experienced lower levels of HRQoL (Garner et al., 2012; Skär et al., 2014). This forms a sharp contrast to older overweight men who experience higher levels of HRQoL (Garner et al., 2012).

The existence of what is known as the Western standards for weight could furthermore result in weight-related discrimination and weight bias internalisation, which have a negative impact on HRQoL and WLS results (Latner et al., 2014; Walsh et al., 2018). Weight bias internalisation refers to self-devaluation based on the acceptance of societal weight-based stereotypes (Pearl & Puhl, 2018). Weight bias internalisation occurs more in women (Latner et al., 2014; Walsh et al., 2018). Individuals with higher levels of weight bias internalisation show lower levels of overall quality of life, specifically in areas of physical functioning and work. They also tend to experience distress when appearing in public (Latner et al., 2014; Walsh et al., 2018). With WLS, those individuals experiencing greater internalised weight bias, also tend to lose less weight one year postoperatively (Lent et al., 2014). Weight bias internalisation will be discussed further in 2.5.3, as it impacts on self-efficacy.

In addition to what was discussed above, Modaressi et al. (2013) also noted that plastic surgery has a positive impact on HRQoL. These researchers investigated the quality of life in patients who had plastic surgery following WLS. They found that WLS, in particular RYGB, increased HRQoL, which in turn is directly related to weight loss (Modaressi et al., 2013). Even though there was an increase in HRQoL, especially within the first-year post WLS, the latter was still lower than the national cohort (Flølo et al., 2019; Modaressi et al., 2013). Modaressi et al. (2013) purported that this lower HRQoL in comparison to the national cohort, could be as a result of the excess skin after WLS. After plastic surgery was done on patients for the removal of excess skin, their HRQoL showed a significant increase (Modaressi et al., 2013).

Research has also shown that there is a correlation between BMI and the impact weight has on quality of life, before and after WLS (Brazier et al., 2004; Montpellier et al., 2017; Sarwer et al., 2018). The higher the BMI, the lower the quality of life experienced and vice versa (Brazier et al., 2004; Montpellier et al., 2017; Sarwer et al., 2018). In the same

manner, post WLS, weight loss and weight maintenance correlates negatively with quality of life, where patients who have regained weight, experience lower quality of life and those who lost weight has improved in quality of life (Brazier et al., 2004; Mitchell et al., 2013; Modaressi et al., 2013; Montpellier et al., 2017; Sarwer et al., 2014; Sarwer et al., 2018).

The negative correlation between weight regain and HRQoL after WLS might be indicative of eating behaviours such as binge eating or grazing (Mitchell et al., 2013). This in turn could result in feelings of failure and disappointment, thus lowering the affected patient's quality of life. Furthermore, if patients continue to experience these negative feelings, they are at risk of displaying an increase of depressive symptoms which may eventually lead to suicide (Mitchell et al., 2013; Peterhänsel et al., 2013; Walsh et al., 2018).

Studies indicated an increased rate of suicide among WLS patients (Peterhänsel et al., 2013; Tindle et al., 2010; Sarwer & Steffen, 2015). Tindle et al. (2010) found suicide rates for those who had WLS in the USA, at 13.7 per 10 000 for men and 5.2 per 10 000 for women. In comparison to these figures, the average general population reflected rates of 2.4 per 10 000 for men and 0.7 per 10 000 for women in the USA (Tindle et al., 2010). The studies also showed that, of those who committed suicide, 30% occurred within two years post WLS and 70% in three years post WLS (Tindle et al., 2010). In a research review of 28 studies conducted by Peterhänsel et al. (2013), it was found that the suicide rate had been 4 per 10 000 for patients who had WLS, in comparison to 1 per 10 000 in the average general population. It was concluded that those who underwent WLS had a four-time greater risk of suicide than individuals in the average general population (Peterhänsel et al., 2013). Reasons for the increased risk of suicide are diverse. It has been documented that initially symptoms of depression improve after WLS for most patients (Brazier et al., 2004; Peterhänsel et al., 2013; Sarwer & Steffen, 2015; Tindle et al., 2010). However, once the honeymoon phase is over, stressors such as lifestyle changes, decreased levels of quality of life, weight regain, changes in personal relationships and body image could appear that result in the resurfacing of depressive symptoms (Brazier et al., 2004; Peterhänsel et al., 2013; Sarwer & Steffen, 2015; Tindle et al., 2010).

Since HRQoL plays such an important role in post WLS results, various instruments have been developed to assess it. The one used in the present study is the Impact of Weight on Quality of Life (IWQoL), which was developed in 1995 specifically to investigate the impact of weight on quality of life (Crosby & Kolotkin, 2009; Sarwer & Steffen, 2015; Sarwer et al., 2018). Five areas were identified of importance within the obese population seeking treatment, namely physical functioning, self-esteem, sexual life, public distress and work (Crosby & Kolotkin, 2009; Sarwer & Steffen, 2015; Sarwer et al., 2018). Improvement in quality of life is the end goal for any person or intervention, just as WLS attempts to improve quality of life in all spheres. By using specific weight-related quality of life measures, multidisciplinary teams will be able to identify specific areas in need of attention for each patient. Individual treatment plans can then be implemented, further enhancing the chances of successful outcome of WLS and weight maintenance after WLS.

2.5.2 Locus of Control

Locus of control can be divided into an internal locus of control and an external locus of control (Buddelmeyer & Powdthavee, 2016; Cobb-Clark et al., 2014; Coetzee & Cilliers, 2001; Stubbs et al., 2011; Teixeira et al., 2005). Individuals who hold an internal locus of control believe that they have control over their own lives. Often these individuals are assertive, individualistic, enjoy higher life satisfaction, have better mental health and higher self-efficacy and also experience higher wellbeing in comparison to those with an external locus of control (Buddelmeyer & Powdthavee, 2016; Cobb-Clark et al., 2014; Coetzee & Cilliers, 2001; Fida et al., 2015; Teixeira et al., 2005). Individuals who hold an internal locus of control tend to react more constructively and pro-actively when faced with problems since they are active participants in finding solutions which make them better adjusted human beings in general (Buddelmeyer & Powdthavee, 2016). This is in contrast to individuals who hold an external locus of control, who rely on external support for problem-solving in general (Buddelmeyer & Powdthavee, 2016). Individuals with an external locus of control refers to

individuals who believe that life events are connected to external forces, such as luck, fate, genes or powerful others (Coetzee & Cilliers, 2001; Stubbs et al., 2011; Teixeira et al., 2005).

Locus of control may play an important part in weight maintenance after WLS, where internal locus of control can be regarded as a beneficial trait (Anastasiou et al., 2015; Coetzee & Cilliers, 2001; Teixeira et al., 2005). Cobb-Clark et al. (2014) found that individuals with an internal locus of control follow healthier lifestyles by eating healthier and doing more exercise. Individuals with an internal locus of control believe they are in control and hence sense the need to manage their weight, as they have to take responsibility for their own actions and outcomes (Anastasiou et al., 2015; Coetzee & Cilliers, 2001; Teixeira et al., 2005). Anastasiou et al. (2015) found that internal locus of control was associated with weight maintenance and long-term weight maintenance after significant weight loss, in comparison to individuals with an external locus of control (Anastasiou et al., 2015; Montesi et al., 2016). Individuals with an internal locus of control are also more capable of weight loss and weight maintenance, even when they have access to less external support (Anastasiou et al., 2015; Montesi et al., 2016).

Individuals with an external locus of control may experience a sense of helplessness (Anastasiou et al., 2015; Coetzee & Cilliers, 2001; Teixeira et al., 2005). This sense of helplessness may arise when they believe that their own efforts will make no difference as all factors seem to be out of their control. These demotivating convictions may contribute to the nonadherence to postoperative requirements to maintain weight loss and hence can contribute to weight regain (Anastasiou et al., 2015; Coetzee & Cilliers, 2001; Teixeira et al., 2005).

As was the case with HRQoL, gender differences were found in perceived control and health-related behaviours (Cobb-Clark et al., 2014). Health-related behaviours are maintained more by women with an internal locus of control, because of the satisfaction they experience when adhering to these behaviours (Cobb-Clark et al., 2014). Men with an internal locus of control, on the other hand, who are actively dieting and exercising, expect greater positive results in terms of their health status (Cobb-Clark et al., 2014).

Buddelmeyer and Powdthavee (2016) found that having an internal locus of control can protect an individual against various negative life events such as serious illness or injury or loss of a loved one, which could occur postoperatively. These individuals with an internal locus of control would then either struggle less or even experience indifference towards the negative event(s) (Buddelmeyer & Powdthavee, 2016). It is suggested that internal locus of control can be a protective measure for individuals against negative life events as they commit to human-, social- and health capital early on in life (Buddelmeyer & Powdthavee, 2016; Cobb-Clark et al., 2014). This means that they have psychological resources, such as support systems, at their disposal which make them more resilient in general (Buddelmeyer & Pawdthavee, 2016). When considering all the possible changes after WLS, for example going through a divorce or experiencing medical complications, having an internal locus of control would act as a safeguard against such stress-related events. It can thus be postulated that even when stress is experienced, a WLS patient with an internal locus of control and the necessary psychological resources available, will be protected from the negative effects thereof. Such patients would less likely turn to emotional eating when facing challenges after WLS, thus contributing to better weight maintenance.

Self-efficacy is closely linked to internal locus of control, as it relates to the belief in one's own ability to control and perform a task or behaviour (Batsis et al., 2009; Montesi et al., 2016). It is important to note that both locus of control and self-efficacy contribute to weight maintenance (Montesi et al., 2016).

2.5.3 Self-efficacy

Self-efficacy refers to an individual's belief in their own ability to control, cope and perform a specific behaviour or task, even if they perceive it as challenging or ridden with obstacles (Azizli et al., 2015; Bandura, 1986, 1989, 1994; Batsis et al., 2009; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Jaensson et al., 2019; Rothmann, 2001). An individual's thoughts, feelings, motivation and behaviour are thus influenced by their self-efficacy, as well as their ability to set goals, invest effort and persist in

any effort they commit to in order to function at an optimum level (Azizli et al., 2015; Bandura, 1986, 1989, 1994; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Jaensson et al., 2019; Rothmann, 2001). Higher perceived self-efficacy is thus associated with the setting of higher goal attainment and commitment to these goals, even when encountering possible failures (Bandura, 1989). When changes in lifestyles are necessary, as is the case with WLS, individuals high in self-efficacy are inclined to search their environment for resources that can facilitate this process (Bandura, 1989, Rogerson et al., 2016). In several studies conducted on patients that underwent WLS, positive correlations were found between self-efficacy and successful weight loss and weight loss maintenance, as well as quality of life, self-regulation, self-control, internal locus of control, exercise and lower alcohol consumption (Cobb-Clark et al., 2015; Fida et al., 2015; Nickel et al., 2017; Rogerson et al., 2016; Sobhani et al., 2020; Teixeira et al., 2005).

Self-efficacy can change over time and are based on previous experiences of mastery or failure (Bandura, 1977; Flølo et al., 2019; Teixeira et al., 2005). It has been shown that self-efficacy can be used as a predictor of long-term weight maintenance, especially if improvements on self-efficacy are made after weight loss (Flølo et al., 2019; Latner et al., 2013; Sobhani et al., 2020; Teixeira et al., 2005). Nickel and colleagues (2017) found that self-efficacy improved six months postoperatively, as did quality of life and body image. These changes in self-efficacy, quality of life and body image also showed stability 24 months after WLS (Nickel et al., 2017). Flølo et al. (2019) investigated eating self-efficacy after WLS. As mentioned earlier (see 2.5.1), eating self-efficacy refers to an individual's confidence in their ability to control their eating, even in strenuous circumstances (Churchill et al., 2018; Flølo et al., 2019). Flølo et al. (2019) found that eating self-efficacy increased dramatically in the initial stages of weight loss and that it remained stable at 55 months postoperatively. As WLS patients usually have a history of failed attempts to lose weight, they might not believe in their own ability to lose or maintain weight, which will influence their regulation of their eating behaviour (Flølo et al., 2019). When these patients then start losing weight postoperatively,

they may feel a sense of control and competence again, reinforcing lifestyle change and thus weight loss and weight maintenance (Flølo et al., 2019).

In the same vein Latner et al. (2013) investigated weight maintenance after an intentional weight loss effort. They found that lower self-efficacy was associated with lower maintenance of weight loss and even weight regain (Latner et al., 2013). The lower maintenance of weight loss or weight regain was also associated with poor coping (Latner et al., 2013). This corroborates the findings of Fida et al.'s (2015) study where they noted that individuals with high self-efficacy, who display an internal locus of control, tend to manage stress in a positive manner (Fida et al., 2015). This ability to manage stress in the presence of high self-efficacy might lead to greater understanding of why some patients are successful with weight maintenance after WLS while others struggle.

Research has also shown that self-efficacy is positively associated with physical activity and eating behaviour (Cobb-Clark et al., 2015; Hübner et al., 2015). Hübner et al. (2015) found that the lower an individual's self-efficacy, the higher the likelihood of them internalising weight bias, which consequently contribute to a decrease in physical activity (Hübner et al., 2015). The researchers also found that weight bias internalisation in turn mediated self-efficacy, as well as to what extent individuals will participate in physical activity (Hübner et al., 2015). Vartanian and Novak (2011) found that the more individuals showed internalised weight stigma, the more they were inclined to avoid exercise and related situations because they feared the scrutiny of others and wanted to protect themselves against feelings of embarrassment.

Internalisation of weight bias has also been shown to be linked to an increase in food consumption (Pearl & Puhl, 2018; Puhl et al., 2007; Puhl et al., 2020; Schvey et al., 2011). Schvey et al. (2011) investigated how exposure to weight stigmatising material influenced caloric intake in overweight women. They found that caloric intake was three times higher in women who were exposed to negative weight stereotypes (Schvey et al., 2011). These findings on the internalisation of weight bias show once again how society's expression of

negative weight stereotypes and weight-related discrimination impacts self-efficacy, thereby undermining individuals' ability to lose weight or maintain weight loss in general.

2.5.4 Sense of Coherence

According to Antonovsky (1979, 1987, 1996), sense of coherence refers to an individual's ability to deal and adapt to life stressors (Antonovsky 1987, 1996; Compton & Hoffman, 2013; Mittelmark & Bauer 2017, 2022; Nilsen et al., 2015; Super et al., 2015; Zugravu, 2012). It comprises three components namely, comprehensibility, manageability and meaningfulness. Comprehensibility, the cognitive component, refers to experiencing the internal and external world as predictable and structured (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017). Manageability, the behavioural component, is the conviction that internal and external resources are available to effectively deal with demands placed on the individual (Antonovsky, 1987; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Richardson & Ratner, 2005; Vinje et al., 2017). Manageability is closely related to locus of control and self-efficacy (Hefferon & Boniwell, 2011; Koelen et al., 2017; Vinje et al., 2017). The third component of meaningfulness is the motivational element, where the individual believes that life makes sense, and energy is well spent on challenges they are faced with in order to move forward (Antonovsky, 1979, 1987; Breed et al., 2006; Golembiewski, 2017; Hefferon & Boniwell, 2011; Idan et al., 2017; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017). Since WLS itself could be considered as a stressor, one could argue that patients with a high sense of coherence would ascribe meaning to their WLS. Because WLS has meaning to them, this will motivate them to address arising issues which might impact their WLS results. These possible arising issues could be approached on a cognitive level, where after resources will be assigned to facilitate a successful outcome, thus also contributing to weight maintenance.

Sense of coherence furthermore acts as a buffer against disappointment (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Idan et al., 2017; Koelen et al., 2017;

Richardson & Ratner, 2005; Vinje et al., 2017). This enables the patients that might struggle with weight maintenance, or who have regained weight after WLS, to commit again to working with the multidisciplinary task team to find solutions to deal with the new challenge (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Idan et al., 2017; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017). A high sense of coherence also allows individuals to experience a sense of control over their environment, just as it is the case with internal locus of control and self-efficacy (Buddelmeyer & Powdthavee, 2016).

Of the three components of sense of coherence, it appears that meaningfulness is possibly the most important component, since it provides the individual with the drive to move forward and resist illness (Antonovsky, 1979; Bergman et al., 2012; Golembiewski, 2017). In another study Bergman et al. (2012) found that comprehensibility was the most influential factor for change in patients who had a primary myocardial infarction (Bergman et al., 2012). If this finding is related to the context of WLS, one could argue that more emphasis should be placed on pre- and postoperative education. Aspects that will have to be addressed with regards to WLS would include patient expectations, lifestyle changes, surgical procedures, and possible consequences of the surgery on physical, social, interpersonal as well as psychological levels. By addressing these factors, it could contribute to enhancing successful outcome of WLS and weight maintenance.

A high sense of coherence is also associated with healthy lifestyle choices, lifestyle changes, level of activity, choices in food consumption, as well as physical and psychological quality of life (Li et al., 2015; Nilsen et al., 2015; Skär et al., 2014; Wainwright et al., 2007). A low sense of coherence has been associated with type 2 diabetes, myocardial infarction, morbidity, mortality, unhealthy lifestyle and decreased physical activity (Nilsen et al., 2015; Super et al., 2014). In light of this, it seems that by studying sense of coherence, one would acquire more knowledge about why some patients struggle with weight maintenance or even regain weight after WLS while others are able to maintain their weight loss.

Since lifestyle change is essential for the successful outcome of WLS, the contributory effect that sense of coherence has on it, is of great importance. Nilsen and colleagues (2015)

found that a high sense of coherence was a significant predictor of positive lifestyle change and health outcomes in individuals at risk of developing type 2 diabetes. These researchers' results concluded that there is an 84% higher probability that an individual with a high sense of coherence will be able to successfully change their lifestyle, in comparison to those with a low score on sense of coherence (Nilsen et al., 2015). Some might argue that scores on sense of coherence should be used to decide who qualifies for WLS. It is, however, suggested that this should not be used to eliminate candidates for WLS, but rather be applied to identify those patients that will need more individualistic treatment schedules (Nilsen et al., 2015; Super et al., 2014; Super et al., 2015; Trap et al., 2015). This has the potential to increase sense of coherence which might ultimately lead to higher success rates with regard to WLS (Nilsen et al., 2015; Super et al., 2014; Super et al., 2015; Trap et al., 2015).

Lastly, it is important to look at the relationship between obesity and sense of coherence. Skär et al. (2014) investigated whether there was a correlation between BMI and sense of coherence in an obese population. They found a significant inverse relationship between sense of coherence and a BMI, especially in women and individuals of an older age (Skär et al., 2014). These findings corresponded to the theoretical framework of sense of coherence, which indicated that the degree of illness, or obesity in this instance, would have an impact on the sense of coherence; thereby explaining the higher BMI and the lower sense of coherence (Antonovsky, 1979; 1987; Skär et al., 2014; Zugravu, 2012). These results confirmed again that patients with a low sense of coherence will need more tailored support when changing their eating habits and other health-related issues. They would also need a significant amount of support to deal with the WLS and the effects thereof (Skär et al., 2014; Zugravu, 2012). This once again highlights the importance of social and professional support for patients undergoing WLS.

Because sense of coherence applies to obesity and could be related to positive outcomes of WLS, it was decided to also use it as the theoretical point of departure of the present study. As such, it will be discussed in greater detail in chapter 3.

2.6 Conclusion

This chapter focused on the negative implications of being obese or morbidly obese. It indicated that WLS could possibly provide an opportunity for patients to not only lose weight, but also improve their health and ultimately their quality of life. WLS however have positive and negative effects and these were discussed in detail. Specific attention was also paid to the psychological factors that might affect the outcome of WLS. One of these identified psychological factors was sense of coherence, which was also the core component of salutogenesis and the chosen theoretical point of departure of this study. As mentioned in 1.4, sense of coherence within salutogenesis aids in understanding health and health-related behaviours, which aligns with the aims of this study (Mittelmark, 2017; Wainwright et al., 2007). The next chapter will focus on the theoretical aspects related to sense of coherence and how this theoretical understanding may inform the health behaviour in regards to weight and weight maintenance after WLS.

Chapter 3: Theoretical Framework

3.1 Introduction

The main theoretical point of departure used within this study is that of salutogenesis, with specific reference to the core component thereof, sense of coherence as developed by Aaron Antonovsky (1979, 1987, 1996) (Mittelmark & Bauer, 2017, 2022; Strümpfer, 1990; Vinje et al., 2017). Salutogenesis explores the origins of health and is thus crucial for understanding and promoting health and health-related behaviours (Mittelmark, 2017; Wainwright et al., 2007). It is therefore theorised that it will contribute to the understanding of the experiences and psychological factors that contribute to weight maintenance.

Antonovsky (1991) investigated four personality constructs that are linked to stress and coping, and thus health, which he called *generalised personality orientations*. These generalised personality orientations are considered as strengths of salutogenesis and include sense of coherence, locus of control, self-efficacy and hardiness (Mittelmark, Bull, & Bouwman, 2017). Strümpfer (1990) suggested six strengths, namely, sense of coherence, hardiness, potency, self-efficacy, learned resourcefulness and internal locus of control. Salutogenesis and these six strengths will be discussed in detail within this chapter to aid in understanding the various factors that could influence health and health-related behaviour, and thus possible factors that impact weight maintenance. As this study explores self-efficacy, locus of control, sense of coherence and quality of life to understand what contributes to weight maintenance after WLS, salutogenesis is deemed a good theoretical point of departure for this study.

3.2 Salutogenesis

The term salutogenesis comes from the Latin word *salus*, which means health, and the Greek word *genesis*, meaning origin, indicating thus the concern regarding the origin of health (Antonovsky, 1979). Salutogenesis is thus the counter to pathogenesis, or pathogenic

orientation, which is the concern of the origin of disease (Strümpfer, 1995). In other words, salutogenesis is interested in what leads to a person staying healthy, even under adverse circumstances.

Salutogenesis focuses more on the positive side of wellness and health, developing personal and social resources as well as adaptive tendencies, in order for people to grow and develop effective coping strategies. According to this approach, all individuals experience stress, or stressors, which are defined as when demands exceed available resources (Hochwälder & Saied, 2018). Still, experiencing stressors does not always mean that it has negative consequences. It is through the process of active adaptation to changing life circumstances, that individuals experience psychological and physical health (Antonovsky, 1972, 1979; Golembiewski, 2017). Antonovsky (1979, 1987) stated that with the amount of pathogens individuals are exposed to, whether microbiology, chemical, psychological, physical, social or cultural, most people should constantly be sick or dying, where in fact they are not. Many individuals even flourish and survive under dire circumstances (Antonovsky, 1979, 1987). Some stressors can even be beneficial when the individual learn to live with the stressors or even turn their stressors to their advantage (Antonovsky, 1987; Strümpfer, 1996; Vinje et al., 2017).

Antonovsky (1987) distinguished between three significant stressors. The first of these stressors are *chronical stressors*. Chronical stressors are life circumstances, states of being or characteristics that are relatively permanent that affects life continuously (Antonovsky, 1987; Hochwälder & Saied, 2018). In the current study, obesity or morbid obesity were regarded as a chronical stressor. The second is *major life-events*, which refers to specific life events at a specific point in time. The focus here is not so much on the event itself, but on the consequences or effect it has on the individual (Antonovsky, 1987; Hochwälder & Saied, 2018). Within the current study, this could point to the WLS itself, and the consequences it has on the individual and their environment, for example changes in relationships after WLS. The third stressor is *daily hassles*, which refers to minor frustrating incidences on a daily basis (Antonovsky, 1987; Hochwälder & Saied, 2018). Stigmatisation and discrimination are an

example of daily hassles experienced by obese and morbidly obese individuals. Other examples of daily hassles in the context of the study can be excess skin, loneliness or the taking of supplements after WLS.

Stressors are thus assumed to be events and changes in an individuals' life, for example changes in the workplace, within the family such as a divorce or illness of a significant other. All these changes can affect health in a negative manner in the short term, but possibly strengthen the individual in the long term as they learn how to adapt to change and manage stress (Eriksson, 2017). It is when life's demands exceed an individuals' ability to cope and adapt when illness can prevail (Antonovsky, 1979; Golembiewski, 2017). Salutogenesis accepts a multiple causation approach as various forces either cultivate illness or adaptability (Antonovsky, 1979; Golembiewski, 2017). It is therefore important to enhance coping and adapting abilities of individuals as part of sense of coherence (see 3.4) to build solutions to better health (Antonovsky, 1979; Golembiewski, 2017).

According to Antonovsky (1979), it is more productive to focus on actively adapting to an environment filled with stressors than concentrating on those factors that contribute to a particular disease, illness and entropy (defined as the decline to disorder) which appears to be the norm. Within this idea, Antonovsky (1987) introduced the positive term of negative entropy or negentropy. Negentropy refers to the search within the physical environment, the sociocultural context, as well as within the individual for factors to counter entropy (Vinje et al., 2017). These terms of entropy and negentropy was used by Antonovsky (1979) to show the connection between order and chaos and how sense of coherence (see 3.4) can create order out of chaos. Salutogenesis explains thus why an individual will be able to cope more successfully with stressful circumstances, thus leading to better performance or outcomes in various areas in their life (Breed et al., 2006; Mittelmark & Bauer, 2017; Vinje et al., 2017).

Breed and colleagues (2006) provided a salutogenic profile of functioning, indicating the salutogenic strengths and influences on the following four levels:

- The cognitive level: As individuals are able to view their environment in a more positive manner, they are able to use the information they obtain from their environment to make better decisions that are effective (Breed et al., 2006).
- The affective level: Individuals experience life and events as meaningful, and thus engage with commitment (Breed et al., 2006).
- The motivational level: When intrinsic motivation is followed, which refers to a person who strives for internal accomplishments or rewards, there is usually a sense of fulfilment. This stands in contrast to extrinsic motivation, which refers to rewards or obligation from outside, such as money or fame. When individuals follow intrinsic motivation, they will view challenges as worthy of investment of their energy to solve problems, accomplish more positive outcomes and be able to cope with what life offers (Breed et al., 2006).
- The intrapersonal level: Individuals with salutogenic strengths (see 3.4) will be more able to establish and maintain relationships with others (Breed et al., 2006).

From the salutogenic profile of functioning, as well as the salutogenic point of departure, individuals can take responsibility for their own health, if their environment enables them to cope effectively and act independently (Antonovsky, 1987). Thus, from this salutogenic stance, health entails and incorporates cognitive processes and coping strategies. It also emphasises the importance of the person-environment interaction in order to maintain or restore a state of balance to the individual, a state of wellbeing. However, health encompasses only a part of wellbeing or quality of life (Antonovsky, 1987, 1991; Breed et al., 2006; Vinje et al., 2017). The understanding of these factors can contribute greatly in understanding why some individuals will be able to maintain the weight they have lost after WLS and why others will not.

3.3 Distinguishing Between a Salutogenic and Pathogenic Orientation

As indicated in 3.2, the pathogenic orientation places the emphasis on the origin of disease, whereas the salutogenic approach attempts to understand the origin of health (Antonovsky, 1979; Strümpfer, 1995). In the same contrasting manner, the pathogenic orientation will place an individual on a continuum of diseased or nondiseased, where salutogenesis uses a continuum of ease to dis/ease, also known as the breakdown continuum (Antonovsky, 1979, 1982; Langeland et al., 2022; Mittelmark, Bull & Bouwman, 2017; Vinje et al., 2017). Antonovsky (1979) indicated that individuals rarely experience complete health, and that the latter is rather presented in the form of constant movement on this continuum between the ease and dis/ease poles. The process of salutogenesis is thus to focus on aspects that could move individuals to the ease pole in this ease-dis/ease continuum, irrespective of their current placement on the continuum. The most influential aspect contributing to this movement between ease-dis/ease is sense of coherence, which will be discussed in detail under 3.4 below. Antonovsky (1979) even stated that “The origins of health are to be found in a sense of coherence” (Antonovsky, 1979, preface vii). Thus, the focus specifically in salutogenesis is on health promotion by looking at the interaction between stressors experienced and factors that promote health. In salutogenesis dis/ease or illness is therefore considered as a more subjective and holistic experience (Antonovsky, 1979, 1982; Vinje et al., 2017, 2022).

Antonovsky (1985) also indicated other differences between the pathogenic and salutogenic orientation. One of which is the rejection of the medical expert deciding who is ill or healthy through the process of diagnosis. Antonovsky (1979) also rejected the World Health Organisation’s (WHO) definition of health, which reads as follows: “Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity” (WHO, 2014, p.1). The reasons for this rejection of the definition of health by Antonovsky (1979) were that it was not measurable, that it does not take life challenges into account, and that it opens up for medical superiority. Antonovsky (1979, 1985) advocated for a more measurable and limited definition of health. He then operationalized his ease-dis/ease

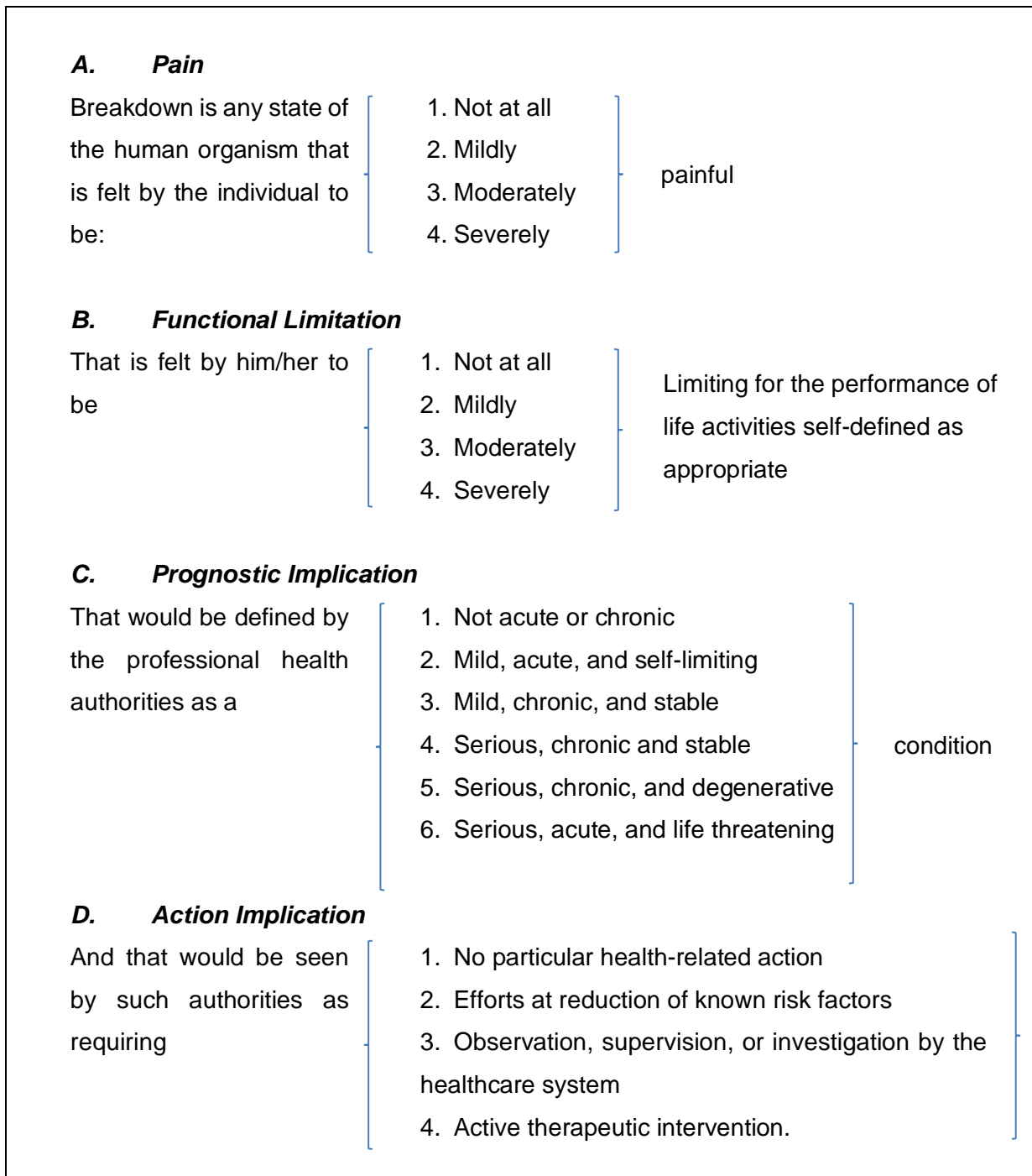
continuum for a more precise definition (Antonovsky, 1979, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022). Within this ease-disease continuum, or breakdown continuum, there are varying degrees of health or breakdown that can be experienced. These degrees of health or breakdown are assessed and mapped on four dimensions (see Figure 3.1), namely (Antonovsky, 1979, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022):

- The first dimension is a subjective experience of pain by individuals, where they report on a four-point scale from not experiencing any pain to severe pain (Antonovsky, 1979, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022).
- The second dimension is also rated on a four-point scale, from no limitations to severe, and relates to any subjective experience of limitations in functioning (Antonovsky, 1979, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022).
- The third dimension is assessed by a medical professional if there is any medical condition present. It is measured on a six-point scale, ranging from not acute or chronic, to acute, serious and life threatening (Antonovsky, 1979, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022).
- The fourth dimension relates to whether medical intervention or treatment is required, which is also assessed by a medical professional. It is assessed on a four-point scale from no treatment required to active intervention required (Antonovsky, 1979, 1985; Mittelmark, & Bull, 2013; Vinje et al., 2017, 2022).

Thus, within salutogenesis, an individual can experience dis/ease, but not necessarily be diagnosed with an illness. The focus should therefore not only be on establishing if there is a diagnosis present, but also on the individual's own story and their subjective experience when their history is taken into consideration. From the individuals' story health practitioners and researchers are then able to obtain more knowledge and understanding of the specific individual's health status. This knowledge will enable said practitioners/researchers to aid the individual to move more towards the ease pole on the continuum (Antonovsky, 1979, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017).

Figure 3.1

The Ease-Dis/ease Continuum Mapping of Health (Antonovsky, 1987, p.65)



Note: The ease-dis/ease continuum mapping of health. Adapted from “*Unraveling the mystery of health: How people manage stress and stay well.*” by A. Antonovsky, 1987, Jossey-Bass: San Francisco. Copyright 1987 Jossey-Bass.

Other contrasting factors between salutogenesis and pathogenesis include that salutogenesis focuses more on health promoting factors, where the pathogenic orientation focus more on risk factors (Antonovsky, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017). This difference in perspectives can also be seen in how salutogenesis and pathogenesis consider stress (Antonovsky, 1985). The pathogenic orientation considers stress as pathogenic in nature only. In contrast, salutogenesis accepts that stress can be pathogenic, neutral or salutogenic. As salutogenesis accepts that stress is ever-present, it opens up the possibility for the rehabilitation of stressors into a possible positive or active adaptation, which then leads to the view of stress possibly being pathogenic, neutral or salutogenic (Antonovsky, 1985; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022).

This active adaptation where stressors can be pathogenic, neutral or salutogenic also links to the next contrast between salutogenesis and pathogenesis in terms of therapy. Within pathogenesis the focus and goal are on correctly diagnosing an individual, as this enables the medical professional involved to provide the correct medication, therapy or surgery. However, within salutogenesis the focus and goal of therapy is on active adaptation of the individual, and not just obtaining the correct diagnosis to provide the right remedy (Antonovsky, 1987; Mittelmark & Bull, 2013; Vinje et al., 2017). Antonovsky (1987) indicated that when one focus therapy on active adaptation, one can move beyond the body-mind dualism and incorporate individuals' sense of meaning, their imagination, motivation and even the social structures that nurtures these aspects of adaptation. This enables individuals to move more to the ease pole of the continuum (Antonovsky, 1987; Mittelmark & Bull, 2013; Vinje et al., 2017, 2022).

3.4 Six Salutogenic Strengths

Currently salutogenesis is regarded as an umbrella term for various theories and concepts, where the focus is on health and individuals' resources (Eriksson & Mittelmark, 2017). Antonovsky (1991) wrote about salutogenic strengths, where he focused on what he called *generalised personality orientations*. These generalised personality orientations include self-efficacy, hardiness, locus of control and sense of coherence, to name a few (Mittelmark et

al., 2017). As mentioned in 3.1, Strümpher (1990) suggested six salutogenic strengths, which could promote health (Minnie & Minnie, 2017). Only three of these six strengths, namely sense of coherence, locus of control and self-efficacy were used within this study as they overlap with one another. Hardiness, potency and learned resourcefulness all share constructs that fall into either all, or some of the selected strengths chosen for this study, namely sense of coherence, locus of control and/or self-efficacy. For example, hardiness overlaps with aspects of meaningfulness and manageability, as found in sense of coherence, as well as locus of control. Potency overlaps with self-efficacy, locus of control and two components of sense of coherence, namely comprehensibility and meaningfulness. Learned resourcefulness overlaps with locus of control, self-efficacy and meaningfulness as found in sense of coherence. However, all six of these strengths will be discussed in more detail below, which will also illustrate the overlap and rationale for the chosen three constructs.

3.4.1 Sense of Coherence

In contrast to various theorists who believe that the aim for individuals is homeostasis, Antonovsky (1987) believed that people do not really want homeostasis, as they are more active and have a need to grow and develop. From this perspective he developed the construct sense of coherence, which forms the core principle of his salutogenic approach. Antonovsky (1987, 1996) defined sense of coherence as a belief that one's environment (internally and externally) is predictable and structured; that demands can be met with the resources available and that challenges are worthy of investing one's energy in. To put it differently, sense of coherence is traits that allows an individual to interpret stressors as positive and equips them to adapt (Antonovsky, 1987, 1996; Compton & Hoffman, 2013; Mittelmark & Bauer, 2017; Zugravu, 2012).

Sense of coherence has been linked to life satisfaction, better health status, psychological wellbeing, protection against depression and suicidal ideation within depression, as well as lower mortality in general. A strong sense of coherence is also a very good indicator for positive health outcomes in general (Antonovsky, 1993; Hefferon & Boniwell, 2011;

Nuccitelli et al., 2018; Super et al., 2015). On the opposite pole, individuals with a low sense of coherence seem to be more prone to poorer quality of life and mental health, making poorer lifestyle choices and increased risk for disease and mortality (Eriksson & Lindström, 2006; Super et al., 2015).

Within this definition and model of sense of coherence, emphasis is placed on three interrelated components: comprehensibility, manageability and meaningfulness.

- *Comprehensibility* is the cognitive component of sense of coherence and refers to an individual's ability to experience their internal and external world as ordered, structured, and predictable (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017, 2022). This is important, as the individual first needs to understand their own achievement and obstacles before they can assign the appropriate resources thereto (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017, 2022). An individual with high comprehensibility usually has a better capability of judging reality (Antonovsky, 1979; Langeland & Vinje, 2017).

For the purposes of this study, comprehensibility will encompass expectations and the subjective experience after WLS, such as lifestyle and mindset change, preoperative research and education. These factors will enable the individual to experience their world as ordered, structured and predictable and will contribute to how the patient manages any changes occurring after WLS (Antonovsky, 1987; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011).

- *Manageability* is the behavioural component of sense of coherence, and is the belief that the resources available, internal and external, to the individual will be adequate to meet the situational demands at the time (Antonovsky, 1987; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Richardson & Ratner, 2005; Vinje et al., 2017). This component was inspired by Rotter's (1966)

concept of locus of control (Vinje et al., 2017), which is discussed in more detail in 3.4.2. External formal resources are for example medical services, experts and staff, while informal resources can include friends, family, colleagues or any other significant others that are trusted and relied upon (Eriksson & Mittelmark, 2017; Vinje et al., 2017). This concept of manageability is similar to Bandura's (1977) concept of self-efficacy (Hefferon & Boniwell, 2011; Koelen et al., 2017), which is discussed in 3.4.3.

Manageability also refers to patient expectations, support systems, self-efficacy, locus of control and quality of life (Antonovsky, 1987; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011). If the patient has unrealistic expectations about WLS, they will be more likely to struggle with the situational demands required postoperatively. On the other hand, an individual who measures high on quality of life will be able to function optimally after WLS. These patients will not have unrealistic expectations regarding weight loss and the management thereof, keeping to postoperative requirements (Antonovsky, 1987; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011).

- *Meaningfulness* is possibly the component of most importance, as it provides the individual with a desire to move their life forward and resist entropy of illness or even death (Antonovsky, 1979; Golembiewski, 2017). Meaningfulness is the motivational element, where the individual believes life makes cognitive and emotional sense; that life's challenges are worthwhile to invest one's energy and commit to. Meaning is of importance as it allows an individual to accept the inevitable disappointments in life (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Idan et al., 2017; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017). Meaningfulness is very personal to each individual and thus difficult to define. It can be found in relationships, social groups, responsibilities, causes and even in society at large, giving each individual their identity. Without

this sense of meaning, individuals will struggle to have a desire to act (Frankl, 1963; Golembiewski, 2017).

Meaningfulness refers, as indicated above, to the motivational element, where there is a belief that the challenges one faces is worthwhile, and that these challenges make sense to the individual (Antonovsky, 1987; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Vinje et al., 2017). In this study the researcher explored self-efficacy and the subjective life experiences these participants worked through, or are still working on and how this could affect weight maintenance. Self-efficacy refers to individuals' belief in their own ability to perform a specific task (Batsis et al., 2009). Self-efficacy and self-esteem are influential in determining a multitude of health behaviours, which are mediated by meaningfulness. This supports the concept that salutogenic strengths, such as self-efficacy, contribute to life being experienced as meaningful (Idan et al., 2017). An individual with high self-efficacy will thus have the belief that they can work through the postoperative requirements and new challenges successfully where the challenges makes emotional and cognitive sense. In addition, self-efficacy will inspire the individual to set realistic goals and they will work in a systematic manner towards obtaining the goals set by the multidisciplinary team for postoperative requirements (Antonovsky, 1987; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011). Within this study meaningfulness was also explored through consideration of unexpected challenges after WLS, the contributions made to others, self-esteem, and quality of life.

The three components discussed above of comprehensibility, manageability and meaningfulness are interrelated. For example, when an individual with a strong sense of coherence experience a stressor, (1) they will feel motivated to actively deal with the stressor, as they experience meaningfulness; (2) they will feel that they understand the challenge that they have to face, or ensure they understand it because of the comprehensibility component, and (3) they trust that they have resources available in order to cope with the stressor, which refers to the manageability component. In this manner it can affect an individuals' health

status and health-related behaviour (Antonovsky, 1987, 1996; Breed et al., 2006; Hefferon & Boniwell, 2011; Quehenberger & Krajic, 2017; Vinje et al., 2017). Although Antonovsky (1993) indicated that there is evidence that sense of coherence can stand as a unitary construct, research has shown that it is a multidimensional construct (Antonovsky, 1993; Eriksson & Lindström, 2006; Eriksson & Mittelmark, 2017).

Sense of coherence is thus a coping style, a personality trait and a mechanism that mediates all other factors that play a role in health, wellbeing and quality of life (Joseph & Sagy, 2017; Linley, 2003; Rothmann, 2001). Meaningfulness, comprehensibility and manageability can be built with social and personal resources in any situation. This enables the individual to deal effectively with stressors, thus promoting wellbeing and end entropy (Joseph & Sagy, 2017; Linley, 2003; Rothmann, 2001). Other elements identified as part of sense of coherence are locus of control, self-efficacy and hardiness (Linley, 2003; Rothmann, 2001).

Within this study weight maintenance is explored with the help of sense of coherence. As *comprehensibility* refers to experiencing one's world as ordered, structured and predictable, it can contribute to understanding the subjective experience of the world with regards to weight, specifically obesity and especially weight after WLS (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Koelen et al., 2017; Richardson & Ratner, 2005; Vinje et al., 2017). If the individuals, who have undergone WLS, feel that their world make sense and contribute to their quality of life, they would adhere more to postoperative requirements and possibly increase their chances of weight maintenance. When preoperative education is done, for example in regards to possible impact on relationships, there is structure and a possibility that they are better equipped for the changes ahead. This feeling of the world being ordered and predictable can thus play an important role on weight maintenance after WLS.

Meaningfulness is the motivational element to invest one's energy into various aspects of life, which will assist individuals to accept disappointments (Antonovsky, 1987; Breed et al., 2006; Hefferon & Boniwell, 2011; Idan et al., 2017; Koelen et al., 2017; Richardson & Ratner,

2005; Vinje et al., 2017). This is a crucial element in this study, as it was most probably the reason why these individuals decided to have WLS in the first place. The meaning individuals ascribed to the possible outcomes of how WLS will change their lives, and the reality there after, could have either positive or devastating results (Homer et al., 2016; Magdadeno et al., 2009; Opolski et al., 2015; Schowalter et al., 2008; Theunissen et al., 2020). Meaningfulness could aid in understanding why individuals maintained their weight loss, while others may struggle. When relationships (personal, work or social) possibly change after WLS, meaningfulness could allow for accepting the possible disappointments and changes, contributing to continued positive weight loss and weight maintenance result. However, if longstanding relationships and relationships of importance were negatively influenced, for example by divorce, meaningfulness could be negatively affected (Bruze et al., 2018; Homer et al., 2016; Magdadeno et al., 2009; Opolski et al., 2015; Schowalter et al., 2008; Theunissen et al., 2020). As work provides individuals with a sense of identity and purpose, WLS can even impact the working environment and relationships (Rumrill et al., 2020). For some individuals it could be positive for example a promotion. In contrast, for others work may become a terrifying environment, as they are experienced as competition and even then, discriminated against (Sharman et al., 2017). Some individuals, who have made career choices to accommodate their obesity, with little space for ridicule, might after WLS want to make a career change, as they do not have the same insecurities and want to find meaning and self-fulfillment that they have always felt they lacked. If weight maintenance is not successful after WLS, it could be postulated that meaningfulness could aid in re-committing to weight loss and postoperative adherence.

Manageability, the behavioural component, enable individuals to believe they can adequately cope with the stressors they are facing, as they have the resources, whether internally or externally, available to them (Antonovsky, 1987; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Richardson & Ratner, 2005; Vinje et al., 2017). Strengths, such as self-efficacy and an internal locus of control, aid this process of coping or adapting to the lifestyle and psychological changes after WLS (Antonovsky, 1987; Compton &

Hoffman, 2013; Hefferon & Boniwell, 2011). In contrast, low self-efficacy and external locus of control may contribute to not adequately adapting, which can impact weight maintenance in a negative manner. Pre- and postoperative education can aid this process, as it provides structure in order for these individuals to prepare for the resources which will be needed. It also provides an opportunity to strengthen these individuals' resources already available. However, when unexpected challenges or stressors occur postoperatively, this could lead to individuals believing that they do not have adequate resources. In this scenario, it may lead to various symptoms, even to depressive symptoms, which may affect eating and monitoring behaviour, and thus contribute to weight regain. It is important to remember that some of the resources these individuals are dependent on, such as spouses or friends, may become deficits, as marriages and friendships may fall apart after WLS. Whether these resources are internal or external, they are crucial to health and the successful outcome of WLS.

From the above it is clear that sense of coherence affects health and quality of life since it plays a role when an individual defines a stimulus as a stressor, a non-stressor, neutral or even beneficial (Antonovsky, 1990). It can also aid an individual to become aware of their choices and behaviour, analysing it and then redesigning their responses and behaviour, which can lead to a healthier lifestyle. Sense of coherence contributes to the individuals' ability to be aware that they need to cope both emotionally and actively with the stressors they have to face. Another way in which sense of coherence contributes is that it allows the individual to search their own, as well as their networks repertoire, for generalised resistance resources (see 3.4.1.1) required for specific situations (Nuccitelli et al., 2018; Vinje, et al., 2017).

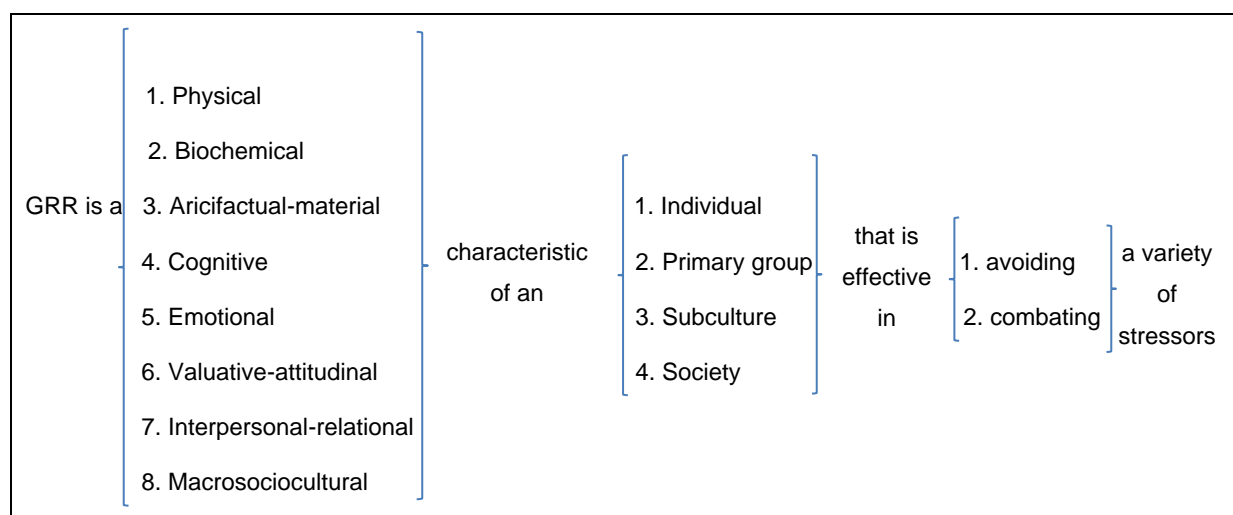
3.4.1.1 Generalised Resistance Resources and Generalised Resistance Deficits.

The strength of sense of coherence is also linked to various coping mechanisms, referred to as generalised resistance resources (GRR). These generalised resistance resources are defined as characteristics of the individual, group or environment that contribute to effective management of tension, thus manageability, comprehensibility and meaningfulness

(Antonovsky, 1979, 1987; Breed et al., 2006; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017). The definition of GRRs are explained in Figure 3.2, which indicates that the GRRs includes the following: physical; biochemical; material resources like money; cognitive-emotional-intrapersonal and emotional resources, for example intelligence and knowledge; coping strategies; ritualistic activities; religion; orientation of proactive health; valuative-attitudinal-rationality, foresight and flexibility (ego-identity); interpersonal-relational, i.e. a social support system; and macro-socio-cultural, where cultural norms determine behaviour (Breed et al., 2006; Idan et al., 2017; Vinje et al., 2017).

Figure 3.2

Generalised Resistance Resources (GRR) Definition (Antonovsky, 1979, p. 103)



Note: The definition of generalised resistance resources by Antonovsky. Reprinted from “*Health, stress, and coping.*” by A. Antonovsky, 1979, Jossey-Bass: San Francisco.

Thus, when faced with psychological or physical stressors, these GRR are mobilised by sense of coherence. This will then lead to the individual to either (1) avoiding the stressor, (2) experience tension and later manage the stressor effectively, and through this process enhance their sense of coherence, (3) unsuccessfully cope with the stressor that leads to tension, (4) define the stressor as a non-stressor or (5) manage the stressor or even overcome the stressor. This in turn contributes to the movement on the ease/dis-ease continuum (Mittelmark et al., 2017).

These GRRs, i.e. socioeconomic status, intelligence, knowledge, social support, self-identity and stable cultural background, provide the individual with life experiences, and from these life experiences the individual built up a sense of coherence. Thus, the stronger the individual's sense of coherence, the more realistic their perceptions are of their own abilities, their roles and demanding situations, leading to better general wellbeing and quality of life (Antonovsky, 1987, 1991, 1987; Elovainio & Kivimaki, 2000; Langeland & Vinje, 2017).

Antonovsky (1987) highlights social support and self-identify as critical resistance resources. As individuals experience different life demands, different kinds of social support are needed for each experience, in order to adapt to the situation. This support can vary from attachment, social belonging, nurturance, affirmation of worth to guidance (Langeland & Vinje, 2017; Ogle et al., 2016). Research indicated that social support, in the form of support groups, had a positive impact on the amount of weight loss after WLS (Livhits et al., 2010; Levhits et al., 2011). In contrast, a perceived lack of social support can increase the chance of alcohol use disorder in individuals who have undergone WLS (King et al., 2017). That is why emphasis is placed on healthcare providers on discussing support on a regular basis with individuals who have undergone WLS (Sharman et al., 2017).

Langeland and Vinje (2017) indicated that social support and self-identity are closely related, as individuals develop their identity through their social interactions with others. It is in these interactions with others that the individuals find meaning in life and realise their own desires for their lives, which promotes identity (Langeland & Vinje, 2017). Identity is also shaped by the challenges individuals face, as within these challenges the individual learns how to cope with tension and stress, identify resources, as well as their own potential (Langeland & Vinje, 2017). The social support structures in this manner is also a resource which buffers various stressors (Buddlemeyer & Pawdthavee, 2016; Livhits et al., 2011, Sharman et al., 2017). Obese individuals usually have a weight-centred self-identity, especially in light of society's focus on weight and stigma. This usually leads to obese individuals feeling unattractive and results in negative mood (Epiphaniou & Ogden, 2010; Gilmartin et al., 2015; Joanisse et al., 2005). After weight loss, and with weight maintenance,

these individuals obtain a more positive self-identity (Epiphaniou & Ogden, 2010; Gilmartin et al., 2015, Joannis et al., 2015). Individuals' identities therefore move away from being based on weight and the focus is less restrictive. They are more socially and physically active, with better dietary habits and more flexible (Epiphaniou & Ogden, 2010; Gilmartin et al., 2015, Joannis et al., 2015). These findings are in line with the salutogenic paradigm of thought.

Just as the general resistance resources aid in the management of tension, these resistant resources can itself become a stressor if they are not available or when life's challenges exceed the resources available (Antonovsky, 1987). Antonovsky (1987) referred to the non-availability of resources as a generalised resistance deficit (GRD) (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017). This stressor-resource situation could be envisioned as a unified concept on a continuum of generalised resistance resources-resistance deficits (GRR-RDs) (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017). A stressor is an aspect that brings entropy, or breakdown, into the system. Or phrased differently, a stressor refers to where an experience is inconsistent, overloaded or underloaded and where the individual cannot participate in any decision making, thus being low on the continuum of GRR-RDs (Antonovsky, 1987). An individual who is high on the continuum of GRR-RD will in contrast participate more in decision making and experience more consistent and balanced life experiences (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017).

These three concepts of consistency, load balance and participation in decision-making, are life experiences that contribute to the developmental process of sense of coherence, and thus health, especially in childhood and young adulthood (Super et al., 2015; Vinje et al., 2017). Any life experience can be characterised by the degree that it creates the life experiences of consistency, load balance and participation in decision making at any time. Each of these life experiences can be reflected on a continuum, where if it reflects on the positive side, GRRs is used. If it reflects on the negative side of the continuum, it indicates GRDs. It is thus important to consider the resources and the deficits, or stressors in any situation. The emphasis should be on the interplay between the resources and stressors, and

how it creates life experiences reflecting consistency, load balance and participation in decision making. These experiences contribute to a strong sense of coherence and thus health (Idan et al., 2017; Super et al., 2015; Vinje et al., 2017). A fourth concept was later added by Sagy and Antonovsky (2000) of emotional closeness. Together the four concepts can be described as follows:

- Consistency: Antonovsky (1991) states that consistency forms the basis for comprehensibility within sense of coherence. Consistency refers to where, as an individual was growing up, they experienced messages from their environment that was ordered and structured, in contrast to chaos (Antonovsky, 1987, 1991; Idan et al., 2017, 2022; Super et al., 2015; Vinje et al., 2017).
- Load balance: This life experience refers to, while an individual was growing up, he/she experienced a balance between their available resources and demands present; they did not experience a under- or overload of resources or demands. With regard to sense of coherence, load balance is important within the manageability component thereof (Antonovsky, 1991; Idan et al., 2017, 2022).
- Participation in decision making: This refers to how much of an active participant the individual is within their own lives and their decisions, and not just following demands from others. Within sense of coherence, participation in shaping outcomes is the basis for the meaningfulness component (Antonovsky, 1991; Idan et al., 2017, 2022).
- Emotional closeness: Here the individual experienced a sense of belonging and an emotional bond as a member of a social group. This sense of belonging and emotional bond also relates to meaningfulness within sense of coherence (Idan et al., 2017, 2022; Sagy & Antonovsky, 2000).

Sense of coherence could thus be perceived as a mathematical equation that can be written as: $\text{sense of coherence} = \text{the total of all the GRRs} - \text{the GRDs}$. The higher the

resources, the stronger the individual's sense of coherence and the ability to overcome illness. In the same manner, as resistance deficits are entropic, meaning a negative sense of coherence or breakdown, it could lead to illness (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017). When considering this equation in the context of individuals who have undergone WLS, a higher divorce rate and breakup of relationships is found after WLS (Sarwer & Fabricatore, 2008). Since their partners or spouses are also their resources of support, this could lead to an imbalance in sense of coherence, and thus possibly leading to the inability to maintain weight, weight regain or other breakdown scenarios. It is important to note that sense of coherence and GRR-RDs have a reciprocal relationship, where sense of coherence mobilise GRR's to manage tension, and where GRRs contribute to the individuals' sense of coherence (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017, 2022; Vinje et al., 2017).

According to Antonovsky (1987, 1996) sense of coherence is quite consistent at the age of 30, as he believed that the quality of experiences stays the same with minimal changes (Joseph & Sagy, 2017; Super et al., 2015; Vinje et al., 2017). This is especially true for individuals with a strong sense of coherence (Antonovsky, 1987, 1996; Super et al., 2015). He states that life experiences could on rare occasions strengthen sense of coherence. For example, a new marriage or new job can only bring change if it provides different experiences on various levels of consistency, load balance and participation in decision making (Antonovsky, 1987, 1996; Vinje et al., 2017). Research has shown that sense of coherence can change, even in individuals with a high sense of coherence. For example, when an individual experience unexpected trauma, the trauma could challenge their sense of coherence. This will require the individual to rebuild their sense of coherence (Joseph & Sagy, 2017; Super et al., 2015).

There is thus a mutual interplay between sense of coherence and resistance resource. The more an individual is aware of and able to utilise their resources, the higher the individual's sense of coherence. And the higher the individual's sense of coherence, the more

resources the individual will be able to utilise. This leads to positive health (Antonovsky, 1987; Idan et al., 2017; Vinje et al., 2017).

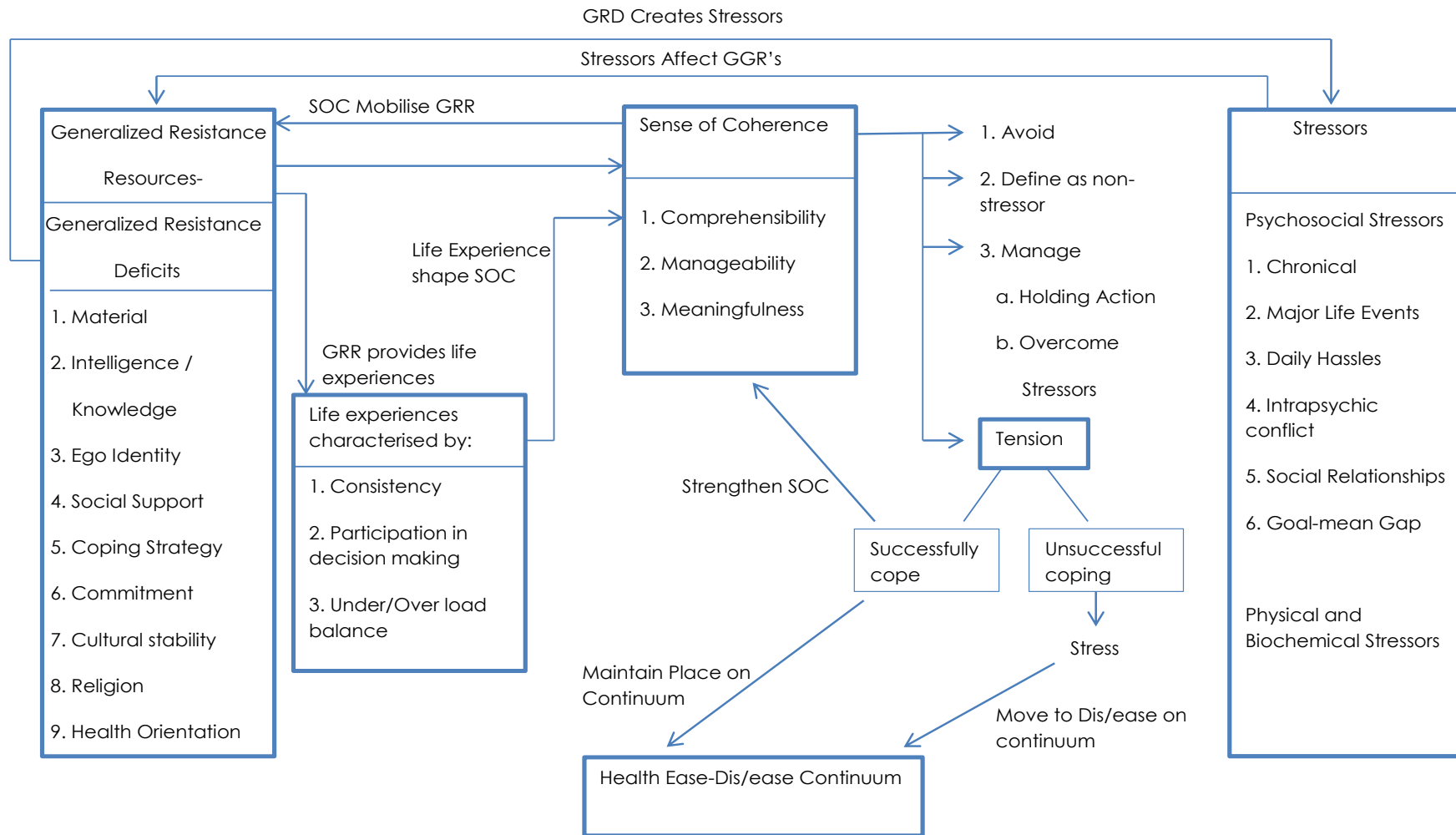
In Figure 3.3, the salutogenic model of health, it is evident that GGRs provide life experiences, which in turn shape sense of coherence. Through the mobilisation of the GRRs through sense of coherence stressors are then either avoided, defined as a non-stressor, managed or an individual will experience tension (Antonovsky, 1979, 1987; Idan et al., 2017, 2022; Mittelmark et al., 2017; Super et al., 2015; Vinje et al., 2017). If tension is dealt with successfully, this will strengthen sense of coherence and lead to the ease pole on the continuum. In contrast, if tension is not dealt with successfully, this will lead to the individual moving more towards the dis/ease pole of the continuum (Antonovsky, 1979, 1987; Idan et al., 2017; Mittelmark et al., 2017; Super et al., 2015; Vinje et al., 2017). It is also important to note that if the GRRs are not present, thus GRDs occur; this will lead to the appearance of stress /stressors (Antonovsky, 1979, 1987; Idan et al., 2017; Mittelmark et al., 2017; Super et al., 2015; Vinje et al., 2017).

3.4.2 Locus of Control

The concept of locus of control was originally proposed by Rotter (1966). It can be defined as a general belief or expectation that one's own actions or behaviour will or will not have an effect on wanted outcomes (Wang & Meizhen, 2020). Locus of control can change depending on the situation and it is thus not a stable personality trait (Hefferton & Boniwell, 2011). From this concept, a distinction is made between internal locus of control and external locus of control (Wang & Meizhen, 2020).

Figure 3.3

A simplified reproduction of the salutogenic model (adapted from Antonovsky, 1979, pp. 184-185).



Note: The salutogenic model. Adapted from "Health, stress and coping." by A. Antonovsky, 1979, Jossey-Bass: San Francisco. Copyright 1987 Jossey-Bass.

Internal locus of control refers to individuals who believe that they have control over what happens to them and their world; that the environment will respond to their efforts and there will be rewards dependent on their own actions. In other words, they ascribe their own successes or failures to their own actions, choices and efforts (Breed et al., 2006; Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Wang & Meizhen, 2020). These individuals appear to be more assertive, individualistic, achievers, able to delay immediate gratification, seekers of knowledge and take responsibility for their own lives. They are able to maintain positive relationships, show concern for social problems and take an active stance to try and solve social problems (Breed et al., 2006; Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Wang & Meizhen, 2020). Individuals with an internal locus of control thus believe in themselves and their ability to face demanding situations. Because of these attributes, individuals with an internal locus of control are less likely to experience stress, and better tolerate anxiety. Individuals with an internal locus of control are more likely to experience guilt or self-blame especially when situations do not work out as planned, as they take responsibility for events in their own lives (Breed et al., 2006; Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Wang & Meizhen, 2020). In terms of weight maintenance after WLS, individuals with an internal locus of control are able to maintain weight better and for longer because they believe they have an impact on their results. A contributing factor to better weight maintenance is the close relationship between locus of control and self-efficacy (Coetzee & Cilliers, 2001; Elfhag & Rössner, 2005; Maddi, 1996; Montesi et al., 2016).

Individuals with an external locus of control believe the environment and rewards are less under one's own control. These individuals will rather make connotations to outside forces, such as fate, luck, or powerful others, rather than understanding the relationship between their own behaviour, efforts and events. They are more inclined to experience anxiety, frustration, and feelings of hopelessness (Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Wang & Meizhen, 2020).

3.4.3 Self-efficacy

The construct of self-efficacy was first introduced by Bandura in 1977. Self-efficacy can be defined as an individual's conviction and trust in their own abilities to perform specific tasks, which in turn enables them to hold a perception of control over events within their lives (Azizli et al., 2015; Bandura, 1986, 1994; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Rothmann, 2001). This belief in their own capabilities, thus self-efficacy, determines how an individual will motivate themselves, their behaviour, their thoughts as well as their feelings (Azizli et al., 2015; Bandura, 1986, 1994; Breed et al., 2006; Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Rothmann, 2001).

Bandura (1986) introduced the concept of triadic reciprocity, which emphasise the dynamic interplay between the person, their environment and their behaviour, which works bi-directionally. Through the integration of various sources self-efficacy emerges, which can be developed or influenced in four influential ways, namely:

- Previous achievement successes. When individuals experience successes in their various endeavors they construct a strong sense of personal self-efficacy, especially when they were faced with and conquered, challenging obstacles (Azizli et al., 2015; Bandura, 1977, 1994). However, when failures are experienced this can undermine their personal self-efficacy, especially if their self-efficacy is not yet established. Setbacks and difficulties are still necessary, as it serves to teach individuals that only through continuous efforts and commitment, one can succeed, which will in turn enhance perceived self-efficacy (Azizli et al., 2015; Bandura, 1977, 1994).
- Indirect or vicarious experiences through modeling: When individuals identify with a social model, someone that they consider as similar to themselves, and this model is successful in his/her efforts, this can heighten the individual's own perceived abilities or self-efficacy (Azizli et al., 2015; Bandura, 1977, 1994). Similarly, if the model fails, despite all efforts, the individual will lower their belief in their own ability or self-efficacy. Models are usually chosen as

someone to aspire to, and compare oneself to, and fulfil the role of a mentor. The level of identification with the model plays a significant role. If the model is perceived as someone that is different to themselves, the model's influence will not be as impactful (Azizli et al., 2015; Bandura, 1977, 1994).

- Persuasion: Individuals who are verbally persuaded by others that they are capable of achieving successes, are more likely to devote their energy and efforts into their activities and thus bolstering their self-efficacy (Azizli et al., 2015; Bandura, 1977, 1994). What is of crucial importance here is that these 'efficacy builders' are honest and realistic about the individuals' capabilities, and do not set them up to fail. They also do not undermine or let the individual doubt their own ability, as this will weaken self-efficacy (Azizli et al., 2015; Bandura, 1977, 1994).
- Physical and emotional states: Individuals can either experience their physiological and emotional states as debilitating (weak self-efficacy) or revitalising (strong self-efficacy) when experiencing stress. When experiencing a positive mood state, individuals perceived self-efficacy will heighten (Azizli et al., 2015; Bandura, 1977, 1994).

Individuals with a strong perceived self-efficacy commit themselves to challenges and goals they set for themselves (Bandura, 1977, 1994). These goals are usually future orientated goals and thus less focus is placed on immediate gratification (Azizli et al., 2015). Even when faced with obstacles or failures they recover quickly, as they take responsibility and ascribe it to possible lack of knowledge or effort that one can correct. These individuals believe in their own abilities and their ability to control outcomes. Because of this conviction they are able to decrease their levels of stress and susceptibility to depression and increase their level of achievement and overall level of life satisfaction (Azizli et al., 2015; Bandura, 1977, 1994).

In contrast, individuals with a weak sense of self-efficacy tend to avoid difficult tasks and experience it as threatening. Their commitment to aspiring goals are usually weak. They will rather focus on their weaknesses and possible obstacles, without truly focusing on any effort to succeed in the challenges they face and rather give up. This negative view, and slow recovery of their self-efficacy, makes these individuals more prone to stress and depression (Bandura, 1977; 1994).

In relation to health and health behavioural changes, self-efficacy is crucial. Individuals with a strong self-efficacy tend to adhere to health programmes, maintain the changes they implemented in their health behaviour, even when faced with obstacles (Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Maddux, 2002). These individuals believe they can control their pain better and have more control over to their general health. Self-efficacy even impacts on the immune system (Compton & Hoffman, 2013; Hefferon & Boniwell, 2011; Maddux, 2002).

In a study conducted by Epiphaniou and Ogden (2010) it was indicated that obese individuals who have lost a significant amount of weight and maintained the weight, showed improvements in their self-efficacy. They believe that they are not just capable of maintaining their weight, but also have a general positive conviction of their abilities (Epiphaniou & Ogden, 2010).

3.4.4 Hardiness

Hardiness can be described as a personality style, consisting of various characteristics, where individuals' shows resilience. These hardy individuals tend to perform better and remain healthier under stressful circumstances, where they creatively adapt to life's challenges (Breed et al., 2006; Reknes et al., 2018). Hardiness assists in understanding an individual's goals, difficulties, as well as their interactional patterns with others (Ladstätter et al., 2018; Maddi, 2006).

Kobasa (1979) identified three attitudes of hardiness, namely commitment, control and challenge. This is also known as the 3 Cs, which mitigate the relationship with stress.

- *Commitment* refers to an individual who believes that they can always find something worthwhile and meaningful in any situation and that they have a sense of purpose. They are also committed to the self, which is crucial (Breed et al., 2006; Compton & Hoffman, 2013; Eschleman et al., 2010; Kobasa, 1979; Kobasa et al., 1982; Maddi, 1996, 2006; Reknes et al., 2018). These individuals are actively involved in their social environment, whether it is work, family or community. This characteristic is in contrast to alienation, as commitment fosters social relationships which will aid them in stressful times (Breed et al., 2006; Compton & Hoffman, 2013; Eschleman et al., 2010; Kobasa, 1979; Kobasa et al., 1982; Maddi, 1996, 2006; Reknes et al., 2018; Tantry & Singh, 2016).
- *Control* relates to the individual's belief that any life event, and the consequences thereof, can be controlled and unpleasant outcomes limited, where they will thus be able to cope successfully (Breed et al., 2006; Compton & Hoffman, 2013; Eschleman et al., 2010; Kobasa, 1979; Kobasa et al., 1982; Maddi, 1996, 2006; Reknes et al., 2018; Tantry & Singh, 2016). Individuals have an intrinsic need to have a feeling of control as this enables them to manage their environments and pre-empt threats to their wellbeing. This concept of control is therefore related to internal locus of control and taking responsibility, which stands in contrast to powerlessness (Breed et al., 2006; Compton & Hoffman, 2013; Eschleman et al., 2010; Kobasa, 1979; Kobasa et al., 1982; Maddi, 1996, 2006; Reknes et al., 2018; Tantry & Singh, 2016).
- The third concept, *challenge*, describes how an individual perceives life changes as opportunities to grow from, and provides for greater cognitive flexibility. This cognitive flexibility allows the individuals to assess their goals with that of the environment. They usually already know their environment

and which resources are at their disposal when faced with stressors (Breed et al., 2006; Compton & Hoffman, 2013; Eschleman et al., 2010; Kobasa, 1979; Kobasa et al., 1982; Maddi, 1996; 2006; Reknes et al., 2018; Tantry & Singh, 2016).

3.4.5 Potency

Ben-Sira (1985) introduced the concept of potency, which refers to (1) an individual's belief in their own capabilities, and (2) the belief in the social order of the environment, which has meaning, is predictable and fair (Ben-Sira, 1985, 1989, 1991; Breed et al., 2006; Coetzee & Cilliers, 2001). It is understandable that the environment plays a significant role, as it not only provides the demands, but also rewards and recognition for an individual. If the environment is perceived as unpredictable, it would most likely lead to alienation and helplessness, thereby negatively effecting coping. In contrast, if the environment is perceived as meaningful, structured and can be trusted, the individual will be even more committed to society (Ben-Sira, 1985, 1989, 1991; Breed et al., 2006; Coetzee & Cilliers, 2001). Potency is enhanced through the support of others, as well as through previous experiences where they have coped successfully (Ben-Sira, 1985).

From this perspective, coping is divided into two stages: (1) The primary stage is where the individual will respond to a demand when confronted, and (2) the secondary stage, if coping was unsuccessful in the first stage, the aim is to bring about emotional homeostasis again (Ben-Sira, 1989; Breed et al., 2006). Potency is a crucial mechanism, even more important than the individuals' own resources since it can moderate the impact of inefficient coping to bring about homeostasis (Ben-Sira, 1989; Breed et al., 2006).

Potency aids in buffering the negative effect when coping and resources seems inadequate, by almost encapsulating tension through weakening the relationship between coping, stress and health. Potency thus aids to prevent tension from becoming lasting stress and plays a crucial role in readaptation within society (Ben-Sira, 1985, 1989, 1991; Breed et al., 2006; Coetzee & Cilliers, 2001).

3.4.6 *Learned Resourcefulness*

Rosenbaum (1990) indicated that individuals should participate more in resourceful behaviours in order to reduce stress, especially when they might experience setbacks in goal achievement. When individuals can make use of their resourceful behaviour, this will enhance the possibility of a more successful outcome (Breed et al., 2006; Genç, 2016; Martin & Kennit, 2018; Rosenbaum, 1990; Rosenbaum & Ben-Ari, 1985).

Rosenbaum (1990) defined learned resourcefulness as a collection of various behavioural and cognitive skills, which enables the individual to regulate internal processes, such as emotions and cognition. This is of importance as our emotions and cognitive processes can interfere with normal day goal directed behaviour. Learned resourcefulness also forms the basis of future learning (Breed et al., 2006; Genç, 2016; Martin & Kennit, 2018; Rosenbaum, 1990; Rosenbaum & Ben-Ari, 1985).

Even from a very early age the skills pertaining to learned resourcefulness are acquired. Since each individual has different life experiences, they will differ in their level of learned resourcefulness. Individuals are thus able to learn behaviours and skills of self-control through modeling, conditioning or instruction (Genç, 2016; Keles, 2015).

Learned resourcefulness skills include:

- Problem solving abilities: Indicating that the individual with high learned resourcefulness is able to plan ahead, anticipate possible consequences and have alternatives in place if necessary. During the process of problem solving there is a constant interaction between the social and the physical environment of the individual that needs to be taken into consideration;
- Confidence in the individual's own ability to perform and control their emotions;
- Positive self-talk or self-statements;
- Keeping oneself motivated;
- Postponement of immediate gratification;

- Commitment and effort, if changes in behaviour are required (Genç, 2016; Keles, 2015; Martin & Kennett, 2018; Rosenbaum, 1990).

High learned resourcefulness has also been associated with higher self-discipline in academic behaviour, lower academic stress (as the individual deals effectively with the stress) and less depressive symptoms (Genç, 2016; Keles, 2015). In contrast, individuals with low learned resourcefulness tend to give up easily when they struggle with something or fail, and usually break themselves down (Keles, 2015). Kennett and Ackerman (1995) found that women with high learned resourcefulness on a self-controlled weight programme, continued to lose weight. In contrast women with a low learned resourcefulness tend to drop out of the programme or regained the weight. This indicates the importance of learned resourcefulness for weight maintenance (Kennett & Ackerman, 1995).

3.5 Conclusion

This chapter provided an overview of salutogenesis and the important components and strengths that it has in understanding the factors and mechanisms that contribute to health, positive coping, motivation and positive outcomes in general. It also presented the reader with an idea of the theoretical framework that formed the foundation of the present study. Emphasis was placed specifically on some of the model's factors that will be vital for the study.

In the following chapter the reader will be guided through the methodology followed in this study. The methodology chapter will include the research design, sampling and participant selection, data collection methods, data analysis as well as the ethical considerations.

Chapter 4: Research Methodology

4.1 Introduction

This chapter yields an overview of the research design that was followed, namely a mixed method convergent design. Other aspects that will be addressed include sampling methods, sample population, data collection methods and measurements utilised. Methods of data analysis, as well as the ethical considerations that were considered and adhered to will also be described.

4.2 Research Design: A Mixed Methods Design

The study followed a pragmatic mixed method design, indicating that the design included both qualitative, as well as quantitative measures (Dawadi et al., 2021; Gravetter & Forzano, 2009). By adopting a pragmatic paradigm, it enabled the researcher to use multiple methods guided by the research problem (Dawadi et al., 2021). Qualitative research has various advantages such as being flexible in approach and the ability to provide rich in-depth insights into specific phenomena within a specific context (Dawadi et al., 2021; Rahman, 2017). The disadvantages of qualitative research could include having limited generalisability especially with small sample sizes, it is time consuming and potential bias from the researcher (Rahman, 2017). Quantitative research on the other hand, provide its own advantages and disadvantages. Advantages include that it is more objective, time efficient, allows for research more easily to be replicated, as well as it enables the researcher to identify patterns and relationships between variables (Rahman, 2017). Disadvantages of quantitative research could consist of aspects such as reductionism where contextual aspects are excluded; superficial understanding of phenomenon and lack of flexibility (Rahman, 2017). By combining the two research approaches, the mixed methods convergent model aims to overcome the limitations of each approach while embracing their respective strengths (Dawadi et al., 2021; Rahman, 2017). Mixed methods have the

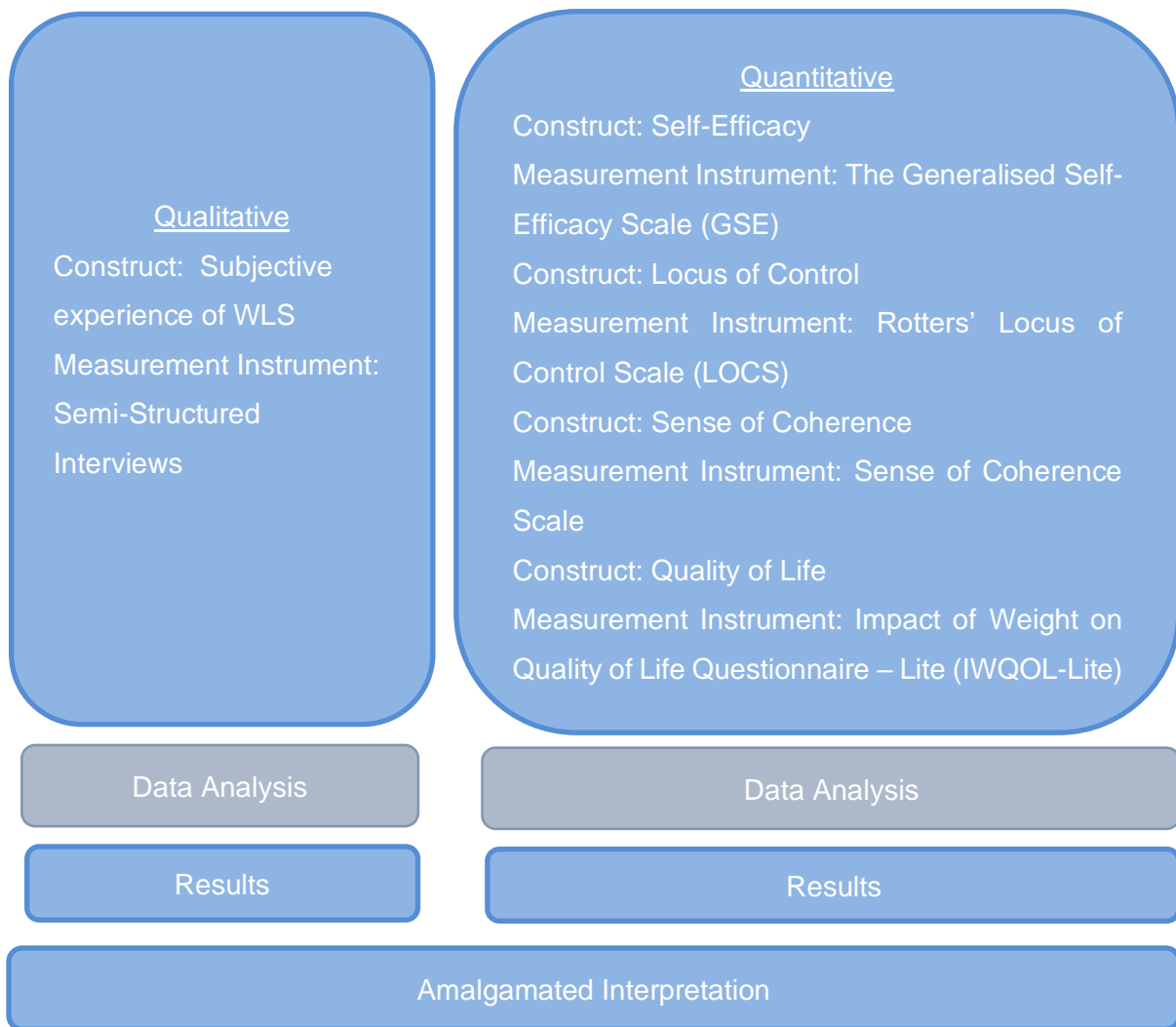
potential to provide powerful insights into complex processes and systems when investigating health in totality (Fetters et al., 2013; Guetterman et al., 2015). In accordance with the aim and objectives of this study, the convergent model was used (Cooper et al., 2011; Hatta et al., 2020).

Within the convergent model, qualitative data and quantitative data are collected and analysed separately and independently from one another, each holding equal importance (Fetters et al., 2013; Guetterman et al., 2015; O’Cathain et al., 2010). Once the qualitative and quantitative data are collected and analysed, the results are amalgamated at the end. This enables and strengthens searching for complementary data or discrepancies between the two data sets (Fetters et al., 2013; Guetterman et al., 2015; O’Cathain et al., 2010). By integrating these two different data sets only at the end of the study offers some advantages. The advantages include that the validity of the quantitative findings can be collaborated by the qualitative data, or the qualitative data can aid in explaining some of the quantitative findings (Dawadi et al., 2021; Fetters et al., 2013). Both data sets can also contribute in developing each other for future utilisation, for example from qualitative enquiry, some hypotheses can be generated and then tested quantitatively at a later stage, expanding knowledge in a particular field of study (Fetters et al., 2013).

For the purposes of this study, the qualitative phase explored the subjective experience of the participants with regards to WLS, and how their experiences contributed to weight maintenance. The exploration of qualitative data allowed for the possibility of identifying specific factors that contributed to weight maintenance after WLS. The quantitative phase, on the other hand, focused on exploring the data to determine if the constructs under investigation (sense of coherence, quality of life, locus of control and self-efficacy) affected the participants’ ability to maintain weight. Graphically the model is presented in Figure 4.1.

Figure 4.1

Application of the Convergent Model



4.3 Sampling Phase of the Study

Purposive sampling was used to establish the sample for this study since the population framework investigated consisted of individuals who have undergone WLS and maintained the weight they have lost after the surgery. Purposive sampling is the intentional selection of participants, with specific attributes (Etikan & Bala, 2017; Etikan et al., 2016; Morse, 2004; Moser & Korstjens, 2018). Participants were selected based on the following inclusion criteria:

- Participants who have undergone a form of WLS;

- Participants who were obese, severely obese or morbidly obese before the WLS;
- Participants who had their WLS at least 3 years ago. As patients can show weight regain from 1 to 7 years after WLS (Courcoulas et al., 2018; Tolvanen et al., 2022), 3 years was decided to be an acceptable time lapse to estimate surgical failure or success; and
- Participants needed to be highly proficient in English or Afrikaans since the semi-structured interviews to collect qualitative data were conducted in these languages.

In order to recruit participants, various medical practitioners and bariatric support groups around South Africa were approached and asked to inform their patients / members of the study. The medical practitioners and support groups were provided with the consent form and informed about the inclusion and exclusion criteria. The contact details of the patients who consented to participate in the study were then provided to the researcher, with the consent of the patient. The researcher thereafter contacted the participants and scheduled individual meetings. It was extremely challenging to find research participants who had WLS and willing to participate in this study. Only two patients consented to participate in the research from the medical practitioners and support groups. The participants further assisted the researcher by contacting others who had undergone WLS and who were willing to participate in the study, constituting snowball sampling (Parker et al., 2019; Woodley & Lockard, 2016). In the end 12 individuals agreed to participate in the study. The aim, objectives, data collection procedure and ethical considerations were discussed with these willing participants.

In order to identify participants for the qualitative phase of the study, all the participants from the quantitative phase were approached and asked to participate in this phase of the study. Only six participants agreed to participate in the interviews. All six

participants that willingly participated in the interview process, were deemed successful, as they were able to maintain the weight loss after WLS, with an acceptable amount of weight variance. This enabled the researcher to explore the participants' experiences and what could contribute to their weight maintenance success. A summary of the quantitative and qualitative participants' descriptive details is provided in Table 4.1 below.

The biographical information in Table 4.1 illustrates that women made up the majority of the participants in both the quantitative (n=10) and qualitative part of the study (n = 5). The majority of the participants' mother tongue were Afrikaans (n=10 for quantitative sample; n=5 for qualitative sample) and the remaining participants home language were English. Half of the sample population were married (n=6; n=3), while the remainder of the sample were either single (n=4; n=2), in a committed relationship or divorced. Most quantitative participants had matric, while 25% of them obtained an Honours degree, 16.7% obtained a Master's degree and 16.7% obtained other qualifications such as diplomas. The qualitative participants (n=6), had a higher level of education than the quantitative participants, where one participant (16.7%) holds a Master's degree, two participants (33.3%) obtained an Honours degree, two participants (33.3%) hold other qualifications such as a diploma and one participant (16.7%) has matric. The annual income of the quantitative participants, as indicated in Table 4.1, showed that 50% of the participants earned more than R801 000 per annum, followed by 16.7% earning between R701 000 to R800 000. Whereas, the majority of the qualitative sample have an income of above R801 000 per annum (83.3%), indicating a higher income than the quantitative sample. Religion was included as it forms part of sense of coherence, especially in terms of manageability and meaningfulness. The majority of the quantitative participants (75%) are of Christian faith, followed by an equal distribution of 8.3% of Hindu, Atheist and Pagan respectively. Of the qualitative participants, four were of the Christian faith while the remaining two were either atheist or pagan.

Table 4.1*Biographical Information of the Quantitative and Qualitative Participants*

Baseline Characteristic	Quantitative Participants		Qualitative Participants	
	<i>n</i>	%	<i>n</i>	%
Gender				
Male	2	16.7	1	16.7
Female	10	83.3	5	83.3
Home Language				
Afrikaans	10	83.3	5	83.3
English	2	16.7	1	16.7
Marital Status				
Single	4	33.3	2	33.3
Married	6	50.0	3	50.0
Divorced	1	8.3	0	0
In a committed relationship	1	8.3	1	16.7
Highest Education Level				
Matric	5	41.7	1	16.7
Honours degree	3	25.0	2	33.3
Master's degree	2	16.7	1	16.7
Other	2	16.7	2	33.3
Average Annual Income				
R 0 - R 100	1	8.3	0	0
R 501 000-500 000	1	8.3	0	0
R 601 000 - R 700 000	1	8.3	1	16.7
R 701 000 - R 800 000	2	16.7	0	0
R 801 000+	6	50.0	5	83.3
Religious Affiliation				
Christianity	9	75.0	4	66.7
Hindu	1	8.3	0	0
Atheist	1	8.3	1	16.7
Pagan	1	8.3	1	16.7

The average age of the quantitative participants were 46.42 (SD=10.76) with the youngest participant being 31 years of age and the oldest 69 years of age. Of the qualitative

sample, the average age was 42.5 (SD=7.4), with the youngest participant being 34 years of age and the eldest 55 years of age. As the current research only procured a small sample size the real age of the participants was of more importance.

Table 4.2

Biographical Information Related to WLS

Baseline Characteristic	Quantitative Participants		Qualitative Participants	
	<i>n</i>	%	<i>n</i>	%
WLS Procedures Undergone				
Roux-en-Y	5	41.7	3	50.0
BPD/DS	1	8.3	1	16.7
Jejuno-ileal bypass	6	50.0	2	33.3
Medical Aid Contribution Towards WLS				
Yes	3	25.0	1	16.7
No	9	75.0	5	83.3

As part of the selection criteria, the sample population had to have undergone some type of weight loss surgery procedure. Table 4.2 shows that 50% of the quantitative sample had a Jejuno-ileal bypass, 41.7% had the Roux-en-Y procedure and 8.3% had a Biliopancreatic diversion (BPD) with duodenal switch. For the qualitative participants, half of this sample had the Roux-en-Y procedure, while two had the jejuno-ileal bypass and only one the biliopancreatic diversion (BPD) with duodenal switch. Since WLS is very expensive, it is noteworthy that medical aids only contributed to 25% of the quantitative participants' WLS procedures and 16.7% for the qualitative participants. For the quantitative participants the average amount of time elapsed since having WLS was 14.08 years (SD=9.41). With 4 being the minimum years and 39 the maximum years elapsed. The average years since the qualitative participants had undergone WLS was 11.17 years ago (SD=5.53), with the minimum time elapsed 5-years and the maximum time lapsed 19-years.

Table 4.3 provides descriptive details of the participants who partook in the qualitative part of the research.

Table 4.3

Descriptive Details of the Qualitative Participants

Participant	Gender	Age	Home Language	Marital Status
Participant 1	Male	44	Afrikaans	Single
Participant 2	Female	37	English	Married
Participant 3	Female	45	Afrikaans	Married
Participant 4	Female	40	Afrikaans	Married
Participant 5	Female	55	Afrikaans	Committed Relationship
Participant 6	Female	34	Afrikaans	Single

4.4 Data Collection Procedure

In keeping with the convergent model of mixed method research design, quantitative and qualitative data were collected concurrently, although dealt with independently during analysis (Cooper et al., 2011; Cresswell & Clark, 2011; Gravetter & Forzano, 2009).

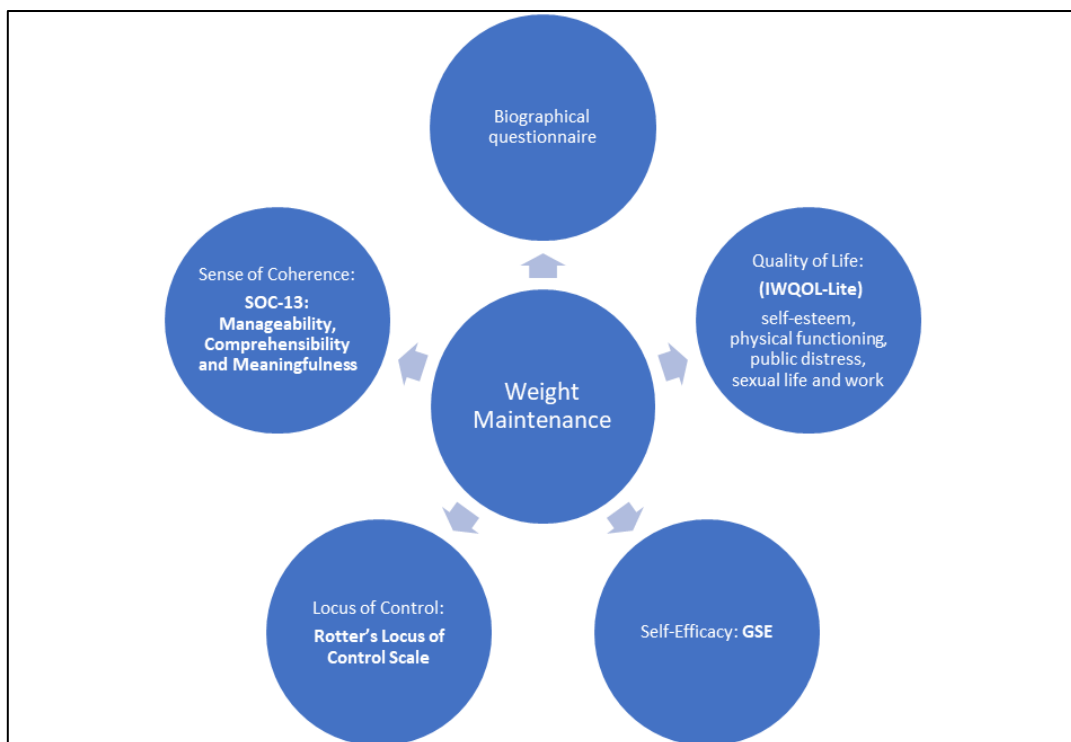
Once the 12 participants were identified, the researcher contacted them to make arrangements with regards to data collection. The aims and objectives of the study was discussed with the participants again and the ethical consideration such as confidentiality and consent (see 4.6). Since some of the participants did not live within traveling distance of the researcher, their quantitative measures were emailed to them and the semi-structured interviews were conducted via telephone. Participants living within a reachable distance from the researcher were visited by the researcher at a time and place convenient for them. In these instances, the researcher administered the questionnaires herself. Those participants who volunteered to participate in the qualitative phase of the study were personally interviewed by the researcher again at a time and place convenient for them.

4.4.1 Quantitative Data Collection

The quantitative data in the study focused on the role played by quality of life, sense of coherence, locus of control and self-efficacy when patients that underwent WLS were able to maintain their weight. This is represented in Figure 4.2 below.

Figure 4.2

Identified Constructs and Weight Maintenance



Quantitative data were collected using surveys. Surveys involved taking a standard set of variables and measuring them systematically (Long, 2007). Literature has shown that variables pertaining to a participant's subjective feelings, such as those identified in this study, are best measured through surveys (Floyd & Fowler, 2008).

The following surveys were utilised within this study: the biographical questionnaire, the generalised self-efficacy scale, Rotter's locus of control scales, sense of coherence scale (SOC-13), and the impact of weight on quality of life questionnaire—lite version.

4.4.1.1 Biographical Questionnaire. The aim of the questionnaire was to gather demographical information with regards to age, gender, as well as background information regarding the WLS, such as the amount of weight lost or regained and the specific procedure the participant underwent. The biographical questionnaire can be found in Appendix A.

4.4.1.2 The Generalised Self-Efficacy Scale (GSE). The Generalised Self-Efficacy Scale is a self-administered questionnaire and was developed by Schwarzer and Jerusalem in 1979 (Schwarzer & Jerusalem, 1995). The aim of the GSE is to assess how self-efficacy in adults predicts coping and adaptation in regard to daily hassles and after stressful life events. This scale is not only of value for indicating adaptation after changes or stressors in life, but also indicates quality of life at a specific point in time (Luszczynska et al., 2005). As WLS and the related weight loss can impact on various aspects of life, it is important to note how self-efficacy possibly can aid in coping and adapting after WLS and maintenance of weight loss. It consists of 10 items and usually takes about four minutes to complete. It is answered on a 4-point scale ranging from “not true at all” to “exactly true”. Scores range from 10 to 40, with 29 being the average score, where a higher score constitute higher levels of self-efficacy (Schwarzer & Jerusalem, 1995; Schwarzer et al., 1999).

The GSES has been shown to have a high reliability and construct validity (Schwarzer et al., 1999). Schwarzer and Jerusalem (1995) indicated that the Cronbach alpha, in samples from 23 different nations, had a range between .76 and .90. In a study conducted by Luszczynska et al. (2005) on the multicultural validation of the GSES, they found the Cronbach alphas for the scale range from between .86 to .94 (Luszczynska et al., 2005; Scherbaum et al., 2006; Schwarzer et al., 1999). In another study on wellbeing and self-efficacy, Priesack and Alcock (2015) found the Cronbach alpha of the GSES to be .85, again indicating reliability and validity. Urban (2006) in his study on entrepreneurial self-efficacy on a South African population found the Cronbach alpha to be .92, confirming the validity and reliability for the current context of this study.

4.4.1.3 Rotter's Locus of Control Scale. The Locus of Control Scale was developed by Julian Bernard Rotter in 1966, and measures general expectations in regard to internal and external locus of control. External locus of control refers to an individual who believes that rewards or the environment are controlled from the outside. Individuals with an internal locus of control on the other hand believe that they can exert control over most outcomes through their personal actions (Breed et al., 2006; Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Rotter, 1990; Wang & Meizhen, 2020). Locus of control can thus reflect an individual's evaluation of themselves and their own abilities (Breed et al., 2006; Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Rotter, 1990; Wang & Meizhen, 2020).

The Internal-External Locus of Control scale consists of 29 items, of which six questions are only filler questions with the purpose of making the test seem more ambiguous. Each of the 29 items consist of a pair of statements, indicated as A and B, one related to internal orientation and the other to external orientation. Only one answer can be chosen. In relation to scoring, A would be assigned a score of one, while B gets a score of zero, making the highest score 23, and the lowest 0. A score of 12 or higher, is indicative of an external locus of control, whereas a score of below 12 is indicative of an internal locus of control (Heidari & Ghodusi, 2016; Hosseini et al., 2016; Wang & Meizhen, 2020).

Breet and colleagues (2010) found the Cronbach alpha to be .924 within a South African population, whilst studying the relationship between perceived aggression and locus of control. Lee (2013) in a study conducted on locus of control, socialisation and organisational identification, found the Cronbach alpha to be .813 for the locus of control scale. The reliability coefficient of the locus of control scale has also been indicated as between 0.79 and 0.89 in other studies (Heidari & Ghodusi, 2016; Kaul & Luqman, 2018; Rotter, 1966; Zarin et al., 2017). In another study on the impact of locus of control on career decision making, Kirdök and Harman (2018) reported a Cronbach alpha internal consistency of 0.77 and a reliability coefficient of 0.68.

4.4.1.4 Sense of Coherence Scale (SOC-13). As sense of coherence was the theoretical framework for the current study, it was deemed important to incorporate the sense of coherence scale (SOC-13). By including this standardised measuring instrument, it allowed the researcher to use triangulation draw conclusions from both the qualitative and quantitative findings (Cope, 2014; Korstjens & Moser, 2018). The Sense of Coherence Scale was developed by Antonovsky (1987), and measures the three dimensions of sense of coherence, namely comprehensibility, manageability and meaningfulness (Antonovsky, 1993; Eriksson & Lindström, 2006; Eriksson & Mittlemark, 2017; Nilsen et al., 2015). It measures individuals' perspectives on life and stressful situations, such as obesity and WLS. It also investigates how resistant resources are identified, used and reused in order to maintain optimum health (Antonovsky, 1993; Eriksson & Lindström, 2006). In this regard, participants identify their resources in order to maintain their weight loss after WLS, despite some possible challenges they might experience.

The original Sense of Coherence Scale, also known as the Orientation to Life Questionnaire, developed by Antonovsky (1987), is a self-administered questionnaire and consists of 29 items (Antonovsky, 1987; Eriksson & Mittlemark, 2017; Lindblad et al., 2016; Nilsen et al., 2015). A shortened version consisting of 13 items were later developed by Antonovsky (1987) (Antonovsky, 1987; Eriksson & Mittlemark, 2017; Lindblad et al., 2016; Nilsen et al., 2015). These two versions, the SOC-29 and SOC-13 have a high intercorrelation of $r=0.96$, $p < 0.001$ (Mahammadzadeh et al., 2010). For the purpose of this study, and fear of participation fatigue of research participants, it was decided to use the sense of coherence scale 13 item (SOC-13). The SOC-13 consist of 13 items, with subscales measuring manageability (4 items), comprehensibility (5 items), and meaningfulness (4 items). A 7-point Likert scale is utilised with two anchoring responses, for example "never happened" (1), and "always happened" (7). Each item is given a corresponding score to response of the participant, thus ranging between 1 and 7. With some items there is a reversal when totalled, leading to a score of between 13 and 91 for the SOC-13. A high sense of coherence is reflected by a high score, and vice versa (Lindblad et

al., 2016; Nilsen et al., 2015; Saravia et al., 2015). For this study a score of 52 and above is indicative of a high sense of coherence and below 52 a low sense of coherence.

The Sense of Coherence Scales (SOC-13) has been shown to be applicable cross culturally, where it has been used in 48 countries and been translated and utilised in 49 different languages (Antonovsky, 1993; Eriksson & Mittlemark, 2017). It is a valid and reliable measuring instrument, (Antonovsky, 1993; Eriksson & Lindström, 2006; Lindblad et al., 2016; Nilsen et al., 2015). Antonovsky (1993) reported the Cronbach alpha for the SOC-13 with a range of between 0.74 and 0.91, with stable test-retest correlations of 0.54 over a two-year period. Pretorius and Padmanabhanunni (2022) conducted a study in South Africa on the mediating role of sense of coherence during covid and found the Cronbach alpha to be 0.89. In another study looking at the sense of coherence scale in people with morbid obesity, Lerdal and colleagues (2014) found the Cronbach alpha for the SOC-13 to be 0.81 (Lerdal et al., 2014).

4.4.1.5 Impact of Weight on Quality of Life Questionnaire—Lite Version

(IWQOL-Lite). The Impact of Weight on Quality of Life Questionnaire (IWQOL-Lite) was developed in order to measure the impact of obesity on quality of life in various domains of functioning. It also allows tracking changes in quality of life as weight loss or weight loss interventions occurs (Kolotkin & Crosby, 2002). The instrument was developed by Kolotkin and Hamilton in 1995, where after a shortened version was developed, namely the IWQOL-Lite to lessen response burden. The correlation between the original IWQOL and the IWQOL-Lite were high where the total score reflected 0.974 (Crosby & Kolotkin, 2009; Kolotkin & Crosby, 2002).

The IWQOL-Lite is a self-administered questionnaire which consists of 31 items. Five specific domains are measured in relation to quality of life, namely: self-esteem (7 items), physical functioning (11 items), public distress (5 items), sexual life (4 items) and work (4 items) (Brazier et al., 2004; Crosby & Kolotkin, 2009, Flølo et al., 2018; Mitchell et al., 2015; Montpellier et al., 2017; Sarwer et al., 2018; Walsh et al., 2018). It is answered on a

5-point Likert scale, where 1 reflects never true, and 5 reflect always true. Raw scores are converted to a score between zero and a hundred. A high score is indicative of better functioning and higher quality of life and a lower score of more impairment and lower quality of life (Crosby et al., 2004; Crosby & Kolotkin, 2009, Flølo et al., 2018; Mitchell et al., 2015; Walsh et al., 2018). A significant change in IWQOL-lite scores is indicated as between 7.7 and 12 (Crosby et al., 2004; Kolotkin et al., 2016).

In a study conducted by Kolotkin and Crosby (2002) to assess the test–retest reliability and discriminant validity of the IWQOL-Lite, the internal consistency of the IWQOL-Lite was found to be between 0.90 to 0.94. Test-retest reliability ranged between 0.814 to 0.877 for the different domains, with the total score being 0.937. Kolotkin and Crosby (2002) also indicated that there was discriminant and convergent validity. No South African studies could be found where this measure was used. However, Montpellier and colleagues (2017) found the Cronbach alpha to be 0.85, with test-retest reliability between 0.74 to 0.91, during their study on health-related quality of life after WLS in relation to weight loss.

The research participants within the current study were asked to complete the IWQOL-Lite two separate times. With the first completion, the participants were asked to answer the questions of the IWQOL-Lite as they remember their experience before they have undergone WLS. In the second completion they were asked to answer the questionnaire on their current experience in regards to all dimensions after WLS. In this manner the participants also had an opportunity to reflect on their WLS experience. The researcher acknowledges limitations of retrospective measures as it can include memory bias, the present-state effect and perceptual shift (Blome & Augustin, 2015). However, as the study was cross-sectional in nature and focused on the subjective experience of participants the participants it was deemed appropriate. In addition, Blome and Augustin (2015) argued that when research is conducted to determine the subjective benefit of a particular treatment by a participant, retrospective quality of life measures is more suitable. This allowed the researcher to determine how weight has an impact on quality of life, before and after WLS and weight loss.

4.4.2 Qualitative Data Collection

The qualitative data collection took the form of semi-structured interviews. Semi-structured interviews are interviews based on aspects and subjects pertaining to the research, called an interview guide (Huysamen, 1993). All participants were asked the same questions (Huysamen, 1993). This allows the participants to express themselves and provide the researcher with a better understanding of the research participant's experience, perspective and feelings with regard to the studied concept (Corbetta, 2003; Mason, 2004). The interviews were conducted in English or Afrikaans, depending on the participants' language of choice. The interview schedule is attached in Appendix B.

4.5 Data Analysis

Following the convergent model, quantitative and qualitative data analyses were conducted separately and independently. The results of these procedures were then used to produce an amalgamated interpretation. In order to produce this amalgamated interpretation, similar and contrasting content areas were identified and examined. In this manner, the extent to which the two data sets relate or contradicts each other, could be examined and discussed, providing a better understanding about WLS and weight management (Cooper et al., 2011; Cresswell & Clark, 2011; Gravetter & Forzano, 2009). This model aids in obtaining diverse information on the same subject and enriching understanding in a phenomenon, like WLS and weight management (Cresswell & Clark, 2011).

4.5.1 Quantitative Data Analysis

Data analysis were conducted using IBM SPSS Statistics (Version 25). Due to the small sample size it was decided to do non-parametric statistics. Small sample size may prove a challenge as it may lead to failure of identifying associations or the impact between these associations, as well as lack of generalisability (Singh & Masuku, 2014). However, with a homogeneous research population the sample size could be smaller (Singh & Masuku, 2014). Non-parametric techniques are useful in small samples and when

measuring data on ordinal and nominal scales, as it doesn't make assumption on a given probability distribution and therefore are more robust (Kaur & Kumar, 2015; Pallant, 2016). No inter-item reliability was calculated due to the small sample size as not all measures had a Cronbach alpha of over 0.95 (Bujang et al., 2018). For this reason, the reliability and validity indicated in South African studies were considered sufficient to use these measures (Breet et al., 2010; Pretorius & Padmanabhanunni, 2022; Urban, 2006). These non-parametric statistics were used to determine:

- If associations exist between the psychological factors under investigation (sense of coherence, self-efficacy, quality of life and locus of control) and weight maintenance. To determine weight maintenance the participants weight before WLS, lowest weight after WLS, as well as the amount of regained weight from the lowest amount of weight after WLS was determined. A percentage of weight regain was determined from this data to establish weight maintenance after WLS. The following tests were used for this section: descriptive statistics, the Chi-square test and the Fisher's exact test. The Chi-square test, or the goodness-of-fit test, is used to test independence between two variables, as well as to assess whether the observed distribution of data significantly deviates from the expected distribution (Rana & Singhal, 2015). The Fisher exact test was used as it works effectively with small sample sizes and are able to provide an exact P value (Kim, 2017; Pallant, 2016). As the chi-square analysis yielded few significant results, it was decided to investigate if the psychological factors under investigation have any relationship with weight maintenance.
- Establish correlation coefficients to search for relationships among variables in the data set, where the Spearman's rank correlation coefficient (Spearman's Rho) was used. The Spearman's Rho is used to measure the direction and strength between variables in a monotonic relationship (Gogtay & Thatte, 2017; Schober et al., 2018).

- If quality of life improved after WLS. Quality of life was retrospectively measured for before WLS and after WLS. By subtracting the pretest from the posttest score, a change score from pre- to posttest on the various scales of quality of life instrument was calculated. A median split was used to record the change score into two groups using a median split. The descriptive statistics for the median split are reported in Table 5.19.
- For this section of analysis, the following tests were used: descriptive statistics and the Wilcoxon signed-rank test. As a non-parametric too, the Wilcoxon signed-ranked is utilised for a two-sample comparison (Jiang et al., 2017; Ohlyver et al., 2019). In this study the Wilcoxon signed-rank test were used to compare quality of life before and after WLS.

4.5.2 Qualitative Data Analysis

The convergent model does not prescribe any specific form of qualitative data analysis. Hence it was decided to use reflexive thematic analysis to understand the subjective experiences of the participants in regards to WLS and how their experiences possibly contribute to weight maintenance. Reflexive thematic analysis is an accessible approach, which has the added benefit of being theoretically flexible (Braun & Clarke, 2006, 2012; 2021b, 2022; Clarke & Braun, 2017; Byrne, 2022; Campbell et al., 2021; Maguire & Delahunt, 2017; Terry et al., 2017). Reflexive thematic analysis acknowledges the active role of the researcher in production of knowledge through their interpretative analysis of the data (Braun & Clarke, 2019, 2021b, 2021c; Byrne, 2022). The researcher is encouraged to be creative and even subjective, immersed in reflexive analysis (Braun & Clarke, 2019, 2021b; Byrne, 2022). The reflexive thematic analysis in this study followed mainly an inductive approach to data analysis; however deductive analysis was also used (Braun & Clarke, 2021a, 2021b; Byrne, 2022). An inductive approach refers to where themes and patterns emerge directly from the data itself, without preconceived categories or theoretical frameworks (Braun & Clarke, 2012, 2021a, 2021b; Byrne, 2022). In contrast, deductive data

analysis involves using pre-existing theories, ideas or conceptual frameworks to guide the analysis of qualitative data (Braun & Clarke, 2012, 2021a, 2021b; Byrne, 2022). Braun and Clarke (2012) stated that it is almost impossible to use purely inductive data analysis as researchers incorporate themselves and their theoretical knowledge into the analysis. With inductive analysis an experiential orientation is usually followed where meanings are provided to experiences (Braun & Clarke, 2013, 2021b, 2022; Byrne, 2022). The theoretic framework for deductive reflexive thematic analysis is often constructionist in nature. The constructionist epistemology emphasises the subjective nature of experience and knowledge, where the individual plays an active role in constructing their own realities and meanings ((Braun & Clarke, 2012, 2013, 2021b, 2022; Byrne, 2022). It is for this reason that the current research followed an experiential orientation, with a constructionist epistemology, where recurrence is valued, but meaningfulness is of more importance (Braun & Clarke, 2013, 2021b, 2022; Byrne, 2022). Reflexive thematic analysis, following Braun and Clarke's (2006, 2012, 2019, 2022) model, consists of six phases of analysis, which acts as guidelines only. These six phases are: (1) Familiarising yourself with your data, (2) Generating initial codes, (3) Generating themes, (4) Reviewing potential themes, (5) Defining and naming themes and (6) Producing the report (Braun & Clarke, 2006, 2019, 2022). These phases are not a linear process, but are recurrently moved back and forth between as the research process progress (Braun & Clarke, 2020; Byrne, 2022). This method enabled the researcher to describe and analyse experiences, realities experienced by the participants, meanings, and to reflexively analyse aspects that contribute to weight maintenance after WLS (Braun & Clarke, 2006, 2017, 2019; Byrne, 2022; Marks & Yardley, 2004; Terry et al., 2017). These steps and the findings are discussed in detail in 6.2.

Even though only six participants partook in the interviews, within reflexive thematic analysis, data saturation is never clearly linked to the number of participants (Braun & Clarke, 2021c). In fact, the idea of data saturation is not supported within reflexive thematic analysis (Braun & Clarke, 2021c). Reasons why it is not supported is that within reflexive thematic analysis, analysis is never completed, and new meanings are always possible. It is

the researcher who decides when to stop the analytic process and to produce the report (Braun & Clarke, 2021c, Braun et al., 2022). The concept of information power is accepted within reflexive thematic analysis. Information power indicates that a sample does not need to be large if the information obtained is specific and relevant to the research (Braun & Clarke, 2021c; Malterud et al., 2016). This also includes how specific the sample is selected to the research, the aim of the study, and the analytic strategy (Malterud et al., 2016; Vasileiou et al., 2018). The researcher is of the conviction that the interviews and the rich and specific data obtained, from a very specific sample, following reflexive thematic analysis fulfilled the requirement of information power. Based on the difficulty in obtaining participants, time constraints and the information power of the data obtained, the researcher believes that these six participants enabled her to reflectively analyse and report on the available data.

To report and amalgamate the qualitative findings and the quantitative results the narrative weaving approach was utilised. Within the weaving approach the qualitative findings and quantitative results are discussed and integrated where it is presented thematically (Bartlett et al., 2021; Fetters & Freshwater, 2015; Fetters et al., 2013; Ho et al., 2021).

4.6 Methods Used to Ensure the Trustworthiness of Qualitative Data Analysis

Just as important as reliability and validity is in quantitative research, trustworthiness has to be established in qualitative research (Cope, 2014; Nowell et al., 2017). Trustworthiness refers to the value and rigour of the research (Amankwaa, 2016; Anney, 2014; Korstjens & Moser, 2018). Lincoln and Guba (1985) introduced and refined the concept of trustworthiness into four different criteria. The criteria consist of credibility, transferability, dependability and confirmability (Amankwaa, 2016; Anney, 2014; Cope, 2014, Korstjens & Moser, 2018; Nowell et al., 2017). To establish and show the trustworthiness of the qualitative part of this study, the criteria will be discussed individually below.

4.6.1 Credibility

Credibility refers to the assurance of the research findings, in that it reflects the truth and is an accurate interpretation of the data (Amankwaa, 2016; Anney, 2014; Cope, 2014; Korstjens & Moser, 2018; Nowell et al., 2017). Credibility strategies include member checking, triangulation and prolonged engagement (Amankwaa, 2016; Anney, 2014; Cope, 2014; Korstjens & Moser, 2018; Nowell et al., 2017).

To ensure credibility within this study prolonged engagement or persistent observation, member checking and triangulation were used. Persistent observation refers to whether the study was done satisfactory to be able to provide in-depth insight into the phenomenon and the details surrounding it (Anney, 2014). With persistent observation and reflexive analysis, the researcher read and reread the data, systematically analysed and developed codes, themes and sub-themes. These codes, themes and sub-themes were then recoded at various occasions after the researcher further immersed herself in the data to produce a report that provide insight into the subjective experience of individuals who had WLS and factors that contributed to weight maintenance after WLS.

One of the methods to reduce researcher bias which was utilised was member checking (Anney, 2014). Member checking refers to when the researcher approaches the research participants with the research analysis and request their feedback (Anney, 2014; Korstjens & Moser, 2018; Nowell et al., 2017). This is a crucial step as member checking is considered as the core of credibility (Anney, 2014; Lincoln & Guba, 1985). This allows the participants to assure they were accurately represented, as well as assuring internal consistency (Anney, 2014). The participants who took part in the interview process were asked if they were willing to participate in this process of member checking. Only three members were willing to participate in this process. As indicated above they were provided with the transcripts and interpretations. Allowing enough time, follow up meetings were scheduled for their inputs to ensure correct and credible reporting of the research findings, ensuring trustworthiness. The participants conveyed their approval of the transcripts and the interpretations, no other additional comments were provided.

The last method used to ensure credibility and trustworthiness was the method of triangulation, specifically data triangulation. Method triangulation refers to using more than one source of data collection from which to draw conclusions of (Cope, 2014; Korstjens & Moser, 2018). In the current study semi-structured interviews were used and analysed together with standardised quantitative measuring instruments. This allowed the researcher to compare certain qualitative interpretations. Data triangulation also took place by triangulation of the raw material, codes and themes at various stages of the research.

4.6.2 Transferability

Transferability is the equivalent of generalisability in quantitative research, where the qualitative results can thus be applied to other contexts or groups (Amankwaa, 2014; Anney, 2014; Cope, 2014; Korstjens & Moser, 2018; Lincoln & Guba, 1985; Nowell et al., 2017). It is the responsibility of the researcher to provide sufficient context of the research as well as information regarding the participants, thus thick descriptions, to enable others to replicate the study and judge transferability (Anney, 2014; Nowell et al., 2017). In the current study, specific attention was given to provide the reader with abundant information regarding the research participants, research process and step by step reflexive thematic analysis, in order for this research to be transferable. By utilising purposive sampling, as used and described in 4.3, the reader and other researchers have a clear description of the participants and the selection criteria. This will enable other researchers to replicate the study and thus contribute to trustworthiness. However, it should be noted that within reflexive thematic analysis it is acknowledged that the codes and themes created by the researcher will not always be reported in the same manner by another. Reflexive thematic analysis is about the researcher reflexively immersing themselves in the data and their own analysis thereof (Braun & Clarke, 2019, Byrne, 2022; Campbell et al., 2021).

4.6.3 Dependability

Dependability refers to constancy of results in similar contexts and over time (Anney, 2014; Cope, 2014; Korstjens & Moser, 2018; Lincoln & Guba, 1985). It is important that the research process is well documented and follows a logical flow, as this will aid readers to make judgements on the dependability of the research (Nowell et al., 2014; Lincoln & Guba, 1985). Strategies of dependability used were code-recode and keeping an audit trail. Code-recode strategy was utilised where coding was completed and then redone after a time lapse (Anney, 2014; Nowell et al., 2018). This coding-recoding process was done on five different occasions and throughout all the steps of reflexive thematic analysis. As coding corresponded every time with more reflexive interpretation, this increased dependability and trustworthiness of the findings and research.

All documents in terms of raw data, interview transcripts, notes and standardised test results were kept for cross checking (Anney, 2014; Nowell et al., 2017). The researcher attempted to provide a clear audit trail of the research process throughout the thesis, indicating the various decisions in regards to methodology, theoretical point of departure, reflexive analysis and results. Keeping a clear audit trail also establishes confirmability (see 6.3.4).

4.6.4 Confirmability

Confirmability refers to the confirmation that the research findings are correct, and only representative of the participant's responses and not the researcher's own biases or perspectives (Cope, 2014). As indicated earlier (see 4.5.2), with reflexive thematic analysis, the researcher plays an active role through their reflective engagement and analysis of the data, thus a research tool themselves (Braun & Clarke, 2019, 2022; Byrne, 2022; Campbell et al., 2021). The reflexive nature of this methodology does thus necessitate the researcher's perceptions or rather reflexive analysis. The researcher however still attempted to establish confirmability through triangulation (see 6.3.1) and audit trails as discussed in 6.3.3 (Anney, 2014; Cope, 2014). The researcher also provided direct quotes from the participants, to

indicate the reflexive analysis of the conclusions and interpretations produced from the data (Braun & Clarke, 2006, 2019, 2022; Byrne, 2022, Campbell et al., 2021; Cope, 2014; Nowell et al., 2017). When credibility, transferability and dependability are confirmed, confirmability is established according to Guba & Lincoln (1989).

4.7 Ethical Considerations

Ethical approval to conduct the study was obtained from the Ethics Committee of the Faculty of Humanities of the University of Pretoria. In addition, several other ethical considerations were also provided for. These will be discussed in the following paragraphs.

The researcher informed the participants on the research being conducted, the aims of the research and how and why they were selected for the particular study (Punch, 2006). This information enabled the participants to make an informed decision and give their informed consent to participate freely in the research conducted. Participants had the right to opt out of the research process at any time, if they so choose, without any adverse repercussions. A consent form was completed and signed by the participants, to show their voluntary participation in the research (see Appendix C). As the current study relied on the original sample to obtain participants for the qualitative phase of the study, a second signature was obtained from all the participants to indicate their willingness to form part of this qualitative phase. Participants also gave permission for interviews to be recorded. These recorded interviews will be password protected to ensure confidentiality.

Confidentiality and anonymity of the participants were held at highest regard. The researcher ensured confidentiality by assigning a respondent number to each participant. Special attention was also given whereby names of family or medical practitioners were edited out to ensure further confidentiality. The researcher made provision for debriefing by a qualified psychologist to the participants if required due to issues that may arise from the research process.

Within the written consent form participants were also informed of the copyright pertaining to the psychometric instruments used within this study. By signing the form they

acknowledged and also ensured the protection of these psychometric measuring instruments. As mentioned in 4.4.1, some of the psychometric measuring instruments were sent via email to the participants, as some participants were geographically too far for the researcher to administer the test. Other participants completed these psychometric measuring instruments in the presence of the researcher, who is a registered clinical psychologist.

The data will be stored for 15 years, as in accordance with the regulations of the University of Pretoria. Signed permission was also granted from the participants that the data gathered may be used by the researcher for future research.

The participants were also made aware that the research results will only be used for research purposes. Any research findings that could have been beneficial to the research participants were conveyed to them. Written permission were also obtained from the research participant in some cases, to provide the information to the therapeutic team, where it could aid therapeutic interventions.

4.8 Conclusion

Chapter 4 provided an overview of the convergent mixed method research design used within this study. The quantitative part of the study made use of a demographic questionnaire and four standardised measuring instruments, namely The Generalised Self-Efficacy Scale, Rotter's Locus of Control Scale, The Sense of Coherence Scale and Impact of Weight on Quality of Life Questionnaire (Lite). Quantitative data analysis was conducted using IBM SPSS Statistics (Version 25). The quantitative sample consisted of twelve participants, while the qualitative sample consisted of six participants. Semi-structured interviews were conducted to obtain the qualitative data, where reflexive thematic analysis was used to analyse the data. The next two chapters will focus on the results obtained from both the quantitative and qualitative data respectively.

Chapter 5: Quantitative Results

5.1 Introduction

Chapter 5 will focus on the quantitative results obtained after statistical analyses were conducted. The quantitative results form part of the convergent mixed method design, where it will be amalgamated with the qualitative results in Chapter 7. Due to the small sample size, only non-parametric statistics were used. The results thereof will be discussed in this Chapter according to the aims and objectives of the quantitative section of the study, which were the descriptive statistics from the biographical questionnaire; to determine associations between the identified psychological factors (sense of coherence, locus of control, quality of life and self-efficacy) and weight maintenance; associations between the identified psychological factors themselves; and the impact of WLS on quality of life.

5.2 Obesity and WLS

In 4.4.1.1 it was mentioned that participants completed a biographical questionnaire. The aim of the questionnaire was twofold. Firstly, it was used to produce descriptive statistics for the sample used in the present study (see 4.3.1 and 4.3.2). Secondly, it was used to generate categorical data that would describe the weight loss journey of the participants.

The first variable to be investigated was the age at which participants start experiencing problems with their weight. A frequency table was generated to study the results which is displayed in Table 5.1.

Table 5.1*Frequency Table: Age When Weight Problems Commenced*

		Frequency	Percent	Valid Percent
Valid	Birth – 9	6	50.0	50.0
	10-19	3	25.0	25.0
	20-29	2	16.7	16.7
	30-39	1	8.3	8.3
	Total	12	100.0	100.0

Table 5.1 indicates that 50% of the participants had problems with their weight by the time they turned nine.

The participants were then asked if they had experienced any medical conditions to which obesity contributed to before WLS. This question was a two-fold question, where the participants firstly had to provide a yes or a no answer, with a follow-up open-ended question to indicate which medical conditions, if any were present. The frequency table, as displayed in Table 5.2, display the results obtained on the close-ended question.

Table 5.2*Frequency Table: Number of Participants with Medical Conditions Due to Obesity Before WLS*

		Frequency	Percent	Valid Percent
Valid	Yes	8	66.7	72.7
	No	3	25.0	27.3
	Total	11	91.7	100.0
Missing	System	1	8.3	
Total		12	100.0	

Table 5.2 shows that the majority of the participants (66.7%) indicated that they experienced medical conditions as a result of obesity before WLS. With the open-ended question, many responses were generated. It appears that the condition experienced the most was diabetes (n=6).

Participants were then asked if they received any information before WLS from the medical professionals regarding the postoperative requirements that they would need to follow after WLS. These postoperative requirements included diet, exercise, annual blood tests, supplements that needs to be taken and annual follow-up doctors' appointments. The results are shown in Table 5.3.

Table 5.3

Frequency Table: Received Information from the Surgical Team Regarding Postoperative Requirements Before WLS

		Frequency	Percent	Valid Percent
Valid	Yes	11	91.7	91.7
	No	1	8.3	8.3
	Total	12	100.0	100.0

Certain postoperative requirements were provided to 91.7% of the participants by their surgical team. Only one participant indicated that they received no indication that they had to keep to postoperative requirements such as annual follow-up visits or vitamin supplements postoperatively.

A follow-up question in regards to postoperative requirements were asked, where participants had to indicate if they followed the postoperative requirements such as annual follow-up visits and bloodtests or taking vitamin supplements, as were indicated to them by the surgical team. The results are displayed in Table 5.4.

Table 5.4*Frequency Table: Keeping to postoperative requirements*

		Frequency	Percent	Valid Percent
Valid	Yes	3	25.0	25.0
	Some	7	58.3	58.3
	No	1	8.3	8.3
	None required	1	8.3	8.3
	Total	12	100.0	100.0

Postoperatively 58% of the participants indicated that they only kept to some of the postoperative requirements, while 25% strictly kept to all the postoperative requirements.

A further question was posed whether the participants experienced any improvements regarding their medical conditions after WLS. These conditions included diabetes, hypertension, migraines and high cholesterol. The results are displayed in Table 5.5.

Table 5.5*Frequency Table: Number of Participants Whose Medical Conditions Improved After WLS*

		Frequency	Percent	Valid Percent
Valid	Yes	6	50.0	54.5
	No	5	41.7	45.5
	Total	11	91.7	100.0
Missing	System	1	8.3	
Total		12	100.0	

Only 54.5% of the participants indicated that the medical conditions they had before WLS had improved after WLS. The conditions that were indicated to improved diabetes (N=4) and less physical pain (N=4).

The focus then shifted to determine if any of the participants had any plastic surgery after WLS. Excess skin is a common remnant of WLS surgery. The results are displayed in Table 5.6.

Table 5.6

Frequency Table: Participants who had Plastic Surgery After WLS

		Frequency	Percent	Valid Percent
Valid	No	9	75.0	75.0
	Yes	3	25.0	25.0
	Total	12	100.0	100.0

To remove excess skin caused by the weight loss from WLS, 25% of the participants had plastic surgery.

A question regarding the importance of religion to the participants was included, as it forms part of sense of coherence, which is one of the main constructs investigated in the study (see 3.4.1.1 and 4.3.1). Table 5.7 below reflects the results.

Table 5.7

Frequency Table: Importance of Religion to Participants

		Frequency	Percent	Valid Percent
Valid	Not important at all	1	8.3	10.0
	Slightly important	1	8.3	10.0
	Important	1	8.3	10.0
	Very important	2	16.7	20.0
	Extremely important	5	41.7	50.0
	Total	10	83.3	100.0
Missing	System	2	16.7	
Total		12	100.0	

Eight of the participants noted that religion was important to them. The next analysis intended to focus on determining if there are associations between the psychological factors under investigation and weight maintenance.

5.3 Descriptive Statistics: Locus of Control, Sense of Coherence, Self-efficacy, and Quality of Life

Descriptive statistics were also calculated for locus of control, sense of coherence, quality of life (before and after WLS) and self-efficacy as indicated in Table 5.8. All the participants (N=12) completed the various measuring instruments. The descriptive statistics for the total Self-Efficacy Scale suggested a moderate level of self-efficacy among the participants. The total SOC-13 Scale, where 52 is average showed that the participants had a moderate sense of coherence. Quality of life before WLS in terms of physical functioning, self-esteem, public distress and sexual life was low, where work was moderate. Whereas, quality of life after WLS indicated extremely high scores in terms of public distress, physical functioning, work, sexual life and self-esteem. From Rotter's Locus of Control Scale it was evident that most participants had an internal locus of control.

These descriptive statistics were used in the remainder of the analyses that were conducted and will be reported on in 5.4 to 5.6.

Table 5.8*Descriptive Statistics of the Psychological Factors Under Investigation (N=12)*

	N	Minimum	Maximum	Median	Mean	Std. Deviation
1. Total Self-Efficacy Scale	12	23	39	31.50	32	4.411
2. Total Sense of Coherence Scale	12	32	66	56.50	54.17	10.539
3. Comprehensibility – Sense of Coherence Scale	12	12	26	22.00	20.75	4.093
4. Manageability – Sense of Coherence Scale	12	12	19	15.00	15.17	2.082
5. Meaningfulness – Sense of Coherence Scale	12	7	26	18.00	18.25	6.269
6. IWQOL Before WLS – Physical Functioning – Final Score	12	0	68	24.00	30.58	19.806
7. IWQOL Before WLS – Self-Esteem – Final Score	12	0	79	12.50	20.58	23.365
8. IWQOL Before WLS – Sexual Life – Final Score	12	0	94	41.00	37.00	27.811
9. IWQOL Before WLS – Public Distress – Final Score	12	0	75	22.50	30.00	25.761
10. IWQOL Before WLS – Work – Final Score	12	31	100	66.00	66.25	23.572
11. IWQOL After WLS – Physical Functioning – Final Score	12	9	98	83.00	69.17	32.000
12. IWQOL After WLS – Self-Esteem – Final Score	12	0	93	68.00	61.58	27.241
13. IWQOL After WLS – Sexual Life – Final Score	12	0	100	72.00	58.42	32.413
14. IWQOL After WLS – Public Distress – Final Score	12	5	100	95.00	77.50	33.200
15. IWQOL After WLS – Work – Final Score	12	25	100	91.00	81.92	25.568
16. Total Locus of Control (Rotter)	12	6	15	9.00	9.92	3.175
Valid N (listwise)	12					

The next analysis involved determining if there were associations between the psychological factors under investigation and weight maintenance.

5.4 Psychological Factors that Impact Weight Maintenance

To investigate if the psychological factors under investigation, namely sense of coherence, locus of control, self-efficacy and quality of life, can be associated with weight maintenance, chi-square tests for independence were computed. The Fisher exact test was used as it provides an exact P value that works effectively with small sample sizes (Kim, 2017; Pallant, 2016).

As indicated in 4.5.1, weight maintenance was determined by examining the participants weight before WLS, lowest weight after WLS, and the amount of weight regained from the lowest amount of weight after WLS. From this data a percentage of weight regain was determined to establish if weight loss was maintained postoperatively.

The results for the various psychological factors in relation to weight maintenance are discussed in 5.4.1 to 5.4.4.

5.4.1 Sense of Coherence and Weight Maintenance

As was mentioned in 5.4, a chi-square test for independence was calculated to determine the association between sense of coherence and weight management. With the Sense of Coherence Scale (SOC-13) the scores range from 13 to 91 (see 4.4.1.4). As indicated in 4.4.1, in the current study a score below 52 is indicative of a low sense of coherence and 52 and above indicates a high sense of coherence (Lindblad et al., 2016; Nilsen et al., 2015; Saravia et al., 2015). The results of the Crosstabulation is depicted in Table 5.9

Table 5.9*Crosstabulation Between Sense of Coherence and Weight Maintenance*

		SOC CAT			
		Low SOC	High SOC	Total	
Weight maintenance	Yes	Count	3	7	10
		% within SOC_CAT	75.0%	87.5%	83.3%
	No	Count	1	1	2
		% within SOC_CAT	25.0%	12.5%	16.7%
Total		Count	4	8	12
		% within SOC_CAT	100.0%	100.0%	100.0%

The results of the Chi-Square Tests are displayed in Table 5.10.

Table 5.10*Chi-Square Test: Sense of Coherence and Weight Maintenance*

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2- sided)
Pearson Chi-Square	.300 ^a	1	0.584	
Continuity Correction ^b	0.000	1	1.000	
Likelihood Ratio	0.286	1	0.592	
Fisher's Exact Test				1.000
Linear-by-Linear Association	0.275	1	0.600	
N of Valid Cases	12			

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is .67.

b. Computed only for a 2x2 table

Since more than one of the cells of the crosstabulation had less than five observations, Fisher's Exact was used to determine if the results were significant. The Fisher's Exact Test in Table 5.10 indicates that there is no statistically significant association between Sense of coherence and weight maintenance.

Effect size was determined by investigating the phi coefficient. This is displayed in Table 5.11.

Table 5.11*Symmetric Measure for Weight Maintenance and Sense of Coherence*

		Value	Approximate Significance
Nominal by Nominal	Phi	-0.158	0.584
	Cramer's V	0.158	0.584
N of Valid Cases		12	

In Table 5.11 the Phi-score indicate a small effect size when using Cohen's criteria (Pallant, 2016).

5.4.2 Locus of Control and Weight Maintenance

Yet again, a chi-square test for independence was calculated to determine the association between locus of control and weight maintenance. As indicated in 4.4.1.3, a score above 12 on the Rotter's Locus of Control Scale is indicative of an external locus of control, and those below 12 as an internal locus of control (Heidari & Ghodusi, 2016; Hosseini et al., 2016; Wang & Meizhen, 2020). The results of the Crosstabulation is depicted in Table 5.12.

Table 5.12*Crosstabulation Between Locus of Control and Weight Maintenance*

			LOC CAT		
			Internal	External	
			LOC	LOC	Total
Weight maintenance	Yes	Count	9	1	10
		% within LOC_CAT	100.0%	33.3%	83.3%
	No	Count	0	2	2
		% within LOC_CAT	0.0%	66.7%	16.7%
Total	Count	9	3	12	
	% within LOC_CAT	100.0%	100.0%	100.0%	

The results of the Chi-Square Tests are displayed in Table 5.13.

Table 5.13

Chi-Square Test: Locus of Control and Weight Maintenance

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	7.200 ^a	1	0.007	
Continuity Correction ^b	3.200	1	0.074	
Likelihood Ratio	6.994	1	0.008	
Fisher's Exact Test				0.045
Linear-by-Linear Association	6.600	1	0.010	
N of Valid Cases	12			

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is .50.

b. Computed only for a 2x2 table

Since more than one of the cells of the table have less than five observations, Fisher's Exact was used to determine if results were significant. The Fisher's Exact Test in Table 5.13 indicates that there is an association between LOC and weight.

Effect size was determined by investigating the phi coefficient. This is displayed in Table 5.14.

Table 5.14

Symmetric Measure for Locus of Control and Weight Maintenance

		Value	Approximate Significance
Nominal by Nominal	Phi	0.775	0.007
	Cramer's V	0.775	0.007
N of Valid Cases		12	

The Phi-score in Table 5.14 indicates a large effect size when using Cohen's criteria (Pallant, 2016).

5.4.3 Self-efficacy and Weight Maintenance

To determine the association between self-efficacy and weight maintenance, a chi-square test for independence was calculated yet again. For the Generalised Self-efficacy Scale (see 4.4.1.2), the scores range from 10 to 40, where 29 and above indicate a high self-efficacy and below 29 a low self-efficacy score (Schwarzer & Jerusalem, 1995; Schwarzer et al., 1999). The Crosstabulation results is depicted in Table 5.15.

Table 5.15

Crosstabulation Between Self-efficacy and Weight Maintenance

		Self-efficacy		CAT	Total
		Low Self- efficacy	High self- efficacy		
Weight maintenance	Yes	Count	2	8	10
		% within Self- efficacy CAT	66.7%	88.9%	83.3%
	No	Count	1	1	2
		% within Self- efficacy CAT	33.3%	11.1%	16.7%
Total		Count	3	9	12
		% within Self- efficacy CAT	100.0%	100.0%	100.0%

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

The results of the Chi-Square Tests are displayed in Table 5.16.

Table 5.16*Chi-Square Tests: Self-efficacy and Weight Maintenance*

	Value	Df	Asymptotic Significance (2- sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.800 ^a	1	0.371	
Continuity Correction ^b	0.000	1	1.000	
Likelihood Ratio	0.715	1	0.398	
Fisher's Exact Test				0.455
Linear-by-Linear Association	0.733	1	0.392	
N of Valid Cases	12			

The Fisher's Exact was again used to determine if results were significant, since more than one of the cells of the table have less than five observations. The Fisher's Exact Test in Table 5.16 indicates that there is no statistically significant association between self-efficacy and weight maintenance.

The effect size was again determined by investigating the phi coefficient. The results are displayed in Table 5.17.

Table 5.17*Symmetric Measure for Weight Maintenance and Self-efficacy*

		Value	Approximate Significance
Nominal by Nominal	Phi	-0.258	0.371
	Cramer's V	0.258	0.371
N of Valid Cases		12	

In Table 5.17 the Phi-score indicates a small effect size when using Cohen's criteria (Pallant, 2016).

5.4.4 Quality of Life and Weight Maintenance

Since quality of life was measured retrospectively before WLS and then after WLS, a change score from pre- to posttest on the various scales of quality of life instrument was calculated by subtracting the pretest from the posttest score. The change score was recorded into two groups using a median split. The descriptive statistics for the median split are reported in Table 5.18.

Table 5.18

Descriptive Statistics: Quality of Life

		Physical functioning	Self-esteem	Sexual life	Public distress	Work life
N	Valid	12	12	12	12	12
	Missing	0	0	0	0	0
Mean		38.5833	41.0000	21.4167	47.5000	15.6667
Median		35.5000	50.5000	19.0000	55.0000	22.0000
Minimum		-34.00	-11.00	-38.00	-15.00	-12.00
Maximum		89.00	75.00	75.00	95.00	38.00

A chi-square test for independence was calculated to determine the association between the various aspects of quality of life (physical functioning, self-esteem, sexual life, public distress and work life). The median split for the various aspects of quality of life was determined. A median split is a method to make categorical variable from a continuous variable. In this manner it distinguishes one group falling above the median and the other falling below the median. The results for physical functioning are depicted in Table 5.19 to Table 5.21.

Table 5.19

Crosstabulation Between Physical Functioning (as Part of Quality of Life) and Weight Maintenance

		Physical functioning Median split		Total	
		Below median	At or above median		
Weight maintenance	Yes	Count	4	6	10
		% within	66,7%	100,0%	83,3%
		QWL_Diff_Physical_median_split			
	No	Count	2	0	2
		% within	33,3%	0,0%	16,7%
		QWL_Diff_Physical_median_split			
Total		Count	6	6	12
		% within	100,0%	100,0%	100,0%
		QWL_Diff_Physical_median_split			

The results of the Chi-Square Tests are displayed in Table 5.20.

Table 5.20

Chi-Square Tests: Physical Functioning and Weight Maintenance

	Value	Df	Asymptotic Significance (2- sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2,400 ^a	1	0,121	
Continuity Correction ^b	0,600	1	0,439	
Likelihood Ratio	3,175	1	0,075	
Fisher's Exact Test				0,455
Linear-by-Linear Association	2,200	1	0,138	
N of Valid Cases	12			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

The Fisher's Exact was used to determine if results were significant, since more than one of the cells of the table have less than five observations. The Fisher's Exact Test in

Table 5.20 indicates that there is no statistically significant association between physical functioning, in relation to quality of life, and weight maintenance.

The effect size was determined by investigating the phi coefficient. The results are displayed in Table 5.21.

Table 5.21

Symmetric Measure for Weight Maintenance and Physical Functioning as Part of Quality of Life

		Value	Approximate Significance
Nominal by	Phi	-0,447	0,121
Nominal	Cramer's V	0,447	0,121
N of Valid Cases		12	

The Phi-score equalled -0,447 in Table 5.21 and indicated a small effect size when using Cohen's criteria (Pallant, 2016).

The next aspect of quality of life that was investigated in terms of weight maintenance was self-esteem. The results are depicted in Tables 5.22 to 5.24.

Table 5.22*Crosstabulation Between Self-Esteem (as Part of Quality of Life) and Weight Maintenance*

		Self-esteem			
		Median split			
			At or		
		Below	above	Total	
		median	median		
Weight maintenance	Yes	Count	4	6	10
		% within QWL_Diff_Self-esteem median split	66,7%	100,0%	83,3%
	No	Count	2	0	2
		% within QWL_Diff_Self-esteem median split	33,3%	0,0%	16,7%
Total		Count	6	6	12
		% within QWL_Diff_Self-esteem median split	100,0%	100,0%	100,0%

The Chi-Square Tests results are displayed in Table 5.23.

Table 5.23*Chi-Square Tests: Self-Esteem and Weight Maintenance*

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2,400 ^a	1	0,121	
Continuity Correction ^b	0,600	1	0,439	
Likelihood Ratio	3,175	1	0,075	
Fisher's Exact Test				0,455
Linear-by-Linear Association	2,200	1	0,138	
N of Valid Cases	12			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

To determine if results were significant, the Fisher's Exact was used, since more than one of the cells of the table have less than five observations. The Fisher's Exact Test in Table 5.23 indicates that there is no association between self-esteem, in relation to quality of life and weight maintenance.

The effect size was determined by investigating the phi coefficient. The results are displayed in Table 5.24.

Table 5.24

Symmetric Measure for Weight Maintenance and Self-Esteem as Part of Quality of Life

		Value	Approximate Significance
Nominal by	Phi	-0,447	0,121
Nominal	Cramer's V	0,447	0,121
N of Valid Cases		12	

A small effect size is indicated by the Phi-score in Table 5.24 when using Cohen's criteria (Pallant, 2016).

Sexual life, in terms of quality of life, was then investigated in regards to weight maintenance. The results for sexual life are depicted in Table 5.25 to 5.27.

Table 5.25*Crosstabulation Between Sexual Life (as Part of Quality of Life) and Weight Maintenance*

		Sexual life			
		Median split			
		Below	At or	Total	
		median	above		
Weight maintenance	Yes	Count	4	6	10
		% within	66,7%	100,0%	83,3%
		QWL_Diff_Sexual_median_split			
	No	Count	2	0	2
		% within	33,3%	0,0%	16,7%
		QWL_Diff_Sexual_median_split			
Total		Count	6	6	12
		% within	100,0%	100,0%	100,0%
		QWL_Diff_Sexual_median_split			

The results of the Chi-Square Tests are displayed in Table 5.26.

Table 5.26*Chi-Square Test: Sexual Life and Weight Maintenance*

	Value	Df	Asymptotic Significance (2- sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2,400 ^a	1	0,121	
Continuity Correction ^b	0,600	1	0,439	
Likelihood Ratio	3,175	1	0,075	
Fisher's Exact Test				0,455
Linear-by-Linear Association	2,200	1	0,138	
N of Valid Cases	12			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

The Fisher's Exact was used to determine if results were significant, since more than one of the cells of the table have less than five observations. The Fisher's Exact Test in Table 5.26 indicates that there is no association between sexual life, in relation to quality of life, and weight maintenance.

The effect size was determined by investigating the phi coefficient. The results are displayed in Table 5.27.

Table 5.27

Symmetric Measure for Weight Maintenance and Sexual Life as Part of Quality of Life

		Value	Approximate Significance
Nominal by	Phi	-0,447	0,121
Nominal	Cramer's V	0,447	0,121
N of Valid Cases		12	

In Table 5.27 the Phi-score equalled -0,447 and this indicated a small effect size when using Cohen's criteria (Pallant, 2016).

The following aspect of quality of life that was investigated in terms of weight maintenance was public distress. The results for public distress are depicted in Table 5.28 to Table 5.30.

Table 5.28*Crosstabulation Between Public Distress (as Part of Quality of Life) and Weight Maintenance*

		Public distress			
		Median split			
		Below	At or above	Total	
		median	median		
Weight maintenance	Yes	Count	4	6	10
		% within	66,7%	100,0%	83,3%
		QWL_Diff_Public_median_split			
	No	Count	2	0	2
		% within	33,3%	0,0%	16,7%
		QWL_Diff_Public_median_split			
Total		Count	6	6	12
		% within	100,0%	100,0%	100,0%
		QWL_Diff_Public_median_split			

Note: A high score on public distress indicates that they experience higher quality of life

where they do not feel judged or experience practical struggles.

The Chi-Square Tests results are displayed in Table 5.29.

Table 5.29*Chi-Square Test: Public Distress and Weight Maintenance*

	Value	Df	Asymptotic Significance (2- sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2,400 ^a	1	0,121	
Continuity Correction ^b	0,600	1	0,439	
Likelihood Ratio	3,175	1	0,075	
Fisher's Exact Test				0,455
Linear-by-Linear Association	2,200	1	0,138	
N of Valid Cases	12			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

To determine if results were significant, the Fisher's Exact test was used, since more than one of the cells of the table have less than five observations. The Fisher's Exact Test in Table 5.29 indicates that there is no association between public distress, in relation to quality of life, and weight maintenance.

The effect size was determined by investigating the phi coefficient. The results are displayed in Table 5.30.

Table 5.30

Symmetric Measure for Weight Maintenance and Public Distress as Part of Quality of Life

		Value	Approximate Significance
Nominal by	Phi	-0,447	0,121
Nominal	Cramer's V	0,447	0,121
N of Valid Cases		12	

A small effect size was indicated by the Phi-score in Table 5.30 when using Cohen's criteria (Pallant, 2016).

The last aspect of quality of life that was investigated in terms of weight maintenance was work life. The results for work life are depicted in Table 5.31 to Table 5.33.

Table 5.31*Crosstabulation Between Work Life (as Part of Quality of Life) and Weight Maintenance*

		Work life			
		Median split			
		Below	At or above	Total	
		median	median		
Weight maintenance	Yes	Count	4	6	10
		% within	66,7%	100,0%	83,3%
		QWL_Diff_Work_median_split			
	No	Count	2	0	2
		% within	33,3%	0,0%	16,7%
		QWL_Diff_Work_median_split			
Total		Count	6	6	12
		% within	100,0%	100,0%	100,0%
		QWL_Diff_Work_median_split			

The results of the Chi-Square Tests are displayed in Table 5.32.

Table 5.32*Chi-Square Test: Work Life and Weight Maintenance*

	Value	Df	Asymptotic Significance (2- sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2,400 ^a	1	0,121	
Continuity Correction ^b	0,600	1	0,439	
Likelihood Ratio	3,175	1	0,075	
Fisher's Exact Test				0,455
Linear-by-Linear Association	2,200	1	0,138	
N of Valid Cases	12			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

The Fisher's Exact was used to determine if results were significant, since more than one of the cells of the table have less than five observations. The Fisher's Exact Test in Table 5.32 indicates that there is no association between work life, in relation to quality of life, and weight maintenance.

The effect size was determined by investigating the phi coefficient. The results are displayed in Table 5.33.

Table 5.33

Symmetric Measure for Weight Maintenance and Work Life as Part of Quality of Life

		Value	Approximate Significance
Nominal by	Phi	-0,447	0,121
Nominal	Cramer's V	0,447	0,121
N of Valid Cases		12	

In Table 5.33 the Phi-score equalled -0,447 and this indicated a small effect size when using Cohen's criteria (Pallant, 2016).

Since the Chi-square tests of independence only identified Locus of control as having an association with weight management, a decision was taken to explore the data further. This analysis will be discussed next by exploring the data further using a correlational analysis.

5.5 Relationships Between Sense of Coherence, Self-efficacy, Locus of Control, Quality of Life and Weight Maintenance

Because the chi-square analysis yielded few significant results, a decision was made to investigate if the psychological factors under investigation have any relationship with weight maintenance, Spearman's correlation coefficient (Spearman's Rho) were calculated (Gogtay & Thatte, 2017). Spearman's Rho was chosen because of the small size of the

sample. As quality of life consisted of a pre- and post-measure it was excluded from this correlation matrix. The results of the analysis are displayed in Table 5.34.

Table 5.34 indicates the following significant correlations:

- There was a strong inverse correlation found between locus of control and the amount of kilograms lost ($r=-0.621$, $p=0.041$). A score of 12 and above indicates an external locus of control, whereas a score of 11 and under is indicative of an internal locus of control (Heidari & Ghodusi, 2016; Hosseini et al., 2016; Wang & Meizhen, 2020). This result indicates the relationship between an internal locus of control and more kilograms lost, or an external locus of control and less kilograms lost.
- There was a strong positive significant correlation between the locus of control and percentage weight gained ($r=0.604$, $p=0.049$). As with the previous result, this result indicates a relationship between an internal locus of control and less weight gained.
- A strong positive significant correlation was also found between the total sense of coherence scale and self-efficacy ($r=0.666$, $p=0.018$). Spearman correlation analysis revealed a positive relationship between total sense of coherence and self-efficacy, where a higher sense of coherence will indicate a higher self-efficacy.
- A strong positive significant correlation was found between self-efficacy and sense of coherence, specifically comprehensibility subscale ($r=0.749$, $p=0.005$) and meaningfulness subscale ($r=0.651$, $p=0.022$). Spearman correlation analysis revealed a positive relationship, where if self-efficacy is higher, there is also an increase in sense of coherence, specifically in regards to comprehensibility and meaningfulness.

Table 5.34

Spearman Rho Correlation: Locus of Control, Self-Efficacy and Sense of Coherence

		Weight before WLS	Current Weight	Lowest weight after WLS	Kg lost	Regained	Percentage weight gain	Total Locus of Control (Rotter)	Total Self- Efficacy Scale	Total Sense of Coherence Scale	Comprehensibility Sense of Coherence Scale	Manageability Sense of Coherence Scale	Meaningfulness Sense of Coherence Scale
Total Locus of Control (Rotter)	Correlation Coefficient	-0.54738	0.295	0.055	-.621*	0.455	.604*	--					
	Sig. (2-tailed)	0.081	0.379	0.872	0.041	0.160	0.049						
Total Self-Efficacy Scale	Correlation Coefficient	0.366	-0.156	-0.051	0.442	-0.150	-0.179	-0.189	--				
	Sig. (2-tailed)	0.268	0.646	0.883	0.173	0.659	0.598	0.556					
Total Sense of Coherence Scale	Correlation Coefficient	0.276	-0.264	-0.205	0.265	-0.303	-0.205	-0.158	.666*	--			
	Sig. (2-tailed)	0.411	0.432	0.545	0.431	0.365	0.545	0.625	0.018				
Comprehensibility - Sense of Coherence Scale	Correlation Coefficient	0.159	0.065	0.134	0.125	-0.102	-0.078	-0.004	.749**	.773**	--		
	Sig. (2-tailed)	0.640	0.851	0.695	0.715	0.765	0.819	0.991	0.005	0.003			
Manageability - Sense of Coherence Scale	Correlation Coefficient	-0.494	-0.149	-0.442	-0.317	0.155	0.256	0.510	0.158	0.405	0.418	--	
	Sig. (2-tailed)	0.122	0.662	0.173	0.342	0.650	0.448	0.090	0.623	0.191	0.176		
Meaningfulness - Sense of Coherence Scale	Correlation Coefficient	0.456	-0.143	-0.060	0.383	-0.199	-0.156	-0.408	.651*	.890**	0.563	0.142	--
	Sig. (2-tailed)	0.158	0.676	0.861	0.246	0.557	0.646	0.188	0.022	0.000	0.057	0.660	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

- A strong positive correlation was also found between the comprehensibility scale of the sense of coherence scale and the total sense of coherence scale ($r=0.773$, $p=0.003$). A strong positive significant correlation was also found between the meaningfulness subscale of sense of coherence and the total sense of coherence scale ($r=0.890$, $p=0.000$).

Since Table 5.34 highlighted the existence of correlations between the psychological factors, a decision was made to correlate these with one another. This will be addressed in the next section (see 5.6). For this analysis weight maintenance was excluded from the correlation matrix. The next step therefore involved investigating correlations between sense of coherence, self-efficacy, locus of control and quality of life, without consideration of weight.

5.6 Relationships Between Sense of Coherence, Self-efficacy, Locus of Control and Quality of Life (Weight Maintenance Excluded)

Spearman's Rho was calculated yet again to determine if relationships exist between sense of coherence, self-efficacy and locus of control. Since weight maintenance was excluded from this correlation matrix, quality of life was included. The results of the Spearman's Rho correlations are displayed in Table 5.35. Some of the correlations were repeated from Table 5.36, for ease of reading these repetitive findings were not mentioned again below.

The following findings were significant according to Table 5.35.

- There was a strong inverse significant correlation between IWQOL self-esteem after WLS, and locus of control ($r=-0.731$, $p=0.007$). A score of 11 and under is indicative of an internal locus of control, whereas a score of 12 and above indicates an external locus of control (Heidari & Ghodusi, 2016; Hosseini et al., 2016; Wang & Meizhen, 2020). This result indicated a relationship between an increase in self-esteem after WLS and an internal locus of control.

Table 5.35

Spearman Rho Correlation: All Scales – Locus of Control, Self-Efficacy, Sense of Coherence and Quality of Life

		Total Locus of Control (Rotter)	Total Self-Efficacy Scale	Total Sense of Coherence Scale	Comprehensibility - Sense of Coherence Scale	Manageability - Sense of Coherence Scale	Meaningfulness - Sense of Coherence Scale	WQOL Before WLS - Physical Functioning - Final Score	WQOL Before WLS - Self-esteem - Final Score	WQOL Before WLS - Sexual Life - Final Score	WQOL Before WLS - Public Distress - Final Score	WQOL Before WLS - Work - Final Score	WQOL After WLS - Physical Functioning - Final Score	WQOL After WLS - Self-esteem - Final Score	WQOL After WLS - Sexual Life - Final Score	WQOL After WLS - Public Distress - Final Score	WQOL After WLS - Work - Final Score
Total Locus of Control (Rotter)	Correlation Coefficient	--															
	Sig. (2-tailed)																
Total Self-Efficacy Scale	Correlation Coefficient	-0,189	--														
	Sig. (2-tailed)	0,556															
Total Sense of Coherence Scale	Correlation Coefficient	-0,158	,666 [*]	--													
	Sig. (2-tailed)	0,625	0,018														
Comprehensibility - Sense of Coherence Scale	Correlation Coefficient	-0,004	,749 ^{**}	,773 ^{**}	--												
	Sig. (2-tailed)	0,991	0,005	0,003													
Manageability - Sense of Coherence Scale	Correlation Coefficient	0,510	0,158	0,405	0,418	--											
	Sig. (2-tailed)	0,090	0,623	0,191	0,176												
Meaningfulness - Sense of Coherence Scale	Correlation Coefficient	-0,408	,651 [*]	,890 ^{**}	0,563	0,142	--										
	Sig. (2-tailed)	0,188	0,022	0,000	0,057	0,660											
WQOL Before WLS - Physical Functioning - Final Score	Correlation Coefficient	0,204	0,459	0,312	0,253	0,263	0,325	--									
	Sig. (2-tailed)	0,526	0,133	0,323	0,427	0,410	0,303										
WQOL Before WLS - Self-esteem - Final Score	Correlation Coefficient	-0,199	-0,181	0,053	-0,078	-0,022	0,234	0,353	--								
	Sig. (2-tailed)	0,535	0,573	0,870	0,809	0,947	0,463	0,261									
WQOL Before WLS - Sexual Life - Final Score	Correlation Coefficient	-0,196	0,053	0,180	0,005	0,112	0,409	0,532	,828 ^{**}	--							
	Sig. (2-tailed)	0,541	0,869	0,575	0,987	0,730	0,186	0,075	0,001								
WQOL Before WLS - Public Distress - Final Score	Correlation Coefficient	-0,126	-0,366	-0,201	-0,370	0,005	-0,002	0,203	,826 ^{**}	,655 [*]	--						
	Sig. (2-tailed)	0,696	0,242	0,531	0,236	0,987	0,996	0,527	0,001	0,021							
WQOL Before WLS - Work - Final Score	Correlation Coefficient	-0,421	-0,261	0,100	-0,295	-0,160	0,239	-0,195	0,481	0,250	,593 [*]	--					
	Sig. (2-tailed)	0,173	0,413	0,756	0,352	0,620	0,454	0,543	0,113	0,433	0,042						
WQOL After WLS - Physical Functioning - Final Score	Correlation Coefficient	-0,383	0,121	0,239	0,082	-0,011	0,094	0,131	0,036	-0,007	-0,099	0,300	--				
	Sig. (2-tailed)	0,219	0,708	0,455	0,800	0,973	0,771	0,685	0,913	0,982	0,758	0,344					
WQOL After WLS - Self-esteem - Final Score	Correlation Coefficient	-,731 ^{**}	0,069	-0,146	-0,136	-0,439	0,078	-0,075	0,469	0,293	0,554	0,514	0,297	--			
	Sig. (2-tailed)	0,007	0,831	0,652	0,673	0,153	0,810	0,816	0,124	0,355	0,062	0,087	0,349				
WQOL After WLS - Sexual Life - Final Score	Correlation Coefficient	-0,460	0,359	0,141	0,128	-0,238	0,312	0,094	0,373	0,515	0,181	0,254	0,330	0,576	--		
	Sig. (2-tailed)	0,132	0,252	0,662	0,692	0,457	0,323	0,770	0,233	0,086	0,573	0,426	0,294	0,050			
WQOL After WLS - Public Distress - Final Score	Correlation Coefficient	-0,495	-0,060	-0,016	-0,148	-0,179	-0,091	-0,002	0,033	-0,046	0,080	0,381	,918 ^{**}	0,499	0,272	--	
	Sig. (2-tailed)	0,102	0,853	0,960	0,647	0,579	0,778	0,996	0,920	0,888	0,805	0,221	0,000	0,098	0,392		
WQOL After WLS - Work - Final Score	Correlation Coefficient	-0,389	-0,018	0,433	0,110	0,115	0,355	-0,018	0,362	0,306	0,247	,652 [*]	,770 ^{**}	0,342	0,470	,689 [*]	--
	Sig. (2-tailed)	0,211	0,955	0,160	0,733	0,722	0,257	0,955	0,247	0,333	0,439	0,022	0,003	0,276	0,123	0,013	

- There was a strong positive significant correlation between sexual functioning and self-esteem before WLS ($r=0.828$, $p=0.001$) in regards to quality of life. Spearman correlation analysis revealed a positive relationship between sexual functioning and self-esteem before WLS, where if sexual functioning in terms of quality of life decreases, self-esteem will also decrease.
- Another strong positive significant correlation was found in regards to quality of life between public distress and self-esteem before WLS ($r=0.826$, $p=0.001$). A low score on quality of life is indicative of more impairment, whereas a high score is indicative of a higher quality of life (Crosby et al., 2004; Crosby & Kolotkin, 2009, Flølo et al., 2018; Mitchell et al., 2015; Walsh et al., 2018). Public distress is related to aspects such as judgement and ridicule as well as practical struggles (Kolotkin et al., 2001; Saboor Aftab et al., 2014). This result reveals when an individual experiences public distress which affects their quality of life in a negative manner, thus reflecting a low score, there is also a lowered self-esteem in terms of quality of life.
- Quality of life in regards to public distress before WLS also showed a strong positive significant correlation with sexual life before WLS ($r=0.655$, $p=0.021$). In the same manner as the previous result, this indicated the more public distress these individuals experienced affecting their quality of life in a negative manner (thus a low score), the lower their quality of life was in terms of sexual life before WLS.
- There was a strong positive significant correlation in regards to quality of life between work and public distress before WLS ($r=0.593$, $p=0.042$). This result, as explained with the previous results on quality of life, indicated the relationship between a lower quality of life in terms of work and lower quality of life in terms of public distress. These individuals thus experienced more public distress, where they felt judged which lowers their quality of life.

- In terms of quality of life, a strong positive significant correlation was found between public distress and physical functioning after WLS ($r=0.918$, $p=0.000$). The results suggest that for example if an individual experienced better physical functioning their quality of life improved in terms of public distress, where they now experience less judgement from others (high score on IWQOL-Lite, as their quality of life has improved).
- A strong positive correlation was found in regards to quality of life between work after WLS and work before WLS ($r=0.652$, $p=0.022$). According to this result the higher the quality of life in terms of work before WLS, the higher their quality of life after WLS in terms of work.
- Another strong positive correlation was shown, in regards to quality of life, between work after WLS and physical functioning after WLS ($r=0.770$, $p=0.003$), as well as between work after WLS and public distress after WLS ($r=0.689$, $p=0.013$). These results indicated that the higher quality of life in terms of work, the better the individual's physical functioning and less public distress they experienced.

Since most correlations were related to quality of life a decision was made to explore quality of life further.

5.7 Quality of Life

As was mentioned in 4.4.1.5 Quality of life was measured before (retrospectively) and after WLS. Wilcoxon signed-ranked tests were then conducted to determine if any significant differences occurred before and after WLS in terms of quality of life. The Wilcoxon signed-ranked test is a non-parametric tool that is utilised for a two-sample comparison (Jiang et al., 2017; Ohlyver et al., 2019). However, before the Wilcoxon-signed ranked tests were calculated, descriptive statistics were calculated for quality of life,

specifically in terms of physical functioning, self-esteem, sexual life, public distress and work. The results are displayed in Table 5.36.

Table 5.36

Descriptive Statistics for IWQOL Before and After WLS

		IWQOL			IWQOL	
		Physical	IWQOL	IWQOL	Public	IWQOL
Time		Functioning	Self-esteem	Sexual Life	Distress	Work
Before	Mean	30.58	20.58	37.00	30.00	66.25
	Median	24.00	12.50	41.00	22.50	66.00
	N	12	12	12	12	12
	Std. Deviation	19.806	23.365	27.811	25.761	23.572
After	Mean	69.17	61.58	58.42	77.50	81.92
	Median	83.00	68.00	72.00	95.00	91.00
	N	12	12	12	12	12
	Std. Deviation	32.000	27.241	32.413	33.200	25.568

The results of the Wilcoxon-signed ranked tests are displayed in Tables 5.37 to 5.41.

Table 5.37

Wilcoxon Signed-Rank Test Summary for IWQOL Physical Functioning Before and After WLS

Total N	12
Test Statistic	61.500
Standard Error	11.236
Standardised Test Statistic	2.536
Asymptotic Sig.(2-sided test)	0.011

According to Table 5.37 significant differences occurred in physical functioning before and after WLS. Quality of life with regards to physical functioning improved from before WLS ($Mdn=30.58$) to after WLS ($Mdn=69.17$). The effect size for this significant result was large using Cohen's criteria (Pallant, 2016).

Table 5.38*Wilcoxon Signed-Rank Test Summary for IWQOL Self-Esteem Before and After WLS*

Total N	12
Test Statistic	65.000
Standard Error	11.242
Standardised Test Statistic	2.847
Asymptotic Sig.(2-sided test)	0.004

The Wilcoxon signed-ranked test in Table 5.38 indicate that the difference between quality of life in terms of self-esteem before WLS (*Mdn*=20.58) and after WLS (*Mdn*=61.58), is statistically significant ($p=0.04$). Thus, quality of life has greatly improved in terms of self-esteem after WLS. The effect size for this significant result was large using Cohen's criteria (Pallant, 2016).

Table 5.39*Wilcoxon Signed-Rank Test Summary for IWQOL Sexual Life Before and After WLS*

Total N	12
Test Statistic	48.000
Standard Error	9.785
Standardised Test Statistic	2.095
Asymptotic Sig.(2-sided test)	0.036

According to Table 5.39 significant differences occurred in sexual life before and after WLS. Quality of life with regards to sexual life improved from before WLS (*Mdn*=37.00) to after WLS (*Mdn*=58.42). The effect size for this significant result was large according to Cohen's criteria (Pallant, 2016).

Table 5.40*Wilcoxon Signed-Rank Test Summary for IWQOL Public Distress Before and After WLS*

Total N	12
Test Statistic	53.000
Standard Error	9.798
Standardised Test Statistic	2.603
Asymptotic Sig.(2-sided test)	0.009

Table 5.40 indicate that significant differences occurred in public distress before and after WLS. Quality of life with regards to public distress improved from before WLS (*Mdn*=30.00) to after WLS (*Mdn*=77.50). The effect size for this significant result was large according to Cohen's criteria (Pallant, 2016).

Table 5.41*Wilcoxon Signed-Rank Test Summary for IWQOL Work Before and After WLS*

Total N	12
Test Statistic	42.000
Standard Error	8.426
Standardised Test Statistic	2.314
Asymptotic Sig.(2-sided test)	0.021

Significant differences occurred in work before and after WLS, as indicated in Table 5.42. Quality of life in terms of work improved from before WLS (*Mdn*=66.25) to after WLS (*Mdn*=81.92). The effect size for this significant result was large according to Cohen's criteria (Pallant, 2016).

5.8 Conclusion

In this chapter several significant results were obtained. The first of these was the significant association between locus of control and weight maintenance. A correlation matrix also indicated a significant positive correlation between locus of control and percentage of weight gained, where an internal locus of control was associated with less weight gained. There was also an inverse correlation found between locus of control and the amount of kilograms lost, indicating an internal locus of control was associated with more kilograms lost. Several significant correlations were also observed between the psychological factors under investigation. These correlations included relationships between locus of control and self-esteem in terms of quality of life as well as sense of coherence and self-efficacy. Wilcoxon signed-rank tests results indicated significant results from before WLS to after WLS on all the subscales of quality of life. A more comprehensive discussion will be provided in Chapter 7.

Chapter 6: Qualitative Results

6.1 Introduction

As was previously mentioned (see 4.2), the present study used a convergent mixed-method design. This chapter will focus on the qualitative results produced by the study. The aim of the qualitative part was to explore the subjective experiences of patients who had WLS, specifically focusing on aspects contributing to weight maintenance. Utilising the six-phase reflexive thematic analysis suggested by Braun and Clark (2006; 2019; 2020), allowed the researcher to analyse and interpret the data to develop codes, sub-themes and themes. Themes are developed from the analytic output of codes (Braun & Clarke, 2006; 2012; 2013; 2022, Byrne, 2022). In this manner themes thus constitute the central ideas or concepts that illustrate patterns of meaning reflected in the data, which enables the researcher to report on a specific topic (Braun & Clarke, 2006, 2012, 2013; Byrne, 2022; Maguire & Delahunt, 2017). The codes and themes generated within this study were based on the content and analysis of the qualitative data. In this chapter, the research analysis will be discussed. Instead of providing an independent research report, the results will be provided and amalgamated in the discussion chapter.

6.2 The Reflexive Thematic Analysis Methodology

The data analysis conducted in accordance to Braun and Clarke's (2006, 2012, 2019, 2022; Clarke & Braun, 2013) six phases (see 4.5.2) will be discussed next.

6.2.1 *Phase 1: Familiarising Yourself with Your Data*

The aim of the first phase of thematic analysis is to get acquainted with the data (Braun & Clark, 2006, 2012, 2019; Braun et al., 2019; Byrne, 2022; Campbell et al., 2021; Maguire & Delahunt, 2017). Within this study, six semi-structured interviews were conducted by the researcher and were audio recorded with the consent of the participants.

These audio-recordings were transcribed verbatim by the researcher, which provided an added advantage of further familiarisation and immersion into the data. The transcripts, together with the observational notes, were then used for the qualitative data analysis. These transcripts were read and re-read, whilst listening to the audio recordings again, until the researcher was familiar with the data. Different coloured pens were used to initially indicate similar or opposite responses that appeared in the participants' transcripts, together with items that could potentially be of interest to the research. Thereafter an electronic file system was created to group the data. Observational notes and initial thoughts were noted for later consideration. Braun and Clarke (2006, 2012, 2019) indicated that the familiarising of data in this manner aids the researcher to actively and critically analyse and give meaning to the data. Familiarity with the data also developed throughout all the steps within reflexive thematic analysis (Braun & Clarke, 2019; Byrne, 2022).

6.2.2 Phase 2: Generating Initial Codes

During the second phase of generating initial codes, the electronic file system created during the familiarisation phase, observational notes and transcripts were further used as an aid to identify and group meaningful data together. With greater familiarisation working with the data, these were streamlined and reorganised. Data extracts were grouped together that shared commonalities within this electronic word document. Codes were then generated and named to reflect the common or central concept of each (Braun & Clark, 2006, 2012, 2019, 2022; Braun et al., 2019; Byrne, 2022; Saldaña, 2015). A combination of latent and semantic coding was used. Semantic coding refers to when coding is based on the content of the data as presented by the participants, whereas latent coding is based on the meaning of ideas derived from the data inferred by the researcher (Braun & Clarke, 2012, 2021b, 2021c, 2022; Byrne, 2022). Within qualitative inquiry, a code is the most basic component that encapsulates the essence of a feature within the raw data (Braun & Clarke, 2006, 2012, 2019; 2021c; Braun et al., 2019; Byrne, 2022; Nowell et al., 2017; Saldaña,

2015; Terry et al., 2017). Codes were modified and adapted at various times during the research process, as familiarity with the data and reflexivity developed.

6.2.3 Phase 3: Generating Initial Themes

In the third phase, the generated codes from phase 2 were reviewed to find relationships, similarities or overlap between these codes. Through this process codes were then clustered together, based on their interpretative meaning and ability to convey a commonality of the data. Based on the codes, themes and sub-themes were generated to enable the researcher to further convey meaningful patterns from the data (Braun & Clarke, 2006, 2017, 2019, 2021a, 2021c; Byrne, 2022; Nowell et al., 2017; Terry et al., 2017). Themes are recurrent patterns of meaning found within the data, where it encapsulates the meaning of experience and allows the researcher to report analytical observations on the research (Braun & Clarke, 2006, 2012, 2013, 2021c; Byrne, 2022; Clarke & Braun, 2017; Maguire & Delahunt, 2017; Nowell et al., 2017). In this phase, themes and sub-themes were still regarded as provisional themes, to allow the researcher to further explore other possibilities through reflexive analysis to report the data in a meaningful way (Terry et al., 2017). The themes were developed both inductively and deductively (Braun & Clarke, 2022). The following subthemes were developed from deductive analysis, namely sense of coherence and quality of life. Inductive analysis generated the following themes and subthemes: stressors and resources, specifically medical expertise. A combination of inductive and deductive analysis generated the following themes and subthemes: support systems, expectations, dumping syndrome and fear of regaining weight, as well as pre- and postoperative requirements and education. A summary of the initial themes, sub-themes and codes can be found in Table 6.1 below.

Table 6.1*Summary of the Provisional Themes, Sub-Themes and Corresponding Codes*

Theme	Sub-theme	Codes
Stressors	Invisibility versus visibility	<ul style="list-style-type: none"> - No one truly sees the fat individual. - Discrimination and stereotypes - Practical struggles and limitations - Social avoidance
	Psychological and Physiological stressors / fears	<ul style="list-style-type: none"> - Medical causes not diagnosed - Traumatic experiences - Fear of dying - Comorbid conditions - Health-related stressors - Reasons for having WLS - Financial
	Self-esteem, self-confidence and Identity	<ul style="list-style-type: none"> - Self-esteem, self-confidence, and identity
	Relationships	<ul style="list-style-type: none"> - Important relationships - Interactions at work - Medical professionals
Resources	Support systems	<ul style="list-style-type: none"> - Family, friends, partners - Support groups - Religion
	Medical expertise	<ul style="list-style-type: none"> - Medical doctors - Therapeutic interventions
Expectations	Expectations met	<ul style="list-style-type: none"> - Health - Appearance - Being more active
	Expectations not met	<ul style="list-style-type: none"> - Health, relationships, appearance
Weight maintenance contributors	Dumping syndrome and fear of regaining weight	<ul style="list-style-type: none"> - Fear of dumping - Fear of regaining weight - Weight checking
	Sense of coherence	<ul style="list-style-type: none"> - Comprehensibility - Manageability - Meaningfulness
	Pre and postoperative requirements and education	<ul style="list-style-type: none"> - Attended follow-up visits - Blood tests - Blood test and Supplements
	Quality of life	<ul style="list-style-type: none"> - Life before WLS - Health - Appearance - Active and active lifestyle - Do it again - Quality time - Environment itself - Coping mechanism

6.2.4 Phase 4: Reviewing Potential Themes

The fourth phase consisted of reviewing the various themes, sub-themes and codes (Braun & Clark, 2006; 2012, 2020, 2022; Byrne, 2022). Revision of these themes, sub-themes and codes were aided by the increased familiarity with the data and the reflexive nature of the analysis, as well as the research notes made during data gathering and each of the thematic analyses phases up to this point. Provisional themes were revisited, together with the sub-themes and codes, to ensure each theme links to the sub-theme, as well as the sub-themes to the response codes and data extracts. Within this phase themes, sub-themes and codes can be discarded, collapsed, relocated or broadened to more accurately capture and report the meaning of the data (Braun & Clarke, 2006; Maguire & Delahunt, 2017; Nowell et al., 2017; Terry et al., 2017). With further reflexive immersion into the data, the researcher decided to collapse, relocate and merge certain codes and thus also the sub-themes and themes. This was an ongoing process until the researcher decided that the codes adequately informed the themes and sub-themes (Braun & Clarke, 2021c, Braun et al., 2022).

From these codes, the researcher further reflected and revised the themes and sub-themes, to ensure that the themes adequately represent the analysis of the dataset (Braun & Clarke, 2006, 2012, 2019; Byrne, 2022). This enabled the researcher to report the reflexive analysis of the data in a meaningful manner – to tell the story (Braun et al., 2022) and to align the themes and sub-themes with the qualitative research aim of this study. It should be noted that within reflexive thematic analysis there is no clear point of a final analysis. The researcher decides when to stop the analysis and report the findings (Braun & Clarke, 2021c; Braun et al., 2022). The inductive themes and subthemes were preoperative experienced stressors, who was I and who am I (still), other factors that contributed to weight maintenance, specifically trepidations and geographic area of residence and active lifestyle. The deductive theme was application of sense of coherence. A combination of inductive and deductive themes and subthemes were expectations of WLS, preoperative research and

postoperative requirements and support systems. A summary of the final themes, sub-themes and codes is presented in Table 6.2 and Figure 6.1.

Figure 6.1

Summary of the Final Themes and Sub-themes

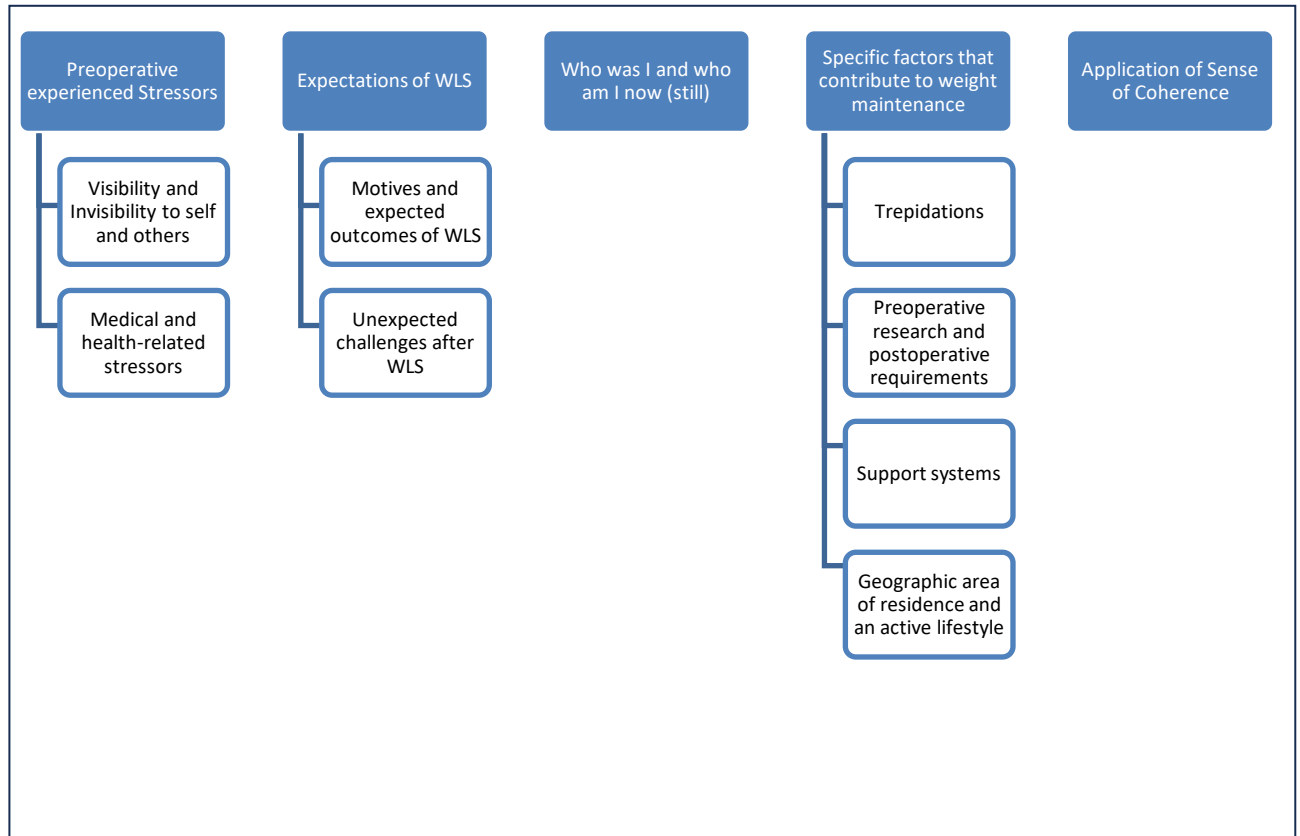


Table 6.2*Final Themes, Sub-Themes and Codes*

Theme	Sub-theme	Codes
Preoperative experienced stressors	Visibility and invisibility to self and others	<ul style="list-style-type: none"> - No one truly sees the fat individual - Discrimination and stereotypes - Practical struggles & limitations - Social avoidance
	Medical and health-related stressors	<ul style="list-style-type: none"> - Road travelled with obesity - Medical professionals - Fear of dying - Financial impact - Medical conditions and challenges
Expectations of WLS	Motives and expected outcomes of WLS	<ul style="list-style-type: none"> - Reasons and hopes for WLS - Realisation of hopes and expectations
	Unexpected challenges after WLS	<ul style="list-style-type: none"> - Medical conditions and challenges - Attention, and unforeseen changes in relationships and friendships
Who was I and who am I now (still)		<ul style="list-style-type: none"> - Self-esteem and self-confidence - Identity before and after WLS - Physical battlescars of WLS: Excess skin
Other factors that contributed to weight maintenance	Trepidations	<ul style="list-style-type: none"> - Fear of dumping - Fear of dying - Fear of regain
	Preoperative research and postoperative requirements	<ul style="list-style-type: none"> - Preparatory self-education - Keeping to pre- and postoperative responsibilities
	Support systems	<ul style="list-style-type: none"> - Significant others and positive feedback - Support groups
	Geographic area of residence and active lifestyle	<ul style="list-style-type: none"> - Environment
Application of Sense of coherence		<ul style="list-style-type: none"> - Comprehensibility - Manageability - Meaningfulness

6.2.5 Phase 5: Defining and Naming Themes

Within the fifth phase, themes were defined respectively by providing a name and description for themes (Braun & Clarke, 2006, 2012, 2019; Terry et al., 2017). This process indicated each theme's significance and meaning in contributing to the qualitative research aim and findings (Braun and Clark, 2006, 2012, 2019; Byrne, 2022; Nowell et al., 2017; Terry et al., 2017). The findings of each theme and sub-theme are provided next. Themes and sub-themes will at times be elaborated on by means of discussing the individual codes within them.

For the convenience of the reader, only the translated English quotes will be used below.

6.2.5.1 Preoperative Experienced Stressors. Before and after WLS, participants experienced stressors in diverse areas. Within this theme the main focus is on the stressors they experienced before WLS, which some participants only realised after WLS. To convey their unique subjective experiences, the theme of preoperative experienced stressors was divided into visibility and invisibility to self and others and medical and health-related stressors.

As indicated in 6.2.5, discussions regarding themes and sub-themes will be presented according to the identified codes. Within visibility and invisibility to self and others the codes are no one truly sees the fat individual; discrimination and stereotypes; practical struggles and limitations; and social avoidance. The codes identified within the sub-theme *medical and health-related stressors* were: road travelled with obesity, medical professionals, fear of dying and financial impact.

6.2.5.1.1 Visibility and Invisibility to Self and Others. The sub-theme of visibility and invisibility to self and others was placed under preoperative experienced stressors as there is a constant dichotomy between these two factors. This dichotomy of being invisible and visible also exist between before and after WLS. It seems that these participants,

especially before WLS, experienced being both invisible and visible to society and others simultaneously in various spheres of their lives. Here visibility refers specifically to the weight-related discrimination these participants experienced from others before WLS, as seen by the following extract:

“Because it doesn’t matter where you go, where you walk, people look. Even though they don’t make it obvious, you know.” – Participant 1

They simultaneously experienced feeling invisible as an individual.

“For me it was just, no one saw me. I was just a blur, one fat blur.” - Participant 4

“So, for me, before the operation, it really felt like nobody saw me. They saw me and stared, but they didn’t see me, not for who I really am.” – Participant 4

“My self-esteem deteriorated so much through the years and to a great extent you hide behind your fat, it’s easy. Fat people are invisible. So, it was difficult for me the moment that any attention was focused on me. I didn’t like to be in the spotlight whatsoever, because it was just easier to hide and be invisible and to live in the background. And I think that changed for me.” – Participant 5

From the response from participant 5, this invisibility also served a purpose for the participant to protect themselves while they were overweight. Participants also tried to make themselves and their bodies invisible in various manners to not stand out or hide behind, including hair, clothing and avoiding photos.

“And what I also found was, with such simple things, like I always wore my hair long, because I hid behind my hair, because I had no self-confidence” – Participant 5

“Hmmm, because that is exactly what I did with my body before the operation, tried to hide everything under clothing. Not that it helped, because it made it worse.” – Participant 4

“But I am kind of, because I somewhat made peace with the fact that I’m going to be huge and that there is almost nothing I can do about it, I just stay away from photos. Because I mean, if I now, or even when I was that big, I mean I know I was fat, but if you look down at yourself, you never thought you were that big, until you see a photo of yourself. And then it’s like ‘holy shit! Is that what I look like?’ It’s like, it cannot be.” – Participant 4

From the response by participant 4 it is evident that their obesity is also invisible to themselves to some extent. It could constitute a type of denial or avoidance used at minimal times, which also protects them from their reality. They are aware that they are obese, but as they live with themselves as a person, their first experience of themselves is that of who they are and not what they look like. This also impacted on their motivation to engage in a healthier lifestyle.

The participants’ need to be invisible as an obese individual to themselves and others is a matter of self-preservation, as being “fat is traumatic”. This is reflected in participant 5, where the participant summarises the experience of being obese as:

“... People do not recognise the trauma that a person experience when there is no blood and guts. To be fat is traumatic. You know, to experience that constant rejection, and the rejection of the self is a very difficult thing and people do not understand what it is to go through that.” – Participant 5

The “constant rejection and the rejection of the self” (participant 5) had an enormous impact not only on their self-esteem, self-worth and self-confidence, but also on their overall quality of life. This trauma of being obese was also confirmed by participant 6, as evident from the following extract:

“Because to also be fat, like I felt in the first year of University, I will never wish it on anyone.” Participant 6

The trauma of being obese can be partly related to the discrimination and stereotypes these participants experienced on a daily basis as obese individuals. Here again they seem to be visible for the world to judge, but invisible as a(n) (obese) person, as mentioned previously and in the following extract.

“Where in primary school and high school you are protected, because everyone knows you have a beautiful heart and beautiful personality and you are funny. But at University all what they see is based on visual value only.” - Participant 6

Participants had varied responses to their experience of discrimination and stereotypes, although it was present in various areas of functioning. Some participants indicated that they did not recollect people reacting negatively to them while they were obese. However, at closer inspection, the experiences of discrimination and stereotypes in the form of societal perceptions were overwhelming. Experiences of these societal perceptions in the form of stereotypes can be seen from the following extracts.

“And people judge you if you are fat, because then you are automatically lazy and that you are... you are a slob”. – Participant 5

“Why the hell are we always funny if we are fat? Why do we always have to tell the jokes at parties? Why do you have to laugh and talk louder than anyone else? What shit is that?” – Participant 3

“...I did field items, because everyone thinks that when you are big, shot-put is the thing to do, type of thing.” Participant 1

These stereotypes, combined with weight-related discrimination were endured by the participants before WLS, while they were still obese. The following extracts are indicative of these endured stereotypes and again show how the participant is visible for judgement, but invisible as an individual:

“Where people, they see you, but just to say ‘haai shame’. You know, ‘I wonder how she got there? Ag, can you imagine how she eats?’ What about no, actually I don’t eat so much.” – Participant 4

“And there were children go, “mommy, mommy, mommy, look that aunty ate a whole elephant”. Participant 3

Not only were the participants discriminated against by individuals but also by society as a whole. Their invisibility to society becomes even more prominent in terms of their practical struggles and limitations, where there is no consideration for their circumstances or how to accommodate these still obese participants. All of these practical struggles and limitations impact the participants’ quality of life. These struggles include consideration of seating in a restaurant, theatre or on aircrafts and the ability and availability to buy clothes.

“I lost it when [husband] told me that we must go on holiday and there is flying involved, because he had to buy me two seats, do you understand?” – Participant 3

“You know it is very difficult to be fat. And someone that... and you know that thing to not be able to fit into a chair. For example, I do not sit on a camping chair. Even though the camping chair says it can take people up to 120kg, 150kg, I am not going to take a chance. You know, that thing stays with you.” – Participant 5

“I can see the sizes of clothes that I needed to buy, and all the effort to get those sizes. And it cost you double the price. You can only buy what is available; you cannot buy what you want. You cannot look like you would like to look like; you can only look the best you can. And I think that is a thing that really got to me, the fact that I cannot just go into a store and buy a t-shirt that is nice to me.... Hmm... in restaurants you need to look if the chairs will be able to carry you, otherwise you cannot eat at that restaurant.” – Participant 1

Practical struggles and limitations also extend to mobility and ability to take part in various activities, which also impacted an individuals' quality of life. However, these related more to expectations of WLS which will be discussed later in this chapter.

Because of the discrimination and stereotypes, as well as the practical struggles and limitations experienced by the participants, it impacted on these participants self-esteem, self-confidence and self-worth (see 6.5.2.3). This contributed to social avoidance, a need to be invisible to themselves and society, especially before WLS. All of these factors impacted their quality of life, as the participants were deprived of life experiences through either social avoidance or just practically not being able to fly or participate in other activities. It even impacted their work responsibilities, which could have further detrimental effects on their quality of life. The social avoidance or need to be invisible in order to protect themselves while they were still obese can be seen from the following extracts:

"I never wanted to go to University. It was horrible for me. So obviously it had to be traumatising for me." – Participant 6

"So, there I did the social thing of withdrawing. And I went through a phase in my life where I only laid down and only ate. I would think up illnesses in my head just not to go to work, and just stay at home and just to be able to eat. Feed your face, that's all." – Participant 3

"And in general, like even now, if we go to the beach, I put on my bathing costume. And if the children ask then I will go swim, but before, there was no way. I didn't go with to the beach 90% of the time... what about no, uh huh, because I looked like a beached whale. I don't think so." - Participant 4

In contrast, after WLS their need to be invisible and avoiding social situations mostly subsided. Some of the avoidance behaviour still continued in some spheres after losing the weight. The participants' experiences are reflected below:

“I didn’t like it to be in the spotlight ever, because it was just easier to hide away and be invisible and to live in the background. And I think this changed for me [after WLS].” – Participant 5

“If you want to eat an ice-cream, you cannot enjoy the ice-cream like any other person because then everyone thinks, ‘oh, look at that fat woman, she is already so fat and then she still eats an ice-cream’. And I think that thing will always stay with me. I still don’t like to eat in front of other people, because it is just that inherent guilt about eating. And the eating is not the issue.” – Participant 5

And as I lost the weight, I started wearing my hair shorter, because it was easier to look like and people in the eyes now.” – Participant 5

“Self-confidence is a big thing that changed. It is something I never had. Even though I was never teased, it just was never there. Do not put me in front of people. Just don’t. I still hate it now, but now it is easier for me to do, because I look better, so it’s fine.” – Participant 1

Some participants indicated that they only realised they were treated differently by others after they lost the weight. It was almost as if they became visible as individuals once they lost the weight. Two areas highlighted by the participants where they felt especially visible after weight loss, was in work situations and in being the object of romantic interest. These areas also impacted their quality of life, self-esteem, self-worth, self-efficacy, self-confidence and contributed to a move towards an internal locus of control.

“With the energy boost and men, how you realise how shallow people are. The one thing I found on the one hand... it was an ego boost; it was a great ego boost. I was treated differently. Even with coming up with ideas at work, might have been brushed off in the past, now people were actually listening to what I had to say, just purely because I looked different.” - Participant 2

“You know, then men all of a sudden started being interested in me and wanted to date me. I mean I got married when I was 18 and when this happened now, I

had a huge fright, because I did not... I did not expect it. And hmmm... I never thought of myself in terms of being attractive.” – Participant 5

*It was just that I really didn't know how to handle all of this attention you know... especially from men, because I never had it before. And now I was like going out and guys were talking to me in bars and nobody was like really ever been like that with me obviously when I was overweight. So, it was this whole new world.
– Participant 2*

This sense of sudden positive visibility to the world after losing weight, also impacted most participants' self-esteem and self-efficacy, positively impacting their quality of life. However, this visibility also brought some unexpected challenges after WLS which will be discussed under the themes of who was I and who am I now (still) (see 6.2.5.3), as well as expectations of WLS (see 6.2.5.2.2) later in this chapter. It is important to highlight here that the participants even became visible to themselves and to society for the first time after the weight loss from WLS.

*“But I stopped hiding from myself. And because I had a better self-esteem for the first time, I started seeing the potential within myself. I started getting confidence in my own abilities and believed in my own abilities, which I did not have before.”
– Participant 5*

“And on the other hand, I got so angry cause I'm like 'shit man, why is this whole world like so shallow? Why didn't they see me before? Because why are they judging me on just how I look?’” – Participant 2

It seemed that the only people in the participants' lives to whom they were always visible, big or small, were their loved ones and significant others.

“If I speak about it now and I give them a talking to and say, 'couldn't you have just stopped me?' Then everyone is like 'we cannot remember that you were that

big, because your personality was just bigger than life itself. We could not remember.” – Participant 3

From this theme it is clear that these participants' lives and experiences were, and still are, to a great extent a dichotomy between being visible and invisible to self and others. This dichotomy impacts their quality of life, before and after WLS. As participant 5 indicated, “to be fat is traumatic”, not just because of the discrimination and stereotypes or the practical struggles and limitations, but even the “rejection of the self”. The obese individual would rather avoid life experiences than endure the possible ridicule and assumptions made by others, robbing them of aspects that can richly contribute to their quality of life. This long-lasting trauma does not just dissipate after weight loss, but to some extent becomes part of the individual. As mentioned before, being visible after WLS impacts quality of life and will be elaborated on more when discussing “who I was and who am I now (still)” and “expectations of WLS”.

6.2.5.1.2 Medical and Health-Related Stressors. Before WLS the participants experienced a vast array of health and physical stressors. These include having high blood pressure, problems with bone density, cholesterol, sugar problems (diabetes II), mobility issues, insulin resistance and polycystic ovarian syndrome (PCOS), which contributed to various problems including getting pregnant, weight gain and excessive hair growth. For some of the participants it greatly affected their quality of life, where one participant indicated that she felt like a failure and another struggled to walk. Other participants kept themselves in denial about the seriousness of their medical conditions and the danger it holds, until they were faced with the reality thereof.

“So, I think by the time that I went for the operation I felt like a complete failure. I couldn't get pregnant. My ovaries have been removed very early. I struggled you know with uhm, excessive hair growth in my face, you know and gaining weight. And then my health started suffering because of it.” – Participant 5

“At that point my... I was insulin resistant, but my vision started to suffer because of it.” – Participant 5

“And then I went to [Dr’s name]. Shame, he has also passed. Then he told me: ‘Listen [participant 3], my cholesterol was 22; my knees waggled, they made sounds like gi-go-gi-go when I walked.” – Participant 3

“I always stayed ignorant. You think that you have high blood pressure, oh everyone drinks high blood pressure pills, so it’s okay, it is not something to worry about. But when you get your bone density tests back and see; and you see your blood pressure and you see your sugar levels, and you see how close you are to a heart attack and those types of things, then reality becomes real for you.” – Participant 1

These medical conditions and struggles, together with the fear of dying, were the biggest motivating factors to have WLS which will be discussed in more detail under the theme expectations of WLS (see 6.2.5.2).

As indicated in 6.2.5.1.1, being overweight is traumatic and had a huge physical and emotional impact on the participants. The trauma of being overweight together with the medical conditions and struggles they experienced impacted their quality of life.

All of the participants actively tried to lose weight before WLS. For most this was a lifelong struggle. The road travelled with obesity for the participants was daunting, characterised by weight cycling and numerous diets in pursuit of normality in terms of weight.

“I was also on diet, upon diet, upon diet. It didn’t work and I actually started became bigger and bigger and bigger and found it much more difficult to lose the weight.” – Participant 4

“I started becoming overweight at the age of 7. My whole primary school I was on the clinic’s diet, then on Weighless, then with Weight watchers and then on Sureslim.” – Participant 1

The reasons held by the participants for their previous obesity were diverse. Some participants indicated an unhealthy relationship with food or emotional eating to cope with unhappiness or trauma.

“I use food emotionally. So, if I’m feeling stressed, I’ll start snacking. If I’m sad I’ll want to eat ice-cream. You know, it’s like using food as a form of soothing... emotional stuff. And I just still got to keep working on that. – Participant 2

“Now look sister, if I told you I was on every diet... I had my teeth glued. Remember now I gained the weight very quickly, so for my body it was a hell of a shock. So, I had my teeth glued, but look you can still blend a McDonalds, believe me, and suck it with a straw. If you want him, you will get him through this, you will. I bought books, ‘speak to your food’; I was on injections, I only ate lettuce, I did what I had to. But on the other side I also had my medicine, 6 pink milk drinks, 6 cornish pies, sweet, salty. I ate myself. So, I lived to eat, I didn’t eat to live and that is how it was.” – Participant 3

Other participants explained that they were overweight from a very young age or after a pregnancy or a miscarriage. These participants did not partake in excessive or emotional eating behaviour. One frustration for these specific participants were that no medical professional could provide them with any clear explanation as to why they have gained weight to the extent that they have, even with yearly medical testing. This left them with a sense of hopelessness, as they knew their weight had to be linked to some medical explanation.

“I mean I was born fat; fat through primary school and high school. It wasn’t all of a sudden after a pregnancy or something. It was my whole life.” - Participant 4

“They assumed it was insulin resistance, but that was it. But I mean thyroid and all those things, I went every year to get all tested to make sure that there is

nothing wrong with me. And there was just never anything wrong with me. Like my blood pressure actually only started now, after I lost the weight. Now I have high blood pressure, ha ha.” – Participant 4

“And then after the last miscarriage that I had in 1989, I gained 40kg in a year’s time. I did not eat in that time, I only cried for that whole year, where I gained 40kg, and nobody could tell me why. I went from doctor to doctor to doctor, and all just sat there shaking their heads and saying they don’t really know what to tell me. Hmmm... and you know, this was for me the absolute lowest point.” - Participant 5

The inability to diagnose or give participants a clear indication of why they were obese had a negative impact on how medical professionals were perceived before WLS. The negativity towards medical professionals were also compounded by the medical fat-shaming and judgement the participants felt from these professionals. The realities of these participants were discounted by the healthcare professionals to the extent where they did not feel heard, especially in terms of their eating behaviour.

“I think I went to many normal mainstream doctors that only shook their heads and said we cannot do anything for you. You know, you will just need to eat less and exercise more. They never looked further to see what can be done on hormonal levels, or what can you do about hereditary illnesses; how you can, you know, how you can plan your life to minimise it, you know. It is when you only see your GP’s and especially your gynaecologist, they aren’t really interested to give you options to help you.” – Participant 5

“People who eat, there is always a reason. God created us with the knowledge that we eat to live. When you begin to live to eat, then there is a problem. And God doesn’t make mistakes. Do you understand what I’m saying? Teachers that emotionally injured children, police, man the list is so long. Do you want to tell

me that someone who studied in the medical field, like a nurse or whatever doesn't understand that? Then they are in the wrong industry.” – Participant 3

The participants also experienced a constant bombardment of threats of death from the medical professionals for being obese.

“Then he said to me: ‘Listen to me quickly. I’m giving you six weeks. You are doomed. You are going to die of a heart attack with your cholesterol and eating habits and everything. You are going to die.’” – Participant 3

“...she was the first one that spoke to me directly. She told me, as you are sitting there, you are going to be dead in 5 years’ time.” – Participant 5

“But at that time, you just want to... remember you hear the whole time you are going to die, you are going to die, you are going to... remember I’m talking now before having the op. Your heart is going to stop; you are going to have a stroke; it’s just not worth while; you are going to die in front of your kids. This is what you hear all the time?” – Participant 3

These threats of death created a fear of dying within the participants. Some participants experienced this fear of dying as a motivation to have WLS (see 6.2.5.2). This also led to the participants considering some of the medical professionals as saviours after WLS.

“So, I think it was fear that drove me. You know I still wanted to be there for my kids for a couple more years. And it was important to me that the diabetes needed to be stopped before it went further.” – Participant 5

“And the one day he asked me: ‘So why are you doing this operation?’. Then I explained to him: ‘because I’m too fat and you know I’m not going to live very long if I carry on being this fat’.” – Participant 4

“I’m not sure if I would have been sitting here if it didn’t happen, because as I said, I was sicklier than what I thought I was. And I got a fright after I received my

results. Then I didn't realise I am literally on the brink of death from a heart attack. And that was horrible to me and I had expectations, but... and I say this a lot... if I go once a year to the doctor, [Dr's name], then I tell her: 'you saved my life'. That's all. That is how I see it. It is life changing.” – Participant 1

“I mean, when I went to her they just began. Hmm... but she as a person was just amazing to me. She... she was the first one that spoke to me directly. She told me, as you are sitting there, you are going to be dead in 5 years' time. Hmm... and think about your quality of life, and she spoke to me directly that absolutely shocked me out of my boots, you know to hear that. And I needed to hear that. And she didn't say that to force the operation on me, it was the alternatives that she gave me. Hmm... you know, so I will refer everyone to her because she was good to me.” – Participant 5

The fear of death also contributed to weight maintenance through dumping syndrome, expectations of WLS and sense of coherence, to be discussed later (see 6.2.5.4.1)

Most of the participants experienced a financial burden as their medical aids did not contribute to the WLS at all or only paid a percentage thereof. Yearly follow-up visits, blood tests and monthly medication also contributed, but most participants seemed to cope with these expenses.

“And obviously it finances as well, it is very expensive. And I was not on a medical aid. I know discovery sometimes cover like 70% and I obviously couldn't as I was on a medical aid at work and I had to be on that. So, I had to fund most of it myself. My operation was about a R150 000, and I paid about a R110 000 out of that, which is hectic. It was worth it, I never look back.” – Participant 2

“Medical aid did not pay for it. We had to pay cash. It was about R120 000 for the operation. I'm sure it costs more now. And of course, that excluded all the pre- and post-consultations.” – Participant 5

This financial burden also extends to plastic surgery after their excessive weight loss and excess skin, to which medical aids also do not contribute financially.

“Something that I really would like to do is obviously plastic surgery after the operation. It’s almost like the ultimate red line that you draw. That will always stay. I really want to do it. I know it costs a lot of money, because the medical aids do not pay for it. There is a way that they can pay for part of it, but it is still a great expense, which I cannot do at this time.” – Participant 1

Plastic surgery and excess skin will be discussed under the theme ‘*who was I and who am I now (still)*’ (see 6.2.5.3.2), as it impacts on self-esteem and quality of life.

Other stressors experienced by the participants were medical conditions and struggles after WLS. For this reason, medical conditions and challenges will also be discussed under *expectations of WLS*.

6.2.5.2 Expectations of WLS. Reasons for having WLS had a direct link to the expectations the participants had regarding the outcome of WLS and weight loss; how it would positively influence their lives and thus also their quality of life. Although most of their expectations were met by WLS, some unexpected challenges occurred for most participants. These sub-themes of expectations of WLS will be discussed below in more detail. To aid the reader in this section, the codes identified for these sub-themes were as follows (see Table 6.2): 1. Motives and expected outcomes of WLS: reasons and hopes for WLS; and realisation of expectations; 2. Unexpected challenges: medical conditions and struggles and attention and unforeseen changes in relationships and friendships.

6.2.5.2.1 Motives and Expected Outcomes of WLS. All participants had certain motivations for wanting WLS and expectations regarding the outcome of WLS. These motives

and hopes for WLS were mostly health-related which is to be expected considering the health problems and the consequential threat of death they experienced before WLS (see 6.2.5.1.2).

“Hmmm, but I don’t know. The only thing that I saw how it will change my life is that I will actually make it to 50. Because I mean I had begun getting so big that I started worrying about heart attacks and strokes and... you know. Many of my family was against the operation, because it was unnecessary... hmmm... surgery... where you put yourself at risk. Hmmm, where I just felt I am in a place of 50/50. Do the dangerous operation or go on as you do... hmmm... what do you do? It is kinda a catch 22.” – Participant 4

“Marriage. Marriage. And obviously the doctor told me: ‘girl, I give you 6 weeks.’” – Participant 3

“... I had big expectations. Well I want to lose weight, look better, feel better, and be healthier.” – Participant 1

“So, for me considering the operation was purely medical; for health and not vanity. And for me that was an important factor. I have a huge issue with things such as liposuction and face-lifts and those types of things. You know, so it was important for me that my motivation had to be correct.” – Participant 5

Some of the motives for WLS and thus also expectations held by the participants were also socially motivated, as can be seen in the following extract:

“I just thought I would be happier with myself. I thought if I am thin that I won’t feel bad about myself anymore. And I won’t be shy if people look. Hmmm, I just had these pictures. At that point I only wanted to wear pretty clothes and feel more comfortable with people around me.” – Participant 6

These social motivating factors also included hopes and expectations such as being able to be more active.

“So, my expectation, I mean my biggest expectation was like, for me, all I wanted to do was obviously just be happier and more comfortable in my body, and be able to do activities that like I could never really do before. Be outdoors more, and all of that kind of stuff. And I think the expectation there was incredible because you know, I am able to run now, I do all kinds of things. Uhm... so that’s been great.” – Participant 2

Some participants hoped or expected to find love.

“Yes, you think you are now going to get a boyfriend. He is going to be crazy about me. Life is going to be easy...,” – Participant 6

While many participants wanted to be able to buy and dress in clothes that they choose.

“I can see the sizes of clothes that I needed to buy, and all the effort to get those sizes. And it cost you double the price. You can only buy what is available; you cannot buy what you want. You cannot look like you would like to look like, you can only look the best you can. And I think that is a thing that really got to me, the fact that I cannot just go into a store and buy a t-shirt that is nice to me” – Participant 1

Most of the participants’ expectations were met after WLS, especially in terms of the following. Their health improved after WLS.

“I wondered sometimes, but I did not expect health wise that having the operation would have such a positive impact.” – Participant 1

Their weight loss expectations were met. In the following extract it is also evident that their expectations in regards to weight loss were realistic.

“So, you know, I have now in 10 years’ time gained 7kg that I have lost initially. So that to me is good. It is the expected thing.” – Participant 5

The participants’ hopes and expectations in regard to feeling more comfortable in their own bodies and participating in activities were also met.

“Yes, very much, because you are more comfortable in your own skin and you can go gym and hike and so.” – Participant 6

There was also an improvement in their self-confidence. This will be expanded on as indicated in “Who was I and who am I (still)” (see 6.5.2.3).

“And I think without the operation I would most likely be twice as fat as what I was, hmmm... with even less self-confidence. So, for me it was absolutely a new beginning and a new chance.” – Participant 5

These expectations of WLS, whether they were met, exceeded, or as will be discussed later in this section, brought unexpected challenges, impacts the participants’ quality of life. The participants’ quality of life improved in various spheres of life. Participants were now able to spend quality time with their families, since they now actively participated in activities with their family.

“I mean I am much more active now, where before with [daughter] when she was still small, I couldn’t really sit with her on the floor, because it was too much of a mission to get up again. But now I won’t think twice to go and sit next to her and build a puzzle. So, in that regard they see it. They see that I’m more active. Hmmm... oh we quickly going to take the kids to ride their bike at [activity centre], we need to walk behind them. ‘Okay, sure. No problem. It’s okay, let’s go.’ Hmmm... so in that regard they are now actually happy that I did it, because at the end of the day it is better for my kids. Absolutely.” – Participant 4

They could more comfortably engage in social interactions and not avoid it as before WLS.

“It was terrible [before the operation], and I mean now it is actually so much easier to meet people, because you actually have a bit more confidence to go up to them and to say hello or to ask for a lighter. Where before I would rather just not smoke. There is no way that I will get up and ask for one.” – Participant 4

The participants could also engage in new interests and an active lifestyle, for example running and hiking which they couldn't do before WLS.

And now I was starting to get more into like trail running and hiking and all sorts of healthy things. Going to boot camp. And as much as I still love my food and my wine, but you know I want to get up early on a Saturday morning and I want to go run on a wine farm. – Participant 2

Being able to buy clothes, dress as they want to reflect who they are, not just what was available, lifted a huge burden from these participants. Also, as indicated below not having to buy clothes in a special section made their life easier and provided them with self-worth.

“...and how it would change my life was to be able to buy clothes. To be able to walk into any shop and buy clothes and you don't have to worry to go to the special section. Or they don't even have any and yes. So yes, that was my biggest thing. I want to be able to buy clothes.” – Participant 4

Their ideas or contributions were taken more seriously and validated in their work environment.

“Even with coming up with ideas at work, might have been brushed off in the past, now people were actually listening to what I had to say, just purely because I looked different.” – Participant 2

Their quality of life improved through their improved self-esteem, internal locus of control and self-efficacy. As indicated by participant 5 below, through these improved factors the world and possibilities opened up for these participants, improving their quality of life. In turn their improved quality of life strengthened their self-esteem, internal locus of control and self-efficacy further, creating a positive feedback loop.

“You know as I got smaller, the world got bigger. It opens up. And it has nothing to do with other people; it is all about my own perceptions. And I know it. But I also know if it wasn’t for the operation I would never have reached the point where I could see myself in that manner. It later became that destination... you know that occupational destination. One day when I lose weight I will be happy. And I lost the weight, and I gained again, and I am happy, but it has nothing to do with my weight.” - Participant 5

As these participants could partake in an active lifestyle, it contributed to a better quality of life as it physically and psychologically contributed to their overall wellbeing. Where food and wine were considered a coping mechanism before WLS, an active lifestyle was now the preferred and healthy coping mechanism of choice. This change to an active lifestyle contributed to weight maintenance for the participants (see 6.2.5.4.4).

“And also, for me personally is the keeping active. So, you know, I just find it such a good stress reliever for me, which then helps me not to turn so much to food and wine, as I did in the past.” – Participant 2

Even though many expectations were met and quality of life improved, some participants indicated that they realised after WLS that their expectations were not realistic. Some of the expectations that they conveyed included finding ideal love and that life will be easier once you attained normal weight.

“The reality is, your expectations are a fuckup. So, you expect everyone will accept you just like you are then. And all will be happy and you will be happy, and you will have love. Everything will come easier to you, but that is not the reality.” – Participant 6

“I definitely think you are not ever really prepared for how life changing it is.” – Participant 2

“Look one always expects more... uhm... I would probably still want to be thinner, but I have to say I’m happy. Sometimes I feel I can still lose weight, sometimes not, but it is not something that occupies my mind.” – Participant 1

As observed from the participants’ motives for wanting WLS and their hopes for the outcome thereof, WLS fulfilled most of their expectations and improved their quality of life. However, expectations for some of the participants were set too high, which lead to short-lived disappointments, as they accepted and embraced their new reality. A few unexpected challenges also occurred for some of the participants, which will be discussed in the next sub-theme.

6.2.5.2.2 Unexpected Challenges After WLS. A few of the participants experienced challenges after WLS which they did not anticipate. The challenges which will be discussed in this section, included medical-related problems, unexpected romantic interest from others, problems within romantic relationships and friendships and loneliness. Although excess skin and plastic surgery also forms part of these unexpected challenges, it will be discussed under the theme ‘Who was I and who am I now (still), as it impacts the participants’ self-esteem and self-confidence.

Even though health greatly improved and comorbid conditions subsided for most of the participants, a few participants experienced new health problems after WLS. This was especially true for the participants who had the jejunio-ileal bypass (participant 3 and 6). Participant 6 had serious complications where she feared for her life. She lost so much weight

that she was underweight, with extremely low blood pressure. Participant 3 still experience problems with her mouth where she develops abscesses and teeth that breaks for no reason; abdominal pains to the point where her children cannot come close to her; extreme thinning of the hair because of hair loss; Rheumatoid arthritis and lower back pain. Some of the other participants reported now being anaemic and having high blood pressure. These health problems clearly impacted the participants' quality of life, whether for a short period of time or for the rest of their lives.

“They wanted to give me blood transfusions the whole time where they told me that I need to stop my studies because I was that ill. There were prayer groups for me, as my blood pressure kept on falling so low that they thought I was going to go into a coma. Then they gave me some shit in order for me to gain weight, and then it became the opposite cycle. Then I started struggling to lose weight again. I was probably thin for about two years, and from then I still struggle with my weight.” – Participant 6

“You shouldn't touch this part of my stomach. Permanent pain. Lost eleven teeth, jaw abscesses. I sit with let's call it Ruma [Rheumatoid arthritis]. I had a flair up in my knee and everything. I have extreme hair loss. Lower back pain, chronic. I drink Tramadol or Tramacet every day of my life. Every day.” – Participant 3

“Like my blood pressure actually only started now, after I lost the weight.” – Participant 4

“I have to go every 3 months for blood tests because I am now anaemic. So, I go every 3 months for an iron drip. The supplements don't work. It just started going lower and lower and lower.” – Participant 4

However, it is important to note that these health challenges after WLS were still more acceptable to live with for the participants, than being obese like before WLS. This indicated how devastating being obese were to the participants and the impact obesity had

on their quality of life. The following extracts illustrate their gratitude for WLS and the improvement WLS had on their quality of life. They indicated that they would do it all over again, despite any hardships they experienced after WLS:

“And the night after the operation I got double pneumonia. I was in ICU for a week. But nothing bothered me, it was all worthwhile. If I had to do it again, it would have happened.” – Participant 1

“But no, I don’t have a thing that I regret that I did it, no. if I need to do it again, I would, yes. If I need to redo it exactly like it was, yes. I wouldn’t change a thing, do you understand? Would I go to [doctor] again? Yes. Do you understand what I’m saying?” – Participant 3

Another unexpected challenge from the medical sphere after WLS was in the form of experienced judgement from medical professionals. Medical professionals continued with threats of death even after WLS, specifically to those participants who had the jejunio-ileal bypass. This led to further mistrust in medical professionals, which already existed before WLS. The result of this mistrust can be detrimental to the participants, as they avoid seeking medical care and advice, possibly affecting their own health and WLS outcome.

“To whom do we go to? To [doctor name] or [doctor name]. I am not sure if I am in the mood to hear everything again. I am not sure whether I am in the mood to hear that I am going to die again because I went to [doctor name] and it is R1800 to see her and she tells me I’m going to die, do you understand? I don’t know if it is worthwhile.” – Participant 6

“There are a couple of doctors which, wait hear my heart, if they hear that you had a gastric bypass then they have already given up hope on you. The diagnosis in their heads is already different. It has happened to me where I go to plain common GP’s, hmmm... then you have to fill in what you had. Gastric bypass, then I am there for sugar. That is the one thing, my eyes have deteriorated. My eyes have deteriorated; I am dizzy, ta-ra-ta-ra, okay. If they

read gastric bypass, it is like they give you a death sentence, and we are now over it. Do you really want to tell me that you couldn't control yourself little girl? Are there doctors in Gauteng that you can walk a road with?" – Participant 3

An unexpected feedback or stereotype came from some of the participants' loved ones and significant others, where they indicated to the participants that WLS is an easy way out. This stereotype is discussed here, as it relates more to after WLS and medical aspects, in contrast to previously discussed discrimination and stereotypes that related more to before WLS and society (see 6.2.5.1.1). The perception or stereotype expressed by others caused various feelings within the participants, including frustration, anger and disappointment, as all the participants confirmed that WLS was anything but an easy road.

"Hmmm... so somebody that tells you it is the easy way out, they don't have a clue what they are talking about. So, I get extremely livid if someone says that to me. Because you know, go through it yourself. It is like telling a woman who adopted a child because she cannot get pregnant herself that it's the easy way out." – Participant 5

Unexpected romantic interests and attention from men after WLS was also something that some of the participants struggled with in the beginning (as discussed in 6.2.5.1.1 Visibility and Invisibility to self and others). This was regarded as a constructive experience, but as very few experienced this attention while being obese, it was overwhelming and something that they were not accustomed to.

"I think it's a circular effect thing. I think when I was thin you get a lot of attention very easily. You get a lot of attention. And it is new and it is exciting. But then you realise superficial attention is shitty attention. And that is also not what you want. So, it is like a circular effect that you go through. It is definitely not what you expected from the operation, but it is something that I needed." – Participant

6

“You know, then men all of a sudden started being interested in me and wanted to date me. I mean I got married when I was 18 and when this happened now, I had a huge fright, because I did not... I did not expect it. And hmmm... I never thought of myself in terms of being attractive.” – Participant 5

For two of the participants, this new attention and romantic interest from outside lead to problems within their established romantic relationships. For one participant (participant 2) it led to almost losing her partner because of her own infidelity. This new-found attention were experienced as exciting and new, where the participant did not know how to deal with the impact thereof.

And yeah, I ended up having this fling with this guy at work, who is also married. So, it was a big big mess. And then... it was really horrible. And then my partner found out about it. But luckily, we went through counselling, and she was amazing. She obviously understood, like it wasn't really like me. I've never done anything like that in the past. It was just that I really didn't know how to handle all of this attention you know... especially from men, because I never had it before.” – Participant 2

In comparison, one of the participant's relationship ended as his partner could not cope with the weight loss and attention from outside. Participant 1 conveys his experience in the following extracts:

“...then there is also the sad part to the good event...yes, it is...after a relationship of 7 years... I lost the person because I lost the weight. And that was the reason. There is no other reason and it was horrible for me. It put me into depression and anxiety and months of... psychological... appointment and... antidepressants, because I couldn't understand how after 7 years, someone that accepted you when you were big; that went through this whole process with you now leaves you because you... look ten times better. Because you actually also

do it for the person that you love and for the people around you that loves you. You are healthy, you feel better, you look better, you can be more interactive.”

“Then you get to a point where you can do everything together, and you want to, but then the person gets... how can one put it?... Insecure, because all of a sudden you are not the overweight boyfriend which is safe; nobody is going to flirt with you; nobody is going to see you; nobody is going to make comments. Until this person’s friends started making comments and said: ‘damn you look good’ and ‘it’s so cool’ and ‘we are so happy for you’. And that just overwhelmed the person. And in the time that I saw the psychologist at [doctor’s name] and I heard it at other place too.”

“...where I sometimes asked myself the question: ‘shouldn’t I have rather not have lost the weight?’ Because then I still would have the person. Or... would it then have... yes, I was sick, but wouldn’t it have been easier, because then I wouldn’t have had all the emotional trauma and anxiety and depression and everything. It’s like... shouldn’t I have rather left it alone, because then I would still be with the person that I was with for 7 years. So, I tried rationalising things up to a point where I was almost sorry I had the operation, which was terrifying.”

“That is why there are so many supportive psychologists at [doctor name] and friends in the industry that just tells you: ‘no you can’t. You cannot because of one person or more than one person that you want to remain fat or rather overweight, or rather stay sick or rather stay’... and that was a big thing. It was... the support within yourself also gets tested, because you struggle to motivate yourself. It depends on the situation, but it was difficult. I would say that was the worst part for me.”

As indicated by the previous extracts, the participants’ partners are also support systems, which then had an impact on their experience of WLS and motivation to continue with postoperative weight loss and weight maintenance. Participant 1 felt that he

experienced life more positively before WLS when he still had his lifepartner. After WLS he lost what was most important to him, his relationship with his lifepartner. This was the exact opposite of what he expected to happen as an outcome of WLS. He expected to be able to partake in activities with his partner, building on their relationship and their future. His experience was that he lost his partner and felt rejected, just as before WLS. He started questioning whether he made the right decision to have WLS and to some extent wished he was still overweight in order to have his partner back. This could have had detrimental effects on his weight maintenance. With the help of other support systems and the insight in regards to his health, he went for therapy and could see the value of his life after WLS. In the same manner, participant 2 could have lost her partner because of the cheating that occurred, which could have led her to also question the value of WLS and maintaining the weight loss. Participant 2 and her partner, through therapy and a willingness to work on their relationship now value the life they have together after WLS.

Another support system, in the form of friendships, remained consistent for most participants. However, for some participants established friendships also seemed to wither after WLS and weight loss. This could trigger a feeling of rejection as before WLS or feelings of disbelief, anger and even loneliness. Fortunately, most participants were not affected as they had a big support system.

“I lost friends, all our couple friends, because suddenly I’m a widow and I lost weight and I’m attractive. And suddenly I became a threat, where I wasn’t a threat before.” – Participant 5

Loneliness was another unexpected challenge experienced by some of the participants. As the participants’ bodies, interest and activity levels changed after WLS, their partners and established friends’ interests stayed the same. For some participants this brought about feelings of loneliness as their partners or friends did not share or wanted to participate in their new-found interests.

“And then the other change that I’m still experiencing actually is uhm... is just having you know... I think it got a little bit lonely at times, because now I had my current group of friends. And we were very much into food and wine and that kinda thing. And now I was starting to get more into like trail running and hiking and all sorts of healthy things. Going to boot camp. And as much as I still love my food and my wine, but you know I want to get up early on a Saturday morning and I want to go run on a wine farm. And ja... my friends, they want to rather have a party the night before and get up later. So there was a lot of lonely Saturday mornings where I am out, checking in the cold, going on all of these trail runs and you know doing something I’ve found now that I really enjoy. But I don’t have a group of friends that are doing it with me. So that was a bit of a challenge because I didn’t really think about that. But now my friends have also actually started getting involved and starting to get fitter.” – Participant 2

“I am the one that has made this choice, so I have to make the changes. I can’t expect now because I made the change, now everybody else must change. But it’s difficult, you kinda, you want them to come with and enjoy those things with you. But you know, if they are not interested, you cannot expect them to do it. It is a very different dynamic with the friends, and nobody ever really spoke about that at the support groups and stuff. So I don’t know if other people experienced that or not; if they maybe just made new friends, or just not realise it, I’m not sure.” – Participant 2

These unexpected challenges, especially in terms of expectations, could impact the participants’ weight maintenance, as evident from participant 1 after the breakdown of his romantic relationship, where he questioned the value and the impact of WLS. Participant 6 indicated that these expectations are not based in reality. In reality people loose friends and partners, still do not find love and life is not easier after WLS. All these could influence the

participants' sense of coherence, quality of life and motivation to maintain their postoperative weight loss and keep to the postoperative requirements.

6.2.5.3 Who Was I and Who Am I Now (Still). Within this theme self-esteem, self-confidence, self-efficacy and identity before and after WLS will be explored. The physical battle scars, in terms of excess skin after WLS and possible plastic surgery forms part of this theme as this also impacts the participants' self-esteem and self-confidence after WLS.

Self-esteem and self-confidence were a complex phenomenon and journey for the participants. Before WLS most participants had low self-esteem and little self-confidence. Some of the contributing factors for the experienced low self-esteem and self-confidence were the constant negative feedback from society and their internal struggles of self-worth. In turn, this contributed to their comfort level of functioning in daily life and even in their work environment which affected their quality of life and other possible opportunities.

“Always rejection rejection, rejection in your own head. I am not good enough; I am not pretty enough; I am not fast enough; I am not smart enough.” –

Participant 3

“Of course, because you feel fat your whole life. You feel ugly your whole life long. And I mean if you cannot be accepted at 100, you won't be accepted at 80[kg].” – Participant 6

“But I had a huge self-esteem problem. I was scared to talk in front of people. I was always scared what I looked like. Although people didn't look at me funny, I didn't like the way I looked. I was insecure in my work environment.” –

Participant 1

After WLS all participants indicated that their self-confidence, self-worth and self-esteem improved; however, some indicated that it only improved slightly or in certain areas. Some of the participants still struggled with self-esteem and self-confidence after WLS. This is understandable, as most of the participants were overweight for most of their lives, where

they were exposed to the various stressors as discussed in 6.2.5.1. As previously mentioned by the participants “being fat is traumatic” and just like any other trauma, even when dealt with, never completely dissipates.

“I have, if I look now, I’ve gotten more self-confidence, a little, little, little more.” –

Participant 4

“Although I hid it well, I think, because I have always been, as fat as I was, I was always still a bubbly person and chatted and went out. I was not shy at all. So, if I tell people now that I have a self-confidence issue, then they go ‘no way. Never. It’s impossible.’ Then I’m like, yes really, I have one really. But then I am still the same now too.” – Participant 4

“I still have the exactly same thing. Like my partner cannot understand it. She’s will walk past me and be like “Oh you look so beautiful”, and at that point I’m busy standing in front of the mirror and I’m like “OMG I’m so fat”. Like my stomach is too big, this and that. So, I still have that all of the same, hate the self, self-hatred thing. That hasn’t gone away.” – Participant 2

“Obviously I have more self-confidence. Hmmm... but yes, it’s fake self-confidence. Meaning, fake self-confidence; you are still the fat person that you saw before the operation. It is only that you look better in clothes for society.” – Participant 6

Most of the participants who struggled with self-esteem and self-confidence were actively busy working to improve those aspects. They made use of therapy or a life coach, indicating their dedication to self-improvement and self-acceptance; taking responsibility for their life, happiness and health in all aspects.

“And that is the stuff that I’m trying to work through now with my therapist. Just how to be nicer to myself. Because ja... it’s just weird. It’s like I still have that fat girl in my brain, even when I look in the mirror, I still see that same person. My therapist has given me an exercise that I’m doing at the moment.” – Participant 2

“But it is something that I am working on now, eventually in my life. I think it is just you know, acknowledging your own worth. It is not a natural thing to think that you are pretty or that you look good or things like that. Not at all. It is still not something that I can do. But I am on my way, because I know, the more I accept me for who I am, eventually it will trickle down to everything else. What a person looks like is a very small part of who you really are.” – Participant 6

The impact of improved self-esteem and self-confidence after WLS improved the participants' quality of life and self-worth. Some behavioural patterns changed and insight developed because of this. They were now able speak in front of people, able to partake in activities that they would have avoided previously, changed their appearance and were comfortable with being seen by society. Most importantly their new-found self-confidence and improved self-esteem, enhanced their self-efficacy and an internal locus of control. Self-efficacy and an internal locus of control also enhances their ability to maintain the weight, as they take responsibility for their lives and believe they are capable of dealing with various stressors. This in turn enhanced their self-worth and quality of life even further.

“As my self-esteem grew I realised I can stand in front of a lot of people. I can contribute in life because the moment that I began to see myself and started taking me seriously, things changed... I won't say my personality changed, because I think your personality is basically there... you know its just certain elements. But I started hiding from myself. And because I had a better self-esteem for the first time, I saw the potential within myself. I started having conviction in my own abilities that I didn't have before. You know before I had no one, it doesn't matter what I said, nobody took me seriously, because you are freaking in the background. And I was surprised about that. You know after, when I started to think, oh now that I am starting to lose weight, now people are starting to take me seriously, and that had nothing to do with my weight, but more about my own perception. When my perception changed about myself,

people's responses changed towards me. And if I could do that while I was fat, I would have gotten the same reaction, but I couldn't." – Participant 5

"It was terrible [before the operation], and I mean now it is actually so much easier to meet people, because you actually have a bit more confidence to go up to them and to say hello or to ask for a lighter." – Participant 4

"Uhm, I was not a hundred percent sure if it was just because people treated me differently after the surgery or if it was because maybe I had more confidence you know after losing the weight, and maybe the two things together... You know affected the people... you know accepted what I was saying and ja... like I said, it's probably a combination of both." – Participant 2

"And what I also found was, with such simple things, like I always wore my hair long, because I hid behind my hair, because I had no self-confidence. And as I lost the weight, I started wearing my hair shorter, because it was easier to look life and people in the eyes now. And as your posture change and your acceptance improved, self-acceptance also occurred. And that was a big thing for me" – Participant 5

Even with all the changes in regards to new interests, lifestyle and improved self-esteem, all of the participants indicated that their identity remained the same. Some of the participants indicated that they made a conscious decision before WLS that they wanted to stay the same person, or that they still want to be the same person as before WLS. This indicated that they were and are comfortable with who they are as a person, just not their bodies.

"I didn't want to change who I was, because I didn't want to... I just wanted to be more comfortable with myself, but I didn't want to change my heart." – Participant 6

"...but personally, I think I stayed exactly the same person. I think. Everyone tells me I have, so I hope so." – Participant 4

Another part of identity that remained the same for the participants were that of the 'fat identity'. Even though they had lost the weight and maintained the weight, the psychological 'fat identity' still remained.

"It's like I still have that fat girl in my brain, even when I look in the mirror, I still see that same person." – Participant 2

"Hmmm.... But it is still painful. Its stays difficult. I don't know, I think because I was fat so long that, I am not sure if a person can ever change their mind set about who they are and how they look. I don't know. I try to tell myself every day: 'it's okay, you look good and I am happy'. And I am happy because my weight stays relatively constant". – Participant 4.

"Meaning, you are still the fat person that you saw before the operation. It is only now you look better in clothes and for society." – Participant 6

Other factors that impacted self-esteem after WLS was excess skin from their weight loss and for some, plastic surgery. Most of the participants were aware of the possibility of excess skin after WLS and the impact thereof on self-esteem and self-confidence was evident from their responses. The participants who had plastic surgery to remove the excess skin, indicated that before they had plastic surgery they still disliked their bodies, just as before WLS.

"Researcher: And before plastic surgery?"

Participant: "Oh I hated my body, because you have this hanging skin, so you don't feel feminine. You don't feel pretty, so hmmm.... Yes, not at all a picture of a beautiful body. And even now, even though I already had two procedures, hmmm... my legs are still an issue; my arms are still an issue." – Participant 6

After having plastic surgery their self-worth and self-esteem improved greatly. The participants who had plastic surgery indicated that having these procedures were the best thing that they did for themselves and where self-loved started.

“Researcher: Before you had your arms done, did you feel differently about yourself? Was it the plastic surgery that changed things for you?”

Participant: Yes. That was the point where everything changed for me. Hmmm, it did absolutely because in a way, just before my arms, I felt as fat as what I was because I still had to hide everything. Hmmm, I hated it. Hmmm, because it was exactly what I did with my body before the operation; try and hide everything underneath my clothes. Not that it helped, because it just makes it worse. The more clothes you put on, the baggier you dress. But that is exactly what I did. And until the day when I decided I am going to see a surgeon and I am going to do it. And when I saw the results, when I got out of the theatre and I saw, it was like in... I think that was when it was for me the first... day that I saw, ‘holy shit, I lost weight. I look good now’. It’s like... that is when I started loving myself. Where I saw, yes, I weigh 85 kilos and I love it, because I can wear stringy tops with my jeans. Wow. And that is just because I had my arms done. Is that weird? Yes, it was definitely my turning point, after I had my arms done.” –

Participant 4

“...and I went for plastic surgery after that to feel more comfortable in my skin. And that was one of the best things I ever did for myself.” – Participant 6

For most of the participants plastic surgery was the final step in the process of WLS. Plastic surgery allowed the participants to let go of the ‘fat identity’ and eventually feel they have achieved the ‘normal’ body that they have always desired. Some of the participants who already had plastic surgeries would still like to complete the process in their other perceived problematic areas. Another participant who did not have plastic surgery as yet, still desired the “grand finale”, where plastic surgery would symbolise the completion of the WLS journey.

“Something that I really would like to do is obviously plastic surgery after the operation. It’s almost like the ultimate red line that you draw. That will always

stay. I really want to do it. I know it costs a lot of money, because the medical aids do not pay for it. There is a way that they can pay for part of it, but it is still a great expense, which I cannot do at this time. But it would be the grand finale. That is how it was planned anyway. I think that would give me a great boost. Then you know, you started and completed the whole chapter and it is now finished and everything is done that could have been done” – Participant 1

Only one participant indicated that they perceived their excess skin as battle scars and felt positive towards it in some way.

“But funny enough, the skin is less of an issue for me in comparison to the fat rolls. You know, it is like battle scars that you carry with pride. You know, it is something that you conquered.” – Participant 5

In conclusion to this theme, WLS contributed greatly to the enhancement of their quality of life, self-esteem, self-worth and self-confidence for these participants, while identity seemed to stay intact. In addition, enhanced self-confidence, self-worth and self-esteem also contributed to higher self-efficacy and an internal locus of control. However, there still appears to be a dichotomy between still not feeling “good enough” for themselves or society and their higher self-confidence and self-acceptance. It is clear that most participants still have lower self-esteem than what they would prefer or what they thought they would have after WLS. Plastic surgery did aid greatly in the further enhancement of self-esteem, self-worth, self-confidence and quality of life. More importantly, it enhanced their self-efficacy and an internal locus of control, which contributed to their weight maintenance journey after WLS.

6.2.5.4 Other Factors that Contribute to Weight Maintenance. Some factors were identified as contributing to weight maintenance. These included trepidations, specifically in regards to dumping syndrome, fear of dying and weight regain; preoperative

research and postoperative requirement; support systems, geographic areas of residence and an active lifestyle and sense of coherence. As sense of coherence is the theoretical point of departure of this study and could be observed within the experiences of the participants, sense of coherence will be discussed in a separate theme (see 6.2.5.5).

6.2.5.4.1 Trepidations. All participants indicated their fear of dumping syndrome, as this experience of dumping is extremely unpleasant. The fear of dumping syndrome aids in choosing healthier food and thus directly contributed to maintaining their weight. WLS and dumping syndrome almost conditions the participants to keep to the required healthy lifestyle after WLS.

“Then you get dumping syndrome because of the things that your body just cannot tolerate. So, I would say that the operation conditions you almost to eat what you are supposed to eat. Yes, you can still drink too much or eat a chocolate or something, but I know what comes after. And that is not a feeling that you want.” – Participant 1

“... if I drink too much wine, fatty foods or too much sugar, I pay for that, because my body lets me... I get sick; I get physically ill for some time. And then it is again that constant reminder that, okay, hmmm... maybe I should start to listen again.” Participant 5

“And every now and then I want to binge and then I eat one extra row of chocolate. And believe me I won't do that again for a couple of months after that day. Because it is now 4 years later, almost 4 years later, and I am still scared of dumping. Very scared.” – Participant 4

While experiencing dumping syndrome, the participant's fear of dying is again triggered by various previous threats of death. This death anxiety could contribute to avoiding unhealthy foods, living a healthier lifestyle and thus contribute to weight maintenance.

“But at that time, you just want to... remember you hear the whole time you are going to die, you are going to die, you are going to... remember I’m talking now before having the op. Your heart is going to stop; you are going to have a stroke; it’s just not worth while; you are going to die in front of your kids. This is what you hear all the time. Now you have this op, now these things happen, and then you think, am I going to die now?” – Participant 3

The fear of the participants to regain weight was evident from their responses. Because of this fear of weight regain, the participants chose better and healthier lifestyle options and foods, contributing to weight maintenance.

“But I think the difference now is that... ja you just kinda want to give yourself a bit better options, because obviously you never want to go back to what you were.” – Participant 2

“But you see I’m very hard on myself because I never ever want to go back to what I was, and ja ... like if I’m not hard on myself and I maybe relax a little bit too much then I will pick up weight.” - Participant 2

Their fear of weight regain could also be observed from their weight checking behaviour, exercise and dieting, as seen from the following extracts.

“Because I climb on the scale at least every second day, to make sure that I stay within my 2kg range. – Participant 4

“Well at the moment I don’t really eat carbohydrates, or nothing works. So I will eat rice, but I don’t eat bread or muffins or anything that has carbs in it. I am always on the high protein, low carb diet. But yes, that doesn’t feel enough either. I have been probably busy with intermediate fasting for three months now. It is good for my stomach, but I also don’t do it correctly, because I never go into ketosis. The best I have ever felt in the last five years was when I went on [friend] diet and I exercised seven times a week.” – Participant 6

In summary, these trepidations or aversions, of experiencing dumping syndrome, may also trigger their fear of dying, assisted the participants in making healthier food choices. In the same manner, the fear of “going back” to being obese and experiencing the obesity-related stressors or traumas, motivated the participants to choose a healthier lifestyle, in terms of food, weight checking and exercise. This healthier lifestyle not only contributed to their overall quality of life but also in maintaining their weight.

6.2.5.4.2 Preoperative Research and Postoperative Requirements. As all of the participants that partook in the qualitative part of the research can be classified as successful WLS patients, it is noteworthy to indicate that most of the participants did research and educated themselves on WLS before they decided to have the surgery.

“Ja, I actually, I mean it took me a very long time to decide to go through with it. It was probably like two years from when I ... maybe even longer from when I first started having done a bit of research and then actually going through with it. It definitely was not a rush decision. I did a lot of reading, and I spoke to a lot of people. A lot of people obviously shared their story.” – Participant 2

“But what you are saying now about before the time, after the time, I need to add, I did not go into this operation blindly. I did a lot of research beforehand. [Doctor] and her team were amazing. I went for a few sessions with their psychologist beforehand to work through some of the things.” – Participant 5

Only one participant did not partake in any research before having WLS.

“So, I’m going to be dead honest with you, I did not do a lot of research.” – Participant 3

By being actively involved in researching WLS and the possible outcomes and consequences thereof, it provided the participants the opportunity to make an informed decision whether they wanted to have the surgery. More importantly it prepared the

participants for some of the challenges that may arise postoperatively, as seen in the following extract:

“To be honest, I was mentally prepared for the worst, cause there were so many people who told me horror stories about things that could go wrong. And I was pleasantly surprised because I had none of that.” – Participant 2

Being mentally prepared for possible challenges, the participants would be better able to cope and adapt to presenting challenges. This is important as unexpected challenges can impact their motivation and adherence to the requirements of WLS and possibly impact weight maintenance (see 6.2.5.2.2).

Yearly follow-up visits are required with most doctors and other WLS experts, including blood tests. Most of the participants still go for their yearly follow-up visit and blood tests.

“And then every year I still go for my blood test and I see my surgeon for my check-up.” – Participant 2

“I was at all my follow-up exams, I took all my supplements.” – Participant 3

However, two of the participants do not have their annual follow-up visit or blood tests done anymore. Reasons the participants provided for not having their annual blood tests were because of financial reasons and geographic relocation to an area away from their known WLS team.

“And I went for check-ups regularly... it is now 4, 5 years ago that I moved down to the Western Cape and I went for one of my last check-ups before that. – Participant 5

As indicated before (see 6.2.5.2.2), some of the participants experienced new medical conditions after WLS. These participants were more inclined to continue to go for

annual blood tests, especially where there were trust in the medical professionals involved.

Participant 4 still have the required blood tests done every three or six months after WLS.

“I have to go for blood tests every 3 months because I am now anaemic. So, I go every 3 months for an iron drip. The supplements don’t work. It just went lower and lower and lower. So, I am now on the drip every 3 months. So, I do my blood tests every 3 months and go for my drip.” – Participant 4

The blood tests indicate which supplements needs to be adjusted if necessary and is thus of great importance for their overall health.

“I drink slowmag now, I drink multivitamins etc, etc, etc. I do what I have to do. I have my blood tests done every six months. My liver function is 0.4, so it doesn’t freak me out, deteriorated, but still, further all my counts are hundred percent fine.” – Participant 3

All the participants still take their supplements as required for their own specific physical needs. This includes the two participants who do not attend annual follow-up visits or blood tests.

“I drink vitamin D supplements and I inject vitamin B12 as I need it. I still follow the supplements. The supplements change as new things come onto the market, but I keep to the things that work for me.” - Participant 5

“But also, because you walk that line, you have to drink supplements for the rest of your life. Like I drink calcium, multivitamin, I drink iron, Astyfer and something else, but anyway. It is not big costs; it is about R500 a month.” – Participant 1

In light of the above discussions it appeared that postoperative self-care and diligence by the participants are prominent. This clearly highlights their dedication to their health with cognisance of their history with WLS, which aids in adjustment to WLS and weight maintenance.

“But I listened to what I was supposed to do and I did everything like a hundred percent. I followed the doctor’s orders, and the dietician’s orders and all of that so... ja... I think I had a very easy road.” – Participant 2

6.2.5.4.3 Support Systems. All the participants indicated that their support systems were crucial throughout the process of WLS and weight loss. The support the participants received were provided in various ways from a variety of sources, which included positive feedback from others, therapist or life coaches, support groups, financial support, practical support from work and the support from loved ones.

Positive feedback from others throughout the weight loss journey had a huge impact on the participants. Not only did this positive feedback help sustain motivation to adhere to postoperative requirements and diet, but also supported the shifts that took place within the participants’ own self-esteem, self-worth, self-confidence, self-efficacy and a move towards an internal locus of control throughout the weight loss process.

“And then all of a sudden family, friends, everybody starts commenting constantly as you lose the weight, as you become thinner, if you can put it like that. The good friends I had, there was never a shortage of: ‘jeez you look good’, ‘jeez how much weight have you lost?’, ‘jeez, you need to stop losing weight now because you are beginning to look very different... in a positive way... uhm, most of the time.” – Participant 1

“People put you on a pedestal. You live there [shows with hand, high]. When you come back, you burst the bubble and have a sustainable life, do you understand? But do you know what, that hype is also necessary to be where you need to be. Because can you think if you lose all that weight and nobody says anything? Then you are going to go: ‘okay, so is everybody blind?’ And then you are going to really wonder ‘what is wrong with me. Am I now really that shitty a person as what you thought and said? Am I really that horrible?” – Participant 3

“Hmmm, sometimes I do when I get compliments, those like ‘wow, you look good’. Then I think: ‘ah, okay okay I can do it.’ Hmmm, but only when I get a compliment.” – Participant 4

Many of the participants also reported that they made use of psychologists or life coaches for support as WLS impacted on various areas of their lives (as discussed in expectations of WLS). The feedback from the participants showed how this important professional support assisted them through their journey.

“It was mostly help from outside... psychologically, that got me through it. That I can definitely say. I wouldn’t have gotten through this alone, because it broke me.” – Participant 1

“I think I’m quite self-aware so I know when I am having an issue and then I just go to therapy. So, you know, I just have no problem going to admitting I need help and I go see a professional.” – Participant 2

Some participants joined already established bariatric support groups, while others created their own. The self-created support groups usually consisted of people who had WLS on the same day as the participants or already established friends who also had WLS. These support groups were crucial to the participants, as they were a source of information and support. Not all the needed information was provided to the participants by the medical teams before or after WLS. It was through these support groups that they received practical advice on how to deal with physical repercussions postoperatively; diet advice; possible medications that could help; how their lives could possibly be affected by WLS, or received reassurance that dumping syndrome is normal and that they were not busy dying. For some being part of these support groups even provided meaning, where they felt that they could give back to others. See the following extracts from the participants:

“Researcher: What role did the support group play?”

Participant: It was really good, cause you can just tell people the truth and there are people that are going there for like 10 years after their surgery, and they have picked up like 15kg but then lost it again. So, you hear people's struggles. And then it is also nice for people, for me to go. I still go every now and then and then I can encourage people that haven't gone for the op yet. So be a positive story for them as well, which is cool." – Participant 2

"I mean [Doctor name] gave you a group, the [Place name] Bariatric group. And they were extremely helpful... with what to eat, how to eat, if you gain a bit of weight, go back to your liquids. Hmmm, they helped immensely." – Participant 5

"We four did it like that, and if you can only have such a group in the beginning to tell you why your buttocks are burning now, everything is yellow. That's okay, you are not busy dying. Because those types of things [doctors' name] for example never told you, do you understand? So you get a huge fright." –

Participant 3

The support was not limited to psychological support from loved ones, support groups and professionals, but also included practical support which enabled the participants to have WLS and cope with the challenges thereof. Practical support also included physical support, as seen from the following extract.

"[husband] did it like this, he took those cup-of-soup, those that we had to do at the beginning, and he put it through a tea sif to make sure that not one piece of parsley could get through. My maltabella, 3 times through the tea sif. So, my aftercare what he gave me was immaculate." – Participant 3

The financial support from parents and spouses enabled these participants to have the WLS,

"Thank you to my parents, without them I wouldn't have been able to do it, because it is obviously very costly." – Participant 1

Without the support and special permission received from the participants' employers to have extended leave from work, they would not have been able to have WLS.

“And the director at work told me, take all the weeks that you need, we will give it to you, just come and work for us. That made it very easy. I had lots of motivation and I had colleagues that noticed and helped.” – Participant 1

The greatest support was from their loved ones and friends, as can be seen from the following extracts:

“My husband, my kids and my family's support were fantastic. You know, I didn't go through this alone. And everyone was like... nobody was like 'oh now you are going to be thin'. For everyone it was a health issue. And I had incredible support from everyone in this regard. And afterwards, with the recovery period also, you know.” – Participant 5

“People were very supportive and always spoke positively about it. Luckily. I can say I am very lucky. I don't have so many friends, but the friends that I have are true friends. So, I can really say that through the process of friends and colleagues where I worked, I received all the support.” – Participant 1

“My parents, support system, very good. My friends. I say again my friends because they were there in good times, fat times and good times, do you understand? It is amazing. And like I say, today they tell me 'you have always been just as pretty. Your nails were always done, your hair was always pretty, ta-ra-ta-ra, and we didn't even see that you were fat'.” – Participant 3

From the above it is clear that the participants' various support systems played a significant role in their weight loss journey, their quality of life and in maintaining weight, whether it was through positive feedback and motivation, professional support or practical advice.

6.2.5.4.4 Geographic Area of Residence and Active Lifestyle. Some of the participants indicated that their changed living environment, specifically when they moved from Gauteng to the Western Cape, contributed to a healthier lifestyle, which facilitated their weight maintenance. Within Gauteng the focus is on work and productivity, with few outside activities in comparison to the Western Cape. In the Western Cape people are more relaxed and have a culture of going to wine farms regularly, hiking and other outside activities. Being able to participate in these cultural activities lead to an improved social and active lifestyle and less stress which contributed to better weight maintenance.

“My partner and I was actually talking about it the other day, when we were living in Gauteng, we were living there for about four years and that’s probably when I got like my fattest, because I was in a very stressful, high stressed job and I would just ... coping mechanism was... and of course there wasn’t really anything to do in Gauteng compared to the Western Cape. So all you do is you go eat out at restaurants and we drank wine. And that was the way that we could cope after a very stressful day. And then, if I think about how my life is now, look I still enjoy good food and good restaurants, but we maybe go eat out like twice a month, three times a month maybe and we barely drink at all during the week. We will have a braai on the weekend with some wine and the other times, cause I’m actually managing that stress load, even though I still have a stressful job, but I’m going for runs and exercising in the morning. And I think like that is a key thing for me, because I have that outlet now. I lived in the Western Cape most of my life, but just spent four years in Gauteng, but now that I’m really able to enjoy it, like going into the mountains and doing these hikes and these trails, going to the wine farms, I’ve always enjoyed to eat and drink at. But now I’m like, I’ll first go for a run on the wine farm. And you know I can go for a 10km run on a game farm and meet my friends for like a wine tasting afterwards. So, it’s just a little bit different now.” – Participant 2

“And for many years I was very inactive. And then suddenly I started walking again. And you know living more outdoors, especially in the Western Cape a person is more likely to live outdoors. And that was kind of... surprising to me. Look I still swear going up a mountain, I hate it, I almost die in the process, but the fact that I can now do it, I enjoy it.” – Participant 5

As discussed in expectations of WLS (see 6.2.5.2.1) as well as in sense of coherence (see 6.2.5.5), most participants engaged and were physically able to engage in an active lifestyle after WLS. The participants were able to participate in more family activities, hiking, running and going to the gym which they were not able to before WLS. It is of interest that the participants' place of residence and the culture it nurtures, can facilitate these healthy active lifestyles, which aids in maintaining weight and promote their quality of life. These activities can also act as coping mechanisms as can be seen from the following extract.

“And also, for me personally is the keeping active. So, you know, I just find it such a good stress reliever for me, which then helps me not to turn so much to food and wine, as I did in the past.” – Participant 2

Looking at the factors that contribute to weight maintenance, it is clear that numerous aspects need to work together to ensure success. In the final theme the focus shifts to sense of coherence, which also contributes to the participants maintaining their weight by means of their belief in their own abilities (locus of control and self-efficacy), their resources, motivation and meaningfulness. Other factors that contribute to weight maintenance will be highlighted in sense of coherence, such as successfully adopting a new mindset, adapting a to a new lifestyle, preoperative research, internal and external resources and the meaning experienced in life after WLS.

6.2.5.5 Sense of Coherence. Sense of coherence can be considered as an overarching theme as all the previous themes are associated with health-related behaviours as discussed by Antonovsky (1979, 1987, 1996) within the salutogenic model, specifically sense of coherence. It was decided to make sense of coherence a separate theme since the three components of comprehensibility, manageability and meaningfulness stood out in the qualitative data. Another deciding factor to make it a separate theme was to show how sense of coherence forms part of the WLS journey and weight maintenance. For this reason, there are some overlap between the previously discussed themes and sub-themes (as well as the extracts) and sense of coherence. As indicated previously in Chapter 3, sense of coherence consists of these three components, namely comprehensibility, manageability and meaningfulness. It is not always easy to separate the experiences of the participants clearly in terms of these components, as there exist an overlap in behaviour, motivation and cognition.

Comprehensibility is evident as most participants indicated their realisation that WLS is not a quick fix, but rather a *lifestyle and mind-set change*. In this the participants showed realistic expectations of WLS and the requirements thereafter. The realisation and adaptation to the new way of life contributed to their weight maintenance according to some of the participants.

“You have to use your head too. If you are going to see this as a quick fix, you are wrong. It is a lifestyle change number 1. Number 2, head verb, it is a mind shift. It is a hell of a mind shift. If you think that because your intestine is shorter and nothing can make you fat now, you are wrong. Nothing and nobody can fight against sugar. Nothing.” – Participant 3

“...in reality I knew that this was not a miracle pill that you swallow and it will just work.” – Participant 1

Most of the participants' approach to WLS, as observed with preoperative research (see 6.2.5.4.2), indicated their cognitive assessment of the advantages and possible

disadvantages this life changing WLS procedure could hold. Through the cognitive investment, the participants were better able to prepare themselves for the possible obstacles after WLS which enhanced their success with weight loss and weight maintenance.

“I had to go into the operation also not knowing, like there were some people that could not eat red meat. These are things I really enjoy. So, I had to go into the operation like you know, that is something I am willing to give up if that happens for me.” - Participant 2

When the participants were faced with obstacles after WLS, most of them applied cognitive strategies to understand these obstacles. With better comprehension of the obstacles they searched for solutions on how to manage their situation or try to find meaning within it. This process was sometimes done on their own or with the help of a therapist, life coach or support groups.

“I am the one that has made this choice, so I have to make the changes. I can't expect now because I made the change, now everybody else must change. But it's difficult, you kinda, you want them to come with and enjoy those things with you. But you know, if they are not interested, you cannot expect them to do it” – Participant 2

Although comprehensibility appeared to be experienced by most of the participants, at times some participants did struggle to understand some of their experiences and the consequences of weight loss. This was observed in the theme expectations of WLS where, for example participant 1 and 2 experienced challenges in terms of their relationships after WLS (see 6.2.5.2.1). For example, participant 1 initially struggled to comprehend the loss of his relationship because of his weight loss and then questioned his choice of having WLS, despite the benefits thereof.

It is from the point of comprehensibility that the participants managed their challenges and found meaning. Despite some challenges, comprehensibility facilitated the management of their behaviour and choices, as well as enhanced their ability to find meaning in life after WLS.

With manageability the participants behavioural aspects were reflexively interpreted in terms of their behaviour regarding resources, locus of control and self-efficacy. The resources the participants used to deal with their situational demands, WLS and weight maintenance occurred in various areas, some of which were already mentioned such as support systems, active lifestyle, internal locus of control and improved self-efficacy. These resources will be used to illustrate the working within the context of sense of coherence.

Support systems were discussed in more detail under 6.2.5.4.3. The participants' support systems, in the form of loved ones or professional support all contributed to them being able to deal with situational demands and thus also weight maintenance. Additional evidence can be found in the following extract:

“That is why there are so many supportive psychologists at [doctor name] and friends in the industry that just tells you: ‘No you can’t. You cannot because of one person or more than one person want to remain fat or rather overweight, or rather stay sick or rather stay’... and that was a big thing. It was... the support within yourself also gets tested, because you struggle to motivate yourself. It depends on the situation, but it was difficult. I would say that was the worst part for me.” – Participant 1

Another resource utilised by the participants, as discussed in 6.2.5.2.1 and 6.2.5.4.4 was an active lifestyle. An active lifestyle can serve as a coping mechanism, as illustrated by participant 2 where it acted as a “stress reliever” and assisted the participant to make healthier food choices, which also contributed to weight maintenance. Since these were comprehensively discussed, no further attention will be paid to it in this section. The following extract illustrate this coping mechanism.

“And also, for me personally is the keeping active. So, you know, I just find it such a good stress reliever for me, which then helps me not to turn so much to food and wine, as I did in the past.” – Participant 2

In addition to these resources, participants showed greater self-efficacy and an internal locus of control when dealing with situational and postoperative demands. From the responses provided by the participants, self-esteem (see 6.2.5.3) played an important role in their self-efficacy and having an internal locus of control. These aspects in turn contributed to better eating habits and approach to life and thus to weight maintenance.

“But I stopped hiding from myself. And because I had a better self-esteem for the first time, I started seeing the potential within myself. I started getting confidence in my own abilities and believed in my own abilities, which I did not have before.” – Participant 5

“And it gave me courage that I can do something. It is a situation that can be changed. I wouldn’t have been able to do it on my own. But the fact that the operation was available helped me to do it, if that makes sense?” – Participant 5

“I am always my first source of strength, always. It is how a person is. Am I going to sit and feel sorry for myself, fuck no, it is who I am.” – Participant 6

“But for me it is just to remain strong, because you can do it. You can do it. You know you don’t want chocolate, because actually you know, you really don’t want chocolate. You only want chocolate because you see your child having a chocolate. You don’t want it. So, it was just to remain strong and to hmmm...and then you get on the scale, then its like, ‘okay, I see I still weigh the same. Good for you. You can do it.’ And then tomorrow I just do exactly the same thing.” – Participant 4

One resource, religion, also appeared to have contributed to some of the participants’ ability to manage situational stressors internally.

“Look religion probably plays one of the most important roles... it was just a very difficult time, because outside everyone said it is good, and it looks pretty and congratulations and we are there for you and all those types of things. And they are, but... inside your home, where you are in a relationship, uhm, everything was upside down. You... support is given...but at the same time you know it's coming to an end.” – Participant 1

“I have never blamed the fact that I'm fat, that I'm not married, or shit like that. Jesus gives everyone different chapters and stories, so it is just something that I had to go through.” – Participant 6

“Then I told her, ‘do you know, God chose me to live in every women's body. To understand every women's body. I know what it feels like to not have breasts. I know what it feels like to be so thin that you have to shop in the children's section when you are an adult woman. But I also know what it feels like to be so big to just buy one sweater at big and tall in the men's section. So, He chose me to live in every type of body.” – Participant 3

What can be observed from the above is that religion acts not only as a way to manage situational stressors, but also provides a way to comprehend the world and find meaning in their life and stressors. In this manner it provided strength and motivation to the participants.

Having had WLS, the participants indicated that this procedure added so much meaning and quality to their life. The meaning ascribed to having WLS, even with the possible risks and the unexpected challenges could be observed by the participants' willingness to go through the procedure again.

“And the night after the operation I got double pneumonia. I was in ICU for a week. But nothing bothered me, it was all worthwhile. If I had to do it again, it would have happened.” – Participant 1

“But no, I don’t have a thing that I regret that I did it, no. if I need to do it again, I would, yes. If I need to redo it exactly like it was, yes. I wouldn’t change a thing, do you understand? Would I go to [doctor] again? Yes. Do you understand what I’m saying?” – Participant 3

“It was worth it, I never look back.” – Participant 2

Weight loss surgery was perceived as the participants’ second chance in life. Thus, for the participants, the meaning WLS provided them in terms of health, personal growth and quality of life were worth going through the whole WLS journey again. Because of this, participants were also more likely to be motivated to stay with the pre- and postoperative requirements.

“It really felt like a second chance for me. So, I would say before it was fear that got me through it. And afterwards it was gratitude to a great extent that I survived, and that I got that next chance to make a success of it.” – Participant 5

“And I realised whatever needed to be done, it won’t be an easy road; the prerequisites, the eating plans, all of it. But it felt like nothing in comparison with what I have been through in my life. It was a challenge, because I decided if it is blue, it is blue; if it is 2, then its 2, it’s the way it is. It has to be done in the right way. That is how I went into it.” – Participant 1

Some of the participants perceived their journey with obesity, WLS and weight maintenance meaningful as they could now contribute to others and their struggles in terms of weight loss and the WLS journey. This in turn provided meaning to their own life journey.

“Then I told her, ‘do you know, God chose me to live in every women’s body. To understand every women’s body. I know what it feels like to not have breasts. I know what it feels like to be so thin that you have to shop in the children’s section when you are an adult woman. But I also know what it feels like to be so big to just buy one sweater at big and tall in the men’s section. So He chose me

to live in every type of body. And that is why I started [clothing company name], and why my slogan is where every body, two words, is beautiful. And that is why I started [clothing company name] 11 years ago, to give women hope out there, because it's not just fat people that struggle. Somewhere in cyberspace someone missed the memo. Thin people struggle too. It's not nice for an adult woman to have to look for an evening gown and have to wear a tutu that she gets in the children section, because the other things are just too big for her. I know what it feels like. I know what it feels like to be only ribs and bones, and bones and cheekbones. I know what it feels like. But I know both sides. So yes, that is my life story" – Participant 3

And then it is also nice for people, for me to go. I still go every now and then and then I can encourage people that haven't gone for the op yet. So be a positive story for them as well, which is cool." – Participant 2

Not only did the participants find meaning by contributing to others and their weight loss and WLS journey, they also found meaning in WLS and the journey in terms of their personal growth. Their personal growth could be seen in their experience of their self-esteem, self-worth, self-efficacy, identity and self-confidence (as discussed in 6.2.5.3). The combination of their personal growth and meaning assisted the participants in dealing with other unforeseen circumstances, providing further meaning to the WLS experience and their journey.

"You know I think it defined my identity more. Hmmm... that is why I told you for me it's like battle scars. You know, I believe ... bad things happen in a person's life in order for you to build resilience, for you to continue. And for me to hide something bad that you went through is to suppress a part of your identity. And that is a part of your strength that you then suppress. So, for me every bad thing that has happened to me is part of who I am and made me the person that I am. And the operation is a big part of that. So, I don't want to deny myself the benefit

that I got from it. So through, if it makes sense... I would have been another person if it wasn't for this.” – Participant 5

The meaning the participants ascribed to WLS is directly linked to their quality of life. Their quality of life improved in most aspects, such as health, mobility, active lifestyle, improved self-esteem and self-confidence, work life and providing the participants with meaning in life. As WLS and weight loss brought about so many positive changes in their lives, this also motivated the participants to maintain their current lifestyle and standard, thus contributing to weight maintenance.

“But you see I'm very hard on myself cause I never ever want to go back to what I was, and ja ... like if I'm not hard on myself and I maybe relax a little bit too much then I will pick up weight.” - Participant 2

However, life does bring its own challenges, where the meaningfulness is lost or questioned as indicated in the theme of expectations of WLS (see 6.2.5.2.2). For example, participant 1 with the loss of his relationship indicated that he then questioned his choice of WLS. This can affect the outcome and dedication of the success of WLS.

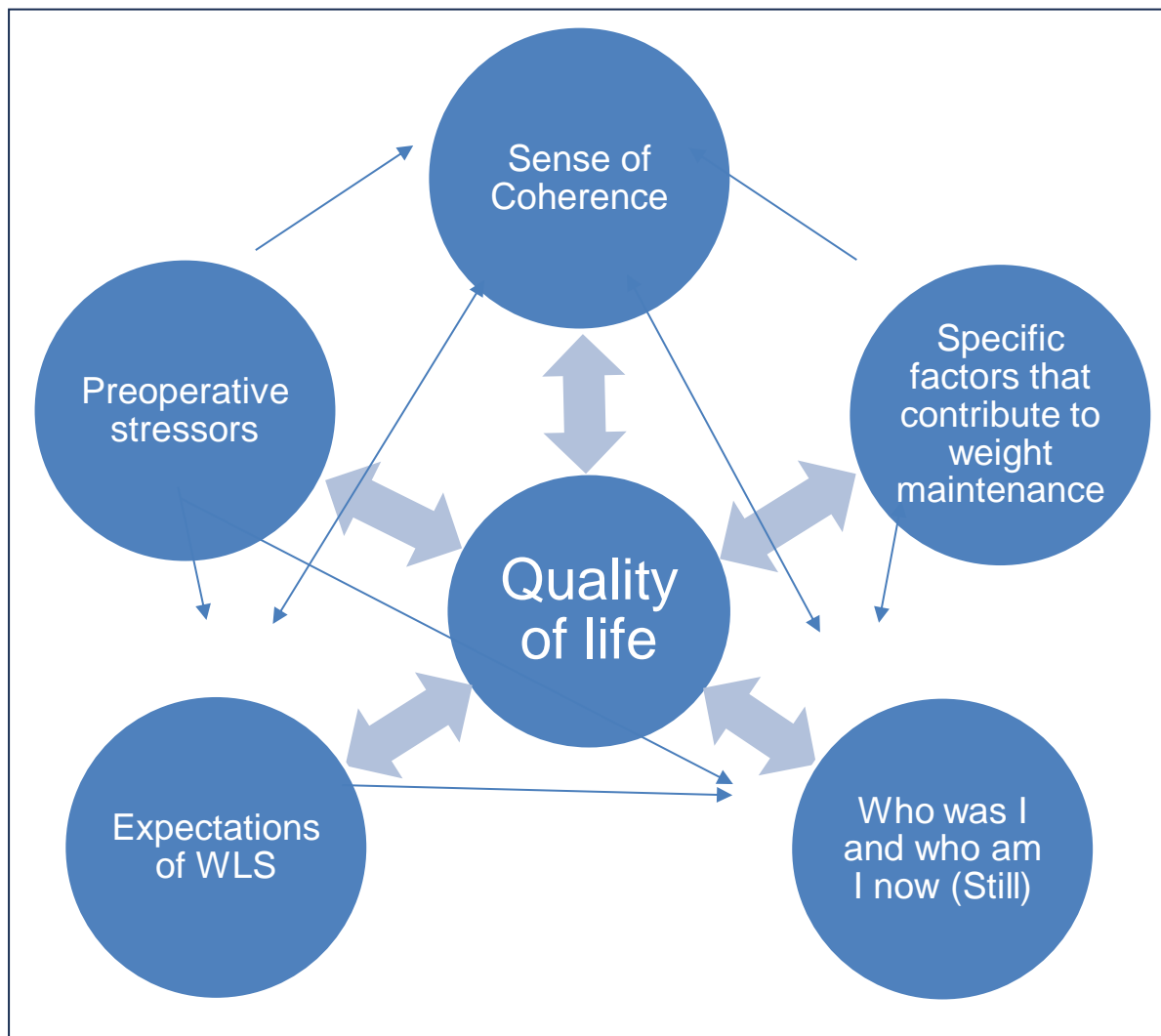
*“...where I sometimes asked myself the question: ‘shouldn't I have rather not have lost the weight?’ Because then I still would have the person. Or... would it then have... yes, I was sick, but wouldn't it have been easier, because then I wouldn't have had all the emotional trauma and anxiety and depression and everything. It's like... shouldn't I have rather left it alone, because then I would still be with the person that I was with for 7 years. So, I tried rationalising things up to a point where I was almost sorry I had the operation, which was terrifying.”
– Participant 1*

The meaning the participants ascribed to WLS impacted not only their quality of life, but also their determination to keep to postoperative requirements. Therefore, it also impacted their success of weight maintenance.

6.2.5.6 Concluding Comments on Themes. These five themes provided an opportunity to explore and bring about better insight into the subjective experience in the journey of participants who had WLS. Their journey reflected struggles and triumphs, all contributing to the successful outcome of WLS. With further reflection on the themes and their associated discussions it became evident that quality of life is an overarching theme, as it impacts on all levels of these generated themes and on the participants. Figure 6.2 illustrates how quality of life and the themes interact with each other.

Figure 6.2

Concluding summary of themes and overarching theme



6.2.6 Phase 6: Producing the Report

The final phase in thematic analysis is writing the in-depth research report (Braun & Clark, 2006, 2012, 2019; Byrne, 2022; Nowell et al., 2017; Terry et al., 2017). The in-depth research report includes the interpretations and discussions of the research findings aided by the identified themes and sub-themes. Findings are discussed in relation to previous research and literature, as well as the theoretical point of departure and how it relates to the aim of the current research (Braun & Clark, 2006, 2012, 2019; Byrne, 2022; Nowell et al., 2017; Terry et al., 2017). Within this study, the final research report will be amalgamated with the quantitative results in Chapter 7.

6.3 Conclusion

Within this chapter the six phases of reflexive thematic analysis were discussed, providing the reader transparency into the analytic method used in the current study. Reflexive thematic analysis provided the opportunity to analyse the data collected from the interviews and explore factors that could impact weight maintenance after WLS. The themes generated in the study were as follow: Preoperative experienced stressors, expectations of WLS, who was I and who am I now (still), specific factors that contributed to weight maintenance and application of sense of coherence.

In the following chapter, the amalgamation of the quantitative and qualitative research findings will be discussed, together with the conclusion, recommendations and limitations of the study.

Chapter 7: Discussion, Conclusions and Recommendations

7.1 Introduction

The primary aim of this study was to explore the subjective experience of individuals who have undergone WLS to identify factors that could contribute to weight maintenance, as well as investigate whether sense of coherence, locus of control, self-efficacy and quality of life contribute to weight maintenance after WLS. This study followed a convergent mixed method design, where quantitative and qualitative data were collected and analysed separately (Fetters et al., 2013; Guetterman et al., 2015; O’Cathain et al., 2010). Within this Chapter, the amalgamation of the qualitative and quantitative results will be presented, together with the limitations, contributions, recommendations for future research, conclusions and a personal reflection.

7.2 Amalgamation of Results

When reflecting on the qualitative and quantitative results retrospectively, the researcher realised that the qualitative results provided a much richer and more in depth understanding of the phenomenon under investigation. One possible reason was the difficulty in obtaining a significant number of participants for the quantitative part of the study (see 4.3.1). The qualitative part of the study yielded 6 interviews. Notwithstanding the few participants that could be obtained, there were support of the results from the quantitative and qualitative results. All of these factors contributed to the decision to use a narrative weaving approach to amalgamate and report on the qualitative and quantitative findings. Within the weaving approach the qualitative and quantitative findings are integrated and discussed together on a theme-by-theme basis (Bartlett et al., 2021; Fetters & Freshwater, 2015; Fetters et al., 2013; Ho et al., 2021).

7.3 Themes

Five themes, with supporting sub-themes were identified (see 5.2.4), together with an overarching theme of quality of life to enable the researcher to reflect on the participants' journey and the psychological factors that contribute to weight maintenance after WLS.

Braun and Clarke (2012) and Byrne (2021) stated that the final writing up of the findings within reflexive thematic analysis is intertwined with the entire analysis process. As indicated earlier in 6.2.4, there is no definite point within reflexive analysis when analysis is complete. It is dependent on the researcher to decide when to stop analysis and how to report their findings (Braun & Clarke, 2021c; Braun et al., 2022). Byrne (2021) further indicated that within reflexive thematic analysis the final write-up of the findings and the discussion thereof could also change, in the same manner as codes and themes changed and evolved. With further reflection on the findings, the researcher decided to report on all the themes and sub-themes identified; however, the findings will be reported in three timeframes. The three timeframes are life as an obese person, when WLS became an option and life after WLS. Table 7.1 illustrates how the reporting of the results will be conveyed in this chapter.

Table 7.1

Structure of the Final Report

Life as an Obese Individual	When WLS Became an Option	Life After WLS
Theme 1 Preoperative experienced stressors Theme 3 Who was I and who am I now (still) Theme 5 Application of sense of coherence	Theme 1 Preoperative experienced stressors Theme 2 Expectations of WLS Theme 4 Other factors that contribute to weight maintenance Theme 5 Application of sense of coherence	Theme 2 Expectations of WLS Theme 3 Who was I and who am I now (still) Theme 4 Other factors that contribute to weight maintenance Theme 5 Application of sense of coherence

The reasons for reporting the findings in this manner is threefold. Firstly, to be able to convey the findings and the story of the participants in a more coherent manner, secondly to avoid repetition and thirdly to ease reading.

In addition, as salutogenesis and sense of coherence is incorporated in the discussion, to ease reading a few concepts will be highlighted here again. GRRs refers to aspects that contribute to effective tension management (Antonovsky, 1979, 1987; Breed et al., 2006; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017, 2022). In contrast, a GRD refers to the unavailability of a GRR or when life's challenges exceed the resources available (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017). The ease to dis/ease continuum is used within salutogenesis, in contrast to the pathogenic orientation where an individual will be placed on a continuum of diseased or non-diseased. As an individual is rarely considered as in complete health within salutogenesis, the individual will be in constant movement between the ease and dis/ease pole of the continuum (Antonovsky, 1979, 1982; Langeland et al., 2022; Mittelmark, Bull & Bouwman, 2017; Vinje et al., 2017). Within salutogenesis the focus is on health promotion where the loadbalance between GRDs and GRRs contribute to where an individual will be on the ease to dis/ease continuum (Antonovsky, 1979, 1982; Vinje et al., 2017, 2022).

Within this chapter only the English quotes were utilised for the convenience of the reader.

7.3.1 *Life as an Obese Individual*

The first timeframe relates to life as an obese individual and the stressors the participants experienced. This timeframe integrated the findings of theme 1, preoperative stressors, theme 3, who was I and who am I (still) and theme 5, application of sense of coherence.

Obesity, which can be classified as a chronic stressor or a GRD, affects almost all aspects of an obese individual's life, impacting not only the physical and health-related factors, but also various psychological factors (Frühbeck, 2015; Homer et al., 2016).

Participant 5 aptly phrased the experience of being obese as: “*People do not recognise the trauma that a person experience when there is no blood and guts. To be fat is traumatic*”. It appears that the intrapersonal and interpersonal breakdown which was endured for years and characterised by discrimination and stigmatisation can be classified as trauma. This finding is supported by Goodman and West-Olatunji (2008) as well as Kinavey and Cool (2019) indicating that maltreatment based on bodily characteristics can lead to traumatic stress. The trauma and stressors experienced while the participants were obese is important to understand as it contributed to the participants deciding on having WLS as well as motivation to maintain their weight.

It is important to provide a general picture of journey of these participants in regards to obesity. Of the twelve participants who completed the demographic questionnaire, 50% indicated that they experienced problems with weight and obesity since childhood. Of the remaining participants 25% indicated that their weight problems started in their teens and 25% of participants weight problems started between the ages of 20 and 40. These figures indicated that the majority of the participants had been obese since a very young age, living with the societal and psychological impact of obesity for a long time before WLS.

While searching for relevant research in regards to the difference between the psychological impact of childhood onset obesity in comparison to adult onset obesity, no direct research could be found. Research were conducted on a variety of factors including the impact of childhood obesity on mortality rates, adult psychopathology and medical conditions in adulthood (Phul et al., 2020; Sanyaolu et al., 2019; Smith et al., 2020). For this reason, further research is recommended to investigate the psychological impact of childhood onset obesity in comparison with adult onset obesity. Research on this topic could aid in better understanding of the types of trauma these individuals experienced in regards to their obesity status and facilitate the development of specific treatment plans for these individuals. It could also benefit individuals with their therapy before and after WLS, as these traumas do not just dissipate, as indicated earlier.

While the participants were still obese they also experienced a great dichotomy between being visible and invisible to themselves and others. These participants felt invisible as a person and a person of value, as Participant 4 so eloquently expressed: *“For me it was just, no one saw me. I was just a blur. One fat blur.”* This invisibility was not limited to interactions with individuals, but also in terms of the greater society where their needs were not considered as a marginalised group, which could be considered as a form of discrimination and victimisation. The invisibility to their needs from the greater society is evident from aspects including the scarcity of chairs that could accommodate their weight and size in public spaces such as movie theatres, restaurants or airplane seats. When they had to fly, the participants would have to pay for two seats which were embarrassing and traumatic to them as stated by Participant 3: *“I lost it when [husband] told me that we must go on holiday and there is flying involved, because he had to buy me two seats, do you understand?”*. Another aspect which impacted most of the participants were the availability to buy clothes which Participant 1 expressed as follows: *“And I think that is a thing that really got to me, the fact that I cannot just go into a store and buy a t-shirt that is nice to me”*. This invisibility from society to their needs not only affected their quality of life but also their self-worth, self-esteem and self-confidence. Even in their work life a few of the participants felt invisible to some extent where their opinions did not carry value while they were obese as seen from the response by Participant 1: *“I was treated differently. Even with coming up with ideas at work, might have been brushed off in the past [before WLS]”*. This inability to partake in decision making could negatively impact their sense of coherence (Antonovsky, 1987). The quantitative results also indicated a relationship between public distress and work life before WLS in terms of quality of life utilising the Spearman’s Rho. These results suggest that the more these individuals felt invisible or discriminated against, the more it negatively impacted their quality of life in terms of work. Weight-related discrimination in the workplace is an expected outcome and confirmed by research (Obara-Golebiowska, 2016; Puhl & Brownell, 2001; Puhl & Heuer, 2009; Roehling et al., 2007). All these aspects impacted the participants quality of life and sense of coherence, contributing to feeling

invisible as a person, but visible for judgment. These experiences of being visible for judgement and invisible as a person was confirmed by research conducted by Lewis et al. (2011) while investigating obesity stigma in daily lives of obese individuals. It was further confirmed by Williams (2018) while investigating the experiences of obese woman as healthcare consumers.

To feel visible only to be ridiculed and judged by others indicated the participants experience of discrimination, victimisation and stereotypes. Stereotypes included being lazy, a slob, fat people are always funny, ascribing certain sport activities to obese individuals like shotput, they eat too much and exercise too little. The qualitative findings indicated that these experiences of discrimination, victimisation and stereotypes negatively impacted their quality of life in various ways, which included their self-worth, self-esteem, self-confidence and self-efficacy. The significant positive correlations calculated by the Spearman's Rho supported the findings. The quantitative results in terms of quality of life suggested that public distress, which is directly related to aspects of judgement, ridicule and practical struggles such as fitting into chairs (Kolotkin et al., 2001; Saboor Aftab et al., 2014), had a significant positive correlation with self-esteem, work life and sexual life before WLS. Within salutogenesis these experiences of discrimination and stigmatisation are regarded as GRD or stressors in terms of daily hassles, chronic stressors which could contribute to intrapsychic conflict (see Figure 7.1). Participant 1 expresses the experience as: *"Because it doesn't matter where you go, where you walk, people look. Even though they don't make it obvious, you know. And yes, it had a great impact on my self-esteem"*. These findings in regard to the impact of discrimination, victimisation and stereotypes are expected and well documented in various research (Brewis et al, 2011; Himmelstein et al., 2017; Homer et al., 2016; Kubik et al., 2013; Lier et al., 2016; Makowski et al., 2019; Mechanick et al., 2016; Megías et al., 2018; Previte & Gurrieri, 2015; Sutin et al., 2015; van Leeuwen et al., 2015; Wu & Berry, 2018).

From the qualitative findings it was evident that victimisation or fear of ridicule from others also contributed to social avoidant behaviour. This finding is confirmed by research

conducted by Hamer et al. (2021), Homer et al. (2016), Lier et al. (2016) and Toft et al. (2020). The social avoidant behaviour could be interpreted as a need to be invisible as a protective factor for self-preservation. This impacted their quality of life where they deprived themselves of life experiences, whether in regards to avoiding activities with loved ones, actively engaging in personal interest or activities and even avoiding work responsibilities as far as possible, especially if they had to present in front of others. Participant 5 summarise most of the participants' experience in the following extract: "*I didn't like to be in the spotlight whatsoever, because it was just easier to hide and be invisible, and to live in the background*".

The negative impact of being obese on quality of life were further confirmed by the descriptive statistics in the quantitative results using the mean score (see Table 5.37). As previously mentioned, the participants were asked to indicate their quality of life retrospectively, as they remembered their life as an obese individual as well as how they currently experience their quality of life. The mean scores from the retrospective results (see Table 5.37) indicated low scores for quality of life in especially four domains, indicating great impairment in physical functioning, self-esteem, sexual life and public distress while obese. The fifth domain, namely work was also low; however, not as impaired as the other domains. This could possibly be explained by the findings of Homer et al. (2016) were the participants indicated that their work provided them with purpose in life (meaning), an identity and self-esteem. These lower scores on quality of life before WLS was expected and also found by Oh et al. (2013), Montpellier et al. (2017) and Saboor Aftab et al., (2014).

One of the limitations in the study was that the qualitative part of the study did not explore the sexual life of the participants. Sexual life was measured through the quality of life measurement (IWQOL-Lite) in the quantitative section of the research. Sexual life in terms of quality of life measures aspects related to the sexual difficulties possibly experienced and lack of enjoyment of sexual activity (Saboor Aftab, 2014). The descriptive statistics using the mean score (see Table 5.37) indicated impairment on quality of life in regards to sexual life especially before WLS. Significant positive relationships between sexual life and public

distress was further indicated with the Spearman's Rho. The quantitative results suggested that the effect of public distress (discrimination and victimisation) could negatively impact the sexual life of the participants. In addition, the Spearman's Rho indicated a significant positive correlation between sexual life and self-esteem. As previously specified a relationship was found between public distress and self-esteem. It is possible that their lower self-esteem may contribute to a lower quality of life in terms of sexual life as they might not feel comfortable with their own bodies or themselves, avoiding sexual contact with their partner, as also indicated by Sarwer and Steffen (2015). Reasons for sexual life being impaired in terms of quality of life may also be attributed to sexual dysfunctions (Mitchell et al., 2013; Poggiogalle et al., 2014; Sarwer & Steffen, 2015; Steffen et al., 2017).

The only people that the participants were always visible to, before and after WLS, were their loved ones. After WLS it appears they became more visible as a person to others and to themselves. Their visibility after WLS will be discussed in more detail in the timeframe life after WLS.

7.3.2 When WLS Became an Option

This timeframe integrated theme 1, preoperative experienced stressors, theme 2, expectations of WLS, theme 4, other factors that contribute to weight maintenance and theme 5, application of sense of coherence. The first and the second timeframe are intertwined as all the stressors experienced in timeframe 1 also contributed to the decision to have WLS. However, it was deemed important to provide an understanding of the lived experiences of the participants as obese individuals. This timeframe continues with the preoperative stressors where the focus shifted slightly to experiences after they became aware of the possibility of surgery which additionally contributed to the decision to have WLS.

From the qualitative findings it was evident that all of the participants had their own, but mostly shared reasons for wanting WLS. For the majority of the participants in this study,

the main reasons for opting for WLS was improvement of their health status and the related fear of death.

Obesity contributed to experiencing health problems for the majority of the participants which constitute physical and biochemical stressors, chronic stressors or daily hassles within salutogenesis, therefore GRDs. These medical conditions included type 2 diabetes which half of the participants experienced before WLS, high blood pressure, low bone density, cholesterol, insulin resistance and polycystic ovarian syndrome (PCOS). Conditions such as insulin resistance and PCOS in turn contribute to various problems including infertility, excessive hair growth and weight gain that contribute to obesity (Fayyaz et al., 2022; Malone & Hansen, 2019; Rosenberg, 2019). These medical conditions as well as some of the medications used to treat these conditions made it even more difficult for the participants to lose weight and contributed to a greater sense of hopelessness. This is aptly conveyed by Participant 5: *“And that contributed, like you become hopeless, because it doesn’t matter what you do, you know... it was hormone medication and then it was medication for the side effects from the medication for the hormone medication... the side effects thereof”*.

The other main reason for opting for WLS which is also related to health was fear of death. Within salutogenesis this fear could fall into various GRDs including chronic stressors, intrapsychic conflict and daily hassles (see Figure 7.1). The load balance between these GRDs and the available GRRs could impact their placement on the ease to dis/ease continuum of salutogenesis (Idan et al., 2017; Super et al., 2015; Vinje et al., 2017). Participants mentioned that they were continuously threatened by medical professionals that death would be imminent if they stay obese. These threats lead to the participants developing a fear of death. An example of these threats of death from medical professionals can be seen in the response of Participant 3: *“Then he said to me: ‘Listen to me quickly. I’m giving you six weeks. You are doomed. You are going to die of a heart attack”*. A fear of death or death anxiety also contributed to a lower health-related quality of life as found by Ezaka et al. (2022) in their study on patients with diabetes. Very limited research could be

found on the contribution that threats of death from medical professionals and the resulting fear of death have on deciding on having WLS. Research conducted by Engström and Forsberg (2011) as well as Edward et al. (2018) only mentioned the fear of death related to obesity in their study briefly and Glinski et al. (2001) indicated that their participants' fear of dying from obesity outweighed the fear of the risks associated with WLS. These threats of death, leading to a fear of death within the participants, not only impacted their decision to have WLS, but also impacted their life after WLS which will be discussed in more detail within the timeframe life after WLS.

The qualitative findings indicated that the participants also experienced other stressors in relation to medical professionals which contributed to deciding on WLS. Many of the participants consulted medical professionals throughout their lives to treat their obesity. Despite their efforts for answers, almost none of the medical professionals they consulted could diagnose or provide an explanation for their excessive weight problems, as their eating behaviour could not justify their weight. In addition, the participants experienced the medical professionals they consulted as prejudicial, as they did not believe the participants regarding their eating behaviour. The medical professionals would dismiss their pleas for help and answers to their weight problem and indicated that the participants should just eat healthier and exercise more. Participant 5 expressed this experience:

"I think I went to many normal mainstream doctors that only shook their heads and said we cannot do anything for you. You know, you will just need to eat less and exercise more. That never looked further to see what can be done on hormonal levels, or what can you do about hereditary illnesses; how you can, you know, how you can plan your life to minimise it, you know. It is when you only see your GP's and your, especially your gynaecologist, they aren't really interested to give you options to help you".

The weight-related discrimination and stigmatisation from healthcare professionals were confirmed in studies conducted by Homer et al. (2016), Richard et al. (2014) and Stanford et al. (2018). Jackson et al. (2014) and Standford et al. (2018) further indicated that

the weight-related discrimination and stigmatisation from medical professionals contribute to obese individuals avoiding the healthcare system. The avoidance could be detrimental as they will not receive the necessary treatments in regards to their health or treating the possible problems related or contributing to their weight or weight maintenance. These experiences left the participants with a goal-mean gap as they did not know how to address the problem and it is thus regarded as a GRD within salutogenesis and sense of coherence (Antonovsky, 1979). In addition, it affected sense of coherence in regards to comprehension, manageability and meaningfulness. As these participants were not able to comprehend the conditions that contributed to their weight, they were not able to manage or ascribe resources, leaving them with a sense of meaninglessness. In the light of these experiences when WLS became an option it provided the participants with a way to bridge the goal-mean gap.

The participants not only consulted medical professionals to treat their obesity, they all actively tried to lose weight throughout their lives, trying most diets, having personal trainers and trying various weight loss medications. None of these efforts lead to successful weight loss or weight maintenance before WLS. The vast history of unsuccessful weight loss attempts before WLS is confirmed in various studies (Barros et al., 2019; Groven et al., 2013; Montani et al., 2015; Varns et al., 2018). These unsuccessful attempts have detrimental effects as Homer et al. (2016) found that it left half of their participants questioning if their life was worth living. In Homer's et al. (2016) study this was also the reason why individuals opted for WLS where they saw WLS as their final opportunity. This view was shared by most of the participants in the current study as summarised by Participant 1: *"It just felt like the only chance I have to make a total difference in my life"* and Participant 5: *"So, for me it was absolutely a new beginning and a new chance"*. From the salutogenic and thus sense of coherence perspective, WLS was a major life event which provided the participants with a sense of meaning and as stated previously, a way to bridge the mean-goal gap in which they were willing to invest their energy and efforts in.

Socially motivated factors also greatly contributed to their decision to have WLS. These socially motivating factors included feeling more comfortable in their bodies and with themselves, to feel more comfortable around other people, wanting to be more active and do things they were not able to do while obese, to find love and to buy clothes and dress in a manner that they choose. These findings support the studies of Alegría and Larsen (2015), Munoz et al. (2008) and Karmali et al. (2011) where the main reasons for WLS were medical or health-related and then secondary social motivated.

One of the factors identified within this study and in this timeframe, which contributed to weight maintenance was preoperative education. Preoperative education is an important part even in the selection process of candidates for WLS (Apovian et al., 2009; Sogg & Friedman, 2015). From the qualitative findings and descriptive statistics using a frequency table (see Table 5.4), it was evident that the majority of the participants received information from their medical team regarding WLS, the possible challenges after WLS and the postoperative requirements. In addition to the information provided by their medical team, most of the participants also did their own research on the different surgeries, medical professionals involved and possible physiological and psychological challenges after WLS. Many of the participants also consulted some WLS support groups or people they knew who had WLS to provide further insight into the benefits and challenges they experienced. Through this they were able to make an informed decision to have WLS, therefore enhancing their sense of coherence through life experiences (Apovian et al., 2009; Homer et al., 2016; Mechanick et al., 2013; Sheets et al., 2015). More importantly, the preoperative research mentally prepared them for most of the challenges after WLS, enhancing their coping and adapting abilities to further stay on the ease pole of the continuum of salutogenesis. This is of great importance as some unexpected challenges can impact their motivation to adhere to postoperative requirements or diet which might impact their weight maintenance (Anastasiou et al., 2015; Coetzee & Cilliers, 2001; Griauzde et al., 2018; Opolski et al., 2015; Teixeira et al., 2005).

Within this timeframe salutogenesis and sense of coherence was highlighted. Numerous GRDs were identified including physical and biochemical stressors, chronic stressors, intrapsychic conflict and daily hassles. It could be argued that these life experiences affected their sense of coherence in a negative manner (see Figure 7.1). A lowered sense of coherence is probable when also considering the three different components thereof. With comprehensibility and manageability, life didn't feel ordered as they explored all avenues and resources to address their obesity; however, nothing worked, not even medical professionals. This contributed to life and efforts of the participants feeling meaningless, the third component of sense of coherence. For these reasons the individuals, while still obese, would probably have been on the dis/ease pole of the continuum of salutogenesis. It is also possible that these experiences contributed to an external locus of control and lower self-efficacy.

These assumptions are also supported by a significant strong positive correlation between sense of coherence, specifically comprehensibility and meaningfulness, with self-efficacy. This finding was furthermore supported by research conducted by Mato and Tsukasaki (2019) and Yun & Park (2019) who found a strong relationship between sense of coherence and self-efficacy. Bandura (1994) indicated that individuals with a lower self-efficacy tend to have self-doubt while visualising their own failure. This could result in lower performance and lowering goals for themselves which could possibly have a negative effect on weight maintenance. Participant 5 reflect on her experience before WLS in this regard: *“And I did not have self-confidence that I could diet on my own, because I failed so many times before because of other factors too”*. Despite self-efficacy not being confirmed by the current study's quantitative data to be associated with weight maintenance, Latner et al. (2013) found that self-efficacy together with perceived lapse severity and coping does impact weight maintenance. This discrepancy could possibly be explained by the small sample size used in the quantitative phase as well as the limitation of it not being a longitudinal study, where self-efficacy was not measured before WLS to indicate if any change occurred. Another possible reason for this contradictory finding could be because the current research

did not investigate specific coping mechanisms or perceived lapse severity as Latner et al. (2013) did. Improvement of self-efficacy after WLS could be seen in the qualitative data which will be discussed later in this Chapter.

This timeframe provided an opportunity to understand the major reasons and stressors the participants experienced which contributed to them deciding on having WLS. In the next timeframe the focus will be on life after the major life event of having WLS.

7.3.3 Life After WLS

This timeframe addressed life after WLS which integrated theme 2, expectations of WLS, theme 3, who was I and who am I (still), theme 4, other factors that contributed to weight maintenance and theme 5, application of sense of coherence.

Despite some unexpected challenges after WLS, which will be explored in this timeframe, the participants quality of life improved significantly in all spheres, as indicated by the qualitative findings and the quantitative results. The results of the Wilcoxon signed-rank test indicated significant differences in quality of life before and after WLS. The results indicated a large effect size in all five domains namely self-esteem, public distress, sexual life, work and physical functioning. Even though the results of the chi-square test and its phi coefficient indicated no association between quality of life and weight maintenance, the qualitative findings did not support this result. The qualitative findings instead indicated that enhanced quality of life is crucial as a motivating factor for maintaining weight after WLS.

Participant 3 conveys the essence that most of the participants share:

“I always say there is nothing in life that tastes as good as the feeling of feeling good about yourself. There is no such feeling. Think carefully about what I just said. Not chocolate cake, not red wine, nothing tastes as good as that feeling of, do you know what? I like myself, I am fine. I can conquer the world”.

Revisiting the findings of this time frame, it appears that all aspects in an individual's life is integrated and impact their lived experience. These aspects include the participants' intrapersonal journey, their interpersonal journey and other factors from outside such as

medical and health-related factors. As the findings on the journey of life after WLS touches on so many spheres and quality of life, it was decided to make use of sub-headings to discuss the listed aspects from this timeframe in an effort to facilitate for easier reading.

7.3.3.1 Intrapersonal Experiences After WLS. The intrapersonal journey after WLS was not always easy for the participants as the trauma experienced from before WLS still remained. However, as indicated by the quantitative results and qualitative findings the quality of life they experienced after WLS improved significantly. The researcher believes that these factors, the trauma experienced while obese and the significant improvement in quality of life combined, possibly is the greatest contributory factors to weight maintenance, as they *“never want to go back to what you were”* as expressed by Participant 2. For this reason, it is important to understand some of the intrapersonal journeys these participants experienced after WLS.

The qualitative findings indicated that after WLS, the participants were satisfied with the amount of weight loss and how they were able to maintain the weight loss since. This satisfaction also contributed to an increase in quality of life which is an expected result since previous research alluded to the fact (Brazier et al., 2004; Mitchell et al., 2013; Modaresi et al., 2013; Montpellier et al., 2017; Sarwer et al., 2014; Sarwer et al., 2018). Some of the participants indicated that they would still like to lose more weight or that they realised that they will never be “thin”, but they were satisfied with the weight loss, their body size and even some minimum weight gained as Participant 5 illustrated: *“So, you know, I have now in 10 years’ time gained 7kg that I have lost initially. So that to me is good. It is the expected thing”*. These responses indicated that the participants had realistic expectations of WLS in terms of weight. Some participants however did indicate that their early expectations were unrealistic in terms of other aspects such as finding love and that life would be easier after WLS. Unrealistic expectations or unexpected challenges such as relationship breakdowns, expected improved eating habits, resolution of comorbidities and amount of weight loss can negatively impact motivation to postoperative adherence (Chan et al., 2020; Hering et al.,

2018; Homer et al., 2016; Magdadeno et al., 2009; Opolski et al., 2015; Schowalter et al., 2008; Theunissen et al., 2020). The participants from the qualitative sample experienced short-lived disappointments after realising that those expectations were unrealistic. They adapted their expectations and embraced the positive impact WLS had on their quality of life. This also indicated their enhanced sense of coherence. Realistic expectations were shown to be of importance in the studies of Sharman et al. (2017) and Teixeira et al. (2005) who found that a positive self-assured individual with realistic weight loss expectations, had the best weight loss results.

With their weight loss and maintenance satisfaction after WLS the participants now became more visible to themselves and others in a positive manner, also contributing to an enhanced quality of life. Participant 5 illustrated how this visibility after WLS not only improved the participants' self-esteem but also their self-efficacy, sense of coherence and an internal locus of control: *"And because I had a better self-esteem for the first time, I started seeing the potential within myself. And started getting confidence in my own abilities, and believed in my own abilities, which I did not have before"*. The significant inverse relationship between self-esteem and locus of control supported this finding. The relationship between a higher self-esteem and an internal locus of control is also confirmed by research conducted by Heidari et al. (2018) and Kurtović et al. (2018). Locus of control was also evident from this study to have a strong association with weight maintenance. These results indicated that an external locus of control was associated with less kilograms lost and more weight gained, whereas an internal locus of control was associated with more kilograms lost and less weight gained. Individuals with an internal locus of control take responsibility for their own successes or failures through their own actions, choices and efforts (Breed et al., 2006; Coetzee & Cilliers, 2001; Hefferton & Boniwell, 2011; Maddi, 1996; Wang & Meizhen, 2020). The increases, especially in terms of self-esteem, possibly contributed to an internal locus of control, which further assisted participants to maintain their weight as they took responsibility for their weight after WLS. This finding also confirmed the research of Anastasiou et al. (2015), Cobb-Clark et al. (2014) and Montesi et al. (2016) who all found that an internal

locus of control contributed to weight maintenance as these individuals were more likely to participate in an active and healthier lifestyle. In addition, Buddelmeyer and Powdthavee (2016) indicated that negative life events, such as the loss of a partner or health problems are mediated through an internal locus of control. Internal locus of control acts as a protective factor where these individuals are active participants in finding solutions and ascribing resources (Buddelmeyer & Pawdthavee, 2016). This further confirms the importance of improvements in the generalised personality orientations namely (internal) locus of control, self-efficacy and sense of coherence in the weight loss and maintenance journey. These generalised personality orientations are all linked to stress, coping and health and essential to address unexpected stressors (Antonovsky, 1991).

Another factor that contributed to enhanced self-esteem, self-confidence, self-worth and therefore quality of life were the participants' ability to buy clothes they wanted to in any clothing store in contrast to before where they had to shop in a speciality clothing stores or special sections. These findings and the impact thereof confirmed the results in the studies conducted by Alegría and Larsen (2015), Jones et al. (2016) and Croft and Parish (2016). In addition, Alegria and Larsen (2015) indicated that buying clothes assisted individuals to align their new body size with their own self-view.

At work participants also became more visible to others after WLS. Even though work relates to interpersonal experiences, the effect of the visibility affected the participants more on an intrapersonal level. The participants' visibility was not limited to their new appearance, their opinions and inputs were now also recognised and carried value at work, in contrast to whilst they were obese. This experience is conveyed by Participant 2: *"I was treated differently. Even with coming up with ideas at work, might have been brushed off in the past, now people were actually listening to what I had to say, just purely because I looked different"*. The significant strong positive correlations between quality of life in terms of work and public distress as well as physical functioning after WLS suggested that as they became physically more comfortable in their own bodies and experienced less public distress it impacted their quality of life in terms of work in a positive manner. As with the other positive

changes already mentioned, this positive life experience in the form of acknowledgement in their work environment, together with their physical comfortability, further contributed to the enhancement of their self-worth, self-confidence, self-esteem, self-efficacy, internal locus of control, quality of life and their sense of coherence. In addition, a significant positive relationship was found between quality of life in terms of work before WLS and after WLS. These findings indicated that the participants experienced relative quality of life in terms of their work even before WLS, however it improved significantly after WLS. This improvement in work quality of life after WLS could possibly be ascribed to their experience of feeling visible, acknowledged and appreciated. Antonovsky (1987) indicated that work impacts an individuals' salutogenic functioning, specifically their sense of coherence. When an individual within their working environment feels that their voice is heard and are able to contribute to decision-making they experience work as meaningful, thereby contributing to enhancement of their sense of coherence (Antonovsky, 1976; Breed et al., 2006, Strümpfer, 1995). The significant positive correlation found between an improved sense of coherence and enhanced self-efficacy confirmed this qualitative finding. As they experienced their contribution as valued, they believed more in their own abilities (self-efficacy) and developed a more internal locus of control, in general and in their work environment, which further enhanced their self-esteem. This was confirmed by the significant inverse correlation which indicated a strong relationship between an enhanced self-esteem and an internal locus of control.

However, there are still remnants left of the trauma experienced before WLS for some of the participants. These remnants included aspects such as experiencing guilt when eating, especially in front of others, avoiding sitting on certain chairs and some still struggled to talk in front of others. However, for most of the participants talking in front of others became easier because they "look better". In addition, another remnant that was identified were the fat identity. Participant 2 aptly explained this fat identity as: *"It's like I still have that fat girl in my brain, even when I look in the mirror, I still see that same person"*. Even though it became clear that participants were comfortable with themselves as a person and wanted

to remain the same person they were before WLS, this fat identity possibly still impacted their self-esteem, self-confidence and self-worth. Alegría and Larsen (2015), Faccio et al. (2016) and Griauzde et al. (2018) also found the struggle these individuals have to align their new body with their self-identity which have an impact on their self-esteem. In addition, Faccio et al (2016) further indicated the importance of making these individuals aware that they still think, behave and relate to themselves as obese individuals. With this awareness they were able to change their behaviour and their thought processes (Faccio et al., 2016).

Another remnant for the qualitative participants of their life before WLS was the excess skin after their weight loss. Half of the participants in the qualitative part of the study had plastic surgery to address excess skin in some areas. Participant 6, who already had plastic surgery, expressed her experience before having plastic surgery as: *“Oh I hated my body, because you have this hanging skin, so you don’t feel feminine. You don’t feel pretty”*. The other participants who had plastic surgery shared this feeling and added that they felt as “fat” as before WLS as they still had to hide everything. It was evident that their excess skin affected their self-esteem, self-confidence and how they perceived their bodies. Alegría and Larsen (2015) and Lier et al. (2016) indicated the same impact on their participants’ self-esteem, self-confidence and body perception in regards to excess skin, even when clothed. De Zwaan et al. (2014), Homer et al. (2016) and Modaressi et al. (2013) also noted the impact of excess skin on physical and sexual functioning, quality of life, and self-esteem. Within the current study only Participant 5 saw her excess skin as a positive: *“But funny enough, the skin is less of an issue for me in comparison to the fat rolls. You know, it is like battle scars that you carry with pride. You know, it is something that you conquered”*. Some of the participants who had plastic surgery would still like more procedures to address other areas of their bodies. The other participants who did not yet have plastic surgery consider these procedures as the “grand finale” to complete this chapter of their lives. The participants who had plastic surgery indicated that it was the best thing they have ever done for themselves, where they saw themselves as beautiful for the first time, as Participant 4 indicated: *“...that is when I started loving myself”*. Plastic surgery contributed to their

improved self-worth, self-esteem, quality of life, self-confidence and possibly letting go of their 'fat identity'. These results confirmed the research conducted by Gilmartin et al. (2015) and Modaressi et al. (2013) who found a significant increase in quality of life, self-esteem, self-confidence and alignment of identity with their new body after plastic surgery. This was further confirmed by the systematic review conducted by Toma et al. (2018) where they indicated that plastic surgery contributed to improvements in social and physical functioning, psychological wellbeing and reduced their BMI. More importantly Balagué et al. (2013) and ElAbd et al. (2021) found that plastic surgery after WLS contributed to weight maintenance and improvement of health-related quality of life. Balagué et al. (2013) also suggested that these surgeries could contribute to the improvement of comorbidities. A study by Balagué et al. (2013) noted, as did the present study, that the obstacles for some of the participants to undergo plastic surgery related to the financial cost involved. Medical aids in South Africa, as is the case with various other international countries, do not contribute towards these surgeries as it is considered cosmetic (Balagué et al, 2013). When considering the psychological, physiological and social benefits, together with improved weight maintenance of these surgeries the researcher supports Balagué et al.'s (2013) notion that medical aids should consider assisting these individuals.

Despite the quantitative results indicating and qualitative findings confirming a significant increase in self-esteem, self-confidence and self-worth, the majority of the participants still indicated that their self-esteem and self-confidence only increased slightly and that they still struggled with their self-worth. Their experience of the slight increase in self-esteem, self-worth and self-confidence can possibly also be related to the years of trauma being obese, not just from outside but also the breakdown of the self. This is evident from the response by Participant 3 *"Always rejection rejection, rejection in your own head. I am not good enough; I am not pretty enough; I am not fast enough; I am not smart enough"*. In addition, the remaining fat identity also impact this view of a slight improvement in self-esteem, as found in the research of Alegría and Larsen (2015). Alegría & Larsen (2015) further mentioned the impact of stigmatisation from before WLS and the effect it still had on

these individuals, confirming the results of this study. However, most of the participants who still struggled with self-esteem, self-confidence and self-worth were actively busy working to improve these aspects with the help of therapists or life coaches. Participant 6 expressed her experience as:

“But it is something that I am working on now, eventually in my life. I think it is just you know, acknowledging your own worth. It is not a natural thing to think that you are pretty or that you look good or things like that. Not at all. It is still not something that I can do. But I am on my way, because I know, the more I accept me for who I am, eventually it will trickle down to everything else. What a person looks like is a very small part of who you really are”.

This confirmed their movement to a more internal locus of control and higher sense of coherence where they maintained their commitment to remain within the ease pole of the continuum of salutogenesis.

From the qualitative data it was evident that there was a cognitive shift for the participants after WLS. They showed realistic expectations in most aspects, where they realised that WLS was not a quick fix but a mind shift and a lifestyle change as indicated by Participant 3:

“You have to use your head too. If you are going to see this as a quick fix, you are wrong. It is a lifestyle change number 1. Number 2, head verb, it is a mind shift. It is a hell of a mind shift. If you think that because your intestine is shorter and nothing can make you fat now, you are wrong. Nothing and nobody can fight against sugar. Nothing”.

With this mind shift and lifestyle change they took responsibility for their weight maintenance through weight checking, better food choices and active lifestyles, which further confirmed their internal locus of control, improved self-efficacy and sense of coherence. This finding was foreseen and supported by various research indicating the importance of sense of coherence, self-efficacy and internal locus of control on these lifestyle changes in relation to weight maintenance (Anastasiou et al., 2015; Cobb-Clark et al., 2015; Fida et al., 2015; Li

et al., 2015; Montesi et al., 2016; Nickel et al., 2017; Nilsen et al., 2015; Rogerson et al., 2016; Skär et al., 2014; Sobhani et al., 2020; Wainwright et al., 2007). Weight checking in relation to fear of weight regain and an active lifestyle was both identified in this study as major contributors to weight maintenance after WLS.

Fear of weight regain was prominent in the participants and by various other researchers (Alegría & Larsen, 2015; Lier et al., 2016). The fear of regaining weight further contributed to a mindset shift where the majority adopted a healthier lifestyle, made better food choices, engaged in weight checking behaviour and engaged in an actively lifestyle. Participant 2 conveys her fears as:

“But you see I’m very hard on myself cause I never ever want to go back to what I was, and ja ... like if I’m not hard on myself and I maybe relax a little bit too much then I will pick up weight”.

In reviews conducted by Greaves et al. (2017) and Varkevisser et al. (2019) they found that self-monitoring of weight and eating habits was predictive of weight maintenance. This fear of not wanting to go back to what they were (obese), again confirms their commitment to enhanced quality of life and the need to avoid the trauma they experienced as obese individuals. The improvement in quality of life of these individuals were also found in the study conducted by Alegría and Larsen (2015). Quality of life is one of the biggest contributors to maintaining weight.

As previously mentioned, with their weight loss the participants were able to engage and enjoy an active lifestyle which included running, walking, hiking, biking, swimming and going to the gym. In addition to their new thinner bodies, the participants’ higher self-esteem, self-confidence, self-efficacy and internal locus of control contributed to them being able to engage in these activities, which further improved their quality of life. Research also found that exercise can contribute to an increase in self-esteem (Gilani & Dashipour, 2017). Enhanced self-esteem as was already shown in this study, have an association with an internal locus of control, which could further contribute to weight maintenance. The adoption of an active lifestyle combined with better food choices, internal motivation and belief in their

abilities (self-efficacy and internal locus of control) contributed to them being able to maintain their weight, as was confirmed by various research (Benedetti et al., 2000; Cobb-Clark et al., 2014; Greaves et al., 2017; Papalazarou et al., 2010; Varkevisser et al., 2019). An active lifestyle is regarded in this study as a GRR (see Figure 7.1), not only with regards to weight maintenance but also as a coping mechanism which was confirmed by Participant 2's data extract: *"for me personally is the keeping active. So, you know, I just find it such a good stress reliever for me, which then helps me not to turn so much to food and wine, as I did in the past"*.

Another GRR in the participants' WLS journey was religion. Religion enabled the participants to comprehend, manage and give meaning to their stressors, before and after WLS. The extract from Participant 3 indicated the manner in which religion aided comprehensibility of stressors (obesity) she experienced and the meaning derived from it as she has a successful clothing line for all size women:

"...God chose me to live in every women's body. To understand every women's body. I know what it feels like to not have breasts. I know what it feels like to be so thin that you have to shop in the children's section when you are an adult woman. But I also know what it feels like to be so big to just buy one sweater at big and tall in the men's section. So, He chose me to live in every type of body".

Having had these experiences and WLS thus contributed to meaning in life as she could contribute to the betterment of others' lives. Within salutogenesis religion is also regarded as a GRR (Antonovsky, 1987; Breed et al., 2006; Idan et al., 2017; Vinje et al., 2017). These findings confirmed the research of Ali et al. (2018) studying the impact of religion on motivation, courage and strength under Muslim students in terms of sense of coherence. They found religion played an important role in how individuals perceived stressors, managed it and how religion provided meaning to life and stressors (Ali et al., 2018). Zaki-Nejad and Moghaddam (2021) also found that religious coping contributed to improved sense of coherence and the reduction of psychological problems within type 2 diabetes patients. Research on the impact of religion in terms of sense of coherence and

weight management after WLS is extremely limited. Future research on utilising religion in therapy with WLS individuals to improve sense of coherence and possibly improving WLS outcomes are therefore recommended.

The participants' new intrapersonal strengths after WLS allowed them to interact with others and partake in activities and interest, enhancing their quality of life. The focus will now be directed to these interpersonal experiences.

7.3.3.2 Interpersonal Experiences After WLS. As mentioned previously, the participants were now visible to others where they received positive feedback and support from loved ones, acquaintances and colleagues on their new body and look. The positive feedback and the support experienced also sustained their motivation to adhere to the postoperative requirements and diets, thereby contributing to weight maintenance. This finding confirms the results of Greaves et al. (2017) within their systematic review that indicated the role of positive feedback in sustained motivation to weight loss and weight maintenance. Some participants also experienced an increase in romantic attention as they became aware that other individuals found them attractive. For some of the participants this was a new experience because, as mentioned in 7.3.1, while they were obese they were deemed invisible by others which included romantic interests. These affirmations contributed to the enhancement of their self-esteem, self-confidence and self-worth. This supports the findings of Wang et al. (2020) who found that self-esteem was mediated through body satisfaction and positive feedback.

The qualitative findings suggest that, as a result of their new body size, improved self-esteem, self-worth, self-confidence, self-efficacy and an internal locus of control the participants were able to further fulfil their expectations of life after WLS. They actively engaged with others in contrast to before WLS where they would have avoided others and social situations. Participant 4 describe how her experience has changed from before to after WLS:

“It was terrible [before the operation], and I mean now it is actually so much easier to meet people, because you actually have a bit more confidence to go up to them and to say hello or to ask for a lighter. Where before I would rather just not smoke. There is no way that I will get up and ask for one”.

This was also found in research conducted by Alegria and Larsen (2015) and Lier et al. (2016) where individuals were able to partake in more life domains with their new body weight. Quality time and activities were engaged in with their loved ones in public spaces. They were able to partake in activities that they couldn't do before or avoided, such as running, hiking, swimming and going to the gym. The impact of an active lifestyle on weight maintenance has already been indicated. Additionally, these new experiences further contributed to an enhanced quality of life, self-esteem, self-worth, self-confidence, self-efficacy, sense of coherence and an internal locus of control, as they were able to develop insight and believed in their own abilities.

Support systems were identified by the current study as an important aspect in weight maintenance. All the participants indicated the importance of their support systems in their weight loss journey through WLS. They received practical support in the form of financial support to have WLS, as only a few medical aids in South Africa contribute to WLS (Independent financial consultants, n.d; Urry et al., 2020). Practical support also included physical care from their loved ones after WLS, as well as leave from work in order to have the surgery.

Some of the participants made use of psychologists, psychiatrists and life coaches to guide them when they experienced problems after WLS. For these participants these professionals' support and guidance were crucial in their success and sustained motivation for weight loss and weight maintenance. The importance of these support systems is clearly indicated by Participant 1: *“It was mostly help from outside... psychologically, that got me through it. That I can definitely say. I wouldn't have gotten through this alone, because it broke me”.* The multidisciplinary team usually also recommend seeing a psychologist before and after WLS, to assist the individual to adapt their lifestyle, manage stress and help deal

with unexpected challenges to optimise WLS success (Livhits et al., 2011; O’Kane et al., 2016). The importance of these professionals in the weight loss and weight maintenance journey is supported by various literature (Magdaleno et al., 2009; Montesi et al., 2016; O’Kane et al., 2016). McGrice & Paul (2015) considers these support systems of such importance that they recommend lifelong medical, psychological and dietary assessments, of such importance that they recommend lifelong psychological assessments.

Another support system that contributed to the success of the participants weight loss journey and weight maintenance were support groups. These were either established support groups or self-created support groups. The self-created support groups were usually individuals that had the WLS the same day as the participant or friends and acquaintances that also had WLS. As found within this study as well as by Das and Faxvaag (2014), Livhits et al. (2011) and Sharman et al. (2017) these support groups provided information and practical advice which included recommendations on diet, possible physical and personal repercussions, medications and dumping syndrome. The participants indicated that a lot of this information provided by these support groups were not given by the multidisciplinary team. Over and above these benefits, the groups motivated each other to stay with their diet and maintain their weight as indicated by Participant 2: *“[Doctor name] gave you a group, the [Place name] Bariatric group. And they were extremely helpful... with what to eat, how to eat, if you gain a bit of weight, go back to your liquids. Hmmm, they helped immensely”*. The impact of support groups on long-term weight loss and weight maintenance was confirmed by various research (Das & Faxvaag, 2014; Livhits et al., 2011; Montesi et al., 2016; Sharman et al., 2017). For one participant the support groups also provided her with a sense of meaning as she could help others who are considering and going through WLS.

Looking at the qualitative data, it appears that participants’ greatest support system was their loved ones and significant others who physically and/or financially assisted them, motivated them, provided them with positive feedback and with whom they could now live a quality life. In the process of their weight loss it was not just the participants’ quality of life that improved but also the quality of life of loved ones. The importance of these relationships

and the quality thereof with their loved ones on weight loss and weight loss maintenance was also emphasised by Bruze et al. (2018), Clark et al. (2014) and Ferriby et al. (2019).

From the salutogenic approach and sense of coherence, it is the combination of these support systems (GRR and manageability) that contribute to a stable environment (life experiences and comprehensibility), ability to manage stress (GRR and manageability), continued motivation, reassurance and an improved quality of life (meaningfulness). Through these support systems the participants were able sustain their motivation to adhere to their diets and postoperative requirements which positively impacted their weight loss and weight maintenance (Livhits et al., 2011; Montesi et al., 2016; Rogerson et al., 2016; Sharman et al., 2017).

However, stressors or GRD arose after WLS for some of the participants in terms of interpersonal life. These stressors included problems within established romantic relationships and friendships, loneliness and loved ones who perceived WLS as an easy way out.

Despite the positive impact of romantic interests from others on an intrapersonal level, it also brought about some unexpected challenges for few of the participants within their established romantic relationships, affecting their quality of life. For one of the participants this new attention and romantic interest from outside contributed to her cheating on her partner. Participant 2 explains her experience as: *“So that was a major difference for me, is that I had to learn how to actually put in boundaries with men, which I never had to do before”*. The cheating caused extreme unhappiness to both partners and nearly ended their relationship. With the help of a therapist and commitment (GRR) to the relationship, the couple were able to overcome this obstacle in their relationship. In contrast, after Participant 1’s WLS, his partner ended their seven-year relationship. Within this break-up Participant 1 couldn’t partake in the decision-making process which could also have affected his sense of coherence. These breakdowns of relationships after WLS were confirmed by various other research (Bruze et al., 2018; Ferriby et al., 2019; Kalarchian & Marcus, 2019). Within salutogenesis, these relationship breakdowns could be regarded as a life experience that

could negatively affect sense of coherence. In addition, relationship breakdowns can also be regarded as a GRD which could influence placement of the individual on the ease to dis/ease continuum (Antonovsky, 1979, 1987; Idan et al., 2017; Mittelmark et al., 2017; Super et al., 2015; Vinje et al., 2017). According to Participant 1 the reason why his partner ended the relationship was because of his partners' insecurity that emerged from his weight loss, as he wasn't a "safe" boyfriend anymore as he became more visible to others. Another contributing factor was that his partner was more attracted to obese individuals, as was also found within the study of Griauzde et al. (2018). The impact of this break-up was devastating to Participant 1, which resulted in being diagnosed with depression and anxiety resulting in the temporary move towards to dis/ease pole of the continuum. Participant 1 even questioned his decision to have WLS: *"...shouldn't I have rather left it alone, because then I would still be with the person that I was with for seven years. So, I tried rationalising things up to a point where I was almost sorry I had the operation"*. This could have led to devastating results in terms of weight loss and weight loss maintenance should the participant lost meaning to adhere to postoperative diet and requirements. However, with various support systems as well as his own commitment to his health and weight loss, religion, high self-efficacy and an internal locus of control, Participant 1 was able to move back to the ease pole of the continuum. This scenario illustrates how a high sense of coherence is crucial in this journey towards the ease pole on the continuum of salutogenesis especially when unexpected stressors or GRDs occur (Antonovsky, 1987, 1996; Golembiewski, 2017; Idan et al., 2017; Vinje et al., 2017). Research conducted by Bruze et al. (2018), Clark et al. (2014) and Ferriby et al. (2019) found that the quality of relationships contributed to weight maintenance and the amount of weight loss after WLS, confirming the importance of support systems in this weight loss journey.

Some of the participants' loved ones suggested that the participants took the easy road by having WLS. Homer et al. (2016), Griauzde et al. (2018) and Groven et al (2013) noted that some loved ones tend to believe that WLS is a convenient solution in which the individual would have the least amount of responsibility with the least amount of effort

necessary to lose weight. Groven et al. (2013) further noted that in certain instances this view was not limited to loved ones but also included other obese individuals within a support group who did not have WLS. These false beliefs expressed before and after WLS from their loved ones or significant others could lead to the participants experiencing anger, frustration and disappointment. These emotions are unsurprising as the majority of the participants expressed that their weight loss journey with WLS was a difficult road. Participant 5 explains the experience as: *“Hmmm... so somebody that tells you it is the easy way out, they don't have a clue what they are talking about. So, I get extremely livid if someone says that to me. Because you know, go through it yourself”*. Literature supports this notion as WLS is a lifelong commitment with various lifestyle modifications and challenges (Bordignon et al., 2017; Gordon et al., 2014; McGrice & Paul, 2015; O’Kane et al., 2016; Wimmelmann et al., 2014). The participants’ disappointment, frustration and anger are understandable as their significant others are also their support system. Homer et al. (2016) and Megias et al. (2018) also indicated that this lack of understanding from their significant others could result in them avoiding them. As support systems are crucial in these individuals journey to weight loss this could have detrimental effects on the successful outcome of WLS and weight maintenance (Bruze et al, 2018; Clark et al., 2014).

For most of the participants in the qualitative sample their friendships stayed consistent. Some of them, however, experienced the end of established friendships after their weight loss as they were perceived as a threat now that they were thin and attractive. Participant 5 conveyed her experience noted in this regard: *“I lost friends, all our couple friends, because suddenly I'm a widow and I lost weight, and I'm attractive. And suddenly I became a threat, where I wasn't a threat before”*. Ferriby et al. (2019) and Griauzde et al. (2018) found that loss of friendships was the result of jealousy, which can also be inferred as a possibility within the current participants’ experiences as well. The loss of friendships based on their appearance could lead to feelings of disbelief, anger, loneliness and even rejection. Most importantly, the loss of friendship reduced the amount of support the participant receive which is actually important in the weight loss journey (Griauzde et al.,

2018). For the participants in the current study these losses in regards to friendships did not have a large effect as their GRRs outweighed their GRDs. Their GRRs included a large support system, an active lifestyle, an internal locus of control, high self-efficacy, improved self-esteem, self-worth and self-confidence after WLS.

With their new bodies, renewed energy levels, improved self-esteem, self-confidence, internal locus of control and self-efficacy the participants developed new interests and participated in new activities. Their partners and friends did not always want to participate in these new-found interests, which left the participant feeling lonely which is understandable as one of the factors when choosing friends is shared interest (Conejeros-Solar et al., 2021). As Participant 2 aptly stated:

“I am the one that has made this choice, so I have to make the changes. I can’t expect now because I made the change, now everybody else must change. But it’s difficult, you kinda, you want them to come with and enjoy those things with you. But you know, if they are not interested, you cannot expect them to do it”.

The participants also expressed that this phenomenon was never discussed as a possible challenge in the support groups or by the multidisciplinary team. Very limited research is available on the loneliness experienced after WLS when established relationships and shared interests are affected negatively. Future research is recommended to further explore this phenomenon and should possibly be included in preoperative education and therapy before and after WLS. Despite this unexpected challenge, these participants still continued pursuing their healthier lifestyle and new interest which included hiking and running. This can be attributed to their improved sense of coherence, self-efficacy, internal locus of control, self-esteem, self-confidence and improved quality of life to which WLS contributed in their lives. The danger is if an individual still has remnants from the trauma of being obese and did not improve in intrapersonal strengths, that they might still keep to a sedentary lifestyle. They could possibly then avoid an active lifestyle which is an important contributing factor in weight loss and weight maintenance (Bellicha et al., 2021; Beltrán-Carrillo et al., 2019; Maleckas et al., 2016). The impact of self-efficacy and sense of

coherence on activity levels has been confirmed by various research findings (Cobb-Clark et al., 2015; Hübner et al., 2015; Li et al., 2015; Nilsen et al., 2015; Skär et al., 2014).

As indicated in this section the impact of interpersonal experiences could have an important impact on weight maintenance after WLS. In the next section other external factors will be discussed as well as the role they played in regard to weight maintenance.

7.3.3.3 Other External Factors Affecting Life After WLS. The external factors identified were mostly centred around medical and health-related aspects as well as the geographic area of residence. Both these factors impacted quality of life in terms of intrapersonal and interpersonal aspects. It was decided to discuss most medical and health-related aspects after WLS in this section to provide a complete picture as these aspects can also be linked to one another.

7.3.3.3.1 Medical and Health-Related Factors. As was mentioned previously, one of the main reasons for having WLS was to improve health. The frequency tables (see Table 5.6) indicated that more than half of the participants' medical conditions before WLS improved after surgery. These results were expected as it is well documented in various studies (Arterburn et al., 2020; Courcoulas et al., 2018; Frühbeck, 2015; Nayak et al., 2020; Singh et al., 2020). However, for some of the participants unexpected medical or health problems arose after WLS which can be considered as a GRD. This was especially true for the participants who had the jejunio-ileal bypass. One of the participants nearly died, where the WLS resulted in her being extremely underweight, having low blood pressure and in need of numerous blood transfusions. Participant 3 summarise her experiences as follow:

“You shouldn't touch this part of my stomach. Permanent pain. Lost eleven teeth, jaw abscesses. I sit with, let's call it Ruma [Rheumatoid arthritis]. I had a flair up in my knee and everything. I have extreme hair loss. Lower back pain, chronic. I drink Tramadol or Tramacet every day of my life. Every day”.

All of these complications could have affected their quality of life, self-confidence, self-esteem, locus of control, sense of coherence and self-efficacy as it relates not only to their health but also the way they perceive their bodies. Other complications for some of the participants included anaemia and high blood pressure. As indicated in 2.3.1, the jejunio-ileal bypass is a malabsorptive WLS procedure (Frühbeck, 2015). Malabsorption is also indicated in some of the other WLS procedures such as the sleeve gastrectomy (SG), adjustable gastric banding (AGB), biliopancreatic diversion, with or without the duodenal switch (BPD/DS) and the Roux-en-Y gastric bypass (RYGB) (Eldar et al., 2011; Frühbeck, 2015; Maleckas et al., 2016). The participants in this study had either the jejunio-ileal bypass, BPD/DS or the RYGB procedure. Most of the participants expected some complications after WLS as they did preoperative research and were informed of some of the complications by the multidisciplinary team and support groups. However, the vast array of health and medical-related complications, especially in terms of malnutrition and impact of vitamin deficiencies (Jonnalagadda & Likhitsup, 2019; Mole et al., 2001; Singh et al., 2009) were not communicated adequately or anticipated by these participants. It is thus important to manage these complications and the impact thereof, not only on a physiological or medical level, but also on a psychological level. Additionally, the impact of the malabsorption and the consequences thereof, further supports the necessity of annual postoperative follow-up visits, annual blood tests and daily supplements (Bray et al., 2016; Jakobsen et al., 2018).

These postoperative requirements were also identified in the current study to be important to maintain weight. Most of the participants indicated that they mostly kept to their postoperative requirements. Two participants, however, do not have their annual blood tests or follow-up visits because of financial reasons or relocation. But all the participants still take their daily supplements as required. This commitment to their weight loss maintenance and health are regarded as a GRR. In a review conducted by Lupoli et al. (2017) they mentioned four reasons why postoperative assessment is essential, especially in terms of nutrition. The first reason provided was that it indicates possible nutritional deficiencies which should be treated. Secondly, postoperative assessment encourages individuals to take the required

supplements and keep to their diets. Thirdly, postoperative assessment prevents weight regain and finally to ensure the individuals' quality of life is maintained (Lupoli et al., 2017). Despite two participants not being able to do the annual blood tests and follow-up visits, all the participants indicated a commitment to their health with cognisance of their history with WLS. Montesi et al. (2016) indicated that when individuals believe in their own ability to maintain their weight, they are less likely to attend follow-up visits with the multidisciplinary team. This contributed to their continued awareness of their current health status and conditions that may affect their weight, thereby contributing to weight maintenance. The importance of follow-up visits for weight maintenance is also confirmed by Compher et al. (2012). The postoperative requirements also include psychological or psychiatric support (O'Kane et al., 2016). This support system has already been discussed as well as the importance in weight maintenance.

Another aspect that appeared to impact weight maintenance was dumping syndrome, specifically the fear of dumping syndrome. The physical reaction of dumping syndrome was so intense for these participants that they avoided any unhealthy foods that could trigger it. As Participant 1 indicated:

"Then you get dumping syndrome because of the things that your body just cannot tolerate. So, I would say that the operation conditions you almost to eat what you are supposed to eat. Yes, you can still drink too much or eat a chocolate or something, but I know what comes after. And that is not a feeling that you want".

In addition, the experience of dumping syndrome triggered their fear of dying instilled by medical professionals as before WLS. Participant 3 explains this phenomenon best:

"...remember you hear the whole time you are going to die, you are going to die, you are going to... remember I'm talking now before having the op. Your heart is going to stop; you are going to have a stroke; it's just not worth while; you are going to die in front of your kids. This is what you hear all the time. Now you have this op, now these things happen [dumping syndrome], and then you think, am I going to die now?".

The fear of dying is understandable as the symptoms of dumping syndrome include tachycardia, confusion, palpitations, tremors, fatigue and confusion (Emous et al., 2017; Ramadan et al., 2016; Van Beek et al., 2017). Research relating the fear of dying, especially in terms of dumping syndrome, to previous threats of death from medical professionals is limited. It is recommended that preoperative education from the multidisciplinary team and support groups should include thorough information on dumping syndrome and the possible symptoms thereof. In addition, therapy should also address the death anxiety caused preoperatively and the remnants thereof after WLS. One of the major reasons for having WLS was their fear of death. These experiences of dumping syndrome let this fear resurface, which could negatively affect their quality of life. This negative impact from dumping syndrome on quality of life was confirmed by research conducted by Emous et al. (2017) and Klevebro et al. (2021). Fear of dying and the experience of dumping syndrome on the other hand, caused participants to make better food choices which contributed to weight maintenance. Ahmad et al. (2019), Banerjee et al. (2013), Lier et al. (2016) and Varkevisser et al. (2019) also confirmed the impact of dumping syndrome on better food choices and weight maintenance.

Apart from the fear of death as a result of dumping syndrome, participants also experienced such a fear when consulting with particular medical professionals. This pertains specifically to those who had the jejunio-ileal bypass. When these medical professionals learned that participants had the jejunio-ileal bypass, threats of death continued just as before WLS. The medical professionals tended to emphasise the dangers involved with the specific procedure. The dangers of the jejunio-ileal bypass are confirmed in literature and are the reason why this specific procedure is not done anymore (Jonnalagadda & Likhitsup, 2019; Mole et al., 2001; Singh et al., 2009). As indicated earlier, such threats could cause death anxiety in some individuals, which could negatively impact their quality of life (Ezaka et al., 2022). These threats of death and the questioning of the participants' choice in physician and procedure contributed to the participant feeling frustrated and lost, further contributing to their mistrust of medical professionals. As Participant 6 expressed:

“To whom do we go to? To [doctor name] or [doctor name]. I am not sure if I am in the mood to hear everything again. I am not sure if I am in the mood to hear that I am going to die again because I went to [doctor name] and it is R1800 to see her, and she tells me I’m going to die, do you understand? I don’t know if it is worthwhile”.

These experiences could be interpreted as a form of stigmatisation and discrimination by medical professionals as these individuals were treated differently based on the specific procedure and the physician they chose. Limited research could be found in regards to the stigmatisation and discrimination from medical professionals after WLS for having the jejunio-ileal bypass and the accompanying threats of death. These findings are important as these experiences contributed to the participants avoiding medical professionals and the postoperative follow-up visits, just as before WLS. This avoidance of medical professionals is not only detrimental to their overall wellbeing, health and quality of life, but could impact their WLS outcome and even weight maintenance. In contrast, those participants who had favourable experiences with their medical professionals, perceived them in a positive manner as expressed by Participant 1: *“... I go once a year to the doctor, [Dr’s name], then I tell her: ‘you saved my life’”.*

From the qualitative findings it was evident that the participants still found the medical and health-related stressors after WLS easier to manage than their previous obesity. All of the participants indicated that despite all the complications related to their WLS journey, they would do it all over again if they had to. Participant 3 noted that: *“... I don’t have a thing that I regret that I did it, no. if I need to do it again, I would, yes. If I need to redo it exactly like it was, yes. I wouldn’t change a thing?”.* This re-affirms how WLS has positively impacted their quality of life and provided meaning to their lives.

7.3.3.3.2 Geographic Area of Residence. An active lifestyle was already indicated to contribute towards weight maintenance according to this study. In addition, some of the participants indicated that their place of geographical residence further facilitated a healthier and more active lifestyle. This finding should be interpreted with caution as it is related to a

higher educated and higher income group of individuals. This is specifically the case for participants that moved from Gauteng to the Western Cape in South Africa. They indicated that in Gauteng life was experienced as a lot more stressful in comparison to the Western Cape, even though their job stress still remained the same. In addition, in the Western Cape an individual “*is more likely to live outdoors*” as stated by Participant 5. To phrase it differently, the Western Cape provides a lifestyle where people are more inclined to participate in a healthy and active lifestyle as there are various outside activities. Participants living in the Western Cape noted that they were now able to go on a 10km run, climb a mountain, go on a hike or do trail runs on wine- or game farms. There is currently a semi-emigration to the Western Cape within South Africa (Mamacos, 2021; Van den Heever, 2022). The reasons provided are the enhanced work-life balance, less crime, better run municipalities and an increased quality of life (Mamacos, 2021; Van den Heever, 2022). These activities in which they could participate not only contributed to their weight maintenance, but also acted as a coping mechanism for stress. Garber (2017) and Sharon-David and Tenenbaum (2017) confirmed that exercise or an active lifestyle was found to be an effective coping mechanism for daily stressors, and could therefore be perceived to be a GRR. In contrast, the participants living in Gauteng mentioned that the amount of activities were limited. As a result, they would tend to rely on more unhealthy coping mechanisms such as described by Participant 2: “*there wasn’t really anything to do in Gauteng compared to the Western Cape. So, all you do is go eat out at restaurants and we drank wine. And that was the way we could cope after a very stressful day*”. Research regarding the characteristics and the impact of a specific area of residence in facilitating weight maintenance is extremely limited. Future research is therefore recommended to identify the specific characteristics of geographic areas which would contribute to living a healthy lifestyle for individuals after WLS. The results of such research could be implemented in various areas and provinces to improve healthier lifestyles and quality of life to assist individuals who had WLS to maintain their weight. Various WLS institutions and support

groups will also be able to use this knowledge to identify or create areas that facilitate this culture of a healthier and a more active lifestyle after WLS.

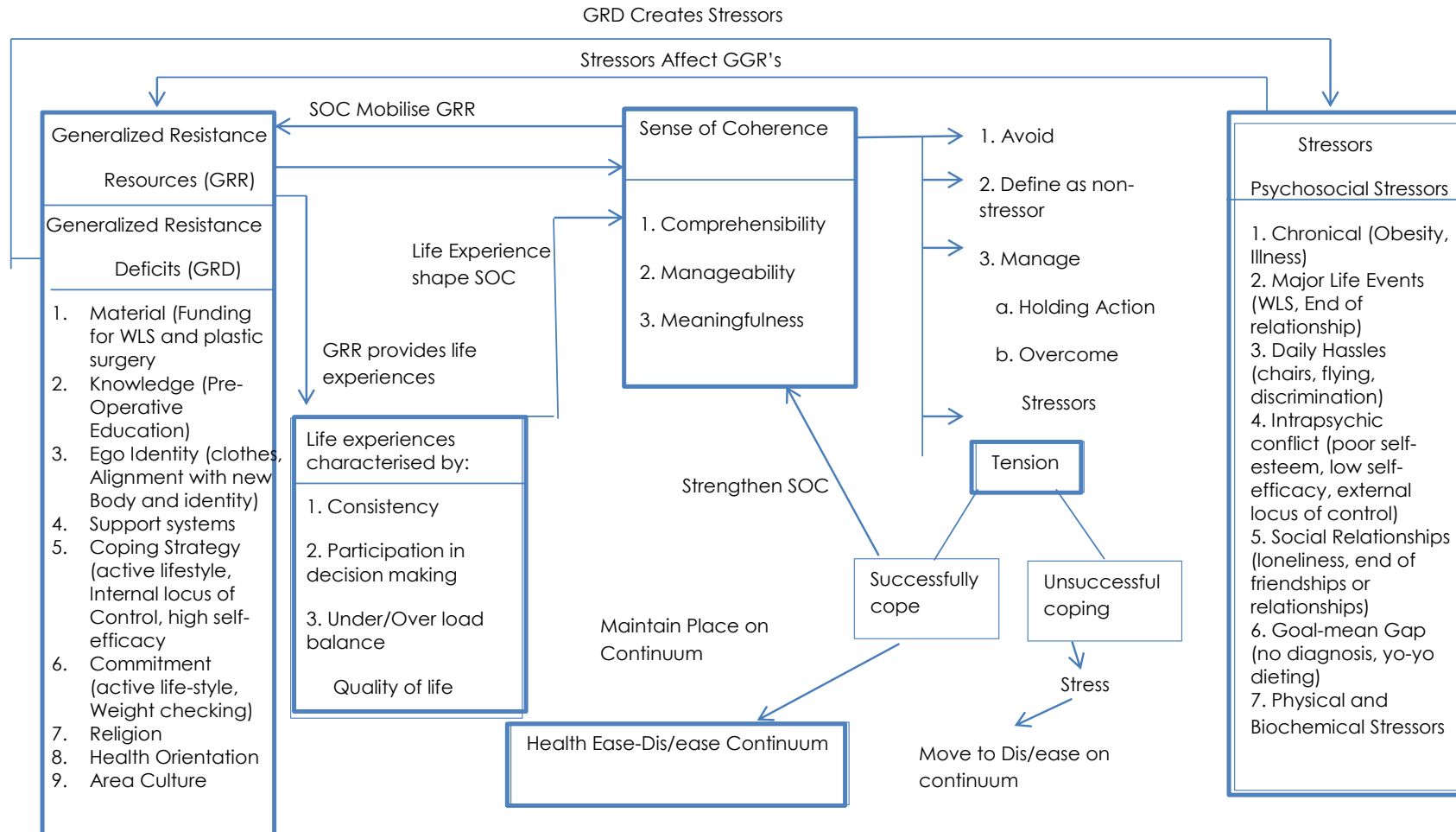
The timeframe life after WLS indicated the various aspects that possibly could impact weight maintenance after WLS. The overwhelming improvements of these participants' quality of life was evident, despite some obstacles they encountered. More importantly, WLS provided these participants an opportunity for personal growth and provided meaning in their lives which is a crucial aspect within sense of coherence. Antonovsky (1979), Bergman et al. (2012) and Golembiewski (2017) indicated that meaningfulness provides an individual the drive to stay within the ease pole of the continuum which possibly makes it the most important component of all within sense of coherence. An increase in sense of coherence was evident from the qualitative findings from the previous discussions. This research confirmed the studies where a high sense of coherence is associated with better food choices, healthier lifestyle, increased level of activity and improved quality of life (Li et al., 2015; Nilsen et al., 2015; Skär et al., 2014; Wainwright et al., 2007; Yun & Park, 2019). It is likely that their intrapersonal growth in the generalised personality orientations and the meaning of life these participants experienced, especially after WLS enabled them to maintain their weight. Participant 5 summarises the value of this WLS journey as:

“So, for me every bad thing that has happened to me is part of who I am and made me the person that I am. And the operation is a big part of that. So, I don't want to deny myself the benefit that I got from it. So through, ...if it makes sense... I would have been another person if it wasn't for this”.

The findings of this research and the application of salutogenesis and sense of coherence is summarised in Figure 7.1.

Figure 7.1

An adaptation of the salutogenic model to WLS factors impacting weight maintenance (adapted from Antonovsky, 1979, pp. 184-1985).



Note: The salutogenic model. Adapted from "Health, stress & coping" by A. Antonovsky (1979). Jossey-Bass: San-Francisco. Copywrite 1987 Jossey-Bass.

7.4 Contribution of the Study

The unique contribution of this study in relation to weight maintenance was not limited to aspects that enhanced weight maintenance but also aspects that could potentially impact weight maintenance negatively.

The impact of the interactional patterns between medical professionals and individuals before and after WLS were identified as an important contributory factor in weight maintenance. Before WLS these individuals' realities were not acknowledged by the medical professionals, but rather characterised by judgment, infantilisation and shaming. This contributed to mistrust in the healthcare system, which is essential in the treatment of obesity and after WLS, weight maintenance. In addition, continuous threats of death as a result of their obesity before WLS contributed to them experiencing a death anxiety. Even though this resultant death anxiety contributed to their decision to have WLS, this anxiety remained after WLS. It is recommended that this death anxiety should be incorporated in therapeutic settings postoperatively.

In addition, the current research confirmed that the fear of dumping syndrome contributed to weight maintenance. This was already established through other research. However, the new knowledge found as a by-product in the current research indicated that dumping syndrome could trigger death anxiety which was caused by previous threats of death from medical professionals while they were still obese. It is therefore recommended that preoperative education and postoperative care should focus on dumping syndrome to alleviate the experience of death anxiety.

A related factor identified within the current study which could impact weight maintenance negatively was the medical professionals' treatment of individuals who had the jejunum-ileal bypass specifically. Whenever the medical professionals learned that the individuals had the specific procedure they would indicate that their chances of death are higher since the procedure is dangerous. As these individuals were treated differently based on the procedure and choice of physician without examination, this could be perceived as prejudice, just as before WLS. These experiences contributed again to losing trust in medical

professionals. The consequence was that these individuals tended to avoid medical professionals or felt lost as they did not know which doctor will be able to treat them without preconceived perceptions. This is important as follow-up visits with the multidisciplinary teams and postoperative requirements can impact the success of WLS and weight loss maintenance. It is therefore recommended that medical professionals should only after thorough examination provide professional feedback to these individuals. Despite the specific procedure being dangerous, many individuals who had the jejuo-ileal bypass are healthy. These assumptions could negatively impact their weight maintenance through avoiding the medical system when they truly need it. In addition, medical professionals should be cautious on how to relate information and only when necessary.

In other studies, the value of religion as a therapeutic tool has been established in for example the treatment of depression, suicidal ideation and substance abuse (Koenig et al., 2020; Pečečnik & Gostečnik, 2022). The findings of this study suggest that religion, which also is a part of sense of coherence, could be of importance in the weight loss journey and meaning it provided to weight maintenance. In this manner the research contributed to new knowledge. Religion and sense of coherence could be valuable tools for therapeutic intervention to enhance weight loss and weight maintenance.

Contributing to new knowledge as well as areas of focus in preoperative education and possible therapeutic intervention, relates to loneliness within established relationships after WLS. The loneliness participants experienced after WLS is related to new interests and activities they wished to pursue which their significant others were not interested in. This could deter the participants to pursue an active lifestyle which is important for weight maintenance. Therefore, it is of therapeutic importance to enhance these individuals' self-esteem, self-efficacy, sense of coherence and internal locus of control. These strengths will enable them to pursue these activities and interests on their own which will enhance weight maintenance. In addition, preoperative education and support groups should also include the experience of loneliness after WLS as a possible outcome to the individuals and their significant others. As indicated in the timeframe when WLS became an option, preoperative

education allows individuals an opportunity to be mentally prepared to overcome challenges after WLS. This could contribute to enhancing their WLS success and weight maintenance as well as maintaining their enhanced quality of life.

In relation to quality of life, the current research found that the specific areas of residence contributed to weight maintenance. Previous studies focused on the impact of area of residence on obesity (Giles-Corti et al., 2003), however no research in regards to area of residence in relation to weight maintenance, especially with WLS could be found. The current research thus contributed to new knowledge. Within the South African context, the Western Cape was identified to nurture a healthier and more active lifestyle which contributed to weight maintenance. The characteristics and culture of the Western Cape facilitate a healthier and more active lifestyle should be further investigated. With the gained knowledge these characteristics and culture could be facilitated and created by other municipalities and even WLS centres and support groups. It is also possible that areas exist within the residential location of individuals who had WLS although they might not be aware thereof. The WLS support groups or centres could identify these areas and nurture a culture of an active and healthier lifestyle within their support groups, further facilitating weight maintenance.

The present study confirmed the utmost importance of an internal locus of control to weight loss maintenance. Therapeutic emphasis should therefore be placed on enhancing an internal locus of control with individuals before and after WLS to increase a possible successful outcome of WLS and weight maintenance after WLS.

The current study further supported the influence of quality of life after WLS on weight maintenance. Within the study the impact of improved quality of life was combined with fear of reexperiencing the trauma of being obese. It is thus the fear of weight regain to avoid the trauma of obesity, combined with improved interpersonal and intrapersonal quality of life which motivated the participants to maintain their weight. This finding emphasises the important and ongoing role of the psychologist as part of the disciplinary team after WLS. As

each individual experienced different life events and trauma, psychologists should ensure tailor made therapy plans to enhance intrapersonal and interpersonal quality of life.

International results were duplicated in the context of this study that consisted of South African participants. From the findings it appears that the experiences of obesity, WLS and challenges thereafter are shared internationally.

7.5 Limitations of the Study

Notwithstanding the contributions of this study, various limitations should be considered.

- Because of limited access to participants and time constraints, the study had a small sample. Consequently, the findings of this study cannot be readily generalised to a larger population. The results should be interpreted within the specific context of the study.
- The sample was skewed towards female participants in both the quantitative and qualitative sample. The qualitative sample was also more skewed towards a higher educated and income group.
- As a result of the small sample size inferential statistics could not be conducted.
- The current study was cross-sectional in nature and therefore only captured data at one specific point in time.
- Quality of life (IWQOL-Lite) was the only measurement that was completed by the participants in retrospect, as if they were still obese, as well as their current experience. Self-efficacy, locus of control and sense of coherence were not completed in this manner and only focused on their current experiences. A retrospective measurement of these factors could have provided more insight into the results.
- By completing the IWQOL-Lite in retrospect, could have introduced memory bias and perceptual shifts.

- Future research need to include inter-rater reliability.
- The participants that formed the qualitative sample were all deemed successful in their WLS journey and ability to maintain their weight. This did not allow the researcher to explore factors that impacted weight regain or being able to compare the results between those who maintained weight or who had gained weight.
- The study did not gather information in regards to specific aspects such as medical, social or psychological factors that contributed to obesity.
- Even though quantitative results indicated the impact on sexual functioning in terms of quality of life, the study did not collect qualitative data in this regard.

In the light of the above limitation it is recommended that the results should be interpreted with caution.

7.6 Recommendations

The following recommendations are suggested based on the findings and the limitations of the study:

- A longitudinal study is recommended where individuals are included who have been selected for WLS. Quality of life, self-efficacy, sense of coherence and locus of control should be measured before WLS and then again at various intervals postoperatively for at least five years. If there are individuals who have regained weight, their results on the various measurements could be analysed and compared to those participants who have maintained their weight. Qualitative data should be collected within these various intervals to explore their subjective experiences, as this could highlight important life events or psychological factors that could impact weight maintenance. If the research is conducted within or with the help of the multidisciplinary team, this research would also enable the psychologist or psychiatrist to gain better understanding of each individual's

strengths, weaknesses and specific stressors experienced. This will enable these support systems to tailor individual treatment plans to enhance the successful outcome of WLS and weight maintenance.

- Future research should focus on the impact of threats of death from medical professionals on obese individuals as an independent variable. This research could be expanded to after WLS specifically in relation to individuals who had the jejunum-ileal bypass where threats of death could continue.
- Linked to the previous recommendation, the impact of threats of death received from medical professionals before WLS and the impact on the experience of dumping syndrome should be explored, as it could further impact quality of life especially in terms of death anxiety.
- The experience of loneliness in terms of established relationships after WLS should be explored as it could impact weight loss and weight maintenance.
- Characteristics of specific areas of residence, should be further explored to identify what aspects contribute to people adopting a healthier and more active lifestyle there. These results could aid in implementing various strategies to emulate this lifestyle in other areas. It could also be adopted by the WLS centres or WLS support groups to develop or identify similar areas or activities further assisting the success of WLS and weight maintenance.
- Further research is recommended to investigate the psychological impact of childhood onset obesity in comparison with adult onset obesity. This research could aid in better understanding the types of trauma experienced and the impact thereof. With this knowledge it could facilitate the development of specific treatment plans for these individuals. This could also benefit the treatment of individuals with their therapy before and after WLS, as the impact of some of these traumas does not just dissipate after WLS.

- The therapeutic role of religion from a salutogenic point of departure should be investigated within WLS and the possible positive impact on WLS outcome.
- Future research is recommended to explore the impact of trauma experienced as an obese individual and the subsequent improvement of quality of life after WLS on weight maintenance.
- Research in future should attempt to include a larger sample.
- In addition, future research should attempt to include more male participants to enable researchers to measure for gender differences.

7.7 Conclusion

In this convergent mixed method research various factors were identified to possibly contribute to weight maintenance after WLS. These were divided into three timeframes, namely life as an obese individual, when WLS became an option and life after WLS. The factors identified in the first timeframe, life as an obese individual, which contributed to weight maintenance after WLS were trauma and low quality of life experienced as obese individuals which they never wanted to experience again. The quantitative results confirmed a low quality of life before WLS. In the second timeframe, when WLS became an option, preoperative education was found to contribute to weight maintenance. Lastly, in the third time frame dealing with life after WLS, findings showed that intrapersonal, interpersonal and external factors influenced weight maintenance. Intrapersonal factors that assisted the participants in maintaining weight were their improved quality of life in terms of self-esteem, internal locus of control, self-efficacy and sense of coherence. The quantitative results confirmed the importance of not only an internal locus of control on weight maintenance, but also the relationship between self-esteem and locus of control after WLS. In addition, a relationship was indicated between self-efficacy and sense of coherence, specifically meaningfulness and comprehensibility. These intrapersonal improvements also allowed them to participate in an active lifestyle which further contributed to weight maintenance.

Trepidations were also found to contribute to weight maintenance, especially fear of weight regain, fear of dying and fear of dumping syndrome. GRRs which acted as coping mechanisms that aided in their weight loss and maintenance journey were religion and an active lifestyle. On an interpersonal level, support systems were crucial in their journey to maintain weight. An external factor which contributed to weight maintenance was the geographic area of residence which facilitated an active lifestyle. Factors identified that could negatively impact commitment to weight maintenance after WLS were problems within established romantic relationships, loneliness after WLS as well as discrimination and threats of death from medical professionals.

In terms of salutogenesis, the present study showed that strengthening the generalised personality orientations within this study, namely locus of control, self-efficacy and sense of coherence contributed to weight maintenance after WLS. In addition, the importance of the load balance between GRRs and GRDs were confirmed in health behaviours and placement on the ease to dis/ease continuum. Despite the presence of certain limitations, the study still contributed to the existing body of knowledge by highlighting the influence of geographical area of residence, internal locus of control, the role of religion, improved quality of life and the fear of returning to the trauma of being obese as contributing to weight maintenance. In addition, the study identified possible challenges that could impact on weight maintenance namely loneliness after WLS and differential treatment from medical professionals to individuals who had the jejunio-ileal bypass. It is recommended that future research should be conducted on characteristics of geographic areas of residence, as well as the therapeutic role of religion to facilitate weight maintenance after WLS.

To provide individuals who had WLS the best opportunity to succeed with weight maintenance various strategies should be addressed. The first is thorough preoperative education which should also include information on possible loneliness, importance of postoperative requirements and dumping syndrome. On therapeutic level, focus should be on improving quality of life and enhancing intrapersonal strengths, specifically locus of control and self-esteem. In addition, unexpected challenges that might compromise weight

maintenance success should be addressed as soon as possible. Sense of coherence and religion should also be considered for therapeutic intervention strategies. Support systems are crucial to successful weight maintenance, which include loved ones, psychologists and support groups. An active lifestyle should be encouraged as it contributes to weight maintenance and acts as an effective coping mechanism. Geographic area of residence was also indicated to facilitate weight maintenance. It is suggested that these area characteristics should be investigated and replicated by the various WLS centres and support groups.

7.8 Personal Reflection

As I tell my students, research is something that you have a passion for. This is my passion and my life. As obesity is in my family and I myself was obese since the age of three, I know the struggles of an obese child and obese adult. Moreover, I know how life changing WLS is, which I had when I was 27, and what an incredible positive impact it can have on an individuals' quality of life. When I learned how many people regained weight after WLS I decided that I wanted to do my PhD to hopefully contribute in some way to help others succeed. And just as some of the participants feelings regarding plastic surgery (not that I don't still want), so is this PhD my life coming full circle. I had to live a life with obesity to truly understand what so many people go through. I had to have WLS to comprehend the amazing changes but also the struggles. This PhD now enables me to focus on these individuals when I can, to truly help them succeed.

This research was not an easy process as it was a great learning curve, not just academically but also personally. On an academic level I had to relearn all aspects regarding research since I only later in life decided to do my PhD. I now advise all my students to do their PhD immediately after Masters. Despite supervising Masters students, doing your own research on a PhD level is a completely different experience where I experienced imposter syndrome at the beginning of each chapter. This whole experience, I believe, provides me the opportunity to be a better supervisor to my students, even though I still have a lot to learn. Luckily with every student I supervise I have that opportunity to better

my own knowledge and experience as well as contribute in a positive and empathetic manner in their research journey.

In addition, using reflexive thematic analysis was at times challenging. I was extremely careful not to project any of my own experiences into the research but just let myself be led by the data itself. On the other hand, using reflexive thematic analysis combined with my own experiences, provided me with an opportunity to truly understand and reflect on the participants experiences. However, I still feel that research cannot convey the true essence of emotions experienced by the participants. It is easy to say obese people struggle to buy clothes, to not being able to go to a movie theatre or fly because of their size or that they experienced discrimination and stereotypes. In the same way, it is easy to say after WLS their quality of life improved. But the lived experience of the fear of judgment every place you go, that you rather stay at home for 10 years; the heartbreak and self-destruction when you cannot fit into clothes; the bruises when you sit in certain chairs but not let anyone know how painful it is. In the same manner when you lose weight and you are able to LIVE and do things and people see you eventually for who you are, no words have the ability to convey these experiences.

On a personal level, this was possibly the most challenging few years of my life where at times I doubted I will ever get to this point to finish this PhD. Not that my life has not been, let's go with interesting. Maybe these few years just stand out because of the number of major stressors experienced. My dad passed away from Covid in 2020, where we couldn't even see or speak to him as he was on a ventilator. I had to ask the funeral home to please just take a photo as it was difficult to believe he was gone, maybe they made a mistake. My mom had a tumour in her neck that caused her not to be able to walk. My sister and I had to help her for months, which we did with love. However, the fear of losing her was overwhelming. But thank God she is fine today, still using a walker, but she is healthy and that is all we can ask for. In 2021 I was diagnosed with Leukaemia and my best friend of 29 years passed away where he drank himself to death. How could I not have seen this? A psychologist? In 2022 I developed tinnitus from stress which is still a problem, but now at

least manageable. And finishing this PhD is a major stressor on its own. In terms of salutogenesis, my GRDs sometimes outweighed my GRRs.

From my personal experiences I wish we could change the number of years students can have to complete their PhD's. There should be a part-time and a fulltime PhD. Students are faced with numerous obstacles that occur within the research process itself. But we also need to consider that life does not stop and many people are faced with numerous unexpected stressors,

To understand the participants' life experiences and even my own in salutogenesis and sense of coherence, has also contributed to my own personal growth. I understand why it is so important to have life feel ordered, to believe you have the resources available and that meaning in life and the stressors provides us the ability to strive to be better in all aspects.

We always wish we could change the world and make everything better for everyone, but as life is, we can only contribute when and how we can and hope to do better with new knowledge. I hope this thesis contributes in some way to someone. This expanded and new knowledge has provided me more insight into the lives of others and I hope that I can contribute even more now to others in these situations. I am truly thankful.

Reference List

- Aarts, M. A., Sivapalan, N., Nikzad, S. E., Serodio, K., Sockalingam, S., & Conn, L. G. (2017). Optimizing bariatric surgery multidisciplinary follow-up: a focus on patient-centered care. *Obesity Surgery, 27*(3), 730-736. <https://doi.org/10.1007/s11695-016-2354-2>
- Aasprang, A., Andersen, J. R., Våge, V., Kolotkin, R. L., & Natvig, G. K. (2013). Five-year changes in health-related quality of life after biliopancreatic diversion with duodenal switch. *Obesity Surgery, 23*(10), 1662-1668. <https://doi.org/10.1007/s11695-013-0994-z>
- Abdeen, G., & Le Roux, C. W. (2016). Mechanism underlying the weight loss and complications of Roux-en-Y gastric bypass. Review. *Obesity Surgery, 26*(2), 410-421. <https://doi.org/10.1007/s11695-015-1945-7>
- Ahmad, A., Kornrich, D. B., Krasner, H., Eckardt, S., Ahmad, Z., Braslow, A., & Broggelwirth, B. (2019). Prevalence of dumping syndrome after laparoscopic sleeve gastrectomy and comparison with laparoscopic Roux-en-Y gastric bypass. *Obesity Surgery, 29*(5), 1506-1513. <https://doi.org/10.1007/s11695-018-03699-y>
- Alegría, C. A., & Larsen, B. (2015). "That's who I am: A fat person in a thin body": Weight loss, negative self-evaluation, and mitigating strategies following weight loss surgery. *Journal of the American Association of Nurse Practitioners, 27*(3), 137-144. <https://doi.org/10.1002/2327-6924.12158>
- Ali, M. A., Zengaro, F., & Zengaro, S. A. (2018). Spirituality and Sense of Coherence in Muslim Students: A Mixed Methods Study. *Journal of Research Initiatives, 3*(3), 2. Retrieved from: <https://digitalcommons.uncf.edu/cgi/viewcontent.cgi?article=1147&context=jri>
- Al-Khyatt, W., Ryall, R., Leeder, P., Ahmed, J., & Awad, S. (2017). Predictors of inadequate weight loss after laparoscopic gastric bypass for morbid obesity. *Obesity Surgery, 27*(6), 1446-1452. <https://doi.org/10.1007/s11695-016-2500-x>

- Almenara, C. A., & Ježek, S. (2015). The source and impact of appearance teasing: an examination by sex and weight status among early adolescents from the Czech Republic. *Journal of School Health, 85*(3), 163-170. <https://doi.org/10.1111/josh.12236>
- Alimoradi, Z., Golboni, F., Griffiths, M. D., Broström, A., Lin, C. Y., & Pakpour, A. H. (2020). Weight-related stigma and psychological distress: A systematic review and meta-analysis. *Clinical Nutrition, 39*(7), 2001-2013. <https://doi.org/10.1016/j.clnu.2019.10.016>
- Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research. *Journal of Cultural Diversity, 23*(3), 121-127. Retrieved from: https://www.researchgate.net/publication/324804792_CREATING_PROTOCOLS_FOR_TRUSTWORTHINESS_IN_QUALITATIVE_RESEARCH
- American Medical Association. (2013, June). Resolution 420 (A-13): Recognition of obesity as a disease. In *Proceedings of the House of Delegates 162nd Annual Meeting* (pp. 15-19). Retrieved from: <https://media.npr.org/documents/2013/jun/ama-resolution-obesity.pdf>
- Ames, G. E., Patel, R. H., Ames, S. C., & Lynch, S. A. (2009). Weight loss surgery: Patients who regain. *Obesity and Weight Management, 5*(4), 154-161. <https://doi.org/10.1089/obe.2009.0403>
- Anastasiou, C. A., Fappa, E., Karfopoulou, E., Gkza, A., & Yannakoulia, M. (2015). Weight loss maintenance in relation to locus of control: The MedWeight study. *Behaviour Research and Therapy, 71*, 40-44. <https://doi.org/10.1016/j.brat.2015.05.010>
- Anderson, B., Gill, R. S., de Gara, C. J., Karmali, S., & Gagner, M. (2013). Biliopancreatic diversion: The effectiveness of duodenal switch and its limitations. *Gastroenterology Research and Practice, Article ID 974762*. <https://doi.org/10.1155/2013/974762>
- Angrisani, L., Santonicola, A., Iovino, P., Vitiello, A., Zundel, N., Buchwald, H., & Scopinaro, N. (2017). Bariatric surgery and endoluminal procedures: IFSO worldwide survey 2014. *Obesity Surgery, 27*, 2279–2289. <https://doi.org/10.1007/s11695-017-2666-x>
- Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and*

Policy Studies, 5(2), 272-281. Retrieved from:

[file:///C:/Users/u04186575/Downloads/Ensuringthequalityofthefindingsofqualitativerese
arch4%20\(5\).pdf](file:///C:/Users/u04186575/Downloads/Ensuringthequalityofthefindingsofqualitativerese
arch4%20(5).pdf)

Antonovsky, A. (1972). Breakdown: A needed fourth step in the conceptual armamentarium of modern medicine. *Social Science & Medicine* (1967), 6(5), 537-544.

[https://doi.org/10.1016/0037-7856\(72\)90070-4](https://doi.org/10.1016/0037-7856(72)90070-4)

Antonovsky, A. (1979). *Health, stress, and coping*. Jossey-Bass Inc.

Antonovsky, A. (1985). The life cycle, mental health and the sense of coherence. *Israel Journal of Psychiatry and Related Sciences*, 22(4), 273–280. Retrieved from:

<https://eurekamaq.com/research/006/710/006710319.php>

Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*. Jossey-Bass Inc.

Antonovsky, A. (1990). Personality and health: Testing the sense of coherence model. In H. S. Friedman (Ed.), *Personality and disease* (pp. 155–177). John Wiley & Sons.

Antonovsky, A. (1991). The structural sources of salutogenic strengths. In C. L. Cooper & R. Payne (Eds.), *Personality and stress: Individual differences in the stress process* (pp. 67-104). John Wiley & Sons.

Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science & Medicine*, 36(6), 725–733. [https://doi.org/10.1016/0277-9536\(93\)90033-Z](https://doi.org/10.1016/0277-9536(93)90033-Z)

Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion.

Health Promotion International, 11(1), 11-18. <https://doi.org/10.1093/heapro/11.1.11>

Apovian, C. M., Cummings, S., Anderson, W., Borud, L., Boyer, K, Day, K., Hatchigian, E., Hodges, B., Patti, M. E., Pettus, M., Perna, F., Rooks, D., Saltzman, E., Skoropowski, J., Tantillo, M. B., & Thomason, P. (2009). Best practice updates for multidisciplinary care in weight loss surgery. *Obesity*, 17(5), 871–879.

<https://doi.org/10.1038/oby.2008.580>

- Arman, G. A., Himpens, J., Bolckmans, R., Van Compernelle, D., Vilallonga, R., & Leman, G. (2018). Medium-term outcomes after reversal of Roux-en-Y gastric bypass. *Obesity Surgery*, 28(3), 781-790. <https://doi.org/10.1007/s11695-017-2928-7>
- Arterburn, D. E., Olsen, M. K., Smith, V. A., Livingston, E. H., Van Scoyoc, L., Yancy, W. S., Eid, G., Weidenbacher, H., & Maciejewski, M. L. (2015). Association between bariatric surgery and long-term survival. *Journal of the American Medical Association*, 313(1), 62-70. <https://doi.org/10.1001/jama.2014.16968>
- Arterburn, D. E., Telem, D. A., Kushner, R. F., & Courcoulas, A. P. (2020). Benefits and risks of bariatric surgery in adults: A review. *Journal of the American Medical Association*, 324(9), 879-887. <https://doi.org/10.1001/jama.2020.12567>
- Azizli, N., Atkinson, B. E., Baughman, H. M., & Giammarco, E. A. (2015). Relationships between general self-efficacy, planning for the future, and life satisfaction. *Personality and Individual Differences*, 82: 58-60. <http://dx.doi.org/10.1016/j.paid.2015.03.006>
- Baig, S. J., Priya, P., Mahawar, K. K., & Shah, S. (2019). Weight regain after bariatric surgery: A multicentre study of 9617 patients from Indian bariatric surgery outcome reporting group. *Obesity Surgery*, 29(5), 1583–1592. <https://doi.org/10.1007/s11695-019-03734-6>
- Balagué, N., Combescure, C., Huber, O., Pittet-Cuénod, B., & Modarressi, A. (2013). Plastic surgery improves long-term weight control after bariatric surgery. *Plastic and Reconstructive Surgery*, 132(4), 826-833. <https://doi.org/10.1087/PRS.0b013e31829fe531>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice- Hall Inc.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9), 1175–1184. <https://doi.org/10.1037/0003-066X.44.9.1175>

- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behaviour, Volume 4* (pp. 71-81). Academic Press.
- Banerjee, A., Ding, Y., Mikami, D. J., & Needleman, B. J. (2013). The role of dumping syndrome in weight loss after gastric bypass surgery. *Surgical Endoscopy, 27*(5), 1573-1578. <https://doi.org/10.1007/s00464-012-2629-1>
- Barros, L. M., Brandão, M. G. S. A., de Oliveira Barbosa, A., Fontenele, N. A. O., Ximenes, M. A. M., Neto, N. M. G., & Caetano, J. Á. (2019). Perception of patients after bariatric surgery on quality of life. *Journal of Nursing Education and Practice, 9*(5), 32-38. <https://doi.org/10.5430/jnep.v9n5p32>
- Bartlett, R., Acton, J. H., Ryan, B., Man, R., Pickles, T., & Nollett, C. (2021). Training results in increased practitioner confidence and identification of depression in people with low vision: A mixed methods study. *Ophthalmic and Physiological Optics, 41*(2), 316-330. <https://doi.org/10.1111/opo.12788>
- Batsis, J. A., Clark, M. M, Grothe, K., Lopez-Jimenez, F., Collazo-Clavell, M. L., Somers, V. K., & Sarr, M. G. (2009). Self-efficacy after bariatric surgery for obesity. A population-based cohort study. *Appetite, 52*(3), 637–645. <https://doi.org/10.1016/j.appet.2009.02.017>
- Bauchowitz, A. U., Gonder-Frederick, L. A., Olbrisch, M., Azarbad, L., Rye, M., Woodson, M., Miller, A., & Schirmer, B. (2005). Psychosocial evaluation of bariatric surgery candidates: A survey of present practices. *Psychosomatic Medicine, 67*(5), 825–832. <https://doi.org/10.1097/01.psy.0000174173.32271.01>
- Baum, C. L., & Ford, W. F. (2004). The wage effects of obesity: a longitudinal study. *Health Economics, 13*(9), 885-899. <https://doi.org/10.1002/hec.881>
- Bellicha, A., van Baak, M. A., Battista, F., Beaulieu, K., Blundell, J. E., Busetto, L., Carraça, E. V., Dicker, D., Encantado, J., Ermolao, A., Farpour-Lambert, N., Pramono, A., Woodward, E., & Oppert, J. M. (2021). Effect of exercise training before and after bariatric surgery: A systematic review and meta-analysis. *Obesity Reviews, 22*(4), e13296. <https://doi.org/10.1111/obr.13296>

- Beltrán-Carrillo, V. J., Jiménez-Loaisa, A., Jennings, G., González-Cutre, D., Navarro-Espejo, N., & Cervelló, E. (2019). Exploring the socio-ecological factors behind the (in) active lifestyles of Spanish post-bariatric surgery patients. *International Journal of Qualitative Studies on Health and Well-being*, *14*(1), 1626180. <https://doi.org/10.1080/17482631.2019.1626180>
- Benaiges, D., Más-Lorenzo, A., Goday, A., Ramon, J. M., Chillarón, J. J., Pedro-Botet, J., & Flores-Le Roux, J. A. (2015). Laparoscopic sleeve gastrectomy: more than a restrictive bariatric surgery procedure? *World Journal of Gastroenterology*, *21*(41), 11804-11814. <https://doi.org/10.3748/wjg.v21.i41.11804>
- Benedetti, G., Mingrone, G., Marcoccia, S., Benedetti, M., Giancaterini, A., Greco, A. V., Castagneto, M., & Gasbarrini, G. (2000). Body composition and energy expenditure after weight loss following bariatric surgery. *Journal of the American College of Nutrition*, *19*(2), 270-274. <https://doi.org/10.1080/07315724.2000.10718926>
- Ben-Sira, Z. (1985). Potency: A stress-buffering link in the coping–stress–disease relationship. *Social Science & Medicine*, *21*(4), 397-406. [https://doi.org/10.1016/0277-9536\(85\)90220-5](https://doi.org/10.1016/0277-9536(85)90220-5)
- Ben-Sira, Z. (1989). Potency: a readjustment-promoting link in the rehabilitation of disabled persons. *Sociology of Health & Illness*, *11*(1), 41-61. <https://doi.org/10.1111/1467-9566.ep10844089>
- Ben-Sira, Z. (1991). *Regression, stress, and readjustment in aging: A structured, bio-psychosocial perspective on coping and professional support*. Greenwood Publishing Group.
- Berg, P., & McCallum, R. (2016). Dumping syndrome: a review of the current concepts of pathophysiology, diagnosis, and treatment. *Digestive Diseases and Sciences*, *61*(1), 11-18. <https://doi.org/10.1007/s10620-015-3839-x>
- Bergman, E., Malm, D., Ljungquist, B., Berterö, C., & Karlsson, J. E. (2012). Meaningfulness is not the most important component for changes in sense of coherence. *European*

Journal of Cardiovascular Nursing, 11(3), 331-338.

<https://doi.org/10.1016/j.ejcnurse.2011.05.005>

Blackburn, G. L., Hu, F. B., & Hutter, M. M. (2009). Updated evidence-based recommendations for best practices in weight loss surgery. *Obesity*, 17(5), 839–841.

<https://doi.org/10.1038/oby.2008.572>

Blome, C., & Augustin, M. (2015). Measuring change in quality of life: Bias in prospective and retrospective evaluation. *Value in Health*, 18(1), 110-115.

<https://doi.org/10.1016/j.jval.2014.10.007>

Blümel, J. E., Fica, J., Chedraui, P., Mezones-Holguín, E., Zuñiga, M. C., Witis, S., Vallejo, M. S., Tserotas, K., Sánchez, H., Onatra, W., Ojeda, E., Mostajo, D., Monterrosa, A., Lima, S., Martino, M., Hernández-Bueno, J., Gómez, G., Espinoza, M., Flores, D., Calle, A., Bravo, L. M., Benítez, Z., Bencosme, A., Barón, G., Aedo, S., & Ojeda, E. (2016). Sedentary lifestyle in middle-aged women is associated with severe menopausal symptoms and obesity. *Menopause*, 23(5), 488-493.

<https://doi.org/10.1097/gme.0000000000000575>

Bordignon, S., Aparício, M. J. G., Bertoletti, J., & Trentini, C. M. (2017). Personality characteristics and bariatric surgery outcomes: a systematic review. *Trends in Psychiatry and Psychotherapy*, 39(2), 124-134. <https://doi.org/10.1590/2237-6089-2016-0016>

<https://doi.org/10.1590/2237-6089-2016-0016>

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association.

Braun, V., & Clarke, V. (2013). *Successful qualitative Research: A practical guide for beginners*. Sage Publications.

- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in Sport, Exercise and Health*, 11(4), 589-597.
<https://doi.org/10.1080/2159676X.2019.1628806>
- Braun, V., & Clarke, V. (2021a). Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Counselling and Psychotherapy Research*, 21(1), 37-47.
<https://doi.org/10.1002/capr.12360>
- Braun, V., & Clarke, V. (2021b). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328-352.
<https://doi.org/10.1080/14780887.2020.1769238>
- Braun, V., & Clarke, V. (2021c). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, 13(2), 201-216.
<https://doi.org/10.1080/2159676X.2019.1704846>
- Braun, V., Clarke, V., & Hayfield, N. (2022). 'A starting point for your journey, not a map': Nikki Hayfield in conversation with Virginia Braun and Victoria Clarke about thematic analysis. *Qualitative Research in Psychology*, 19(2), 424-445.
<https://doi.org/10.1080/14780887.2019.1670765>
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3-26. <https://doi.org/10.1037/qap0000196>
- Bray, G. A., Frühbeck, G., Ryan, D. H., & Wilding, J. P. (2016). Management of obesity. *The Lancet*, 387(10031), 1947-1956. [https://doi.org/10.1016/S0140-6736\(16\)00271-3](https://doi.org/10.1016/S0140-6736(16)00271-3)
- Brazier, J. E., Kolotkin, R. L., Crosby, R. D., & Williams, G. R. (2004). Estimating a preference-based single index for the Impact of Weight on Quality of Life-Lite (IWQOL-Lite) instrument from the SF-6D. *Value in Health*, 7(4), 490-498.
<https://doi.org/10.1111/j.1524-4733.2004.74012.x>

- Breed, M., Cilliers, F., & Visser, D. (2006). The factor structure of six salutogenic constructs. *SA Journal of Industrial Psychology*, 32(1), 74-87.
<https://doi.org/10.4102/saijp.v32i1.226>
- Breet, L., Myburgh, C., & Poggenpoel, M. (2010). The relationship between the perception of own locus of control and aggression of adolescent boys. *South African Journal of Education*, 30(4), 511-526. <https://doi.org/10.15700/saje.v30n4a386>
- Brewis, A. A., Wutich, A., Falletta-Cowden, A., & Rodriguez-Soto, I. (2011). Body norms and fat stigma in global perspective. *Current Anthropology*, 52(2), 269-276.
<https://doi.org/10.1086/659309>
- Bruze, G., Holmin, T. E., Peltonen, M., Ottosson, J., Sjöholm, K., Näslund, I., Neovius, M., Carlsson, L. M. S. & Svensson, P. A. (2018). Associations of bariatric surgery with changes in interpersonal relationship status: results from 2 Swedish cohort studies. *Journal of the American Medical Association Surgery*, 153(7), 654-661.
<https://doi.org/10.1001/jamasurg.2018.0215>
- Buchwald, H., Avidor, Y., Braunwald, E., Jensen, M. D., Pories, W., Fahrbach, K., & Schelles, K. (2004). Meta-analysis and bariatric surgery: A systematic review. *Journal of the American Medical Association*, 292(14), 1724-1737.
<https://doi.org/10.1001/jama.292.14.1724>
- Buddelmeyer, H., & Powdthavee, N. (2016). Can having internal locus of control insure against negative shocks? Psychological evidence from panel data. *Journal of Economic Behavior & Organization*, 122, 88-109.
<https://doi.org/10.1016/j.jebo.2015.11.014>
- Bujang, M. A., Omar, E. D., & Baharum, N. A. (2018). A review on sample size determination for cronbach's alpha test: A simple guide for researchers. *The Malaysian Journal of Medical Sciences*, 25(6), 85–99. <https://doi.org/10.21315/mjms2018.25.6.9>
- Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, 56(3), 1391-1412. <https://doi.org/10.1007/s11135-021-01182-y>

- Campbell, K. A., Orr, E., Durepos, P., Nguyen, L., Li, L., Whitmore, C., Gehrke, P., Graham, L. & Jack, S. M. (2021). Reflexive thematic analysis for applied qualitative health research. *The Qualitative Report*, 26(6), 2011-2028. <https://doi.org/10.46743/2160-3715/2021.5010>
- Chan, J. K., King, M., & Vartanian, L. R. (2020). Patient perspectives on psychological care after bariatric surgery: A qualitative study. *Clinical Obesity*, 10(6), e12399. <https://doi.org/10.1111/cob.12399>
- Chu, F., & Ohinmaa, A. (2016). The obesity penalty in the labor market using longitudinal Canadian data. *Economics & Human Biology*, 23, 10-17. <https://doi.org/10.1016/j.ehb.2016.06.002>
- Churchill, S., Jessop, D. C., Green, R., & Harris, P. R. (2018). Self-affirmation improves self-control over snacking among participants low in eating self-efficacy. *Appetite*, 123, 264-268. <https://doi.org/10.1016/j.appet.2017.12.028>
- Clark, S. M., Saules, K. K., Schuh, L. M., Stote, J., & Creel, D. B. (2014). Associations between relationship stability, relationship quality, and weight loss outcomes among bariatric surgery patients. *Eating Behaviors*, 15(4), 670-672. <https://doi.org/10.1016/j.eatbeh.2014.09.003>
- Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, 26(2), 120-123.
- Retrieved from:
[https://www.researchgate.net/publication/269928387 Teaching thematic analysis Overcoming challenges and developing strategies for effective learning](https://www.researchgate.net/publication/269928387_Teaching_thematic_analysis_Overcoming_challenges_and_developing_strategies_for_effective_learning)
- Clarke, V. & Braun, V. (2017). Thematic analysis, *The Journal of Positive Psychology*, 12(3), 297-298, <https://doi.org/10.1080/17439760.2016.1262613>
- Cobb-Clark, D. A., Kassenboehmer, S. C., & Schurer, S. (2014). Healthy habits: The connection between diet, exercise, and locus of control. *Journal of Economic Behavior & Organization*, 98, 1-28. <https://doi.org/10.1016/j.jebo.2013.10.011>

- Coblijn, U. K., Lagarde, S. M., de Castro, S. M., Kuiken, S. D., & van Wagenveld, B. A. (2015). Symptomatic marginal ulcer disease after Roux-en-Y gastric bypass: incidence, risk factors and management. *Obesity Surgery*, 25(5), 805-811.
<https://doi.org/10.1007/s11695-014-1482-9>
- Coelho, C., Crane, J., Agius, R., & McGowan, B. (2021). The bariatric-metabolic physician's role in managing clinically severe obesity. *Current Obesity Reports*, 10(3), 263–273.
<https://doi.org/10.1007/s13679-021-00435-z>
- Coetzee, S., & Cilliers, F. (2001). Psychofortology: Explaining coping behaviour in organizations. *The Industrial-Organizational Psychologist*, 38(4), 62-68. Retrieved from:
https://d1wqtxts1xzle7.cloudfront.net/65547618/Psychofortology-libre.pdf?1611907639=&response-content-disposition=inline%3B+filename%3DPsychofortology_Explaining_coping_behavi.pdf&Expires=1687583647&Signature=RDhPR-ObNMOPiiufbV4jKQKhuPokUBLsZ8lkc0DithorRzHMBEx3Ljv-Q-2i6TpnQTWLI3HGnMEmLQjRTesP8WSqtwoxnaveFX~52FTDbXCwPnkmdmwz4MNZsPJpAgVz9mb1MWKaghRlcCi1DeQbXZ63xGK9BzkgXF6EXDiSSKYEg-XrGbf3NdQ8IUTUJmuzPKNt8myl~UcljaAtluiax4TpFxFLavOD4rVzxOC13HR3aKV7~S1d8BgDV3xgukpWC-3gw~VHXbyYg4fFsOzL0GYwqgbQFQdvvSzvVgGgBpiHwbGrAYj4MZJVf7k1kijxMHnoZuP7aDAz6~ISBQt~tQ__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
- Collazo-Clavell, M. L., Clark, M. M., Mcalpine, D. E., & Jensen, M. D. (2006). Assessment and preparation of patients for bariatric surgery. *Mayo Clinic Proceedings*, 81(10): S11-S17. [https://doi.org/10.1016/S0025-6196\(11\)61176-2](https://doi.org/10.1016/S0025-6196(11)61176-2)
- Compher, C. W., Hanlon, A., Kang, Y., Elkin, L., & Williams, N. N. (2012). Attendance at clinical visits predicts weight loss after gastric bypass surgery. *Obesity Surgery*, 22(6), 927-934. <https://doi.org/10.1007/s11695-011-0577-9>
- Compton, W. C., & Hoffman, E. (2013). *Positive Psychology: The Science of Happiness and Flourishing* (2nd ed.). Sage Publications.

- Conceição, E. M., Utzinger, L. M., & Pisetsky, E. M. (2015). Eating disorders and problematic eating behaviours before and after bariatric surgery: Characterization, assessment and association with treatment outcomes. *European Eating Disorders Review*, 23(6), 417-425. <https://doi.org/10.1002/erv.2397>
- Conejeros-Solar, M. L., Gómez-Arizaga, M. P., Schader, R. M., Baum, S. M., Sandoval-Rodríguez, K., & Henríquez, S. C. (2021). The other side of the coin: perceptions of twice-exceptional students by their close friends. *SAGE Open*, 11(2), 21582440211022234. <https://doi.org/10.1177/21582440211022234>
- Corbetta, P. (2003). *Social research: Theory, methods and techniques*. Sage Publications.
- Cooper, S., Porter, J., & Endacott, R. (2011). Mixed methods research: A design for emergency care research? *Emergency Medicine Journal*, 28(8), 682-685. <https://doi.org/10.1136/emj.2010.096321>
- Cooper, T. C., Simmons, E. B., Webb, K., Burns, J. L., & Kushner, R. F. (2015). Trends in weight regain following Roux-en-Y gastric bypass (RYGB) bariatric surgery. *Obesity Surgery*, 25(8), 1474-1481. <https://doi.org/10.1007/s11695-014-1560-z>
- Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*, 41(1), 89-91. <https://doi.org/10.1188/14.ONF.89-91>
- Courcoulas, A. P., Belle, S. H., Neiberg, R. H., Pierson, S. K., Eagleton, J. K., Kalarchian, M. A., DeLany, J. P., Lang, W., & Jakicic, J. M. (2015). Three-year outcomes of bariatric surgery vs lifestyle intervention for type 2 diabetes mellitus treatment: a randomized clinical trial. *Journal of the American Medical Association Surgery*, 150(10), 931-940. <https://doi.org/10.1001/jamasurg.2015.1534>
- Courcoulas, A. P., King, W. C., Belle, S. H., Berk, P., Flum, D. R., Garcia, L., Gourash, W., Horlick, M., Mitchell, J. E., Pomp, A., Pories, W. J., Purnell, J. Q., Singh, A., Spaniolas, K., Thirlby, R., Wolfe, B. M., & Yanovski, S. Z. (2018). Seven-year weight trajectories and health outcomes in the Longitudinal Assessment of Bariatric Surgery (LABS)

study. *Journal of the American Medical Association Surgery*, 153(5), 427-434.

<https://doi.org/10.1001/jamasurg.2017.5025>

Cresswell, J.W., & Clark, V.L.P. (2011). *Designing and conducting mixed method research* (2nd ed.). Sage Publications.

Croft, B., & Parish, S. (2016). Participants' assessment of the impact of behavioral health self-direction on recovery. *Community Mental Health Journal*, 52(7), 781-792.

<https://doi.org/10.1007/s10597-016-9999-0>

Crosby, R. D., Kolotkin, R. L., & Williams, G. R. (2004). An integrated method to determine meaningful changes in health-related quality of life. *Journal of Clinical*

Epidemiology, 57(11), 1153-1160. <https://doi.org/10.1016/j.jclinepi.2004.04.004>

Crosby, R. D., & Kolotkin, R.L. (2009). Manual for the Impact of Weight on Quality of Life (IWQOL and IWQOL-Lite) measure. *Neuropsychiatric Research Institute, University of North Dakota School of Medicine and Health Sciences, Fargo, North Dakota.*

Cruz, N. I., Lopez, L. A., & Santiago, E. (2018). Body mass index and surgical outcome in a Puerto Rican population. *Puerto Rico Health Sciences Journal*, 37(3), 165-169.

Retrieved from: <https://d1wqtxts1xzle7.cloudfront.net/89573334/1136->

[libre.pdf?1660388477=&response-content-](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-)

[disposition=inline%3B+filename%3DBody Mass Index and Surgical Outcome in.pdf](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf)

[&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Q](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Q)

[x9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-)

[kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-)

[CO~GhVk~CRsrszocW-](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-CO~GhVk~CRsrszocW-)

[83FY3q1rqEWe2GraaetZhw2yCUrVHtFzFTYT2mQ8RteuxP56vva4LQx1kB12ZX0AXZ](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-CO~GhVk~CRsrszocW-83FY3q1rqEWe2GraaetZhw2yCUrVHtFzFTYT2mQ8RteuxP56vva4LQx1kB12ZX0AXZ)

[A8Be2TIUe32agXcQfjFQR7zckNo05ski5HKkdPPWE4K8irNxH0XQbO2AqoxVLmdO2d](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-CO~GhVk~CRsrszocW-83FY3q1rqEWe2GraaetZhw2yCUrVHtFzFTYT2mQ8RteuxP56vva4LQx1kB12ZX0AXZ)

[24nWIU0NWWsPRody2pPixOi7iCrsE6Eg_ &Key-Pair-](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-CO~GhVk~CRsrszocW-83FY3q1rqEWe2GraaetZhw2yCUrVHtFzFTYT2mQ8RteuxP56vva4LQx1kB12ZX0AXZ)

[Id=APKAJLOHF5GGSLRBV4ZA](https://d1wqtxts1xzle7.cloudfront.net/89573334/1136-libre.pdf?1660388477=&response-content-disposition=inline%3B+filename%3DBody+Mass+Index+and+Surgical+Outcome+in.pdf&Expires=1687583989&Signature=DVybjd8T7NTUn7E6ap4GrnAHorgUHDKOs9lq42Qx9xXdd23ncRSM5Cx5UNvNOipM5ljWgWq1aH6mTzuJUDZPoxwouQtR-kl4bISiw8bNYIHwTyLGGLKxyjoNZuT2UHV~OczYfvqb8bUGAfv~7gQL1Cq5ZT7cfS4-CO~GhVk~CRsrszocW-83FY3q1rqEWe2GraaetZhw2yCUrVHtFzFTYT2mQ8RteuxP56vva4LQx1kB12ZX0AXZ)

Dahlberg, K., Bylund, A., Stenberg, E., & Jaensson, M. (2022). An endeavour for change and self-efficacy in transition: Patient perspectives on postoperative recovery after bariatric

- surgery: A qualitative study. *International Journal of Qualitative Studies on Health and Well-being*, 17(1), 2050458. <https://doi.org/10.1080/17482631.2022.2050458>
- Dakanalis, A., Zanetti, A. M., Riva, G., Colmegna, F., Volpato, C., Madeddu, F., & Clerici, M. (2015). Male body dissatisfaction and eating disorder symptomatology: Moderating variables among men. *Journal of Health Psychology*, 20(1), 80-90. <https://doi.org/10.1177/1359105313499198>
- Das, A., & Faxvaag, A. (2014). What influences patient participation in an online forum for weight loss surgery? A qualitative case study. *Interactive Journal of Medical Research*, 3(1), e4. <https://doi.org/10.2196/ijmr.2847>
- Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education*, 2(2), 25-36. <https://doi.org/10.46809/jpse.v2i2.20>
- Dawes, A. J., Maggard-Gibbons, M., Maher, A. R., Booth, M. J., Miake-Lye, I., Beroes, J. M., & Shekelle, P. G. (2016). Mental health conditions among patients seeking and undergoing bariatric surgery: a meta-analysis. *Journal of the American Medical Association*, 315(2), 150-163. <https://doi.org/10.1001/jama.2015.18118>
- De Leeuw, E. (2008). Self-administered questionnaires and standardized interviews. In P. Alasuutari, L. Bickman, & J. Brannen. *The SAGE Handbook of Social Research Methods* (pp. 313-327). Sage Publications.
- De Lorenzo, A., Romano, L., Di Renzo, L., Di Lorenzo, N., Cennamo, G., & Gualtieri, P. (2020). Obesity: a preventable, treatable, but relapsing disease. *Nutrition*, 71(110615), 1-7. <https://doi.org/10.1016/j.nut.2019.110615>
- de Zwaan, M., Georgiadou, E., Stroh, C. E., Teufel, M., Köhler, H., Tengler, M., & Müller, A. (2014). Body image and quality of life in patients with and without body contouring surgery following bariatric surgery: a comparison of pre-and post-surgery groups. *Frontiers in Psychology*, 5, 1310. <https://doi.org/10.3389/fpsyg.2014.01310>
- Dicker, D., Yahalom, R., Comaneshter, D. S., & Vinker, S. (2016). Long-term outcomes of three types of bariatric surgery on obesity and type 2 diabetes control and

- remission. *Obesity Surgery*, 26(8), 1814-1820. <https://doi.org/10.1007/s11695-015-2025-8>
- Edward, K. L., Hii, M. W., Giandinoto, J. A., Hennessy, J., & Thompson, L. (2018). Personal descriptions of life before and after bariatric surgery from overweight or obese men. *American Journal of Men's Health*, 12(2), 265-273. <https://doi.org/10.1177/1557988316630770>
- EIAbd, R., Samargandi, O. A., AlGhanim, K., Alhamad, S., Almazeedi, S., Williams, J., AlSabah, S., & AlYouha, S. (2021). Body contouring surgery improves weight loss after bariatric surgery: a systematic review and meta-analysis. *Aesthetic Plastic Surgery*, 45(3), 1064-1075. <https://doi.org/10.1007/s00266-020-02016-2>
- Eldar, S., Heneghan, H. M., Brethauer, S. A., & Schauer, P. R. (2011). Bariatric surgery for treatment of obesity. *International Journal of Obesity*, 35(S3), 16-21. <https://doi.org/10.1038/ijo.2011.142>
- Elfhag, K., & Rössner, S. (2005). Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance and weight regain. *Obesity Reviews*, 6(1), 67-85. <https://doi.org/10.1111/j.1467-789X.2005.00170.x>
- Elnahas, A. I., Jackson, T. D., & Hong, D. (2014). Management of failed laparoscopic Roux-en-Y gastric bypass. *Bariatric Surgical Practice and Patient Care*, 9(1), 36-40. <https://doi.org/10.1089/bari.2013.0012>
- Elovainio, M., & Kivimaki, M. (2000). Sense of coherence and social support: Resources for subjective well-being and health of the aged in Finland. *International Journal of Social Welfare*, 9(2), 128-135. <https://doi.org/10.1111/1468-2397.00118>
- Emous, M., Wolffenbuttel, B. H., Totté, E., & van Beek, A. P. (2017). The short-to mid-term symptom prevalence of dumping syndrome after primary gastric-bypass surgery and its impact on health-related quality of life. *Surgery for Obesity and Related Diseases*, 13(9), 1489-1500. <https://doi.org/10.1016/j.soard.2017.04.028>

- Engström, M., & Forsberg, A. (2011). Wishing for deburdening through a sustainable control after bariatric surgery. *International Journal of Qualitative Studies on Health and Well-being*, 6(1), 5901. <https://doi.org/10.3402/qhw.v6i1.5901>
- Epiphaniou, E., & Ogden, J. (2010). Successful weight loss maintenance and a shift in identity: From restriction to a new liberated self. *Journal of Health Psychology*, 15(6), 887-896. <https://doi.org/10.1177/1359105309358115>
- Eriksson, M. (2017). The sense of coherence in the salutogenic model of health. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp.91-96). Springer International Publishing. Springer. <https://doi.org/10.1007/978-3-319-04600-6>
- Eriksson, M., & Lindström, B. (2006). Antonovsky's sense of coherence scale and the relation with health: a systematic review. *Journal of Epidemiology Community Health* 60(5), 376–381. <http://dx.doi.org/10.1136/jech.2005.041616>
- Eriksson, M., & Mittlemark, M. B. (2017). The sense of coherence and its measurement. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis*. (pp. 97-105). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Eschleman, K. J., Bowling, N. A., & Alarcon, G. M. (2010). A meta-analytic examination of hardiness. *International Journal of Stress Management*, 17(4), 277-307. <https://doi.org/10.1037/a0020476>
- Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6), 00149. <https://doi.org/10.15406/bbij.2017.05.00149>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Ezaka, E. S., Nassif, R. N., Chibuike, O. P., Okeke, S., Chukwubuzo, O. T., Ekpunobi, C. P., Obumneme, O. A., & Chinwike, O. A. (2022). Relationship between death anxiety and health-related quality of life among diabetic patients: The predictive roles of experiential

- avoidance. *Global Journal of Obesity, Diabetes and Metabolic Syndrome*, 9(1), 011-019.: <https://dx.doi.org/10.17352/2455-8583.000056>
- Faccio, E., Nardin, A., & Cipolletta, S. (2016). Becoming ex-obese: Narrations about identity changes before and after the experience of the bariatric surgery. *Journal of Clinical Nursing*, 25(11-12), 1713-1720. <https://doi.org/10.1111/jocn.13222>
- Fayyaz, S., Butt, M. B., Khan, S., Ali, A., & Abbas, H. Y. (2022). Family history of diabetes: An important risk factor for developing PCOS. *Pakistan Journal of Medical & Health Sciences*, 16(04), 1204-1204. <https://doi.org/10.53350/pjmhs221641204>
- Ferriby, M., Pratt, K., Noria, S., & Needleman, B. (2019). Associations between romantic relationship factors and body mass index among weight loss surgery patients. *Journal of Marital and Family Therapy*, 45(4), 719-732. <https://doi.org/10.1111/jmft.12357>
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—principles and practices. *Health Services Research*, 48(6pt2), 2134-2156. <https://doi.org/10.1111/1475-6773.12117>
- Fetters, M. D., & Freshwater, D. (2015). Publishing a methodological mixed methods research article. *Journal of Mixed Methods Research*, 9(3), 203-213. <https://doi.org/10.1177/155868981559468>
- Fida, R., Paciello, M., Tramontano, C., Barbaranelli, C., & Farnese, M. (2015). “Yes I can”: The protective role of personal self-efficacy in hindering counterproductive work behavior under stressful conditions. *Anxiety, Stress, & Coping*, 28(5), 479-499. <https://doi.org/10.1080/10615806.2014.969718>
- Fikkan, J. L., & Rothblum, E. D. (2012). Is fat a feminist issue? Exploring the gendered nature of weight bias. *Sex Roles*, 66(9-10), 575-592. <https://doi.org/10.1007/s11199-011-0022-5>
- Flølo, T. N., Tell, G. S., Kolotkin, R. L., Aasprang, A., Norekvål, T. M., Våge, V., & Andersen, J. R. (2019). Eating self-efficacy as predictor of long-term weight loss and obesity-specific quality of life after sleeve gastrectomy: A prospective cohort study. *Surgery for*

Obesity and Related Diseases, 15(2), 161-167.

<https://doi.org/10.1016/j.soard.2018.12.011>

Floyd, J., & Fowler, J. Jr. (2008). *Survey research methods*. Sage Publications.

Frankl, V. E. (1963). *Man's search for meaning: An introduction to logotherapy*. Beacon press.

Franks, S. F., & Kaiser, K. A. (2008). Predictive factors in bariatric surgery outcomes: What is the role of the preoperative psychological evaluation? *Primary Psychiatry*, 15(8), 74-83.

Retrieved from: [https://www.scopus.com/record/display.uri?eid=2-s2.0-](https://www.scopus.com/record/display.uri?eid=2-s2.0-49949094934&origin=inward&txGid=78e105b361f5b601189ee224a978dd52)

[49949094934&origin=inward&txGid=78e105b361f5b601189ee224a978dd52](https://www.scopus.com/record/display.uri?eid=2-s2.0-49949094934&origin=inward&txGid=78e105b361f5b601189ee224a978dd52)

Fried, M., Hainer, V., Basdevant, A., Buchwald, H., Deitel, M., Finer, N., Greve, J. W. M., Horber, F., Marhus-Vliegen, E., Scopinaro, N., Steffen, R., Tsigos, C., Weiner, R., & Widhalm, K. (2007). Clinical guidelines: Inter-disciplinary European guidelines on surgery of severe obesity. *International Journal of Obesity*, 31(4), 569–577.

<https://doi.org/10.1038/sj.ijo.0803560>

Frühbeck, G. (2015). Bariatric and metabolic surgery: A shift in eligibility and success criteria. *Nature Reviews Endocrinology*, 11(8), 465-477.

<https://doi.org/10.1038/nrendo.2015.84>

Fuchs, H. F., Laughter, V., Harnsberger, C. R., Broderick, R. C., Berducci, M., DuCoin, C., Langert, J., Sandler, B. J., Jacobsen, G. R., Perry, W., & Horgan, S. (2016). Patients with psychiatric comorbidity can safely undergo bariatric surgery with equivalent success. *Surgical Endoscopy*, 30(1), 251-258. [https://doi.org/10.1007/s00464-015-](https://doi.org/10.1007/s00464-015-4196-8)

[4196-8](https://doi.org/10.1007/s00464-015-4196-8)

Gade, H., Rosenvinge, J. H., Hjelmæsæth, J., & Friborg, O. (2014). Psychological correlates to dysfunctional eating patterns among morbidly obese patients accepted for bariatric surgery. *Obesity Facts*, 7(2), 111-119. <https://doi.org/10.1159/000362257>

Garber, M. C. (2017). Exercise as a stress coping mechanism in a pharmacy student population. *American Journal of Pharmaceutical Education*, 81(3).

<https://doi.org/10.5688/ajpe81350>

- Garner, R. E., Feeny, D. H., Thompson, A., Bernier, J., McFarland, B. H., Huguet, N., Kaplan, M. S., Orpana, H., Ross, N. A., & Blanchard, C. (2012). Bodyweight, gender, and quality of life: A population-based longitudinal study. *Quality of Life Research, 21*(5), 813-825. <https://doi.org/10.1007/s11136-011-9989-1>
- Genç, G. (2016). Learned resourcefulness and burnout levels of English teachers. *International Journal of Psychology and Educational Studies, 3*(1), 1-13. <https://doi.org/10.17220/ijpes.2016.01.001>
- Genser, L., Soprani, A., Tabbara, M., Siksik, J. M., Cady, J., & Carandina, S. (2017). Laparoscopic reversal of mini-gastric bypass to original anatomy for severe postoperative malnutrition. *Langenbeck's Archives of Surgery, 402*(8), 1263-1270. <https://doi.org/10.1007/s00423-017-1615-4>
- Giel, K. E., Zipfel, S., Alizadeh, M., Schäffeler, N., Zahn, C., Wessel, D., Hesse, F. W., Thiel, S., & Thiel, A. (2012). Stigmatization of obese individuals by human resource professionals: An experimental study. *BioMed Central Public Health 12*, 525. <https://doi.org/10.1186/1471-2458-12-525>
- Stephan Zipfel¹ , Manuela Alizadeh² , Norbert ¹ , Carmen Zahn³ , Daniel Wessel³ , Friedrich W Hesse³ , Syra Thiel² and Ansgar Thiel
- Gilani, S. R. M., & Dashipour, A. (2017). The effects of physical activity on self-esteem: A comparative study. *International Journal of High Risk Behaviors and Addiction, 6*(1), e35955. <https://doi.org/10.5812/ijhrba.35955>.
- Giles-Corti, B., Macintyre, S., Clarkson, J. P., Pikora, T., & Donovan, R. J. (2003). Environmental and lifestyle factors associated with overweight and obesity in Perth, Australia. *American Journal of Health Promotion. 18*(1), 93-102. <https://doi.org/10.4278/0890-1171-18.1.93>
- Gilmartin, J., Long, A., & Soldin, M. (2015). Identity transformation and a changed lifestyle following dramatic weight loss and body-contouring surgery: An exploratory study. *Journal of Health Psychology, 20*(10), 1318-1327. <https://doi.org/10.1177/135910531351183>

- Glinski, J., Wetzler, S., & Goodman, E. (2001). The psychology of gastric bypass surgery. *Obesity Surgery, 11*(5), 581-588. <https://doi.org/10.1381/09608920160557057>
- Gloy, V. L., Briel, M., Bhatt, D. L., Kashyap, S. R., Schauer, P. R., Mingrone, G., Bucher, H. C., & Nordmann, A. J. (2013). Bariatric surgery versus non-surgical treatment for obesity: A systematic review and meta-analysis of randomised controlled trials. *British Medical Journal, 347*(1), f5934. <https://doi.org/10.1136/bmj.f5934>
- Gogtay, N. J., & Thatte, U. M. (2017). Principles of correlation analysis. *Journal of the Association of Physicians of India, 65*(3), 78-81. Retrieved from: https://www.kem.edu/wp-content/uploads/2012/06/9-Principles_of_correlation-1.pdf
- Golembiewski, J. A. (2017). Salutogenic architecture in healthcare settings. In M. B. Mittelmark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes, G. A. *The handbook of salutogenesis* (pp. 267-276). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Goodman, R. D., & West-Olatunji, C. A. (2008). Traumatic stress, systemic oppression, and resilience in post-Katrina New Orleans. *Spaces for Difference: An Interdisciplinary Journal, 1*(2), 55-68. <https://escholarship.org/uc/item/4x8082z1>
- Gordon, P. C., Sallet, J. A., & Sallet, P. C. (2014). The impact of temperament and character inventory personality traits on long-term outcome of Roux-en-Y gastric bypass. *Obesity Surgery, 24*(10), 1647-1655. <https://doi.org/10.1007/s11695-014-1229-7>
- Gore, J. S., Griffin, D. P., & McNierney, D. (2016). Does internal or external locus of control have a stronger link to mental and physical health? *Psychological Studies, 61*(3), 181-196. <https://doi.org/10.1007/s12646-016-0361-y>
- Gravetter, F. J., & Forzana, L. B. (2009). *Research methods for the behavioral sciences*. (3rd Ed.). Wadsworth Cengage Learning.
- Greaves, C., Poltawski, L., Garside, R., & Briscoe, S. (2017). Understanding the challenge of weight loss maintenance: A systematic review and synthesis of qualitative research on weight loss maintenance. *Health Psychology Review, 11*(2), 145-163. <https://doi.org/10.1080/17437199.2017.1299583>

- Greenberg, I., Sogg, S., & Perna, F.M. (2009). Behavioral and psychological care in weight loss surgery: Best practice update. *Obesity*, 17(5), 880–884.
<https://doi.org/10.1038/oby.2008.571>
- Griauzde, D. H., Ibrahim, A. M., Fisher, N., Stricklen, A., Ross, R., & Ghaferi, A. A. (2018). Understanding the psychosocial impact of weight loss following bariatric surgery: A qualitative study. *BMC Obesity*, 5(38), 1-13. <https://doi.org/10.1186/s40608-018-0215-3>
- Groven, K. S., Råheim, M., Braithwaite, J., & Engelsrud, G. (2013). Weight loss surgery as a tool for changing lifestyle? *Medicine, Health Care and Philosophy*, 16(4), 699-708.
<https://doi.org/10.1007/s11019-013-9471-7>
- Grover, B. T., Morell, M. C., Kothari, S. N., Borgert, A. J., Kallies, K. J., & Baker, M. T. (2019). Defining weight loss after bariatric surgery: A call for standardization. *Obesity Surgery*, 29(11), 3493-3499. <https://doi.org/10.1007/s11695-019-04022-z>
- Guba, E. G., & Lincoln, Y. (1989). *Fourth generation evaluation*. Sage Publications.
- Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *The Annals of Family Medicine*, 13(6), 554-561. <https://doi.org/10.1370/afm.1865>
- Hamer, O., Larkin, D., Relph, N., & Dey, P. (2021). Fear as a barrier to physical activity in young adults with obesity: A qualitative study. *Qualitative Research in Sport, Exercise and Health*, 22(11), 1-17. <https://doi.org/10.1080/2159676X.2021.2012243>
- Hatta, T., Narita, K., Yanagihara, K., Ishiguro, H., Murayama, T., & Yokode, M. (2020). Crossover mixed analysis in a convergent mixed methods design used to investigate clinical dialogues about cancer treatment in the Japanese context. *Journal of Mixed Methods Research*, 14(1), 84-109. <https://doi.org/10.1177/1558689818792793>
- Healy, D. (2020). Antidepressants and sexual dysfunction: A history. *Journal of the Royal Society of Medicine*, 113(4), 133-135. <https://doi.org/10.1177/0141076819899299>
- Hefferon, K., & Boniwell, I. (2011). *Positive psychology: Theory, research and applications*. McGraw-Hill.

- Heidari, M., & Ghodusi, M. (2016). Relationship of assess self-esteem and locus of control with quality of life during treatment stages in patients referring to drug addiction rehabilitation centers. *Materia Socio-Medica*, 28(4), 263-267.
<https://doi.org/10.5455/msm.2016.28.263-267>
- Heidari, M., Ghodusi, M., Bathaei, S. A., & Shakeri, K. (2018). Self-esteem and locus of control in the initial and final stages of drug withdrawal among addicts attending rehabilitation centers. *Addictive Disorders & Their Treatment*, 17(2), 92-97.
<https://doi.org/10.1097/ADT.000000000000128>
- Hering, I., Stier, C., & Seyfried, F. (2018). "Bariatric surgery: Expectations and therapeutic goals-a contradiction?" *Der Chirurg; Zeitschrift fur Alle Gebiete der Operativen Medizen* 89(8), 597-604. <https://doi.org/10.1007/s00104-018-0662-x>
- Heuer, C. A., McClure, K. J., & Puhl, R. M. (2011). Obesity stigma in online news: A visual content analysis. *Journal of Health Communication: International Perspectives*, 16(9), 976–987. <https://doi.org/10.1080/10810730.2011.561915>
- Himmelstein, M. S., Puhl, R. M., & Quinn, D. M. (2017). Intersectionality: An understudied framework for addressing weight stigma. *American Journal of Preventive Medicine*, 53(4), 421-431. <https://doi.org/10.1016/j.amepre.2017.04.003>
- Hjorth, S., Näslund, I., Andersson-Assarsson, J. C., Svensson, P. A., Jacobson, P., Peltonen, M., & Carlsson, L. M. (2019). Reoperations after bariatric surgery in 26 years of follow-up of the Swedish obese subjects study. *Journal of the American Medical Association Surgery*, 154(4), 319-326. <https://doi.org/10.1001/jamasurg.2018.5084>
- Ho, P., Chen, K., Shao, A., Bao, L., Ai, A., Tarfa, A., Brossard, D., Brown, L., & Brauer, M. (2021). A mixed methods study of public perception of social distancing: Integrating qualitative and computational analyses for text data. *Journal of Mixed Methods Research*, 15(3), 374-397. <https://doi.org/10.1177/1558689821102086>
- Hochwälder, J., & Saied, V. (2018). The relation between sense of coherence and daily hassles among university students. *Health Psychology and Behavioral Medicine*, 6(1), 329-339. <https://doi.org/10.1080/21642850.2018.1538802>

- Homan, J., Betzel, B., Aarts, E. O., Dogan, K., van Laarhoven, K. J., Janssen, I. M., & Berends, F. J. (2015). Vitamin and mineral deficiencies after biliopancreatic diversion and biliopancreatic diversion with duodenal switch—the rule rather than the exception. *Obesity Surgery*, 25(9), 1626-1632. <https://doi.org/10.1007/s11695-015-1570-5>
- Homer, C. V., Tod, A. M., Thompson, A. R., Allmark, P., & Goyder, E. (2016). Expectations and patients' experiences of obesity prior to bariatric surgery: A qualitative study. *British Medical Journal Open*, 6(2), e009389. <http://dx.doi.org/10.1136/bmjopen-2015-009389>
- Hosseini, S. N., Alavijeh, M. M., Matin, B. K., Hamzeh, B., Ashtarian, H., & Jalilian, F. (2016). Locus of control or self-esteem; Which one is the best predictor of academic achievement in Iranian college students. *Iranian Journal of Psychiatry and Behavioral Sciences*, 10(1): e2602. <https://doi.org/10.17795/ijpbs-2602>
- Huang, C. K., Lo, C. H., Houg, J. Y., Chen, Y. S., & Lee, P. H. (2012). Surgical results of single-incision transumbilical laparoscopic Roux-en-Y gastric bypass. *Surgery for Obesity and Related Diseases*, 8(2), 201-207. <https://doi.org/10.1016/j.soard.2010.12.007>
- Hübner, C., Baldofski, S., Zenger, M., Tigges, W., Herbig, B., Jurowich, C., Kaiser, S., Dietrich, A., & Hilbert, A. (2015). Influences of general self-efficacy and weight bias internalization on physical activity in bariatric surgery candidates. *Surgery for Obesity and Related Diseases*, 11(6), 1371-1376. <https://doi.org/10.1016/j.soard.2014.11.013>
- Huysamen, G.K. (1993). *Methodologie vir die sosiale wetenskappe*. Southern Boekuitgewers (Edms.) Bpk.
- Idan, O., Eriksson, M., & Al-Yagon, M. (2017). The salutogenic model: The role of generalized resistance resources. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp. 57-69). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>

- Idan, O., Eriksson, M., & Al-Yagon, M. (2022). Generalized resistance resources in the salutogenic model of health. In M. B. Mittelmark, G. F. Bauer, L. Vaandrager, J. M. Pelikan, S. Sagy, M. Eriksson, B. Lindström, & C. M Magistretti (Eds). *The handbook of salutogenesis* (2nd Ed.) (pp. 83-106). Springer International Publishing.
<https://doi.org/10.1007/978-3-030-79515-3>
- Independent Financial Consultants (n.d). *Medical aid for gastric bypass*. Retrieved September 9, 2021, from <https://www.medicalaid-quotes.co.za/articles/medical-aid-gastric-bypass>
- Ivezaj, V., Benoit, S. C., Davis, J., Engel, S., Lloret-Linares, C., Mitchell, J. E., Pepino, M. Y., Rogers, A. M., Steffen, K., & Sogg, S. (2019). Changes in alcohol use after metabolic and bariatric surgery: Predictors and mechanisms. *Current Psychiatry Reports*, 21(9), 1-9. <https://doi.org/10.1007/s11920-019-1070-8>
- Jackson, S. E., Beeken, R. J., & Wardle, J. (2014). Perceived weight discrimination and changes in weight, waist circumference, and weight status. *Obesity*, 22(12), 2485-2488. <https://doi.org/10.1002/oby.20891>
- Jaensson, M., Dahlberg, K., Nilsson, U., & Stenberg, E. (2019). The impact of self-efficacy and health literacy on outcome after bariatric surgery in Sweden: A protocol for a prospective, longitudinal mixed-methods study. *British Medical Journal Open*, 9(5), e027272. <http://dx.doi.org/10.1136/bmjopen-2018-027272>
- Jakobsen, G. S., Småstuen, M. C., Sandbu, R., Nordstrand, N., Hofsvø, D., Lindberg, M., Hertel, J. K., & Hjelmæsæth, J. (2018). Association of bariatric surgery vs medical obesity treatment with long-term medical complications and obesity-related comorbidities. *Journal of the American Medical Association*, 319(3), 291-301.
<https://doi.org/10.1001/jama.2017.21055>
- Janik, M. R., Rogula, T. G., Mustafa, R. R., Saleh, A. A., & Khaitan, L. (2019). Safety of revision sleeve gastrectomy compared to Roux-Y gastric bypass after failed gastric banding: Analysis of the MBSAQIP. *Annals of Surgery*, 269(2), 299-303.
<https://doi.org/10.1097/SLA.0000000000002559>

Jiang, Y., He, X., Lee, M. L. T., Rosner, B., & Yan, J. (2017). Wilcoxon rank-based tests for clustered data with r package clusrank. *arXiv preprint arXiv:1706.03409*.

<https://doi.org/10.48550/arXiv.1706.03409>

Joanisse, L., Pawluch, D., Shaffir, W., & Miall, C. E. (2005). This is who I really am”: Obese women’s conceptions of the self following weight loss surgery. In D. Pawluch, W. Shaffir, & C. Miall (Eds). *Doing ethnography: Researching everyday life* (pp. 248-259). Canadian Scholar’s Press.

Johnson, L. P., Asigbee, F. M., Crowell, R., & Negrini, A. (2018). Pre-surgical, surgical and post-surgical experiences of weight loss surgery patients: A closer look at social determinants of health. *Clinical Obesity*, 8(4), 265-274.

<https://doi.org/10.1111/cob.12251>

Jones, L., Cleator, J., & Yorke, J. (2016). Maintaining weight loss after bariatric surgery: when the spectator role is no longer enough. *Clinical Obesity*, 6(4), 249-

258. <https://doi.org/10.1111/cob.12152>

Jonnalagadda, S., & Likhitsup, A. (2019). Postsurgical endoscopic anatomy. In V.

Chandrasekhara, M. Khashab, B. J. Elmunzer, & V. Raman (Eds). *Clinical*

Gastrointestinal Endoscopy (pp. 124-140). Elsevier. [https://doi.org/10.1016/B978-0-](https://doi.org/10.1016/B978-0-323-41509-5.00012-8)

[323-41509-5.00012-8](https://doi.org/10.1016/B978-0-323-41509-5.00012-8)

Joseph, S., & Sagy, S. (2017). Positive psychology in the context of salutogenesis. In M. B.

Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A.

Espnes (Eds). *The handbook of salutogenesis* (pp.83-88). Springer International

Publishing. <https://doi.org/10.1007/978-3-319-04600-6>

Jung, S., Yabushita, N., Kim, M., Seino, S., Nemoto, M., Osuka, Y., Okubo, Y., Figueroa, R., & Tanaka, K. (2016). Obesity and muscle weakness as risk factors for mobility limitation in community-dwelling older Japanese women: A two-year follow-up investigation. *The Journal of Nutrition, Health & Aging*, 20(1), 28-34.

<https://doi.org/10.1007/s12603-016-0672-7>

- Kahan, S. I. (2018). Practical strategies for engaging individuals with obesity in primary care. In *Mayo Clinic Proceedings* 93(3), 351-359. Elsevier.
<https://doi.org/10.1016/j.mayocp.2018.01.006>
- Kalarchian, M. A., & Marcus, M. D. (2019). Psychosocial concerns following bariatric surgery: Current status. *Current Obesity Reports*, 8(1), 1-9. <https://doi.org/10.1007/s13679-019-0325-3>
- Karimi, M., & Brazier, J. (2016). Health, health-related quality of life, and quality of life: What is the difference? *Pharmacoeconomics* 34(7), 645–649.
<https://doi.org/10.1007/s40273-016-0389-9>
- Karmali, S., Kadikoy, H., Brandt, M. L., & Sherman, V. (2011). What is my goal? Expected weight loss and comorbidity outcomes among bariatric surgery patients. *Obesity Surgery*, 21(5), 595-603. <https://doi.org/10.1007/s11695-009-0060-z>
- Kaul, A., & Luqman, N. (2018). Study of emotional intelligence as a factor of locus of control and job satisfaction among working individuals. *International Journal of Multidisciplinary and Current Research*, 6(1), 49-64. <https://doi.org/10.14741/ijmcr/v.6.1.21>
- Keles, H. N. (2015). The relationship between learned resourcefulness and job satisfaction: A research on staff of higher education in Turkey. *Procedia-Social and Behavioral Sciences*, 177, 132-135. <https://doi.org/10.1016/j.sbspro.2015.02.362>
- Kennett, D. J., & Ackerman, M. (1995). Importance of learned resourcefulness to weight loss and early success during maintenance: Preliminary evidence. *Patient Education and Counseling*, 25(2), 197-203. [https://doi.org/10.1016/0738-3991\(95\)00713-A](https://doi.org/10.1016/0738-3991(95)00713-A)
- Khwaja, H. A., & Bonanomi, G. (2010). Bariatric surgery: Techniques, outcomes and complications. *Current Anaesthesia & Critical Care*, 21(1), 31–38.
<https://doi.org/10.1016/j.cacc.2009.10.005>
- Kim, H. Y. (2017). Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restorative Dentistry & Endodontics*, 42(2), 152-155.
<https://doi.org/10.5395/rde.2017.42.2.152>

- Kinavey, H., & Cool, C. (2019). The broken lens: How anti-fat bias in psychotherapy is harming our clients and what to do about it. *Women & Therapy, 42*(1-2), 116-130.
<https://doi.org/10.1080/02703149.2018.1524070>
- King, W. C., Chen, J. Y., Courcoulas, A. P., Dakin, G. F., Engel, S. G., Flum, D. R., Hinojosa, M. W., Kalarchian, M. A., Mattar, S. G., Mitchell, J. E., Pomp, A., Pories, W. J., Steffen, K. J., White, G. E., Wolfe, B. M., & Yanovski, S. Z. (2017). Alcohol and other substance use after bariatric surgery: Prospective evidence from a US multicenter cohort study. *Surgery for Obesity and Related Diseases, 13*(8), 1392-1402.
<https://doi.org/10.1016/j.soard.2017.03.021>
- Kırdök, O., & Harman, E. (2018). High school students' career decision-making difficulties according to locus of control. *Universal Journal of Educational Research, 6*(2), 242-248. <https://doi.org/10.13189/ujer.2018.060205>
- Klerebro, F., Boshier, P. R., Savva, K. V., Waller, A., Hage, L., Ni, M., Hanna, G.B., & Low, D. E. (2021). Severe dumping symptoms are uncommon following transthoracic esophagectomy but significantly decrease health-related quality of life in long-term, disease-free survivors. *Journal of Gastrointestinal Surgery, 25*(8), 1941-1947.
<https://doi.org/10.1007/s11605-020-04670-y>
- Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*(1), 1-11.
<https://doi.org/10.1037/0022-3514.37.1.1>
- Kobasa, S. C., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology, 42*(1), 168-177.
<https://doi.org/10.1037/0022-3514.42.1.168>
- Koelen, M., Eriksson, M., & Cattan, M. (2017). Older people, sense of coherence and community. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp. 137-149). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>

- Koenig, H. G., Al-Zaben, F., & VanderWeele, T. J. (2020). Religion and psychiatry: Recent developments in research. *BJPsych Advances*, 26(5), 262-272. <https://doi.org/10.1192/bja.2019.81>
- Kolotkin, R. L., & Andersen, J. R. (2017). A systematic review of reviews: Exploring the relationship between obesity, weight loss and health-related quality of life. *Clinical Obesity*, 7(5), 273-289. <https://doi.org/10.1111/cob.12203>
- Kolotkin, R. L., & Crosby, R. D. (2002). Psychometric evaluation of the Impact of Weight on Quality of Life-lite questionnaire (IWQOL-lite) in a community sample. *Quality of Life Research*, 11(2), 157-171. <https://doi.org/10.1023/A:1015081805439>
- Kolotkin, R. L., Crosby, R. D., Kosloski, K. D., & Williams, G. R. (2001). Development of a brief measure to assess quality of life in obesity. *Obesity Research*, 9(2), 102-111. <https://doi.org/10.1038/oby.2001.13>
- Kolotkin, R. L., Fujioka, K., Wolden, M. L., Brett, J. H., & Bjorner, J. B. (2016). Improvements in health-related quality of life with liraglutide 3.0 mg compared with placebo in weight management. *Clinical Obesity*, 6(4), 233-242. <https://doi.org/10.1111/cob.12226>
- Kopelman, P. (2007). Health risks associated with overweight and obesity. *Obesity Reviews*, 8(1), 13-17. <https://doi.org/10.1111/j.1467-789X.2007.00311.x>
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120-124. <https://doi.org/10.1080/13814788.2017.1375092>
- Kaur, A., & Kumar, R. (2015). Comparative analysis of parametric and non-parametric tests. *Journal of Computer and Mathematical Sciences*, 6(6), 336-342. Retrieved from: <http://compmath-journal.org/download/Amandeep-Kaur-and-Robin-Kumar/CMJV06I06P0336.pdf>
- Kubik, J. F., Gill, R. S., Laffin, M., & Karmali, S. (2013). The impact of bariatric surgery on psychological health. *Journal of Obesity*, 2013, 837989. <https://doi.org/10.1155/2013/837989>

- Kurtović, A., Vuković, I., & Gajić, M. (2018). The effect of locus of control on university students' mental health: Possible mediation through self-esteem and coping. *The Journal of Psychology*, 152(6), 341-357.
<https://doi.org/10.1080/00223980.2018.1463962>
- Kwon, Y., Kim, H. J., Menzo, E. L., Park, S., Szomstein, S., & Rosenthal, R. J. (2014). Anemia, iron and vitamin B12 deficiencies after sleeve gastrectomy compared to Roux-en-Y gastric bypass: A meta-analysis. *Surgery for Obesity and Related Diseases*, 10(4), 589-597. <https://doi.org/10.1016/j.soard.2013.12.005>
- Ladstätter, F., Cooper-Thomas, H. D., Moreno-Jiménez, B., Ponsoda, V., Song, S., & Garrosa, E. (2018). Deciphering hardiness: Differential relationships of novelty seeker, rigid control, and hardy profiles on nurses' burnout and their effects. *Nursing and Advanced Health Care*, 2(1), 2-10. Retrieved from:
https://www.researchgate.net/profile/Felix-Ladstaetter/publication/326522102_Deciphering_Hardiness_Differential_Relationships_of_Novelty_Seeker_Rigid_Control_and_Hardy_Profiles_on_Nurses_Burnout_and_their_Effects/links/5b52473445851507a7b3f147/Deciphering-Hardiness-Differential-Relationships-of-Noveltty-Seeker-Rigid-Control-and-Hardy-Profiles-on-Nurses-Burnout-and-their-Effects.pdf
- Langeland, E., & Vinje, H. F. (2017). The application of salutogenesis in mental healthcare settings. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp. 299-305). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Langeland, E., Ausland, L. H., Gunnarsdottir, H., Arvekle, S. H., & Vinje, H.F. (2022). Promoting salutogenic capacity in health professionals. In M. B. Mittlemark, G. F. Bauer, L. Vaandrager, J. M. Pelikan, S. Sagy, M. Eriksson, B. Lindström, & M. C. Magistretti (Eds). *The handbook of salutogenesis*. (2nd Ed.) (pp 611-624). Springer International Publishing. <https://doi.org/10.1007/978-3-030-79515-3>

- Latner, J. D., Barile, J. P., Durso, L. E., & O'Brien, K. S. (2014). Weight and health-related quality of life: The moderating role of weight discrimination and internalized weight bias. *Eating Behaviors, 15*(4), 586-590. <https://doi.org/10.1016/j.eatbeh.2014.08.014>
- Latner, J. D., McLeod, G., O'Brien, K. S., & Johnston, L. (2013). The role of self-efficacy, coping, and lapses in weight maintenance. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 18*(4), 359-366. <https://doi.org/10.1007/s40519-013-0068-1>
- Lavender, J. M., Brown, T. A., & Murray, S. B. (2017). Men, muscles, and eating disorders: An overview of traditional and muscularity-oriented disordered eating. *Current Psychiatry Reports, 19*(6), 32. <https://doi.org/10.1007/s11920-017-0787-5>
- Lee, H., Ahn, R., Kim, T., & Han, E. (2019). Impact of obesity on employment and wages among young adults: Observational study with panel data. *International Journal of Environmental Research and Public Health, 16*(1), 139. <https://doi.org/10.3390/ijerph16010139>
- Lee, H. W. (2013). Locus of control, socialization, and organizational identification. *Management Decision, 51*(5), 1047-1055. <https://doi.org/10.1108/MD-11-2012-0814>
- Lent, M. R., Napolitano, M. A., Wood, G. C., Argyropoulos, G., Gerhard, G. S., Hayes, S., Foster, G.D., Collins, C.A., & Still, C. D. (2014). Internalized weight bias in weight-loss surgery patients: Psychosocial correlates and weight loss outcomes. *Obesity Surgery, 24*(12), 2195-2199. <https://doi.org/10.1007/s11695-014-1455-z>
- Lerdal, A., Fagermoen, M. S., Bonsaksen, T., Gay, C. L., & Kottorp, A. (2014). Rasch analysis of the sense of coherence scale in a sample of people with morbid obesity— A cross-sectional study. *BMC Psychology, 2*(1), 1-10. <https://doi.org/10.1186/2050-7283-2-1>
- Levine, J. W., Feng, Z., Feng, D. P., & Melvin, W. V. (2017). Perioperative patient care involved with robotic-assisted bariatric surgery. *Annals of Laparoscopic Endoscopic Surgery, 2*, 136. <http://dx.doi.org/10.21037/ales.2017.07.13>

- Lewis, S., Thomas, S. L., Blood, R. W., Castle, D. J., Hyde, J., & Komesaroff, P. A. (2011). How do obese individuals perceive and respond to the different types of obesity stigma that they encounter in their daily lives? A qualitative study. *Social Science & Medicine*, 73(9), 1349-1356. <http://dx.doi.org/10.1016/j.socscimed.2011.08.021>
- Li, J. F., Lai, D. D., Lin, Z. H., Jiang, T. Y., Zhang, A. M., & Dai, J. F. (2014). Comparison of the long-term results of Roux-en-Y gastric bypass and sleeve gastrectomy for morbid obesity: A systematic review and meta-analysis of randomized and nonrandomized trials. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, 24(1), 1-11. doi: [10.1097/SLE.0000000000000041](http://dx.doi.org/10.1097/SLE.0000000000000041)
- Li, W., Leonhart, R., Schaefer, R., Zhao, X., Zhang, L., Wei, J., Yang, J., Wirshing, M., Larish, A., & Fritzsche, K. (2015). Sense of coherence contributes to physical and mental health in general hospital patients in China. *Psychology, Health & Medicine*, 20(5), 614-622. <https://doi.org/10.1080/13548506.2014.952644>
- Lier, H. Ø., Aastrom, S., & Rørtveit, K. (2016). Patients' daily life experiences five years after gastric bypass surgery: A qualitative study. *Journal of Clinical Nursing*, 25(3-4), 322-331. <https://doi.org/10.1111/jocn.13049>
- Lim, S. S., Vos, T., Flaxman, A. D., Danaei, G., Shibuya, K., Adair-Rohani, H., AlMazroa, M. A., Amann, M., Anderson, H. R., Andrews, K. G., Aryee, M., Atkinson, C., Bacchus, L. J., Bahalim, A. N., Balakrishnan, K., Balmes, J., Barker-Collo, S., Baxter, A., Bell, M. L., ... & Pelizzari, P. M. (2012). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: A systematic analysis for the Global Burden of Disease Study 2010. *The Lancet*, 380(9859), 2224-2260. [https://doi.org/10.1016/S0140-6736\(12\)61766-8](https://doi.org/10.1016/S0140-6736(12)61766-8)
- Lincoln, Y., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage
- Lindblad, C., Sandelin, K., Petersson, L. M., Rohani, C., & Langius-Eklöf, A. (2016). Stability of the 13-item Sense of Coherence (SOC) Scale: A longitudinal prospective study in women treated for breast cancer. *Quality of Life Research*, 25(3), 753-760. <https://doi.org/10.1007/s11136-015-1114-4>

- Linley, A. (2003). Positive adaptation to trauma: Wisdom as both processes and outcome. *Journal of Traumatic Stress, 16*(6), 601-610.
<https://doi.org/10.1023/B:JOTS.0000004086.64509.09>
- Livhits, M., Mercado, C., Yermilov, I., Parikh, J. A., Dutson, E., Mehran, A., Ko, C.Y., & Gibbons, M. M. (2010). Behavioral factors associated with successful weight loss after gastric bypass. *The American Surgeon, 76*(10), 1139-1142.
<https://doi.org/10.1177/00031348100760102>
- Livhits, M., Mercado, C., Yermilov, I., Parikh, J. A., Dutson, E., Mehran, A., Ko, C.Y., Shekelle, P.G., & Gibbons, M. M. (2011). Is social support associated with greater weight loss after bariatric surgery? A systematic review. *Obesity Reviews, 12*(2), 142-148. <https://doi.org/10.1111/j.1467-789X.2010.00720.x>
- Lobstein, T., & Brinsden, H. (2020, March). *Obesity: missing the 2025 global targets Trends, Costs and Country Reports*. https://s3-eu-west-1.amazonaws.com/wof-files/WOF_Missing_the_2025_Global_Targets_Report_FINAL_WEB.pdf
- Long, J. (2007). *Researching leisure, sport and tourism: The essential guide*. Los Angeles: London: SAGE.
- Lundeen, E. A., Norris, S. A., Adair, L. S., Richter, L. M., & Stein, A. D. (2016). Sex differences in obesity incidence: 20-year prospective cohort in South Africa. *Pediatric Obesity, 11*(1), 75-80. <https://doi.org/10.1111/ijpo.12039>
- Lupoli, R., Lembo, E., Saldalamacchia, G., Avola, C. K., Angrisani, L., & Capaldo, B. (2017). Bariatric surgery and long-term nutritional issues. *World Journal of Diabetes, 8*(11), 464-474. <https://doi.org/10.4239/wjd.v8.i11.464>
- Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The General Self-Efficacy Scale: Multicultural validation studies. *The Journal of Psychology, 139*(5), 439-457.
<https://doi.org/10.3200/JRLP.139.5.439-457>
- Maddi, S. R. (2006). Hardiness: The courage to grow from stress. *The Journal of Positive Psychology, 1*(3), 160–168. <https://doi.org/10.1080/17439760600619609>

- Maddux, J. E. (2002). Self-efficacy: The power of believing you can. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 277–287). Oxford University Press.
- Magdaleno Jr., R., Chaim, E. A., & Turato, E. R. (2009). Psychological characteristics of patients undergoing bariatric surgery. *Revista de Psiquiatria do Rio Grande do Sul*, 31(1), 73-78. <https://doi.org/10.1590/S0101-81082009000100013>
- Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, 9(3), 3351-3363. <http://ojs.aishe.org/index.php/aishe-j/article/view/335>
- Mahammadzadeh, A., Poursharifi, H., & Alipour, A. (2010). Validation of Sense of Coherence (SOC) 13-item Scale in Iranian sample. *Procedia-Social and Behavioral Sciences*, 5, 1451-1455. <https://doi.org/10.1016/j.sbspro.2010.07.306>
- Major, B., Tomiyama, A. J., & Hunger, J. M. (2018). The negative and bidirectional effects of weight stigma on health. In B. Major, J. F. Dovidio, & B. G. Link (Eds.), *The Oxford handbook of stigma, discrimination, and health* (pp. 499–519). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190243470.013.27>
- Makowski, A. C., Kim, T. J., Luck-Sikorski, C., & von dem Knesebeck, O. (2019). Social deprivation, gender and obesity: Multiple stigma? Results of a population survey from Germany. *British Medical Journal Open*, 9(4), e023389. <http://dx.doi.org/10.1136/bmjopen-2018-023389>
- Maleckas, A., Gudaitytė, R., Petereit, R., Venclauskas, L., & Veličkienė, D. (2016). Weight regain after gastric bypass: etiology and treatment options. *Gland Surgery*, 5(6), 617-624. <https://doi.org/10.21037/ga.2016.12.02>
- Malone, J. I., & Hansen, B. C. (2019). Does obesity cause type 2 diabetes mellitus (T2DM)? Or is it the opposite? *Pediatric diabetes*, 20(1), 5-9. <https://doi.org/10.1111/medi.12787>
- Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, 26(13), 1753-1760. <https://doi.org/10.1177/1049732315617444>

- Mamacos, E. (2021, 1 June). "More families moving to the Cape than ever before - here's why, and what it's really like". News 24.
<https://www.news24.com/parent/family/parenting/more-families-moving-to-the-cape-than-ever-before-heres-why-and-what-its-really-like-20210601>
- Mann, J. P., Jakes, A. D., Hayden, J. D., & Barth, J. H. (2015). Systematic review of definitions of failure in revisional bariatric surgery. *Obesity Surgery*, 25(3), 571-574.
<https://doi.org/10.1007/s11695-014-1541-2>
- Marcus, M. D., Kalarchian, M. A., & Courcoulas, A. P. (2009). Psychiatric evaluation and follow-up of bariatric surgery patients. *American Journal of Psychiatry*, 166(3), 285-291.
<https://doi.org/10.1176/appi.ajp.2008.08091327>
- Marks, D. F., & Yardley, L. (2004). *Research methods for clinical and health psychology*. London: SAGE
- Martikainen, P., Bartley, M., & Lahelma, E. (2002). Psychosocial determinants of health in social epidemiology. *International Journal of Epidemiology*, 31(6), 1091-1093.
<https://doi.org/10.1093/ije/31.6.1091>
- Martin, R. D., & Kennett, D. J. (2018). To be kind or not to be kind: The moderating role of self-compassion in the relationship between general resourcefulness and academic self-regulation. *The Journal of Social Psychology*, 158(5), 626-638.
<https://doi.org/10.1080/00224545.2017.1407286>
- Mason, J. (2004). Interview guide. In M. S. Lewis-Beck, A. Bryman, & T. F. Liao (Eds.), *The SAGE encyclopedia of social research methods* (p.519). SAGE Publications
<https://doi.org/10.4135/9781412950589>
- Mato, M., & Tsukasaki, K. (2019). Factors promoting sense of coherence among university students in urban areas of Japan: Individual-level social capital, self-efficacy, and mental health. *Global Health Promotion*, 26(1), 60-68.
<https://doi.org/10.1177/1757975917691925>
- McCawley, G. M., Ferriss, J. S., Geffel, D., Northup, C. J., & Modesitt, S. C. (2009). Cancer in obese women: potential protective impact of bariatric surgery. *Journal of the*

American College of Surgeons, 208(6), 1093-1098.

<https://doi.org/10.1016/j.jamcollsurg.2009.01.045>

McGrice, M., & Paul, K. D. (2015). Interventions to improve long-term weight loss in patients following bariatric surgery: Challenges and solutions. *Diabetes, Metabolic Syndrome and Obesity*, 2015(8), 263-274. <https://doi.org/10.2147/DMSO.S57054>

Mechanick, J. I., Hurley, D. L., & Garvey, W. T. (2016). Adiposity-based chronic disease as a new diagnostic term: The American Association of Clinical Endocrinologists and American College of Endocrinology position statement. *Endocrine Practice*, 23(3), 372-378. <https://doi.org/10.4158/EP161688.PS>

Mechanick, J. I., Youdim, A., Jones, D. B., Garvey, W. T., Hurley, D. L., McMahon, M. M., Heinberg, L. J., Kushner, R., Adams, T. D., Shikora, S., Dixon, J. B., & Brethauer, S. (2013). Clinical practice guidelines for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient—2013 update: Cosponsored by American Association of Clinical Endocrinologists, the Obesity Society, and American Society for Metabolic & Bariatric Surgery. *Obesity*, 9(2), 159-191.

<https://doi.org/10.1016/j.soard.2012.12.010>

Megías, Á., González-Cutre, D., Beltrán-Carrillo, V. J., Gomis-Díaz, J. M., Cervelló, E., & Bartholomew, K. J. (2018). The impact of living with morbid obesity on psychological need frustration: A study with bariatric patients. *Stress and Health*, 34(4), 509-522.

<https://doi.org/10.1002/smi.2811>

Mingrone, G., Panunzi, S., De Gaetano, A., Guidone, C., Iaconelli, A., Nanni, G., Castagneto, M., Bornstein, S., & Rubino, F. (2015). Bariatric–metabolic surgery versus conventional medical treatment in obese patients with type 2 diabetes: 5 year follow-up of an open-label, single-centre, randomised controlled trial. *The Lancet*, 386(9997), 964-973. [https://doi.org/10.1016/S0140-6736\(15\)00075-6](https://doi.org/10.1016/S0140-6736(15)00075-6)

Minnie, C. S., & Minnie, F. G. (2017). Perspectives on salutogenesis of scholars writing in Afrikaans. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B.

- Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp 351-355). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Mitchell, J. E., Crosby, R., de Zwaan, M., Engel, S., Roerig, J., Steffen, K., Gardon, K. H., Karr, T., Lavender, J., & Wonderlich, S. (2013). Possible risk factors for increased suicide following bariatric surgery. *Obesity*, 21(4), 665-672. <https://doi.org/10.1002/oby.20066>
- Mitchell, J. E., King, W. C., Courcoulas, A., Dakin, G., Elder, K., Engel, S., Flum, D., Kalarchian, M., Khandelwal, S., Pender, J., Pories, W., & Wolfe, B. (2015). Eating behavior and eating disorders in adults before bariatric surgery. *International Journal of Eating Disorders*, 48(2), 215-222. <https://doi.org/10.1002/eat.22275>
- Mittlemark, M. B. (2017). Introduction to the handbook of salutogenesis. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp. 3-5). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Mittlemark, M. B., & Bauer G. F. (2017). The meanings of salutogenesis. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp. 7-13). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Mittlemark, M. B., Bauer, G. F. (2022). Salutogenesis as a theory, as an orientation and as the sense of coherence. In M. B. Mittlemark, G. F. Bauer, L. Vaandrager, J. M. Pelikan, S. Sagy, M. Eriksson, B. Lindström, & M. C. Magistretti (Eds). *The handbook of salutogenesis* (2nd Ed.) (pp. 11-17). Springer International Publishing. <https://doi.org/10.1007/978-3-030-79515-3>
- Mittlemark, M. B., & Bull, T. (2013). The salutogenic model of health in health promotion research. *Global Health Promotion*, 20(2), 30-38. <https://doi.org/10.1177/1757975913486684>
- Mittlemark, M. B., Bull, T., & Bouwman, L. (2017). Emerging ideas relevant to the salutogenic model of health. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J.

M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp.45-56). Springer International Publishing. [https://doi.org/10.1007/978-3-319-04600-](https://doi.org/10.1007/978-3-319-04600-6)

[6](#)

- Modarressi, A., Balague, N., Huber, O., Chilcott, M., & Pittet-Cuénod, B. (2013). Plastic surgery after gastric bypass improves long-term quality of life. *Obesity Surgery*, 23(1), 24-30. <https://doi.org/10.1007/s11695-012-0735-8>
- Mole, D. R., Tomson, C. R. V., Mortensen, N., & Winearls, C. G. (2001). Renal complications of jejunio-ileal bypass for obesity. *Quarterly Journal of Medicine: An International Journal of Medicine*, 94(2), 69-77. <https://doi.org/10.1093/qjmed/94.2.69>
- Monpellier, V. M., Antoniou, E. E., Aarts, E. O., Janssen, I. M., & Jansen, A. T. (2017). Improvement of health-related quality of life after Roux-en-Y gastric bypass related to weight loss. *Obesity Surgery*, 27(5), 1168-1173. <https://doi.org/10.1007/s11695-016-2468-6>
- Montani, J. P., Schutz, Y., & Dulloo, A. G. (2015). Dieting and weight cycling as risk factors for cardiometabolic diseases: Who is really at risk? *Obesity Reviews*, 16(S1), 7-18. <https://doi.org/10.1111/obr.12251>
- Montejo, A. L., Calama, J., Rico-Villademoros, F., Montejo, L., González-García, N., & Pérez, J. (2019). A real-world study on antidepressant-associated sexual dysfunction in 2144 outpatients: The SALSEX I study. *Archives of Sexual Behavior*, 48(3), 923-933. <https://doi.org/10.1007/s10508-018-1365-6>
- Montesi, L., El Ghoch, M., Brodosi, L., Calugi, S., Marchesini, G., & Dalle Grave, R. (2016). Long-term weight loss maintenance for obesity: A multidisciplinary approach. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, 9, 37-46. <https://doi.org/10.2147/DMSO.S89836>
- Moro, A., Tello-Trillo, S., & Tempesti, T. (2019). The impact of obesity on wages: The role of personal interactions and job selection. *Labour*, 33(2), 125-146. <https://doi.org/10.1111/labr.12145>

- Morse, J. M. (2004). Purposive sampling. In M. S. Lewis-Beck, A. Bryman, & T. F. Liao (Eds.). *The Sage encyclopedia of social science research methods. Volume 2* (pp.885-886). Sage Publications.
- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice, 24*(1), 9-18. <https://doi.org/10.1080/13814788.2017.1375091>
- Munoz, D. J., Lal, M., Chen, E. Y., Mansour, M., Fischer, S., Roehrig, M., Sanchez-Johnsen, L., Dymek-Valentine, M., Alverdy, J., & Le Grange, D. (2007). Why patients seek bariatric surgery: A qualitative and quantitative analysis of patient motivation. *Obesity surgery, 17*(11), 1487-1491. <https://doi.org/10.1007/s11695-008-9427-9>
- Nayak, R., Gunasheela, D., Kumar, V., & Rafi, F. (2020). Effectiveness of bariatric surgery-induced weight loss on infertility among PCOS and non-PCOS women: Experience of a maternity hospital and in vitro fertilization (IVF) center in India. *Indian Journal of Surgery, 1*-7. <https://doi.org/10.1007/s12262-020-02228-5>
- NCD Risk Factor Collaboration. (2016). Trends in adult body-mass index in 200 countries from 1975 to 2014: A pooled analysis of 1698 population-based measurement studies with 19· 2 million participants. *The Lancet, 387*(10026), 1377-1396. [https://doi.org/10.1016/S0140-6736\(16\)30054-X](https://doi.org/10.1016/S0140-6736(16)30054-X)
- Nedelcu, M., Noel, P., Iannelli, A., & Gagner, M. (2015). Revised sleeve gastrectomy (re-sleeve). *Surgery for Obesity and Related Diseases, 11*(6), 1282-1288. <https://doi.org/10.1016/j.soard.2015.02.009>
- Ng, M., Fleming, T., Robinson, M., Thomson, B., Graetz, N., Margono, C., Mullany, E. C., Biryukov, S., Abbafati, C., Abera, S. F., Abraham, J. P., Abu-Rmeileh, N. M. E., Achoki, T., AlBuairan, F. S., Alemu, Z. A., Alfonso, R., Ali, M. K., Ali, R., Guzman, A., & Gakidou, E. (2014). Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: A systematic analysis for the Global Burden of Disease Study 2013. *The Lancet, 384*(9945), 766-781. [https://doi.org/10.1016/S0140-6736\(14\)60460-8](https://doi.org/10.1016/S0140-6736(14)60460-8)

- Nickel, F., Schmidt, L., Bruckner, T., Böhler, M. W., Müller-Stich, B. P., & Fischer, L. (2017). Influence of bariatric surgery on quality of life, body image, and general self-efficacy within 6 and 24 months: A prospective cohort study. *Surgery for Obesity and Related Diseases*, 13(2), 313-319. <https://doi.org/10.1016/j.soard.2016.08.017>
- Nieves-Khouw, F., Welton, R., & Muchow, N. (2009). Bariatric surgery: Beyond informed consent. *Bariatric Nursing and Surgical Patient Care*, 4(3), 191-202. <https://doi.org/10.1089/bar.2009.9965>
- Nilsen, V., Bakke, P. S., Rohde, G., & Gallefoss, F. (2015). Is sense of coherence a predictor of lifestyle changes in subjects at risk for type 2 diabetes? *Public Health*, 129(2), 155-161. <https://doi.org/10.1016/j.puhe.2014.12.014>
- Noria, S. F., Shelby, R. D., Atkins, K. D., Nguyen, N. T., & Gadde, K.M. (2023). Weight regain after bariatric surgery: Scope of the problem, causes, prevention, and treatment. *Current Diabetes Reports*, 23(3), 31–42. <https://doi.org/10.1007/s11892-023-01498-z>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1-13. <https://doi.org/10.1177/1609406917733847>
- Nuccitelli, C., Valentini, A., Caletti, M. T., Caselli, C., Mazzella, N., Forlani, G., & Marchesini, G. (2018). Sense of coherence, self-esteem, and health locus of control in subjects with type 1 diabetes mellitus with/without satisfactory metabolic control. *Journal of Endocrinological Investigation*, 41(3), 307-314. <https://doi.org/10.1007/s40618-017-0741-8>
- Obara-Golebiowska, M. (2016). Employment discrimination against obese women in obesity clinic's patients perspective. *Roczniki Państwowego Zakładu Higieny*, 67(2), 147-154. Retrieved from: [file:///C:/Users/u04186575/Downloads/Employment discrimination against o%20\(2\).pdf](file:///C:/Users/u04186575/Downloads/Employment%20discrimination%20against%20(2).pdf)

- O’Cathain, A., Murphy, E., & Nicholl, J. (2010). Three techniques for integrating data in mixed methods studies. *British Medical Journal*, *341*, c4587. <https://doi.org/10.1136/bmj.c4587>
- Odom, J., Zalesin, K. C., Washington, T. L., Miller, W. W., Hakmeh, B., Zaremba, D. L., Altattan, M., Balasubramaniam, M., Gibbs, D. S., Krause, K. R., Chengelis, D. L., Franklin, B. A., & McCullough, P. A. (2010). Behavioral predictors of weight regain after bariatric surgery. *Obesity Surgery*, *20*(3), 349–356. <https://doi.org/10.1007/s11695-009-9895-6>
- Ogle, J. P., Park, J., Damhorst, M. L., & Bradley, L. A. (2016). Social support for women who have undergone bariatric surgery. *Qualitative Health Research*, *26*(2), 176-193. <https://doi.org/10.1177/1049732315570132>
- Oh, S. H., Song, H. J., Kwon, J. W., Park, D. J., Lee, Y. J., Chun, H., Kim, S., & Shim, K. W. (2013). The improvement of quality of life in patients treated with bariatric surgery in Korea. *Journal of the Korean Surgical Society*, *84*(3), 131-139. <https://doi.org/10.4174/jkss.2013.84.3.131>
- Ohyver, M., Moniaga, J. V., Sungkawa, I., Subagyo, B. E., & Chandra, I. A. (2019). The comparison firebase realtime database and MySQL database performance using Wilcoxon signed-rank test. *Procedia Computer Science*, *157*(C), 396-405. <https://doi.org/10.1016/j.procs.2019.08.231>
- O’Kane, M., Parretti, H. M., Hughes, C. A., Sharma, M., Woodcock, S., Puplampu, T., Blakemore, A. I., Clare, K., MacMilan, I., Joyce, J., Sethi, S., & Barth, J.H. (2016). Guidelines for the follow-up of patients undergoing bariatric surgery. *Clinical Obesity*, *6*(3), 210-224. <https://doi.org/10.1111/cob.12145>
- Opolski, M., Chur-Hansen, A., & Wittert, G. (2015). The eating-related behaviours, disorders and expectations of candidates for bariatric surgery. *Clinical Obesity*, *5*(4), 165-197. <https://doi.org/10.1111/cob.12104>
- Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.

- Papalazarou, A., Yannakoulia, M., Kavouras, S. A., Komesidou, V., Dimitriadis, G., Papakonstantinou, A., & Sidossis, L. S. (2010). Lifestyle intervention favorably affects weight loss and maintenance following obesity surgery. *Obesity*, *18*(7), 1348-1353. <https://doi.org/10.1038/oby.2009.346>
- Parker, C., Scott, S., & Geddes, A. (2019). Snowball sampling. *SAGE Research Methods Foundations*. <http://dx.doi.org/10.4135/>
- Parlee, S. D., Wang, Y., Poirier, P., Lapointe, M., Martin, J., Bastien, M., Cianflone, K., & Goralski, K. B. (2015). Biliopancreatic diversion with duodenal switch modifies plasma chemerin in early and late post-operative periods. *Obesity*, *23*(6), 1201-1208. <https://doi.org/10.1002/oby.21084>
- Patel, S., Szomstein, S., & Rosenthal, R. J. (2011). Reasons and outcomes of reoperative bariatric surgery for failed and complicated procedures (excluding adjustable gastric banding). *Obesity Surgery*, *21*(8), 1209-1219. <https://doi.org/10.1007/s11695-010-0234-8>
- Pearl, R. L., Allison, K. C., Shaw Tronieri, J., & Wadden, T. A. (2018). Reconsidering the psychosocial-behavioral evaluation required prior to bariatric surgery. *Obesity*, *26*(2), 249-250. <https://doi.org/10.1002/oby.22063>
- Pearl, R. L., & Puhl, R. M. (2018). Weight bias internalization and health: A systematic review. *Obesity reviews*, *19*(8), 1141-1163. <https://doi.org/10.1111/obr.12701>
- Pearl, R. L., Wadden, T. A., Tronieri, J. S., Chao, A. M., Alamuddin, N., & Berkowitz, R. I. (2018). Everyday discrimination in a racially diverse sample of patients with obesity. *Clinical Obesity*, *8*(2), 140-146. <https://doi.org/10.1111/cob.12235>
- Pečečnik, T. M., & Gostečnik, C. (2022). Use of spirituality in the treatment of depression: Systematic literature review. *Psychiatric Quarterly*, *93*, 255–269. <https://doi.org/10.1007/s11126-020-09881-9>
- Peterhänsel, C., Petroff, D., Klinitzke, G., Kersting, A., & Wagner, B. (2013). Risk of completed suicide after bariatric surgery: A systematic review. *Obesity Reviews*, *14*(5), 369-382. <https://doi.org/10.1111/obr.12014>

- Peterli, R., Wölnerhanssen, B. K., Peters, T., Vetter, D., Kröll, D., Borbély, Y., Schultes, B., Beglinger, C., Drewe, J., Schiesser, M., Nett, P., & Bueter, M. (2018). Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss in patients with morbid obesity: The SM-BOSS randomized clinical trial. *Journal of the American Medical Association*, 319(3), 255-265.
<https://doi.org/10.1001/jama.2017.20897>
- Pinto-Bastos, A., Conceição, E. M., & Machado, P. P. (2017). Reoperative bariatric surgery: A systematic review of the reasons for surgery, medical and weight loss outcomes, relevant behavioral factors. *Obesity Surgery*, 27(10), 2707-2715.
<https://doi.org/10.1007/s11695-017-2855-7>
- Plourde, C. É., Grenier-Larouche, T., Caron-Dorval, D., Biron, S., Marceau, S., Lebel, S., Biertho, L., Tchernof, A., Richard, D., & Carpentier, A. C. (2014). Biliopancreatic diversion with duodenal switch improves insulin sensitivity and secretion through caloric restriction. *Obesity*, 22(8), 1838-1846. <https://doi.org/10.1002/oby.20771>
- Poggiogalle, E., Di Lazzaro, L., Pinto, A., Migliaccio, S., Lenzi, A., & Donini, L. M. (2014). Health-related quality of life and quality of sexual life in obese subjects. *International Journal of Endocrinology*, 2014, 847871. <https://doi.org/10.1155/2014/847871>
- Pretorius, T. B., & Padmanabhanunni, A. (2022). Deriving meaning from chaos: The mediating role of the sense of coherence in the serial relationships among fear of COVID-19, indices of psychological distress, and life satisfaction. *Healthcare*, 10 (11), 2276. <https://doi.org/10.3390/healthcare10112276>
- Previte, J., & Gurrieri, L. (2015). Who is the biggest loser? Fat news coverage is a barrier to healthy lifestyle promotion. *Health Marketing Quarterly*, 32(4), 330-349.
<https://doi.org/10.1080/07359683.2015.1093881>
- Priesack, A., & Alcock, J. (2015). Well-being and self-efficacy in a sample of undergraduate nurse students: A small survey study. *Nurse Education Today*, 35(5), e16-e20.
<https://doi.org/10.1016/j.nedt.2015.01.022>

- Puhl, R. M., Andreyeva, T., & Brownell, K. D. (2008). Perceptions of weight discrimination: Prevalence and comparison to race and gender discrimination in America. *International Journal of Obesity*, 32(6), 992-1000. <https://doi.org/10.1038/ijo.2008.22>
- Puhl, R.M., & Brownell, K.D. (2001). Bias, discrimination, and obesity. *Obesity Research*, 9(12), 788–805. <https://doi.org/10.1038/oby.2001.108>
- Puhl, R. M., & Heuer, C. A. (2009). The stigma of obesity: A review and update. *Obesity*, 17(5), 941-964. <https://doi.org/10.1038/oby.2008.636>
- Puhl, R. M., Himmelstein, M. S., & Pearl, R. L. (2020). Weight stigma as a psychosocial contributor to obesity. *American Psychologist*, 75(2), 274-289. <https://doi.org/10.1037/amp0000538>
- Puhl, R. M., Moss-Racusin, C. A., & Schwartz, M. B. (2007). Internalization of weight bias: Implications for binge eating and emotional well-being. *Obesity*, 15(1), 19-23. <https://doi.org/10.1038/oby.2007.521>
- Punch, K. F. (2006). *Developing effective research proposals*. (2nd Ed.). Sage Publications.
- Quehenberger, V., & Krajic, K. (2017). Applications of salutogenesis to aged and highly-aged persons: Residential care and community settings. In M. B. Mittlemark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp.325-335). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>
- Rahman, S. (2017). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language “testing and assessment” research: A literature review. *Journal of Education and Learning*, 6(1), 102-112. <https://doi.org/10.5539/jel.v6n1p102>
- Ramadan, M., Loureiro, M., Laughlan, K., Caiazzo, R., Iannelli, A., Brunaud, L., Czernichow, S., Nedelcu, M., & Nocca, D. (2016). Risk of dumping syndrome after sleeve gastrectomy and Roux-en-Y gastric bypass: Early results of a multicentre prospective study. *Gastroenterology Research and Practice*, 2016, 1-5. <https://doi.org/10.1155/2016/2570237>

- Rana, R., & Singhal, R. (2015). Chi-square test and its application in hypothesis testing. *Journal of the Practice of Cardiovascular Sciences*, 1(1), 69. Retrieved from: <https://www.i-pcs.org/text.asp?2015/1/1/69/157577>
- Reknes, I., Harris, A., & Einarsen, S. (2018). The role of hardiness in the bullying–mental health relationship. *Occupational Medicine*, 68(1), 64-66. <https://doi.org/10.1093/occmed/kqx183>
- Richard, P., Ferguson, C., Lara, A. S., Leonard, J., & Younis, M. (2014). Disparities in physician-patient communication by obesity status. *Inquiry: The Journal of Health Care Organization, Provision, and Financing*, 51, 0046958014557012. <https://doi.org/10.1177/0046958014557012>
- Richardson, C. G., & Ratner, P. A. (2005). Sense of coherence as a moderator of the effects of stressful life events on health. *Journal of Epidemiology & Community Health*, 59(11), 979-984. <http://dx.doi.org/10.1136/jech.2005.036756>
- Roehling, M. V., Roehling, P. V., & Pichler, S. (2007). The relationship between body weight and perceived weight-related employment discrimination: The role of sex and race. *Journal of Vocational Behavior*, 71(2), 300-318. <https://doi.org/10.1016/j.jvb.2007.04.008>
- Rogerson, D., Soltani, H., & Copeland, R. (2016). The weight-loss experience: A qualitative exploration. *BioMed Central Public Health*, 16(1), 1-12. <https://doi.org/10.1186/s12889-016-3045-6>
- Rosenbaum, M. E. (1990). *Learned resourcefulness: On coping skills, self-control, and adaptive behavior*. Springer Publishing Co.
- Rosenbaum, M., & Ben-Ari, K. (1985). Learned helplessness and learned resourcefulness: Effects of noncontingent success and failure on individuals differing in self-control skills. *Journal of Personality and Social Psychology*, 48(1), 198-215. <https://doi.org/10.1037/0022-3514.48.1.198>

- Rosenberg, S. L. (2019). The relationship between PCOS and obesity: Which comes first? *The Science Journal of the Lander College of Arts and Sciences*, 13(1), 34-40. Retrieved from <https://touro scholar.touro.edu/sjlcas/vol13/iss1/5>
- Rosenthal, R. J., & Panel, I. S. G. E. (2012). International sleeve gastrectomy expert panel consensus statement: Best practice guidelines based on experience of > 12,000 cases. *Surgery for Obesity and Related Diseases*, 8(1), 8-19. <https://doi.org/10.1016/j.soard.2011.10.019>
- Rothmann, S. (2001). Sense of coherence, locus of control, self-efficacy and job satisfaction. *South African Journal of Economic and Management Sciences*, 4(1), 41-65. https://hdl.handle.net/10520/AJA10158812_249
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological monographs: General and applied*, 80(1), 1-28. <https://doi.org/10.1037/h0092976>
- Rotter, J.B. (1990). Internal versus external control of reinforcement: A case history of a variable. *American Psychologist*, 45(4), 489-493. <https://doi.org/10.1037/0003-066X.45.4.489>
- Rumrill, P., Li, J., Strauser, D., Roessler, R. T., Bishop, M., Chan, F., Adams, C., & Leslie, M. (2020). Personal, health and function, and career maintenance factors as determinants of quality of life among employed people with multiple sclerosis. *Work* 67(1), 81-94. <https://doi.org/10.3233/WOR-203254>
- Saboor Aftab, S. A., Halder, L., Piya, M. K., Reddy, N., Fraser, I., Menon, V., Bridwater, S., Kendrick, D., Kumar, S., & Barber, T. M. (2014). Predictors of weight loss at 1 year after laparoscopic adjustable gastric banding and the role of presurgical quality of life. *Obesity Surgery*, 24(6), 885-890. <https://doi.org/10.1007/s11695-014-1184-3>
- Sagy, S., & Antonovsky, H. (2000). The development of the sense of coherence: A retrospective study of early life experiences in the family. *The International Journal of Aging and Human Development*, 51(2), 155-166. <https://doi.org/10.2190/765L-K6NV-JK52-UF>

- Sala, M., Haller, D. L., Laferrère, B., Homel, P., & McGinty, J. J. (2017). Predictors of attrition before and after bariatric surgery. *Obesity Surgery*, 27(2), 548-551.
<https://doi.org/10.1007/s11695-016-2510-8>
- Saldaña, J. (2015). *The coding manual for qualitative researchers* (3rd Edition). Sage Publications Ltd.
- Salinari, S., le Roux, C. W., Bertuzzi, A., Rubino, F., & Mingrone, G. (2014). Duodenal-jejunal bypass and jejunectomy improve insulin sensitivity in Goto-Kakizaki diabetic rats without changes in incretins or insulin secretion. *Diabetes*, 63(3), 1069-1078.
<https://doi.org/10.2337/db13-0856>
- Sanyaolu, A., Okorie, C., Qi, X., Locke, J., & Rehman, S. (2019). Childhood and adolescent obesity in the United States: A public health concern. *Global Pediatric Health*, 6, 2333794X19891305. <https://doi.org/10.1177/2333794X19891305>
- Saravia, J. C., Iberico Alcedo, C., & Yearwood Travezan, K. (2015). Validación de la escala Sentido de Coherencia (SOC) 13-item en una muestra Peruana. *Journal of Behavior, Health & Social Issues*, 6(2), 35-44.
<http://dx.doi.org/10.22201/fesi.20070780.2014.6.2.48590>
- Sarwer, D. B., & Fabricatore, A. N. (2008). Psychiatric considerations of the massive weight loss patient. *Clinics in Plastic Surgery*, 35(1), 1-10.
<https://doi.org/10.1016/j.cps.2007.08.006>
- Sarwer, D. B., Hanson, A. J., Voeller, J., & Steffen, K. (2018). Obesity and Sexual Functioning. *Current Obesity Reports*, 7(4), 301-307. <https://doi.org/10.1007/s13679-018-0319-6>
- Sarwer, D. B., Lavery, M., & Spitzer, J. C. (2012). A review of the relationships between extreme obesity, quality of life, and sexual function. *Obesity Surgery*, 22(4), 668-676.
<https://doi.org/10.1007/s11695-012-0588-1>
- Sarwer, D. B., Spitzer, J. C., Wadden, T. A., Mitchell, J. E., Lancaster, K., Courcoulas, A., Gourash, W. Rosen, R. C., & Christian, N. J. (2014). Changes in sexual functioning and sex hormone levels in women following bariatric surgery. *Journal of the American*

Medical Association Surgery, 149(1), 26-33.

<https://doi.org/10.1001/jamasurg.2013.5022>

Sarwer, D. B., & Steffen, K. J. (2015). Quality of life, body image and sexual functioning in bariatric surgery patients. *European Eating Disorders Review*, 23(6), 504-508.

<https://doi.org/10.1002/erv.2412>

Sarwer, D. B., Wadden, T. A., Moore, R. H., Baker, A. W., Gibbons, L. M., Raper, S. E., & Williams, N. N. (2008). Preoperative eating behaviour, postoperative dietary adherence and weight loss following gastric bypass surgery. *Surgery for Obesity and Related Disorders*, 4(5), 640–646. <https://doi.org/10.1016/j.soard.2008.04.013>

Schauer, D. P., Feigelson, H. S., Koebnick, C., Caan, B., Weinmann, S., Leonard, A. C., Powers, J. D., Yenumula, P. R., & Arterburn, D. E. (2019). Bariatric surgery and the risk of cancer in a large multisite cohort. *Annals of Surgery*, 269(1), 95-101.

<https://doi.org/10.1097/SLA.0000000000002525>

Scherbaum, C. A., Cohen-Charash, Y., & Kern, M. J. (2006). Measuring general self-efficacy: A comparison of three measures using item response theory. *Educational and Psychological Measurement*, 66(6), 1047-1063.

<https://doi.org/10.1177/0013164406288171>

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763-1768.

<https://doi.org/10.1213/ANE.0000000000002864>

Schwalter, M., Benecke, A., Lager, C., Heimbucher, J., Bueter, M., Thalheimer, A., Fein, M., Richard, M., & Faller, H. (2008). Changes in depression following gastric banding: A 5- to 7-year prospective study. *Obesity Surgery*, 18(3), 314-320.

<https://doi.org/10.1007/s11695-007-9316-7>

Schulman, A. R., & Thompson, C. C. (2017). Complications of bariatric surgery: What you can expect to see in your GI practice. *American Journal of Gastroenterology*, 112(11), 1640-1655. <https://doi.org/10.1038/ajg.2017.241>

- Schvey, N. A., Puhl, R. M., & Brownell, K. D. (2011). The impact of weight stigma on caloric consumption. *Obesity*, 19(10), 1957-1962. <https://doi.org/10.1038/oby.2011.204>
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy Scale. In J. Weinman, S. Wright, & M. Johnston. *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). NFER-NELSON. <https://doi.org/10.1037/t00393-000>
- Schwarzer, R., Mueller, J., & Greenglass, E. (1999). Assessment of perceived general self-efficacy on the Internet: Data collection in cyberspace. *Anxiety, Stress and Coping*, 12(2), 145-161. <https://doi.org/10.1080/10615809908248327>
- Sharma, A. M., & Campbell-Scherer, D. L. (2017). Redefining obesity: Beyond the numbers. *Obesity*, 25(4), 660-661. <https://doi.org/10.1002/oby.21801>
- Sharman, M., Hensher, M., Wilkinson, S., Williams, D., Palmer, A., Venn, A., & Ezzy, D. (2017). What are the support experiences and needs of patients who have received bariatric surgery? *Health Expectations*, 20(1), 35-46. <https://doi.org/10.1111/hex.12423>
- Sharon-David, H., & Tenenbaum, G. (2017). The effectiveness of exercise interventions on coping with stress: Research synthesis. *Studies in Sport Humanities*, 22(22), 19-29. <https://doi.org/10.5604/01.3001.0012.6520>
- Sheets, C. S., Peat, C. M., Berg, K. C., White, E. K., Bocchieri-Ricciardi, L., Chen, E. Y., & Mitchell, J. E. (2015). Post-operative psychosocial predictors of outcome in bariatric surgery. *Obesity Surgery*, 25(2), 330-345. <https://doi.org/10.1007/s11695-014-1490-9>
- Sikorski, C., Spahlholz, J., Hartlev, M., & Riedel-Heller, S. G. (2016). Weight-based discrimination: An ubiquitous phenomenon?. *International Journal of Obesity*, 40(2), 333-337. <https://doi.org/10.1038/ijo.2015.165>
- Singh, D., Arumalla, K., Aggarwal, S., Singla, V., Ganie, A., & Malhotra, N. (2020). Impact of bariatric surgery on clinical, biochemical, and hormonal parameters in women with polycystic ovary syndrome (PCOS). *Obesity Surgery*, 30(6), 2294-2300. <https://doi.org/10.1007/s11695-020-04487-3>

- Singh, D., Laya, A. S., Clarkston, W. K., & Allen, M. J. (2009). Jejunoileal bypass: A surgery of the past and a review of its complications. *World Journal of Gastroenterology*, 15(18), 2277-2279. <https://doi.org/10.3748/wjg.15.2277>
- Singh, A. S., & Masuku, M. B. (2014). Sampling techniques & determination of sample size in applied statistics research: An overview. *International Journal of Economics, Commerce and Management*, 2(11), 1-22. Retrieved from: <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=ed039f87c11fc5b1e17dab7ab79c26b3cf1f9ebb>
- Skär, L., Juuso, P., & Söderberg, S. (2014). Health-related quality of life and sense of coherence among people with obesity: Important factors for health management. *SAGE Open Medicine*, 2, 2050312114546923. <https://doi.org/10.1177/2050312114546923>
- Smith, J. D., Fu, E., & Kobayashi, M. A. (2020). Prevention and management of childhood obesity and its psychological and health comorbidities. *Annual Review of Clinical Psychology*, 16, 351-378. <https://doi.org/10.1146/annurev-clinpsy-100219-060201>
- Snyder, B., Wilson, T., Mehta, S., Bajwa, K., Robinson, E., Worley, T., Aluka, K., Wolin-Riklink, C., & Wilson, E. (2010). Past, present, and future: Critical analysis of use of gastric bands in obese patients. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy*, 2010(3), 55-65. <https://doi.org/10.2147/DMSO.S6935>
- Sobhani, Z., Amini, M., Hosseini, S. V., Khazraei, S., & Khazraei, H. (2020). Self-efficacy, happiness and psychological well-being after sleeve gastrectomy. *World Journal of Surgery*, 44(12), 4193-4196. <https://doi.org/10.1007/s00268-020-05761-2>
- Sogg, S., & Friedman, K. E. (2015). Getting off on the right foot: The many roles of the psychosocial evaluation in the bariatric surgery practice. *European Eating Disorders Review*, 23(6), 451-456. <https://doi.org/10.1002/erv.2395>
- Spahlholz, J., Baer, N., König, H. H., Riedel-Heller, S. G., & Luck-Sikorski, C. (2016). Obesity and discrimination: A systematic review and meta-analysis of observational studies. *Obesity Reviews*, 17(1), 43-55. <https://doi.org/10.1111/obr.12343>

- Stanford, F. C., Tauqeer, Z., & Kyle, T. K. (2018). Media and its influence on obesity. *Current Obesity Reports*, 7(2), 186-192. <https://doi.org/10.1007/s13679-018-0304-0>
- Steffen, K. J., King, W. C., White, G. E., Subak, L. L., Mitchell, J. E., Courcoulas, A. P., Flum, D. R., Strain, G., Sarwer, D. B., Kolotkin, R. L., Pories, W., & Huang, A. (2017). Sexual functioning of men and women with severe obesity before bariatric surgery. *Surgery for Obesity and Related Diseases*, 13(2), 334-343. <https://doi.org/10.1016/j.soard.2016.09.022>
- Stenard, F., & Iannelli, A. (2015). Laparoscopic sleeve gastrectomy and gastroesophageal reflux. *World Journal of Gastroenterology*, 21(36), 10348-10357. <https://doi.org/10.3748/wjg.v21.i36.10348>
- Still, C. D., Wood, G. C., Chu, X., Manney, C., Strodel, W., Petrick, A., Gabrielsen, J., Mirshahi, T., Argyropoulos, G., Seiler, J., Yung, M., Benotti, P., & Gerhard, G.S. (2014). Clinical factors associated with weight loss outcomes after Roux-en-Y gastric bypass surgery. *Obesity*, 22(3), 888-894. <https://doi.org/10.1002/oby.20529>
- Strümpher, D. J. W. (1990). Salutogenesis: A new paradigm. *South African Journal of Psychology*, 20(4), 265-276. <https://doi.org/10.1177/008124639002000406>
- Strümpfer, D. J. W. (1995). The origins of health and strength: From 'salutogenesis' to 'fortigenesis'. *South African Journal of Psychology*, 25(2), 81-89. <https://doi.org/10.1177/008124639502500203>
- Stubbs, J., Whybrow, S., Teixeira, P., Blundell, J., Lawton, C., Westenhoefer, J., Engel, D., Shepherd, R., Mcconnon, A., & Raats, M. (2011). Problems in identifying predictors and correlates of weight loss and maintenance: implications for weight control therapies based on behaviour change. *Obesity Reviews*, 12(9), 688-708. <https://doi.org/10.1111/j.1467-789X.2011.00883.x>
- Super, S., Verschuren, W. M., Zantinge, E. M., Wagemakers, M. A. E., & Picavet, H. S. J. (2014). A weak sense of coherence is associated with a higher mortality risk. *Journal of Epidemiology & Community Health*, 68(5), 411-417. <http://dx.doi.org/10.1136/jech-2013-203085>

- Super, S., Wagemakers, M. A. E., Picavet, H. S. J., Verkooijen, K. T., & Koelen, M. A. (2015). Strengthening sense of coherence: Opportunities for theory building in health promotion. *Health Promotion International*, 31(4), 869-878.
<https://doi.org/10.1093/heapro/dav071>
- Sutin, A. R., Stephan, Y., Carretta, H., & Terracciano, A. (2015). Perceived discrimination and physical, cognitive, and emotional health in older adulthood. *The American Journal of Geriatric Psychiatry*, 23(2), 171-179. <https://doi.org/10.1016/j.jagp.2014.03.007>
- Swami, V. (2015). Cultural influences on body size ideals: Unpacking the impact of westernization and modernization. *European Psychologist*, 20(1), 44–51. <https://doi.org/10.1027/1016-9040/a000150>
- Tabesh, M. R., Maleklou, F., Ejtehadi, F., & Alizadeh, Z. (2019). Nutrition, physical activity, and prescription of supplements in pre- and post-bariatric surgery patients: A practical guideline. *Obesity Surgery*, 29, 3385–3400. <https://doi.org/10.1007/s11695-019-04112-y>
- Tallis, J., James, R. S., & Seebacher, F. (2018). The effects of obesity on skeletal muscle contractile function. *Journal of Experimental Biology*, 221(13), 1-14.
<https://doi.org/10.1242/jeb.163840>
- Tantry, A. & Singh, A.P. (2016). A study of psychological hardiness across different professions of Kashmir (J&K), India. *International Journal of Advanced Research* 4(2), 1258-1263. Retrieved from: https://www.journalijar.com/uploads/146_IJAR-8738.pdf
- Teixeira, P. J., Carraça, E. V., Marques, M. M., Rutter, H., Oppert, J. M., De Bourdeaudhuij, I., Lakerveld, J., & Brug, J. (2015). Successful behavior change in obesity interventions in adults: A systematic review of self-regulation mediators. *BioMed Central Medicine*, 13(1), 1-16. <https://doi.org/10.1186/s12916-015-0323-6>
- Teixeira, P. J., Going, S. B., Sardinha, L. B., & Lohman, T. G. (2005). A review of psychosocial pre-treatment predictors of weight control. The international association

- for the study of obesity. *Obesity Reviews*, 6(1), 43–65. <https://doi.org/10.1111/j.1467-789X.2005.00166.x>
- Telem, D. A., Talamini, M., Shroyer, A. L., Yang, J., Altieri, M., Zhang, Q., Gracia, G., & Pryor, A. D. (2015). Long-term mortality rates (> 8-year) improve as compared to the general and obese population following bariatric surgery. *Surgical Endoscopy*, 29(3), 529-536. <https://doi.org/10.1007/s00464-014-3714-4>
- Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. In C. Willig, & W. S. Rogers (Eds). *The Sage handbook of qualitative research in psychology* (pp.17-37). Sage Publications Ltd.
- Theofilou, P. (2013). Quality of life: Definition and measurement. *Europe's Journal of Psychology*, 9(1), 150-162. <https://doi.org/10.5964/ejop.v9i1.337>
- Theunissen, C. M., van Vlijmen, A., Tak, D. J., Nyklíček, I., de Jongh, M. A., & Langenhoff, B. S. (2020). Motivation and weight loss expectations in bariatric surgery candidates: Association with 1-and 2-year results after bariatric surgery. *Obesity Surgery*, 30(11), 4411-4421. <https://doi.org/10.1007/s11695-020-04811-x>
- Thorell, A., MacCormick, A. D., Awad, S., Reynolds, N., Roulin, D., Demartines, N., Vignaud, M., Alvarez, A., Singh, P. M., & Lobo, D. N. (2016). Guidelines for perioperative care in bariatric surgery: Enhanced recovery after surgery (ERAS) society recommendations. *World Journal of Surgery*, 40(9), 2065-2083. <https://doi.org/10.1007/s00268-016-3492-3>
- Tindle, H. A., Omalu, B., Courcoulas, A., Marcus, M., Hammers, J., & Kuller, L. H. (2010). Risk of suicide after long-term follow-up from bariatric surgery. *The American Journal of Medicine*, 123(11), 1036-1042. <https://doi.org/10.1016/j.amjmed.2010.06.016>
- Toft, B. S., Galvin, K., Nielsen, C. V., & Uhrenfeldt, L. (2020). Being with others during physical activity: experiences of well-being among adults with severe obesity. *Physiotherapy Theory and Practice*, 38(8), 1003-1015. <https://doi.org/10.1080/09593985.2020.1815262>

- Tolvanen, L., Christenson, A., Surkan, P.J., & Lagerros, Y.T. (2022). Patients' experiences of weight regain after bariatric surgery. *Obesity Surgery*, 32(5), 1498–1507 (2022).
<https://doi.org/10.1007/s11695-022-05908-1>
- Toma, T., Harling, L., Athanasiou, T., Darzi, A., & Ashrafian, H. (2018). Does body contouring after bariatric weight loss enhance quality of life? A systematic review of QOL studies. *Obesity Surgery*, 28(10), 3333-3341. <https://doi.org/10.1007/s11695-018-3323-8>
- Trap, R., Rejckjær, L., & Hansen, E. H. (2015). Empirical relations between sense of coherence and self-efficacy, National Danish survey. *Health Promotion International*, 31(3), 635-643. <https://doi.org/10.1093/heapro/dav052>
- Urban B. (2006). Entrepreneurial self-efficacy in a multicultural society: Measures and ethnic differences. *South African Journal of Industrial Psychology*, 32(2), 2-10.
<https://doi.org/10.4102/sajip.v32i1.221>
- Urry, R. J., Clifford, S., Katsapas, M., Stevens, L., & Kloppers, A. (2020). Bioring® gastric banding for obesity in a private South African hospital. *South African Journal of Surgery*, 58(3), 115-121. <http://dx.doi.org/10.17159/2078-5151/2020/v58n3a3066>
- Van Beek, A. P., Emous, M., Laville, M., & Tack, J. (2017). Dumping syndrome after esophageal, gastric or bariatric surgery: Pathophysiology, diagnosis, and management. *Obesity Reviews*, 18(1), 68-85. <https://doi.org/10.1111/obr.12467>
- Van den Heever, A. (2022, 15 September). "This is what's driving semigration to the Western Cape. The province's lifestyle, schools and safety appeal to those moving south". FinancialMail. <https://www.businesslive.co.za/fm/fm-fox/2022-09-15-this-is-whats-driving-semigration-to-the-western-cape/#:~:text=The%20province's%20lifestyle%2C%20schools%20and%20safety%20appeal%20to%20those%20moving%20south&text=The%20steady%20move%20of%20middle,in%20a%20safer%20environment%20continues>

- van Leeuwen, F., Hunt, D. F., & Park, J. H. (2015). Is obesity stigma based on perceptions of appearance or character? Theory, evidence, and directions for further study. *Evolutionary Psychology*, 13(3). <https://doi.org/10.1177/147470491560056>
- van Vollenstee, F. A., & van der Merwe, M. T. (2021). Obesity and its implications for COVID-19 pandemic in South Africa. *Southern African journal of infectious diseases*, 36(1), 228. <https://doi.org/10.4102/sajid.v36i1.228>
- Varban, O. A., Cassidy, R. B., Bonham, A., Carlin, A. M., Ghaferi, A., & Finks, J. F. (2017). Factors associated with achieving a body mass index of less than 30 after bariatric surgery. *Journal of the American Medical Association Surgery*, 152(11), 1058-1064. <https://doi.org/10.1001/jamasurg.2017.2348>
- Varkevisser, R. D. M., Van Stralen, M. M., Kroeze, W., Ket, J. C. F., & Steenhuis, I. H. M. (2019). Determinants of weight loss maintenance: A systematic review. *Obesity Reviews*, 20(2), 171-211. <https://doi.org/10.1111/obr.12772>
- Varns, J. A., Fish, A. F., & Eagon, J. C. (2018). Conceptualization of body image in the bariatric surgery patient. *Applied Nursing Research*, 41, 52-58. <https://doi.org/10.1016/j.apnr.2018.03.008>
- Vartanian, L. R., & Novak, S. A. (2011). Internalized societal attitudes moderate the impact of weight stigma on avoidance of exercise. *Obesity*, 19(4), 757-762. <https://doi.org/10.1038/oby.2010.234>
- Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period. *BioMed Central Medical Research Methodology*, 18(1), 1-18. <https://doi.org/10.1186/s12874-018-0594-7>
- Vartanian, L. R., & Novak, S. A. (2011). Internalized societal attitudes moderate the impact of weight stigma on avoidance of exercise. *Obesity*, 19(4), 757-762. <https://doi.org/10.1038/oby.2010.234>
- Vinje, H. F., Langeland, E., & Bull, T. (2017). Aaron Antonovsky's development of salutogenesis, 1979 to 1994. In M. B. Mittelmark, S. Sagy, M. Eriksson, G. F. Bauer, J.

M. Pelikan, B. Lindström, & G. A. Espnes (Eds). *The handbook of salutogenesis* (pp.25-40). Springer International Publishing. <https://doi.org/10.1007/978-3-319-04600-6>

Vinje, H. F., Langeland, E., & Bull, T. (2022). Aaron Antonovsky's development of salutogenesis, 1979-1994. In M. B. Mittelmark, G. F. Bauer, L. Vaandrager, J. M. Pelikan, S. Sagy, M. Eriksson, B. Lindström, & M. C. Magistretti (Eds). *The handbook of salutogenesis*. (2nd Ed.) (pp. 29-44). Springer International Publishing. <https://doi.org/10.1007/978-3-030-79515-3>

Wainwright, N. W., Surtees, P. G., Welch, A. A., Luben, R. N., Khaw, K. T., & Bingham, S. A. (2007). Healthy lifestyle choices: Could sense of coherence aid health promotion? *Journal of Epidemiology & Community Health*, 61(10), 871-876. <http://dx.doi.org/10.1136/jech.2006.056275>

Wallace, L., Horecki, E. K., Helm, M. C., Higgins, R. M., Gould, J. C., Lak, K., & Kindel, T. L. (2019). Buyer's remorse: What predicts post-decision dissonance after bariatric surgery? *Surgery for Obesity and Related Diseases*, 15(7), 1182-1188. <https://doi.org/10.1016/j.soard.2019.03.026>

Walsh, O. A., Wadden, T. A., Tronieri, J. S., Chao, A. M., & Pearl, R. L. (2018). Weight bias internalization is negatively associated with weight-related quality of life in persons seeking weight loss. *Frontiers in Psychology*, 9(2576), 1-5. <https://doi.org/10.3389/fpsyg.2018.02576>

Wang, L. & Meizhen, L.V. (2020). Internal-external locus of control scale. In V. Zeigler-Hill, T. K. Shackelford (Eds). *Encyclopedia of personality and individual differences* (pp. 2339–2343). Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8_41-1

Wang, Y., Wang, X., Liu, H., Xie, X., Wang, P., & Lei, L. (2020). Selfie posting and self-esteem among young adult women: A mediation model of positive feedback and body satisfaction. *Journal of Health Psychology*, 25(2), 161-172. <https://doi.org/10.1177/1359105318787624>

- Welbourn, R., Hollyman, M., Kinsman, R., Dixon, J., Liem, R., Ottosson, J., Ramos, A., Våge, V., Al-Sabah, S., Brown, W., Cohen, R., Walton, P., & Himpens, J. (2019). Bariatric surgery worldwide: Baseline demographic description and one-year outcomes from the fourth IFSO global registry report 2018. *Obesity Surgery*, 29(3), 782-795.
<https://doi.org/10.1007/s11695-018-3593-1>
- Williams, D. (2018). 'Being defined': Large-bodied women's experiences as healthcare consumers. *Health Sociology Review*, 27(1), 60-74.
<https://doi.org/10.1080/14461242.2017.1375861>
- Wimmelmann, C. L., Dela, F., & Mortensen, E. L. (2014). Psychological predictors of weight loss after bariatric surgery: A review of the recent research. *Obesity Research & Clinical Practice*, 8(4), e299-e313. <https://doi.org/10.1016/j.orcp.2013.09.003>
- Woodley, X. M., & Lockard, M. (2016). Womanism and snowball sampling: Engaging marginalized populations in holistic research. *The Qualitative Report*, 21(2), 321-329.
<https://doi.org/10.46743/2160-3715/2016.2198>
- World Health Organisation. (2021, June 9). "Obesity and overweight." Retrieved from <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.
- World Health Organisation. (2014). *Basic documents. Forty-eighth edition. Including amendments adopted up to 31 December 2014*. Constitution of the World Health Organization. Retrieved from <https://apps.who.int/gb/bd/PDF/bd48/basic-documents-48th-edition-en.pdf#page=7>
- World Health Organisation. (2010, May 6). "A healthy lifestyle – WHO recommendations." Retrieved from <https://www.who.int/europe/news-room/fact-sheets/item/a-healthy-lifestyle---who-recommendations>
- World Health Organisation. (n/d). "Prevalence of overweight among adults, BMI & GreaterEqual; 25." Retrieved from [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-overweight-among-adults-bmi--25-\(age-standardized-estimate\)-\(-\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-overweight-among-adults-bmi--25-(age-standardized-estimate)-(-))

- Wu, Y. K., & Berry, D. C. (2018). Impact of weight stigma on physiological and psychological health outcomes for overweight and obese adults: A systematic review. *Journal of Advanced Nursing*, 74(5), 1030-1042. <https://doi.org/10.1111/jan.13511>
- Yermilov, I., McGory, M. L. Shekelle, P. W., Ko, C. Y., & Maggard, M. A. (2009). Appropriateness criteria for bariatric surgery: Beyond the NIH guidelines. *Obesity*, 17(8), 1521–1527. <https://doi.org/10.1038/oby.2009.78>
- Yun, J., & Park, H. S. (2019). The effect of sense of coherence enhancement program based on salutogenesis for elderly with metabolic syndrome. *Innovation in Aging*, 3(1), S142. doi: [10.1093/geroni/igz038.513](https://doi.org/10.1093/geroni/igz038.513)
- Zaki-Nejad, M., & Moghaddam, F. (2021). Study of the sense of coherence and religious coping in patients with type 2 diabetes. *Religion and Health*, 9(1), 15-23. Retrieved from: http://jrh.mazums.ac.ir/browse.php?a_id=891&sid=1&slc_lang=fa&ftxt=1
- Zarin, S. S., Khanjani, M. S., Foroughan, M., Hosseini, M. A., Bakhshi, E., & Kamali, M. (2017). Relationship between locus of control with posttraumatic growth among individuals with spinal cord injury. *Journal of Modern Rehabilitation*, 11(2), 109-118. Retrieved from: https://d1wqtxts1xzle7.cloudfront.net/56013056/5-libre.pdf?1520622212=&response-content-disposition=inline%3B+filename%3DResearch_Paper_Relationship_Between_Locu.pdf&Expires=1687586456&Signature=TKZmQCpMf~kNrPaBpgMKa9SVCOdOQX5wxl-us7vjandM~BL6dUaApzI79xQlpMGsg8WJfKbLFGiswIXVgDu1h-n5J6VR3chlahF7ZkuDlxeqKTSyLWpZTEiK~gXvJ0Kzfgi-AfmvJdO84YzmGUjdt6LzGP6eYjR8ggAW9Hxl8mARApGce59fym5mMIJbqAp2nX1CCWkkQ8SbbZ5dystLI470VaMvbVjNHmCUETeYZRm0LnxuClSPNvTaqO5dNC-wHnBEIkM7KTWa~NWJ~YtM8NN-vQV~V54mYS~yDB3LEFSvxmlDuNDEZF-V5mZ1Y~AXR6MbbQ4DQCEcKxaZc-TuRg_&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
- Zhou, X., Yu, J., Li, L., Gloy, V. L., Nordmann, A., Tiboni, M., Li, Y., & Sun, X. (2016). Effects of bariatric surgery on mortality, cardiovascular events, and cancer outcomes in obese

patients: Systematic review and meta-analysis. *Obesity Surgery*, 26(11), 2590-2601.

<https://doi.org/10.1007/s11695-016-2144-x>

Zugravu, C. A. (2012). Sense of coherence and its connections with BMI and weight-related beliefs and attitudes. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 4(6), 1131-1140. Retrieved from:

https://d1wgtxts1xzle7.cloudfront.net/70100828/Sense_of_coherence_and_its_connections_w20210922-18347-739kif.pdf?1632297566=&response-content-disposition=inline%3B+filename%3DSense_of_coherence_and_its_connections_w.pdf&Expires=1687586523&Signature=SxcefTeb93FmMCoLQR3asltqz-ZBjJdvvMS-gHK9ybxStdPr6jStNOGA~ET87pdBZiGaKFGnldi~qfaA1tGMobfi8LCkR4kt20hmALRd9hKbFIU7QdBkF91LXbWDsWROB8Ubf0awDuD4kMZdq2JU0L3Uj8liCpUVJnZEy-1NtML7b6ncjV4VBpiFUzLGscukPXZn6ZPyULzCglU1uJGoA8PuVSowCJQjuhmZh-DGflsm6lfR2odqxfvVOrZ7Y9fE4F7VQDebiEvxkhk87pDdnNyOeXSWCAOBfFTEQY5CQ140W3ukAo3yRj3oCAhMGHODRT67pQbMhPZ~DJvpv9fA &Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Appendix A: Biographical Questionnaire

Section A: Biographical Information

Please mark the appropriate box that most adequately describes you:

1. Male Female Mx

2. Age: _____

3. Home Language:

Afrikaans English Ndebele Northern Sotho

Sotho Swazi Tswana Tsonga

Venda Xhosa Zulu

4. Religion:

Christianity Hindu Muslim Atheist

No religious affiliation Other

If other, please specify: _____

How important is your religion to you?

Not important at all	Slightly important	Important	Very important	Extremely important
-------------------------	-----------------------	-----------	-------------------	------------------------

5. Race:

Black Coloured Indian / Asian White Other

6. Education:

High school Matric Bachelor's degree

Honour's degree Master's degree Doctoral degree

Other

If other, please specify: _____

12. What do you believe contributed to your weight problems / obesity?

13. Medical History (e.g. operations, complications, problems experienced before weight loss surgery. _____

14. Current medical conditions and medications: _____

15. Any medical conditions that was attributable to obesity? _____

16. After the weight loss surgery, has any of the medical conditions you experienced before the operation improve. Can you please elaborate? _____

17. In what year did you have the weight loss surgery? _____

18. Did your medical aid contribute to the weight loss surgery? Yes No

If yes, please specify medical aid scheme _____

19. What Weight loss surgery procedure did you undergo? _____

20. What were your BMI / weight before surgery? _____

24. What substances do you use? Alcohol, cigarettes, drugs, etc.?

24.1 How often? _____

24.2 How much? _____

25. Psychological History (Any diagnosis or struggles experienced) _____

Appendix B: Interview Schedule

Interview Schedule

Interview Schedule

1. Tell me about yourself before you had the weight loss surgery.
 - a. What expectations did you have of life before WLS
 - b. Did your expectations of life change after you knew you were selected for WLS?

2. Tell me about yourself after WLS
 - a. Career or career changes
 - b. Marriage / relationship in general and sexual intimacy
 - c. Friendships
 - d. Colleagues at work
 - e. Interest in activities

3. What resources aided you in this process of WLS, internally and externally?

4. What do you think could have contributed to your weight remaining stable?

5. To what extent has WLS been meaningful to you?

6. If participants regained weight: What do you think could have contributed to your weigh regain?

7. How do you feel about the weight you regained?
 - a. Do you feel motivated to lose the weight again?

Appendix C: Letter of Consent



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

DEPARTMENT OF PSYCHOLOGY

FACULTY OF HUMANITIES

Letter of Consent

Doctoral Student: Monique Bezuidenhout
Contact Details: Cell: 082 876 481
E-mail: monique.bezuidenhout@up.ac.za

Supervisor: Prof Nicoleen Coetzee
012 420 2919
Email: nicoleen.coetzee@up.ac.za

Dear Respondent

I am a doctoral candidate at the University of Pretoria, in the Department of Psychology. I would like to invite you to participate in this research. Your participation in expanding our knowledge in this very important field will be greatly appreciated. As I have also gone through the process of bariatric surgery, this field is very close to my heart.

The title of my research is: ***An exploration of psychological factors that contribute to weight maintenance after weight loss surgery.*** This is an important topic as research has shown that twenty percent of patients who had undergone weight loss surgery fail to attain significant weight loss and show improvement with regard to medical obesity-related comorbidities, or they experience weight regain. Research is lacking in understanding the role of psychological factors that may contribute to weight maintenance after weight loss surgery. This study will investigate the complex interaction of these psychological factors on possible weight maintenance after weight loss surgery.

The research process will consist of questionnaires, which will take around 35 minutes to complete, excluding the demographic questionnaire, as it is dependent on your own experiences. Please keep the questionnaires confidential, as they are copyrighted, and may not be distributed to other individuals or institutions, or used beyond the current research, as permission is needed with most questionnaires. Interviews with a few individuals will also be scheduled, if you are willing to participate in these interviews. The interview will take about an hour.

If you have had the operation at least 3 years ago, and are Afrikaans or English proficient, your participation will be greatly appreciated. You can contact me as on any platform, on email (monique.bezuidenhout@up.ac.za) or phone (082 876 4871). Please feel free to use WhatsApp, or even Facebook.

Your rights as a participant in this study:

- Your participation in this research is completely voluntary.
- You may withdraw from the study at any time. If you choose to withdraw from the study, all information will be destroyed.
- All information provided by yourself will be regarded as confidential.

The data and related documentation collected and used during this study, will be stored for a period of 15 years within the Department of Psychology at the University of Pretoria. Within this period this data may be re-used for further research purposes.

If you have any questions in regard to the research, before, during or after the research, you are welcome to contact me, Monique Bezuidenhout, at any time. My contact information is as indicated above.

Your contribution will aid in understanding this complex phenomenon, where we can make a meaningful contribution to better the lives of individuals, and related fields. Your contribution is highly appreciated and valued.

If you choose to participate in this research please complete the declaration on the following page.

Monique Bezuidenhout
PhD Candidate & Researcher

DECLARATION

I, _____ have read the above document, and understand the purpose of the study, as well as the activities I will be involved in. I understand that my participation is voluntary and that I may withdraw from the study at any time. I understand that all the questionnaires are copyrighted, that I will keep the questionnaires confidential, and will not distribute or share these questionnaires with any other individual or institution. I understand that my identity, and all information provided will be dealt with confidentiality. I hereby confirm that I am willing to participate in the study.

Signature of Participant

Date

If I participate in the interviews, I hereby confirm that permission is granted to be recorded during the interviews scheduled.

Signature of Participant

Date