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**THE PSYCHOLOGICAL PROFILES OF  
FIBROMYALGIA PATIENTS: TOWARDS A MODEL OF  
TAXONOMY AND MAINTENANCE OF THE ILLNESS**

By

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## ABSTRACT

The debate over the legitimacy of Fibromyalgia as a pain syndrome is often highlighted in the literature. The result of this is that patients are left feeling demoralised by the lack of acknowledgement of their symptoms and the innuendos of hypochondria or malingering. This study proposes that professionals move beyond this and into a more solution-focused stage that encourages the examination of predisposing factors and the implementation of means of improving the lives of patients.

The aim of this study was to describe the psychological profiles of Fibromyalgia patients in terms of attachment styles, Sense of Coherence, Attributional Style and depression. Twenty-nine patients aged between twenty-two and sixty-four participated in the study, completing the relevant questionnaires. The design is a quantitative one, with both descriptive and inferential statistical procedures being employed to analyse the data.

It is argued that key elements in the onset, maintenance and augmentation of Fibromyalgia Syndrome symptoms are to be found by examining the psychological feature of patients with the disorder. Although some research has been conducted into psychological factors in Fibromyalgia, the field is not nearly as well explored as the physical elements. This research is therefore of great importance to the Fibromyalgia knowledge base. Moreover, it offers a Salutogenic perspective, which may be useful in combating the devastating effects of this chronic pain syndrome.

The study is limited by its cross-sectional design and lack of control group. Nonetheless, it does give rise to some intriguing findings. If attachment is to be regarded as the working model that an individual maintains of self and other, then it is possible that disorders that are believed to be related to depression (such as FMS) will also be correlated to insecure attachment styles. The research, however, indicates that the FMS patients in this sample do not display the predicted high percentage of insecure attachment styles. An almost even split between those having a high Sense of Coherence and those with a low score was also found. When relating these findings to other psychological parameters (such as Attributional Style and level of depressive

symptoms), a discussion is born that allows for more complex interactions than a linear argument does. The research is then lifted from its pathogenic origins to embrace the origins of health. Further research is then prompted by this study and framed in the Salutogenic question: how do some patients with FMS maintain healthy attachment styles and a high Sense of Coherence despite their illness?

**Key words:** Fibromyalgia; attachment style; Sense of Coherence; Attributional Style; mediating factors; stress-diathesis; intimate relationships; relationship satisfaction; Salutogenesis; depression

INDEX

|                   |  |          |
|-------------------|--|----------|
| <b>CHAPTER 1:</b> | <b>INTRODUCTION</b>                                      | <b>1</b> |
| 1.1               | PROBLEM STATEMENT  | 1        |
| 1.2               | AIM OF THE RESEARCH                                      | 3        |
| 1.3               | ASSUMPTIONS AND HYPOTHESIS                               | 3        |
| 1.4               | OUTLINE OF CHAPTERS                                      | 3        |
| <br>              |  |          |
| <b>CHAPTER 2:</b> | <b>A BRIEF INTRODUCTION TO THE FIBROMYALGIA SYNDROME</b> | <b>5</b> |
| 2.1               | A BRIEF HISTORY  | 5        |
| 2.2               | DIAGNOSING FMS   | 7        |
| 2.2.1             | DIFFERENTIAL DIAGNOSIS                                   | 9        |
| 2.3.              | EPIDEMIOLOGY   | 10       |
| 2.4               | AETIOLOGY  | 11       |
| 2.4.1             | THE PSYCHOLOGICAL THEORIES                               | 11       |
| 2.4.1.1           | MENTAL DISORDERS AS CORRELATES OF FMS                    | 12       |
| 2.4.1.2           | PERSONALITY PROFILE IN FMS                               | 14       |
| 2.4.2             | THE ROLES OF PSYCHOLOGICAL FACTORS IN FMS                | 16       |
| 2.4.3             | THE PHYSIOLOGICAL THEORIES                               | 18       |
| 2.4.3.1           | STRESS AND FMS   | 18       |
| 2.4.3.2           | NEUROTRANSMITTERS  | 20       |
| 2.4.3.3           | GENETICS   | 20       |
| 2.4.3.4           | SLEEP  | 20       |
| 2.4.3.5           | PAIN PERCEPTION  | 21       |
| 2.5               | THE DIATHESIS-STRESS MODEL: A SUMMARY                    | 21       |
| 2.6               | PROGNOSIS AND TREATMENT                                  | 24       |
| 2.6.1             | PSYCHOLOGICAL INTERVENTIONS                              | 25       |
| 2.6.2             | PHARMACOLOGICAL AND PHYSICAL INTERVENTION                | 26       |
| 2.7               | CONCLUSION   | 27       |

|                   |  |           |
|-------------------|--|-----------|
| <b>CHAPTER 3:</b> | <b>THE PSYCHOLOGICAL PARAMETERS<br/>EXAMINED</b> | <b>29</b> |
| 3.1               | WHAT IS ATTACHMENT?                              | 29        |
| 3.2               | A BRIEF HISTORY                                  | 30        |
| 3.3               | FEATURES OF ATTACHMENT                           | 32        |
| 3.3.1             | BIOLOGICAL IMPERATIVE                            | 32        |
| 3.3.2             | THE SECURE BASE                                  | 33        |
| 3.3.3             | MONOTROPY  | 34        |
| 3.3.4             | CONTEMPORARY DEBATES IN THE<br>ATTACHMENT FIELD  | 34        |
| 3.4.1             | CULTURE  | 34        |
| 3.4.2             | MEASURING ATTACHMENT                             | 35        |
| 3.5               | ATTACHMENT AND PSYCHOPATHOLOGY                   | 43        |
| 3.5.1             | THE PROBLEMS WITH PATHOLOGISING ATTACHMENT       | 43        |
| 3.5.2             | FROM CHILDHOOD TO ADULTHOOD                      | 44        |
| 3.6               | MEDIATING FACTORS IN ATTACHMENT                  | 47        |
| 3.6.1             | SALUTOGENESIS AND THE SOC                        | 48        |
| 3.6.1.1           | FEATURES OF THE SOC                              | 50        |
| 3.6.2             | SOC AND FMS                                      | 52        |
| 3.6.3             | ATTRIBUTIONAL STYLE                              | 53        |
| 3.7               | ATTACHMENT, FMS AND MEDIATING FACTORS: SUMMARY   | 55        |
| <b>CHAPTER 4:</b> | <b>METHOD</b>                                    | <b>58</b> |
| 4.1               | THE RESEARCH DESIGN                              | 58        |
| 4.2               | THE SAMPLE                                       | 58        |
| 4.3               | ETHICAL CONSIDERATIONS                           | 60        |
| 4.4               | DATA COLLECTION AND MEASURING INSTRUMENTS        | 61        |
| 4.4.1             | EXPERIENCES IN CLOSE RELATIONSHIPS QUESTIONNAIRE | 61        |
| 4.4.2             | ATTRIBUTIONAL STYLE QUESTIONNAIRE                | 62        |
| 4.4.3             | SENSE OF COHERENCE                               | 63        |
| 4.4.4             | BECK'S DEPRESSION INVENTORY                      | 64        |

|                           |                                     |           |
|---------------------------|-------------------------------------|-----------|
| 4.5                       | DATA ANALYSIS                       | 64        |
| 4.5.1                     | DESCRIPTIVE STATISTICS              | 64        |
| 4.5.2                     | CORRELATION ANALYSIS                | 65        |
| 4.5.3                     | BETWEEN-GROUP COMPARISONS           | 65        |
| 4.5.4                     | INFERENTIAL STATISTICS              | 66        |
| 4.6                       | CONCLUSION                          | 66        |
| <b>CHAPTER 5: RESULTS</b> |                                     | <b>67</b> |
| 5.1                       | SAMPLE DEMOGRAPHICS                 | 67        |
| 5.1.1                     | AGE                                 | 67        |
| 5.1.2                     | GENDER                              | 67        |
| 5.1.3                     | EDUCATION                           | 68        |
| 5.1.4                     | LANGUAGE                            | 68        |
| 5.1.5                     | RACE/ETHNICITY                      | 68        |
| 5.1.6                     | RELATIONSHIP STATUS                 | 69        |
| 5.1.7                     | EMPLOYMENT STATUS                   | 69        |
| 5.1.8                     | MEDICAL AND PSYCHIATRIC HISTORY     | 69        |
| 5.2                       | PSYCHOLOGICAL PARAMETERS            | 69        |
| 5.2.1                     | ATTACHMENT PROFILES                 | 69        |
| 5.2.2                     | SOC                                 | 73        |
| 5.2.3                     | ATTRIBUTIONAL STYLE                 | 73        |
| 5.2.4                     | BDI-II                              | 75        |
| 5.2.5                     | COMPARISON OF ATTACHMENT CATEGORIES | 75        |
| 5.3                       | CORRELATION ANALYSIS                | 78        |
| 5.3.1                     | ANXIETY AND AVOIDANCE               | 78        |
| 5.3.2                     | SOC                                 | 78        |
| 5.3.3                     | ATTRIBUTIONAL STYLE                 | 78        |
| 5.3.4                     | DEPRESSION SCORES                   | 79        |
| 5.4                       | REGRESSION                          | 81        |
| 5.5                       | CONCLUSION                          | 81        |

|                   |  |            |
|-------------------|--|------------|
| <b>CHAPTER 6:</b> | <b>DISCUSSION</b>  | <b>83</b>  |
| 6.1               | DISCUSSION   | 83         |
| 6.1.1             | ATTACHMENT IN FMS  | 84         |
| 6.1.2             | SOC IN FMS   | 87         |
| 6.2               | CAUSE, MEDIATION AND CORRELATION   | 88         |
| 6.3               | LIMITATIONS  | 90         |
| 6.4               | RECOMMENDATIONS  | 91         |
| 6.5               | NOVEL PERSPECTIVES ON FMS  | 92         |
|                   | <b>REFERENCES</b>  | <b>96</b>  |
|                   | <b>APPENDICES</b>  | <b>108</b> |
|                   | PATIENT INFORMATION LEAFLET AND<br>INFORMED CONSENT  | 108        |
|                   | <b>LIST OF TABLES AND FIGURES</b>  |            |
|                   | Figure 2.5.1 A diathesis-stress model of the aetiology of FMS  | 23         |
|                   | Table 3.4.2.1 A summary of attachment styles and their characteristics   | 37         |
|                   | Figure 3.4.2.1 Attachment along two dimensions   | 39         |
|                   | Table 3.4.2.2 Attachment style   | 40         |
|                   | Table 3.4.2.3 The taxonomy of attachment throughout the lifespan   | 42         |
|                   | Figure 3.5.2.1 A classification of human diseases based on hemispheric lateralisation,<br>type of autonomic control and attachment style | 46         |



|  |    |
|--|----|
| Table 3.6.1.1 The dynamic interrelatedness of the components of SOC  | 52 |
| Figure 3.7.1 From attachment to FMS – a possible trajectory  | 57 |
| Table 4.4.1.1 A summary of the findings on the ECR-R taken online  | 62 |
| Figure 5.1.1 Age and gender distribution of the sample   | 68 |
| Figure 5.2.1.1 Distribution of attachment styles in terms of Bartholomew's categories  | 72 |
| Figure 5.2.3.1 The means and SD of the ASQ subscales   | 74 |
| Figure 5.2.4.1 Graph of BDI scores   | 75 |
| Table 5.2.5.1 Attachment classifications and the mean scores for SOC, depression and Attributional Style dimensions for the two groups | 76 |
| Table 5.2.5.2 Between-group comparisons of the secure and insecure groups (ANOVA)  | 77 |
| Table 5.3.1 Correlation matrix for relationships significant at the $p \leq 0.05$ level  | 80 |
| Figure 6.2.1 Schematic presentation of correlation analysis  | 89 |

## CHAPTER 1 INTRODUCTION

Fibromyalgia Syndrome (FMS) is a chronic musculoskeletal disorder that causes widespread pain and stiffness of the soft tissues of the body (Fibromyalgia Network, 2003). Although FMS has been the subject of nearly 1000 peer reviewed articles, its aetiology remains largely unclear (Littlejohn, 2001). Implicated in the possible mechanisms underlying the disorder are theories of abnormal neurotransmitter levels (especially cortisol and substance-P), autonomic dysfunction, abnormal cerebral blood flow (CBF) and disordered sleep (Ang & Wilke, 1999; Littlejohn, 2001). According to Sadock and Sadock (2002), FMS onset is usually precipitated by a stressful event, which constitutes a trigger for oxygen hypoperfusion of the associated tissues. Continued stressful experiences or the inability to moderate stress responses may contribute to the maintenance or worsening of symptoms. The localised areas of tenderness (referred to as “trigger points” or “tender points”) are used to diagnose FMS. Only once rheumatoid arthritis and hypothyroidism have been excluded as diagnoses and eleven of the eighteen possible tender points are positive for pain on palpation is FMS confirmed as a diagnosis (Sadock & Sadock, 2002).

The pain suffered by FMS patients is compounded by associated disorders, which on their own, can present a debilitating experience. The most common of these disorders are fatigue, sleep disorders, chronic headaches, irritable bowel syndrome, dizziness and chemical sensitivity (Ang & Wilke, 1999; Friedberg & Jason, 1998).

Although profiling FMS patients has been conducted previously, this research includes concepts not examined before. The interrelatedness of the concepts of Attributional Style, Sense of Coherence (SOC), depression and unhealthy attachment styles may offer a new perspective on FMS patients.

### **1.1 PROBLEM STATEMENT**

The controversy over diagnosing, categorising and delineating causes of FMS leaves patients relatively uncertain about the legitimacy of their complaints and often places them in the undesirable position of being informed that it is ‘all in their heads’. The idea that the pain is the result of undefined psychiatric problems, results in a

disdainful attitude towards FMS patients. Clinicians and support networkers alike may hastily conclude that the patient is nothing more than a hypochondriac (Enslin, 2002; Goldenberg, 2002). The seriousness of the illness is noted in studies such as those presented by Goldenberg (in Chaitow, 1995), in which 25.3% of 394 FMS patients surveyed, were shown to be effectively disabled by the condition.

Aside from the physical, psychological and emotional trials that these patients undergo because of FMS, the financial burden it places on them is overwhelming. Mean annual medical expenses are reported at approximately R18 000 (Ang & Wilke, 1999). The insurance company London Life reports that it issued approximately one million dollars in disability payments to FMS sufferers in 1989 (Chaitow, 1995). Such a socio-economic burden contributes to the need for further research into the disorder.

The dichotomous view of physiological and psychological evidence for a disorder is well represented in the FMS debate (Turk & Monarch, 2002). Lacking a definitive pathophysiological mechanism for the cause of FMS, speculation is rising as to a possible psychological origin of the disorder. Turk and Monarch (2002) are of the opinion that pain theories can benefit more from a diathesis-stress model of aetiology than they have from dichotomous explanations.

While this research acknowledges the possible physiological factors involved in FMS, the psychological variables that may be related to the disorder are focused on in this study. By ascertaining whether or not the FMS patients assessed exhibit particular characteristics with regard to attachment style, Sense of Coherence (SOC) and Attributional Style, the author hopes to contribute information that may elucidate some of the questions raised in the FMS debate.

The research questions identified from this debate are:

- What is the frequency of insecure attachment amongst FMS patients?
- What is the relationship between SOC, Attributional Style and attachment styles in FMS patients?

## 1.2 AIM OF THE RESEARCH

The purpose of this study may be summarised as follows:

- To delineate the profiles of Fibromyalgia (FMS) patients with regard to attachment styles, Attributional Style, SOC and depression.

## 1.3 ASSUMPTIONS AND HYPOTHESIS

The main assumptions gathered from the literature are that:

- FMS patients will tend to display insecure attachment rather than a secure attachment style.
- SOC profiles will manifest as low rather than high in FMS patients.
- FMS patients will display negative Attributional Styles, rather than positive ones.
- Patients with FMS will score within the moderate to severe range of depressive symptoms, rather than in the minimal or mild range.

Therefore the hypothesis formulated is as follows:

FMS patients with a low SOC will tend to exhibit insecure attachment, negative Attributional Style and high levels of depression.

## 1.4 OUTLINE OF CHAPTERS

*Chapter two* provides a brief introduction to the phenomenon of FMS. An exploration of the basic tenets of diagnosing FMS, as well as the controversial history of the disorder takes place. The relationship between FMS and mental illnesses, such as depression is also discussed. The bulk of the chapter focuses on the aetiology of FMS. With dichotomous theories of mind/body origin abounding in this field, a diathesis-stress model is presented as a viable synthesis to the and/or way of explaining FMS.

*Chapter three* presents the psychological parameters that are measured in this research. Bowlby's theory of attachment is explored, along with its contemporary debates. The concepts of SOC and Attributional Style are also reviewed as potential mediators in attachment and FMS.

*Chapter four* outlines the research process. The premises of positivistic research are described. The measures and the statistical analyses employed are also briefly discussed.

*Chapter five* presents the results of the research. Descriptive statistics, as well as correlations and regression are used to make sense of the data.

*Chapter six* is the concluding chapter in this study. The results are synthesised into a logical discussion of their possible meaning. A meta-commentary is also delivered on the research, with proposals being made for further investigations.

## CHAPTER 2

### A BRIEF INTRODUCTION TO THE FIBROMYALGIA SYNDROME

Patty Goldenberg (in Goldenberg, 2002 p.2-3) once stated:

I feel bruised all over. Every part of my body hurts. My bones ache. My neck and shoulders are so stiff that I can't turn my head. It hurts to take a deep breath. My legs throb and are either numb or are burning. Even my skin feels sore and sensitive. Every time I try to exercise, I am totally exhausted. A walk around the block is a struggle. It feels like I'm stuck in heavy mud. I wake up feeling like I haven't slept at all. I'm so tired that I can't concentrate. My eyes have become so dry that they feel like sandpaper. My mouth feels like it is stuffed with cotton wool.

The disorder that Patty Goldenberg describes is called Fibromyalgia Syndrome (FMS). On hearing the words FMS, most people enquire curiously, "What is that?" FMS is a chronic disorder, which manifests in widespread pain and multiple tender points (McBeth, Macfarlane, Benjamin, Morris & Silman, 1999; Sadock & Sadock, 2002). Although the diagnosis has been accepted by prominent international health organisations such as the World Health Organisation (Ang & Wilke, 1999; Baldry, 2001), the disorder still causes much contention in health care circles. There would appear to be two main, intertwining arguments: The first disputes the very existence of FMS, while the other questions its taxonomy. This chapter presents a brief overview of the disorder and the main arguments around it.

#### 2.1 A BRIEF HISTORY

FMS is not a new disorder. The term itself was only introduced in 1976, but the symptom complex is described as far back as the eighteenth century (Clauw, 1995). According to Goldenberg (2002) it was already in the 1800's that doctors differentiated the symptoms of arthritis from those of muscular rheumatism (the latter day FMS). In 1904, Sir William Gowers coined the term fibrositis. It was, however, only in the 1960's that the term came to represent a syndrome of generalised pain, tender points and fatigue (Yunus, 1994). Following the work of Smythe and Moldofsky who, in the 1970's, discovered anomalies in the sleep electroencephalograms of FMS patients, Yunus, Masi, Calabro, Miller and Fiengenbaum (in Goldenberg, 2002) established clinical characteristics of the disorder.

These criteria included the existence of pain or prominent long-term stiffness of three anatomical areas, the absence of secondary causes, tender points as well as ten minor criteria, namely: anxiety, chronic headaches, numbness, poor sleep, irritable bowel syndrome, subjective swelling, aggravation of symptoms by weather factors and stress or anxiety, as well as the modulation of symptoms by physical activity. Yunus and colleagues' 1981 study granted some credibility to the syndrome and paved the way to a number of controlled studies on FMS. In the 1980's a group of rheumatologists began to meet and discuss trends in the FMS patients they had seen. This group eventually created the criteria that were adopted by the American College of Rheumatology (ACR) in 1990 as the official diagnostic criteria for FMS (Goldenberg, 2002).

While the concept of FMS is not a new one, the disorder has only gained popularity in the media and in scientific circles in the last two decades. As Goldenberg (2002) explains, until twenty years ago FMS was "an obscure medical condition – a relative curiosity, rarely mentioned at academic medical centres" (p. ix). Unfortunately, the rise in interest in the topic has catapulted FMS into notoriety and has fuelled confusion around it. FMS has raised scepticism even amongst the founding diagnosticians of the disorder. Wolfe (in Jacobsen, Dasneskiold-Samsøe & Lund, 1993) confesses to asking the question "What have we created?" Considering the wave of litigation and criticism directed at FMS, it is not difficult to imagine that the validity of the disorder is called into question.

The minefield that is the FMS debate is linked to the mind-body argument. Goldenberg (2002) is of the opinion that, once some rheumatologists began to refer to FMS as psychogenic rheumatism, FMS became embroiled in the mind-body debate. The medical model of illness dictates that diseases arise from disordered biology (Turk & Monarch, 2002). Should attempts at correcting the biological problem fail, psychological problems are suspected to be the cause. Hence, the medical model introduces the somatogenic/psychogenic dichotomy. In consequence, conditions that cannot be ascribed to a bodily irregularity are interpreted as psychological in origin and delegitimised (Ware, 1993).

Turk and Monarch (2002) believe that “Chronic pain is more than just a physical symptom” (p. 4). This implies both a psychological and physiological component to FMS, which emphasises a more holistic model of aetiology than the traditional medical model puts forth. Unifying hypotheses that adopt a multifactorial approach to FMS are now being investigated and the dualist notion of aetiology is slowly being challenged. However, it is still strongly debated whether FMS should be considered a discrete disorder, or whether it merely represents a collection of symptoms common to a number of subjective complaints. Malt and Ursin (2003) point out that some authors hold the existence of a discrete functional somatic syndrome to be largely an artefact of medical specialisation and suggest that classification of distinct functional syndromes should be challenged.

## **2.2 DIAGNOSING FMS**

In 1990, The American College of Rheumatology (ACR) prescribed the following criteria for diagnosing FMS (Sadock & Sadock, 2002):

- A. The patient must have a history of widespread pain. This pain must be present for at least three months and is only considered widespread when it includes the left and right sides of the body, above and below the waist and the axial skeleton.
- B. Pain must be reported on palpation in a minimum of eleven of the following eighteen tender points:
  - a. Occiput
  - b. Low cervical
  - c. Trapezius
  - d. Supraspinatus
  - e. Second rib
  - f. Lateral epicondyle
  - g. Gluteal
  - h. Greater trochanter
  - i. Knee

A tender point relates to areas in the body that are more sensitive to palpation (with a force of  $4\text{kg}/\text{cm}^2$ ) than the rest of the body (Littlejohn, 2001).



The diagnosis of FMS is generally made after careful history taking and a number of laboratory tests. Beers and Berkow (1999) state that joint and muscle examinations as well as laboratory examinations are normal in FMS patients. Littlejohn (2001) concurs with this assessment and recommends that investigations into the following factors be carried out in order to exclude disorders such as rheumatoid arthritis and thyroid dysfunction:

- Full blood examination
- Erythrocyte sedimentation rate
- Thyroid functioning tests
- Creatine kinase
- Routine biochemistry
- Calcium
- Rheumatoid factor
- Antinuclear antibodies

The doctor providing the patients for this dissertation utilised these investigations to justify the diagnosis of FMS in all the patients. The presence of the ACR symptoms coupled with the exclusion of other disorders using laboratory tests is sufficient for a diagnosis of FMS. Wolfe (1993), however, queries the ACR criteria. He questions whether patients with tender points always present with pain. His conclusion is that, while patients with FMS always present with pain at pain clinics, that tender points can exist without the patient suffering disruptive pain. Wolfe also makes explicit what he believes Yunus and his co-workers tried to communicate in their FMS criteria: “there is more to having Fibromyalgia than just pain and tenderness” (Wolfe, 1993, p. 28). The concomitant physical and psychological factors accompanying FMS (such as poor sleep, anxiety, irritable bowel syndrome and depression) have been omitted as diagnostic principles in the ACR criteria, contradicting Wolfe’s view that it is the symptoms of the syndrome and not the tender points that are important. Wolfe argues that the combination of classification and diagnostic criteria will prove more useful and inclusive than the use of only one of the two. Despite this, the ACR criteria are employed in the majority of the latest literature and research. This research will follow this trend and utilises the ACR criteria as the means of diagnosing FMS sufferers.

### 2.2.1 DIFFERENTIAL DIAGNOSIS

As FMS is a particularly difficult (and disputed) diagnosis, disorders or symptoms of similar presentation need to be described and excluded as diagnoses.

- **Functional Somatic Syndromes**

When symptoms cannot be explained by a definite diagnosis, they are covered by the blanket term “functional”, which implies that, while the structure of the organ involved may not have changed, its manner of functioning has (Nimnuan, Rabe-Hesketh, Wessely & Hotpf, 2001). A collection of such symptoms may form a syndrome. Prominent examples of such functional somatic syndromes include multiple chemical sensitivity, functional dyspepsia, irritable bowel syndrome, chronic tension headaches and FMS. There is still considerable controversy as to whether such disorders should not simply be classified under a generic term such as subjective health complaints, chronic multi-system illness, functional somatic syndrome or multiple complaints syndrome.

- **Myofascial Pain Syndrome**

This disorder is also a chronic pain, but is defined as being regional and not widespread, as is the case with FMS (Yunus, 1994). Some researchers believe FMS and myofascial pain to be the same disorder, while others view the two to be opposite sides of the same spectrum (Enslin, 2002).

- **Somatoform Disorders**

Somatoform disorders are defined by the existence of medically unexplained physical symptoms. The DSM-IV-TR differentiates seven somatoform disorders, namely somatisation disorder, conversion disorder, hypochondriasis, body dysmorphic disorder and pain disorder, somatoform not otherwise specified and undifferentiated somatoform disorder (Sadock & Sadock, 2002). Somatisation disorder is diagnosed when a person displays many physical complaints that lead to treatment being sought and impairment in social, occupational or other areas of life (Clauw, 2001). Pain disorder is diagnosed when an individual suffers from pain in one or more anatomical sites (Sadock & Sadock, 2002). Although diagnosing a somatoform disorder removes the “burden of proof” from the patient,

the immediate assumption that the symptoms are solely the result of a psychiatric problem, may exclude potential physiological explanations (Clauw, 2001).

- **Chronic Fatigue Syndrome**

Chronic Fatigue Syndrome (CFS) is a perplexing and debilitating disorder characterised by unrelenting fatigue and exhaustion (White & Schweitzer, 2000; Young, Sharpe, Clements, Dowling, Hawton & Cowen, 1998). This disorder is sometimes referred to as myalgic encephalomyopathy or, less reverently, yuppie flu.

CFS patients are also plagued by unrefreshing sleep, pain and tenderness (Sadock & Sadock, 2002). The overlap in symptoms of these two disorders has led to further questions about the legitimacy of functional syndromes. According to Goldenberg (2002), CFS and FMS are one and the same disorder. Chaitow (1995) explains that Goldenberg's opinion stems from research which shows that the occurrence of symptoms such as sore throat, low-grade fever, swollen glands and rash were virtually the same in a sample of FMS and a group of CFS patients. Although Goldenberg (2002) utilises the terms FMS and CFS interchangeably, the same will not be done in this study.

### **2.3 EPIDEMIOLOGY**

The prevalence of FMS in the general population is estimated at 2-4% (Littlejohn, 2001). Females make up 80-95% of sufferers (Hallberg & Carlsson, 2000; Rachlin, 1994). Prevalence is reported to increase with age and the most common age range for the disorder is 40-60 years (Baldry, 2001). Goldenberg (2002) states that the disorder is present all over the world and that prevalence statistics are comparable for the United States of America, Mexico, England, Australia, the Netherlands, Sweden, Norway, Germany, Italy and Israel. Lydell and Meyers (in Masi, 1993) report prevalence rates in South Africa at 3.2%. McCain (1996), however, indicates a large disparity in the prevalence estimates for various countries. Statistics vary from under 1% in Denmark, to 2% in the U.S.A., to just over the 10% mark in Norway.

As with many estimates of prevalence, data accuracy is always disputable. Wolfe (1993) points out that discrepancies in FMS studies may be attributed to a host of

nosological and diagnostic construct confusions. Wolfe maintains that there is divergence between clinical diagnostic criteria and the classification criteria. His argument makes explicit the idea that diagnostic criteria, although they work well for research purposes, may be too restrictive to detect FMS in the community setting. Wolfe suggests that a combination of clinical and diagnostic criteria may be more useful in clinic settings. Clinical criteria lean more towards Yunus *et al.*'s 1981 definition of the disorder (in Goldenberg, 2002), i.e. this includes pain, tenderness, psychological distress and signs and symptoms such as headaches, Irritable Bowel Syndrome, disturbed sleep and fatigue.

Other authors concur with Wolfe that most of the discrepancies in prevalence data stem from varying conceptions of FMS. According to McCain (1996), meta-analysis of the research from various countries reveals that some studies did not use questionnaires specifically designed for detecting FMS. It is also pointed out that some of these studies were compiled before the ACR criteria were ratified. Current and future studies that utilise the ACR criteria may serve as a means of comparing the old epidemiological estimates and establishing more accurate figures.

## **2.4 AETIOLOGY**

The pathophysiology and aetiology of FMS are not clearly understood (Hallberg & Carlsson, 1998; Inanici & Yunus, 2001; Martinez, Ferraz, Fontana & Atra, 1995). Attempting to delineate the exact cause of FMS has proven to be an arduous task that still portrays an incomplete picture. A number of methods ranging from biochemistry, immunology and physiology to psychological studies have been used to try and understand the origins of the disorder. The following sections provide a basic overview of some of the more prominent research concerning the cause of FMS.

### **2.4.1 THE PSYCHOLOGICAL THEORIES**

Goldenberg (2002) states “When you are constantly sick, but doctors find nothing wrong, you either fear the worst or question your own sanity” (p.3). Unfortunately for FMS patients, their psychological well-being is constantly called into question because of the vague nature of their diagnosis. There are a number of hypotheses regarding the involvement of psychological factors in FMS: some researchers believe that psychological functioning has a major role to play in the cause of the illness,

while others believe that the psychological role is limited to triggering the onset of FMS (Grzesiak, 1994).

A number of studies have reported on the high frequency of mental illness in FMS patients (e.g. Benjamin, Morris, McBeth, Macfarlane & Silman, 2000; Yunus, 1994). Benjamin *et al.* (2000) found that 45% of chronic widespread pain sufferers meet the criteria for mental illness, in contrast to the 29% of the general population. Although the study is valuable in terms of illustrating a dominant association of mental illness with chronic widespread pain, the authors did not specifically concentrate on FMS patients, choosing instead to include a range of chronic widespread pain patients, some of whom may have had organic causes for their pain. On the other hand a Finnish study concentrating solely on FMS, found that a 56% prevalence of mental illness in FMS versus 17% in non-FMS sufferers in the community. Unfortunately, the researchers chose not to utilise the ACR criteria for their study and included psychological symptoms as part of FMS diagnosis (in Benjamin *et al.*, 2000).

The stigma often paired with psychological diagnoses makes many FMS patients wary of acknowledging a psychological link with their illness (Van Houdenhove, Neerinx, Onghena, Lysens & Vertommen, 2001). This places the health care practitioner in the precarious position of having to prescribe the best course of treatment without imparting a message of disbelief to the patient. Although the attempt at delineating psychological factors in FMS has spawned a large amount of research, the results are often conflicting, with a distinction not always drawn between FMS and other chronic widespread pain syndromes. Issues around referral biases, concept contamination and causality further complicate a confusing pattern of aetiology.

#### **2.4.1.1 MENTAL DISORDERS AS CORRELATES OF FMS**

Martinez *et al.* (1995) investigated the frequency of personality disorders, depression and anxiety in relation to female FMS sufferers in Brazil. The results showed that 63.8% FMS sufferers had personality disorders, 80% depression and 63.8% qualified for a diagnosis of anxiety. This contrasts significantly with the control group, which only presented with 8% personality disorders, 12% depression and 16% anxiety.

Depression is often related to chronic pain (Smith, O’Keefe & Christensen, 1994). In fact, the most common psychological feature associated with chronic pain is depression. Characteristics that are linked to depression and that are most often experienced by chronic pain sufferers in general are suppressed hostility and somatising during stressful times (Benjamin *et al.*, 2000; Lisspers, Nygren & Söderman 1998; Martinez, *et al.*, 1995). In psychodynamic terms, depression is explained through the internalisation of aggression. From this point of view, pain may represent a manifestation of that aggression against the self. The link between depression and pain is, however, not quite clear.

A critique of many of the studies showing high degrees of depression and other mental illnesses in FMS is that referral biases may have increased the number of FMS sufferers with such disorders. In the study conducted by Martinez *et al.* (1995) the controls were drawn from a clinical population at the hospital. This factor may have also skewed results, but it is uncertain to what degree.

Kuch, Cox, Evans, Watson and Bubela (in Lisspers *et al.*, 1998) also found a significant correlation between depression and pain frequency as well as depression and pain intensity. Correlation does not necessarily answer the question of causation, though, and researchers are continually frustrated in their efforts to discover whether the depression resulted in physical symptoms or vice-versa. When Martinez *et al.* (1995) asked FMS patients to date the onset of their depressive symptoms as either occurring before or after the FMS, 39.4% said that depression preceded FMS, while 31.5% said it occurred after FMS onset. The limitation of this study is that it is unclear if authors defined the time period “after FMS” as the period following diagnosis or as the time after subjective recall of symptoms. This distinction could have altered results, as FMS patients tend to attribute depressive symptoms to physical causes (Goldenberg, 2002). Alternatively, it is likely that a number of patients would have received a diagnosis of depression before being diagnosed with FMS.

There is also evidence to suggest that the degree of depression in FMS is not as severe as in other disorders. Lisspers *et al.* (1998) compared coronary heart disease, chronic pain and respiratory disorder patients on four psychological aspects (cynicism, anger,

anxiety and depression). It was found that the chronic pain patients displayed the least intense psychological symptoms of the three groups. They also concluded that the level of depression in this group was not as severe as expected. A limitation of this research is that, while the researchers made explicit the difference between functional and organic pain, they did not separate the two during sampling and provided a group of pain patients that may have contained patients with organic pain and others with functional pain.

Multiple tender points are regarded by McBeth, *et al.* (1999) as the early stages of somatisation of distress. In the study they conducted, they hypothesise a link between tender points and various aspects of distress and somatisation. Notwithstanding the fact that the authors do not specify what types of distress they refer to in the study, their results show a correlation between high tender point count (five or more tender counts) and numerous psychosocial factors. These factors include: higher fatigue levels, lower self-care, higher seeking of consultations (illness behaviour), more physical complaints of unknown origin than those with fewer tender points, five times higher levels of childhood abuse than those with low tender point count, higher likelihood of having been exposed to a parent's death or separation from parent.

At best then, the research suggests a trend of depressive symptoms associated with FMS. Depression has, however, been shown to be an antecedent, a consequence and a “concomitant biological relative” (Gatchel & Dersh, 2002, p. 37) of pain in various studies. Consequently, claiming that a psychosomatic causal relationship exists at this stage may not be a fair reflection of the complexity of FMS.

#### **2.4.1.2 PERSONALITY PROFILES IN FMS**

FMS patients potentially become incapable of performing even the simplest tasks when the illness is severe (Goldenberg, 2002). Evidence suggests, though, that their behaviour before the onset of the disorder is easily described as over-active. Smythe is a strong proponent of the idea that a discrete FMS personality exists and states (in Grzesiak, 1994) that such patients set high standards for themselves. They are hard taskmasters, highly committed to their work and virtuous. This personality type has been termed ergomanic by Blumer and Heilbronn (in Grzesiak, 1994). Although there

is evidence to suggest the existence of such a personality, it is not exclusive to FMS and does not characterise all FMS sufferers.

Van Houdenhove *et al.* (2001) set out to determine the level of “action proneness” in CFS and FMS sufferers before the onset of their ill health. Assuming that patients would idealise their premorbid selves, in order to prove their “good citizenship”, and in this way avoid the stigma of “psychiatric patient”, the researchers also asked caregivers of the research subjects to complete a questionnaire regarding the patient’s premorbid lifestyle. Positive and negative feelings towards the patient were also assessed to gauge the influence of such feelings on the caretaker’s view of the patient. It was found that, regardless of the levels of sympathy or dislike felt for the patient, FMS and CFS sufferers were perceived as highly “action prone” before their illness.

The concept “action prone” is based on the items of the HAB (a Dutch self-report questionnaire measuring action proneness). According to the HAB, some features of action proneness include being continuously busy during the day and not being able to forget work when going to bed at night. The authors further suggest a link between action proneness and type-A personality, high achievers, perfectionists, and those who are unable to set limits to others’ demands. They do, however, also state clearly that the link between “action proneness” and concepts such as high achievement motivation, obsessive-compulsive traits, type-A personalities, workaholism, self-sacrificing tendencies and alexithymia is not clear (Van Houdenhove *et al.*, 2001).

What role “high action proneness” plays in FMS is also not clearly understood. Van Houdenhove *et al.* (2001) describe this characteristic as potentially affecting the FMS sufferer at a number of stages in the illness:

- Before the illness onset (as a predisposing factor) where FMS sufferers may have had to cope with childhood victimisation.
- At the start of the disorder (as an initiating factor) when pain hypersensitivity and the depletion of the main stress axis, the hypothalamic-pituitary-adrenal (HPA) axis may occur.
- Throughout the course of FMS (as a perpetuating factor). Here the authors describe what they term a self-handicapping strategy. The authors do not give



a detailed explanation of this term, but state that various psychological factors come into play once the individual is faced with the functional limitations brought on by FMS. Unrealistic goal setting and subsequent failure and exaggerated dependence because of inability to accomplish tasks may trigger a spiral of helplessness.

A similar study conducted by White and Schweitzer (2000) into the existence of a CFS personality, reveals a personality characterised by perfectionism, high performance standards, high levels of responsibility and notable achievement orientation. The authors are careful to differentiate between someone who may appear hard working and perfectionism. Hamacheck (in White & Schweitzer, 2000) distinguishes between normal perfectionists (people who are able to take into account their limitations and their strengths and realistically assess their performances) and neurotic perfectionists (these people are constantly plagued by their unrealistic expectations of achievement and their limited ability. Such people are also motivated by fear of failure, not their need for achievement and are therefore constantly dissatisfied).

Burns (in White & Schweitzer, 2000) describes perfectionists as people who strive to attain the unachievable goals they have set for themselves and who measure their own self-worth in terms of their achievement of these goals. Such behaviour can be related to the self-handicapping that Van Houdenhove, *et al.* (2001) describe. When goals are not reached, the person's self-esteem is lowered. This makes it more difficult to attain further goals, which, in turn, further affects self-esteem.

#### **2.4.2 THE ROLES OF PSYCHOLOGICAL FACTORS IN FMS**

Since Engel conceived of the idea of a pain prone personality in 1951, studies in psychosomatic medicine have endeavoured to delineate the factors inherent in such a personality (Grzesiak, 1994; Turk & Monarch, 2002). Although these attempts have been strongly criticised, patterns of behaviour and perceptions strongly correlated with FMS have been described.

In isolation factors such as depression, somatisation, high action proneness and self-handicapping strategies do not fully explain the occurrence of FMS. Bossevain and

McCain (in Hallberg & Carlsson, 1998) report that pain in FMS is “consistently rated as more severe, more emotionally complex and more physiologically debilitating than symptoms experienced by other chronic pain sufferers” (¶ 2). A one-dimensional model of the psychological origins of FMS is therefore not suited to explaining what is no doubt a complex interplay of factors. None of these factors is unique to FMS, nor do they occur in all FMS sufferers. While this in itself is enough to contest causality in terms of psychological factors, an alternative means of looking at this evidence is that there is not one discrete pain prone personality, but various pain prone personalities (Grzesiak, 1994). This could indicate subsets of FMS sufferers and encourage further research into areas that seem contradictory. The multidimensionality of aetiological factors could then also be embraced. Gatchel (in Gatchel & Dersh, 2002) provides an example of a multidimensional conceptual model of pain. Gatchel hypothesises that premorbid personality qualities, socio-economic and environmental characteristics of an individual’s life all contribute to the onset of acute pain and its eventual transition to a chronic condition.

In a qualitative study of FMS patients, Hallberg and Carlsson (1998) found a number of factors that predispose people to FMS. They also discovered other characteristics that they hold as maintaining forces in FMS. Psychosocial vulnerability in FMS is ascribed to traumatic life history, over-compensatory perseverance, a pessimistic life view and unsatisfying work conditions. Themes that recurred within the FMS group interviewed included a history of early losses and assuming responsibility very early in life, as well as social problems (alcohol abuse, psychiatric family illness and abuse), and subsequent powerlessness and helplessness.

The concept of over-compensatory perseverance that these authors describe as a predisposing factor to the disorder is not dissimilar to Van Houdenhove *et al.*’s (2001) “action proneness” and White and Schweitzer’s (2000) perfectionism in CFS. The cornerstones of this over-compensatory perseverance are reported as being ambition, sociability, hyperactivity and a resultant feeling of insufficiency and uncertainty. The participants who displayed these characteristics reported feeling a strong external motivation to achieve.

A pessimistic life view is linked to feeling that life had lost its meaning, that FMS was hard to manage and that the origins of their pain were not easy to grasp. Meanwhile, strenuous work conditions, controlled tasks with low income were the descriptors of unsatisfying work conditions.

The maintaining forces that Hallberg and Carlsson (1998) delineate include professional care, pain benefit and family support. These forms of secondary gain are seen as strong motivators for (consciously or unconsciously) sustaining illness behaviour. Validation of the person's illness and an understanding attitude towards subjective experiences of pain, decreased responsibility and increased attention may all contribute to this process.

Clearly there are numerous psychological aspects that need to be considered when examining FMS. Although Demitrack (in White & Schweitzer, 2000) was referring to the CFS debate, the contentious nature of the FMS debate parallels that of CFS. Therefore researchers investigating FMS would also benefit from Demitrack's remarks. Demitrack proposes that there should be an increase of research into psychological aspects "with the aim of achieving a paradigm shift in medical thinking and practice – such that both biological and psychological aspects of CFS are seen as essential and integral parts of patient assessment and management" (in White & Schweitzer, 2000, p.516).

### **2.4.3 THE PHYSIOLOGICAL THEORIES**

Physiological correlates of FMS are as numerous as the psychological factors associated with the disorder, and potentially as difficult to comprehend. The physiological parameters implicated in FMS's origin range from a substrate to a structural level.

#### **2.4.3.1 STRESS AND FMS**

The work of Selye has provided much insight into the body's responses to stress. His discovery that the physiological responses triggered by stressful events can both protect and damage the body has proven to be integral in the pathogenesis of a number of disorders (McEwen, 1998).

The body aims to maintain a dynamic equilibrium in order to prevent a disruption of effective functioning. This homeostasis is challenged by intrinsic or extrinsic stressors (Tsigos & Chrousos, 2002). The body adapts to these stressors, activating systems that help it achieve allostasis (McEwen, 1998). The central role in this stress reaction is played by the HPA-axis, while the sympatho-adreno-medullary (SAM) and Central Noradrenergic (CNA) axes are also involved in the response.

Once the higher cognitive centres of the brain have processed the stressor, activation of the hypothalamus occurs and corticotrophin-releasing hormone (CRH) is released. This elicits the secretion of adenocorticotrophic hormone (ACTH) from the anterior pituitary gland. This hormone, in turn, rouses the adrenal cortex, which releases cortisol. Cortisol's role is to help the organism cope with the stressor and maintain homeostasis. The results of this cascade are multiple. The commonly referred to "fight or flight" response results in increased cardiac output, the release of adrenalin, the redistribution of blood flow to vital areas, an increase in muscle strength and augmented energy mobilisation. Immune responses are mainly inhibited by cortisol, which results in a down-regulation of immune responses. However, some inflammatory cytokines (tumour necrosis factor, interleukin-1 $\beta$  and interleukin-6) are activated through the release of cortisol. Cortisol has a concomitant negative feedback effect on the hypothalamus and pituitary gland, which decreases the output of the stress hormones at those regions (Parker, Wessely & Cleare, 2001). Prolonged activation of the adrenal cortex results in adrenal hypertrophy, lymph atrophy and gastro-intestinal ulcerations.

Neuroendocrine abnormalities in FMS include flattened diurnal cortisol level (Neeck, 2002) and altered circadian cortisol release (Torpy, Papnicolaou, Lotsikas, Wilder, Chrousos & Pillemer, 2000). Hypocortisolism has been identified in FMS, post-traumatic stress disorder (PTSD), CFS, chronic pelvic pain and asthma, as well as in healthy people who have lived under ongoing stress (Heim, Ehlert & Hellhammer, 2000). Heim *et al.* (2000) suggest that these disorders form a family of disorders with similar psychological and endocrine features. Speculation over the reasons for this hypocortisolism is directed at many hypotheses. Increased sensitivity of the HPA-axis to negative feedback inhibition, which leads to increased suppression; decreased

andrenocortical reactivity to stress; habituation of the HPA-axis after chronic stress; reduced level of hormone availability (due to decreased biosynthesis of these hormones or gland depletion), down regulation of CRF receptors (because of CRF hypersecretion) and morphological changes such as atrophy, are all implicated in this phenomenon.

#### **2.4.3.2 NEUROTRANSMITTERS**

Neeck (2002) describes lowered levels of serotonin and adrenaline, while dopamine seems to be elevated and noradrenalin reflects normal to lowered levels in FMS. The lowered serotonin level may be related to the hyporeactivity of the HPA-axis. Serotonin plays a role in activating this stress axis.

#### **2.4.3.3 GENETICS**

There is limited evidence to suggest a hereditary predisposition to developing FMS (Yunus, 1994). According to Clauw (2001) several studies indicate a higher than average occurrence of FMS in family members of FMS sufferers. These family members are also described as experiencing a high frequency of the symptoms related to FMS, e.g irritable bowel syndrome and headaches.

#### **2.4.3.4 SLEEP**

Disruption of sleep is related to a number of diseases and even mortality (Yang, Shaw, Lai, Lai & Kuo, 2003). Moldofsky and his colleagues first posited the hypothesis that non-restorative sleep causes FMS (Ang & Wilke, 1999). Non-restorative sleep and fatigue are prominent in FMS, occurring in 76-90% of sufferers, as compared to only 10-30% in the general population (Roizenblatt, Moldofsky, Benedito-Silva & Tufik, 2001). Neeck (2002) explains that the secretion of growth hormone and serotonin is affected by sleep irregularities in FMS patients. This implies a malfunctioning of neuroendocrine functions during sleep. Seventy-six percent of FMS patients reported a worsening of symptoms after sleep – as opposed to only 12% in the control group (Roizenblatt *et al.*, 2001). Unfortunately the study was unable to determine to what degree depression played a role in sleep irregularity.

#### **2.4.3.5 PAIN PERCEPTION**

Nociception is the stimulation of nerves that relay messages to the brain about tissue damage. Pain on the other hand is the subjective perception of a stimulus that is modulated by a person's prior experiences, genetic make-up and psychological status (Turk & Monarch, 2002). Theories about the dysfunction of what is commonly referred to as pain perception therefore focus on the state of the sensory mechanisms involved in nociception as well as the idiosyncratic state of being of the FMS patient. Nociceptors (pain receptors) utilise substance P as one of their neurotransmitters. Pain inhibition is achieved by the release of neurotransmitters such as  $\gamma$ -amino-butyric acid (GABA), enkephalins, endorphins, norepinephrine and serotonin. As already described, the level of serotonin in FMS has been shown to be lower than in control subjects, while the concentration of norepinephrine varies from normal to low (Neeck, 2002). Vaerøy, Helle and Forre (in Yunus, 1994) found increased levels of substance P in people with FMS. However, the expected deficiency in endorphins and enkephalins is contradicted in the literature (Neeck, 2002).

Ang and Wilke (1999) emphasise the following important observations about FMS:

- FMS patients have a lowered pain threshold
- Pain symptoms vary in degree and number from individual to individual and even for each FMS patient throughout the course of the illness.

Stevens, Batra, Kötter, Bartels and Schwartz (2000) report that FMS sufferers seem to process pain abnormally. An examination of the pain response in these subjects during cold pressor stimulation revealed that the processing of such pain took place much faster in FMS patients than in controls. Although the sample size in this study was small, a study by Lorenz and colleagues (in Stevens *et al.*, 2000) supports the hypothesis that there is increased low-level processing of pain in FMS.

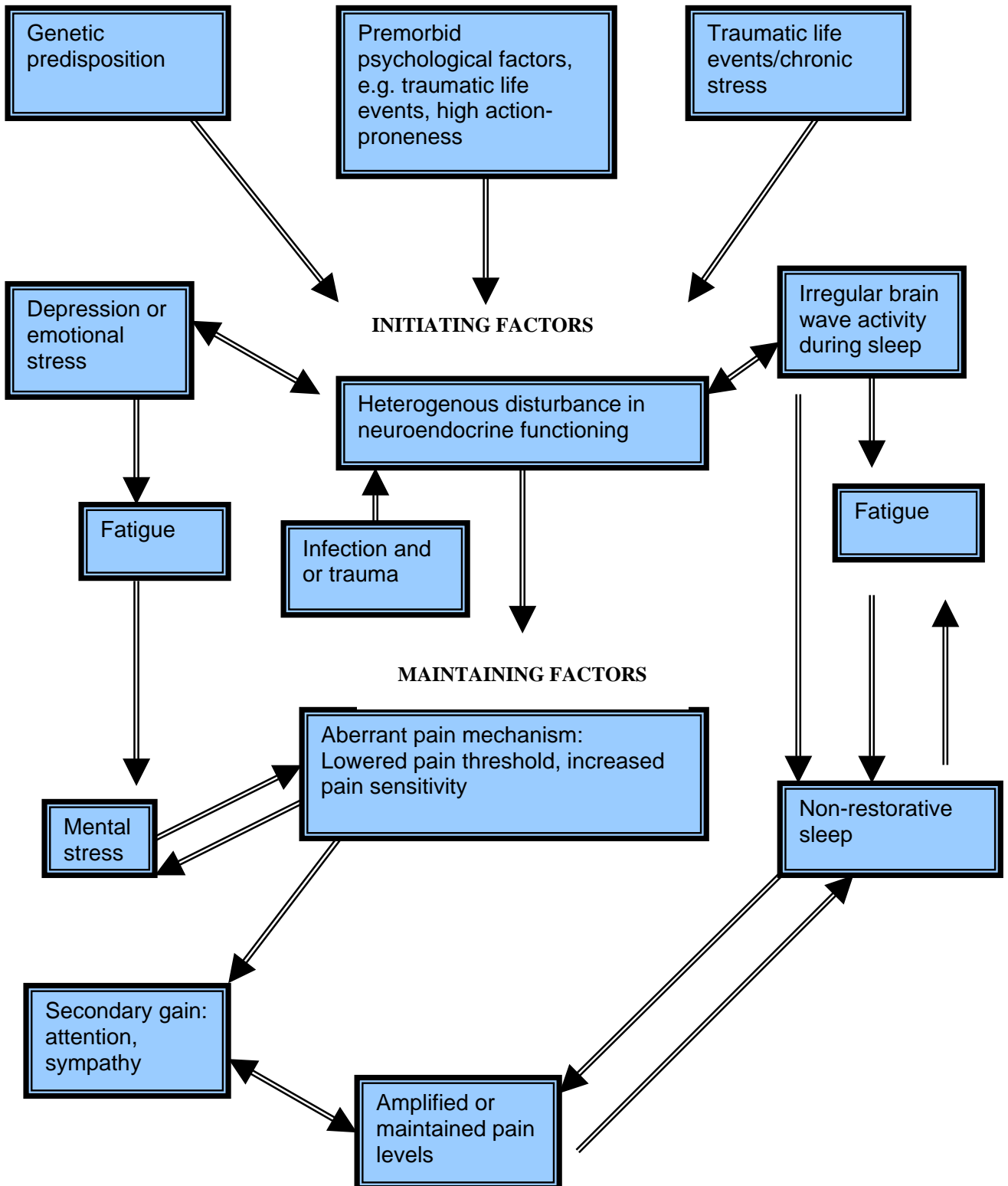
#### **2.5 THE DIATHESIS-STRESS MODEL: A SUMMARY**

Hallberg and Carlsson (1998) are adamant that no single factor can offer a solid explanation for chronic pain. The diversity in FMS patient profiles and in the way that patients subjectively experience symptoms (Turk & Monarch, 2002) is more readily explained through a biopsychosocial model, which allows for variation on

symptomatology without disregarding the interaction between psychological and physiological causes.

A number of such models already exist. Ang and Wilke (1999), Clauw (2001) and Inanici and Yunus (2001) all propose integrative models of the pathogenesis of FMS. These models all contain common factors and are integrated in the model in Figure 2.5.1. Complex as this model may seem, it still does not effectively illustrate the multiplicity of roles that each factor can play. For instance, while depression is depicted as an initiating factor only, it can also be a maintaining force. Although this research is restricted to the investigation of psychological parameters, this is done holding in mind the implications for a biopsychosocial model of FMS.

**PREDISPOSING FACTORS**



**Figure 2.5.1** A diathesis-stress model of the aetiology of FMS.



## 2.6 PROGNOSIS AND TREATMENT

There are a host of proposed treatments for FMS, many of which are reviewed in clinical trials. Analysis of every treatment is beyond the scope of this study and only a preliminary discussion of trends is entered into. Much of the frustration around the treatment of FMS is that there is not a singular treatment modality that has been empirically proven to relieve symptoms in all patients. Treatment is therefore adjusted to fit the patient's tolerance and symptom profile.

McCain (in Rachlin, 1994) describes FMS as a continuous and unremitting condition. This sentiment is shared by a number of researchers (e.g. Felson & Goldenberg as well as Hawley, Wolfe & Cathey in Goldenberg, 2002; Inanici & Yunus, 2001). In contrast, Pöyhia, Da Costa and Fitzcharles (2001) found that a spontaneous decrease in pain reporting and medication use in almost a third of the FMS patients they examined. Treatment of the disorder therefore requires careful management, continual re-evaluation of symptoms and appropriate adjustment of treatment. Both single and multi-modal approaches to treatment have been attempted, with variable successes. Studies comparing the effectivity of these two approaches have not been attempted, with researchers rather concentrating on isolating the features of each method that benefit patients. Factors associated with poor prognosis are a severe initial degree of pain, depressed mood and a large number of pain sites (Inanici & Yunus, 2001).

Goldenberg (2002); Jensen, Turner Romano (1994) and Littlejohn (2001) are a few of the proponents of multidisciplinary treatment. Core components of such an approach include the following:

- Education: This concentrates on providing the patient with reliable information about FMS. Although much about the diagnosis is still controversial, information on possible symptoms, available treatments and stress management can still be provided. According to Littlejohn (2001), many clinicians fear that validating symptoms, will lead to further symptoms. While sympathy from the doctor involved may add an element of secondary gain into the process, it is empowering for most patients to finally receive acknowledgement of their pain.

- Exercise: Graded cardiovascular exercise is to be encouraged in FMS patients. McCain (1996) reports on the results of a 1988 study of the effects of aerobic exercise on FMS. Patients displayed considerable improvement in pain threshold measures after a 20-week programme. Convincing patients to participate in exercise programmes may prove difficult, as many chronic pain patients avoid activity in the hope that a less busy lifestyle will prevent pain (Philips, 1987).
- Psychological intervention
- Medication

### 2.6.1 PSYCHOLOGICAL INTERVENTIONS

In a study examining which components of multidisciplinary treatment of chronic pain are most effective, Jensen *et al.* (1994) concluded that changes in pain beliefs and improved cognitive coping strategies were most strongly correlated with both physical and psychological functioning. Individual and family psychotherapy were provided to patients in this study. The paradigm used by the therapists is not stated, but a more didactic process is evident in the psycho-educational part of the treatment.

Various psychotherapeutic stances can be used to achieve similar outcomes with regard to coping strategies and pain beliefs. Choice of technique is up to the therapist, with hypnotherapy, psychodynamic psychotherapy, cognitive behavioural therapy, behavioural therapy as well as other approaches having been attempted. Most patients will try more than one therapy during their illness.

Cognitive behavioural therapy (CBT) has been implicated in high frequencies of patient improvement (Jensen *et al.*, 1994). The areas of FMS tackled in CBT include symptom reduction, coping strategies, and maladaptive illness behaviour. Smith *et al.* (1994) report that cognitive distortions may be related to both depressive symptoms and illness behaviour and could also be effectively addressed using the CBT model.

Philips (1987) examined the effects of a nine-week behavioural programme on chronic pain patients. The programme included groups of five to seven patients with a mixture of pain diagnoses. Sessions were conducted once a week for an hour and a

half. Intervention was directed at teaching relaxation techniques, graded increases in exercise and physical fitness, decreasing dependence on analgesics, gaining increased control over pain episodes and prevention strategies (activity pacing, anxiety management and mood control). Subjects displayed a reduction in pain avoidance, depression and affective reactions to pain. Increases were noted in the patients' perception of control over pain. A clinician judged the progress of the subjects. Results showed that 83% of patients improved, none regressed and 17% were virtually pain free at the end of the programme. Self-efficacy and perceived problem size changed dramatically and remained high at a one-year follow-up. The patients' perceptions of sensory and affective components to pain, avoidance behaviour as well as depressive symptoms fell and continued to fall at two month and twelve month follow-up times.

#### **2.6.2 PHARMACOLOGICAL AND PHYSICAL INTERVENTION**

The list of medication prescribed for FMS varies with the patient's symptoms and can include antidepressants, corticosteroids, analgesics, muscle relaxants, anxiolytics and tranquillisers. In addition, experimental drug therapies may include Guaifenesin, NADH, Super Malic Acid, Growth Hormone and Detrol (Cunningham, 2000/2001). Goldenberg (2002) states that his main objective in prescribing medication is the improvement of sleep, energy levels and pain symptoms. Physicians may decide on single or combination drug therapies and may have to alter dosages as well as types of medication in order to find the treatment that best suits the patient. Amytriptyline is the most widely prescribed agent for FMS treatment (Inanici & Yunus, 2001). This tricyclic anti-depressant results in improved sleep, decreased pain and morning stiffness, and decreased tender point scores (Goldenberg, 2002; Inanici & Yunus, 2001). Inanici and Yunus (2001) provide an overview of the clinical trials of pharmacological interventions for FMS, together with the effectivity of the drugs investigated (see Table 17.2 in Inanici & Yunus, 2001, p.386)

A host of treatments for FMS are listed by authors such as Cunningham (2000/2001), McCain (1996) and Goldenberg (2002). These include the following:

- Moist heat
- Transcutaneous electrical nerve stimulation
- Magnetism
- Injections
- Ultrasound
- Biofeedback
- Therapeutic massage
- Meditation

## 2.7 CONCLUSION

For a disorder that affects 2-4% of the general population (Littlejohn, 2001), fairly little substantive information exists on FMS. Indeed, a powerful stumbling block to those deciphering the cryptic disorder is the debate as to whether FMS is a sound diagnosis or not. Aside from the strong association of FMS with other controversial diagnoses (such as CFS and chemical sensitivity), the medical model in modern health care often disavows the possibility of both a mind and body involvement in the disorder. Since there is no definite physical evidence of the disorder, it is reduced to the category of some woolly psychological affliction.

This research takes seriously Goldenberg's (2002) implied question: so what if FMS is not a *medically* accepted disorder? Goldenberg's idea is that FMS is still important to health professionals, even if it is one of those "bizarre new illness attributions, held as articles of faith by the patients, but supported neither by scientific evidence nor the patina of plausibility" (p.93). There is a tendency to lend credence only to those phenomena that are measurable in medical terms. This practice strips emotional problems of all credibility, leaving patients defenceless against the attack on their characters that a lack of physiological abnormalities invariably elicits.

By examining the possible contributions of psychological parameters in FMS, more knowledge can be added to the existing base. While it may seem more desirable to focus on the physical basis of FMS, the overwhelming number of such studies (as

opposed to those of a psychological nature) calls for a stronger contribution to be made by psychology. This is not intended to denigrate in any way the importance of physiological studies. On the contrary, what this research proposes is an interplay between the psychological and the physiological in the origin, maintenance and augmentation of FMS symptoms.

## CHAPTER 3

### THE PSYCHOLOGICAL PARAMETERS EXAMINED

The present study was aimed at scrutinising the relationship between FMS, attachment, SOC and Attributional Style. This chapter elucidates the three psychological parameters and describes their possible connection to FMS. While insecure attachment, low SOC and an extreme (either internal or external) Attributional Style are not pathologies, they may combine to form the basis for the psychological component of a stress-diathesis model of the pathogenesis of FMS. The study also examines the relationship between FMS and depressive symptoms. The correlation between FMS and depression has already been dealt with in the previous chapter and will therefore not be expanded on in this chapter.

The belief that early childhood experiences play a central role in the development of the human being is not widely disputed. There are, however, as many ideas on why this is the case as there are theories of psychological development. Whether these experiences are crucial determinants or potent influences on adulthood is questioned by the various paradigms. Bowlby's theory of attachment is based on meticulous observation of infants and young children in real-life and experimental situations. What was born of these observations is the conclusion that creating and maintaining attachments towards the primary attachment figure serves as a working model for attachment to significant others throughout human development (Gomez, 1997). The significance of attachment relationships to FMS is found in the hypothesised link between insecure attachment and psychopathology. Although attachment styles are largely held to be stable throughout life, recent research suggests that mediating factors may play a role in altering such patterns. SOC and Attributional Style are suggested to be two such factors.

#### 3.1 WHAT IS ATTACHMENT?

By combining a variety of views, such as ethology, cognitive control theory and psychodynamics, Bowlby evolved a theory that places intimate relationships at the centre of development - both healthy and pathological - bringing into sharp focus the intrapsychic and the interactional aspects of human relations. Holmes (1993) describes

attachment as being essentially a spatial theory that locates the individual in relation to a loved one. Any behaviour that results in the attainment or maintenance of proximity to a differentiated and preferred other, who is usually viewed as being stronger and wiser, (Bowlby in Bacon & Richardson, 2001) is considered to be attachment behaviour. Attachment is not merely a matter of proximity, though. It involves an affective bond, which can have a salutatory or disjunctive effect on the attached person.

Bowlby states (in Marrone, 1998, p. 31):

What for convenience I am terming attachment theory is a way of conceptualizing the propensity of human beings to make strong affectional bonds to particular others and of explaining the many forms of emotional distress and personality disturbance, including anxiety, anger, depression and emotional detachment, to which unwilling separation and loss give rise.

It is useful to think of attachment as a working model or a cognitive schema of how the individual views himself or herself and others (Horowitz, Rosenberg & Bartholomew, 1993) and which characterises the individual's reactions to interpersonal situations (Hunter & Maunder, 2001).

### **3.2 A BRIEF HISTORY**

Attachment theory has enjoyed a controversial history in scientific spheres. According to Goldberg (2000) it still, however, remains a dominant theory in psychology, promulgating the idea that the child-parent relationship has a profound effect on the development of the child. Even Freud acknowledged the role of early childhood events in development. Analytic efforts to reconstruct such events (such as dream analysis and hypnosis), which were born of this theory are still utilised to great effect today. Bowlby, however, felt strongly that a more accurate assessment of development could be made through reversing this process and observing the person in infancy and childhood in order to see what kind of adult he would become. Bowlby held that “observation of how a very young child behaves towards his mother, both in her presence and especially in her absence, can contribute greatly to our understanding of personality development” (Bowlby, 1970, p.3).

Although Bowlby played an important role in the original research on attachment, there have been others who posited a link between a child's distress and the loss of his mother. Anna Freud and Dorothy Burlingham, for instance, described the experiences of children cared for in wartime nurseries in the 1940's, whereas Spitz and Wolf observed infants raised in a penal institution while their mothers were imprisoned. Others investigated separation during hospitalisation. Unfortunately, these studies varied in terms of a number of factors (e.g. age of children and degree of care) (Goldberg, 2000).

Bowlby was trained as a psychoanalyst and worked at the London Child Guidance Clinic, along with his analyst (Joan Rivière) and Melanie Klein. During his time at the clinic, a gap began to develop between him and other analysts. Bowlby believed that it was the child's actual experiences that shaped his views on self and others – a point of view held as less than desirable by the purists in the psychoanalytical field. After the Second World War, the disagreement between Bowlby and more conventional analysts was augmented. By refusing to heed the order issued by Ernest Jones to stay away from the Tavistock Clinic, Bowlby was seen as moving even further away from the psychoanalytic framework that prevailed at the time (Gomez, 1997).

Additional disapproval was aired when Bowlby suggested that family involvement could help in the treatment of maladjusted children. His interest in discovering exactly how family interactions contributed to healthy or pathological development came at a time when parental visits to children in hospital were considered to be upsetting to the child and were, accordingly, discouraged (Bretherton, 1991; Goldberg, 2000). Armed with these ideas, Bowlby encouraged James Robertson to observe young children who had been separated from their parents (through various circumstances, including hospitalisation). Robertson collaborated with Bowlby to produce a short film entitled 'A two-year-old goes to hospital.' This work played a major role in encouraging parental involvement in the treatment of young children (Goldberg, 2000).



During his time at the Tavistock clinic, Bowlby established the Department for Children and Parents. In 1950, Mary Ainsworth arrived at Tavistock. Ainsworth already had a history of working with separation of mother and child. It was she who later began a series of experiments in which children and their mothers were brought into the laboratory at the end of the child's first year and then separated and reunited. This experiment became known as the Strange Situation (Ainsworth, Blehar, Waters & Wall, 1978). Based on this experiment, Ainsworth described three attachment typologies: Avoidant (in which the child seems unconcerned with the mother), resistant or ambivalent (here the child tries to elicit the mother's attention even to the exclusion of other activities) and secure (in which the child trusts the mother to provide adequate care). One of Ainsworth's students, Mary Main, examined data that delineated unclassifiable attachment behaviour. She suggested the introduction of a fourth attachment class: The disorganized type. This attachment style is characterised by the absence of organised attachment behaviour.

Since the early writings of Bowlby and Ainsworth, attachment theory has included the development of measures for attachment in both infancy and adulthood. The links between mental health and attachment and the trajectories of psychopathological development have also been scrutinised through the lens of attachment theory.

### **3.3 FEATURES OF ATTACHMENT**

#### **3.3.1 BIOLOGICAL IMPERATIVE**

During a time in which object relations theories were challenging the centrality of instinct and drives in psychoanalytic thought, Bowlby's inclusion of biological views was not welcomed. So radical were the ideas Bowlby proposed that his paper on the child's ties to the mother presented to the British Psychoanalytic Society in 1957 drew strong protest from his own analyst, Rivière, as well as the following criticism from Donald Winnicott: "It was certainly a difficult paper to appreciate without giving away everything that has been fought for by Freud" (in Bretherton, 1991, p.18).

Bowlby contended that the urge to make contact with the mother was actually a result of evolutionary processes and not due to the need to fulfil drives (Marrone, 1998). Bowlby viewed attachment behaviour as necessary for survival. The infant, sensing danger, has to elicit protection and the parent is wired to provide it in order to assure survival of the species. Should the child feel threatened either by imminent danger or by the potential loss (through death or injury or simply by an increase in distance) of the caregiver, he or she will act in such a way as to elicit closer proximity. When the child's needs are met, the attachment behaviour is absent. It is only when there is a threat that it can be exposed. As the child develops, greater distance is permissible.

Biological pre-wiring does not, however, remain the single determinant of attachment. Social, emotional, cognitive and behavioural components evolve: A weaker individual relies on a stronger one for protection. There is an emotional tie between both individuals, which gives rise to a working model of self and other. This working model is a cognitive representation of self and other, which is experience-based and likely to alter with new experiences. On a psychodynamic level, only that part of the model, which is easily accessible in the consciousness, would be able to change easily. Certain behaviours then occur to maintain and reflect the relationship (Bretherton, 1991).

### **3.3.2 THE SECURE BASE**

Attachment results in the child being able to explore and live life (Holmes, 1993). Ainsworth used the words 'secure base' to describe the atmosphere that the attachment figure creates for the attached person: safety that allows exploration and curiosity. Eventually the child can feel this security even when the attachment figure is not physically present. This achieved felt security corresponds with Mahler's idea of object constancy. The need for a secure base is not limited to childhood and the infant-carer relationship, though. In adulthood, people also require a mix of support and the opportunity for exploration (Holmes, 1993).

The quality of maternal care is regarded as vital in attachment development. This includes prompt response to distress, appropriate and adequate stimulation, warmth,

involvement and interactional synchrony (Belsky, Rosenberger, & Crnic, 1995). Stern (in Bacon & Richardson, 2001) describes this process of appropriate responsiveness as selective attunement. The lack of a secure base results in a child not being able to explore the world. This may, in turn, result in cognitive and physical developmental delays. Psychologically, the damage resulting from this scenario manifests in insecure attachment styles, which influence the child's (and later, the adult's) interactions with others.

### **3.3.3 MONOTROPY**

Although attachment theory most often refers to the mother-child relationship, there is acknowledgement that attachment does not necessarily involve the mother, but close adult-child relationships in general. The term monotropy refers to a hierarchy of preferences of caregivers that is unique to every child. Not all relationships have equal influence, though. While some attachments can endure throughout life, others may dissolve or be altered according to the needs of the developmental stage (Belsky *et al.*, 1995; Bretherton, 1991).

## **3.4 CONTEMPORARY DEBATES IN THE ATTACHMENT FIELD**

### **3.4.1 CULTURE**

Bowlby held attachment behaviour to be species-specific and therefore not subject to the effects of cultural diversity. Attachment theory sets particular criteria for secure attachment, regardless of culture. However, researchers have shown over and over again that the normative distribution of attachment styles does not reflect uniformly across countries. For instance, Bretherton and Ainsworth (1995) report on studies conducted in Germany that showed excess avoidant classifications. In Israel and Japan, a higher distribution of ambivalent classifications was found. The question is then raised as to what extent attachment results can be interpreted in terms of comparability across cultures. It is doubtless important to take into account those characteristics that are prized in the culture before making any assertions about a specific sample. There is merit in Grossman's (1995) view that it is not solely the relationship, but also cultural beliefs and practices that influence attachment.

People who have a secure sense of attachment constitute approximately 55 % of the population (Hunter & Maunder, 2001). One of the aims of this research is to establish whether FMS patients will tend to display insecure attachment rather than a secure attachment style.

### **3.4.2 MEASURING ATTACHMENT**

Bowlby characterised attachment as a property of human development that, once created by childhood experiences, remained stable throughout life. Ainsworth's experiments led to the development of the Strange Situation. The Strange Situation comprises a twenty-nine minute session, which begins with both the mother and one-year-old child being taken into a playroom. The mother is instructed to leave the child with the observer for three minutes and then to return. During the second phase of the experiment, a stranger enters the room and interacts first with the mother and later the child. The mother then leaves the baby on its own with the stranger in the room. After three minutes, the stranger leaves the child alone, only to return a little later after the child has spent some time alone. Finally, the mother and child are reunited. The child's interactions with the various adults, his or her exploration and play habits as well as behaviour when reunited with the mother are observed (Ainsworth *et al.*, 1978).

As mentioned, the attachment styles noted in the Strange Situation are listed as secure, avoidant, resistant and disorganized. A summary of the features of each class is given in Table 3.4.2.1.

It has been suggested that attachment theory is essentially child-centred and does not easily translate into adult theories, but it is largely accepted that those attachment styles exhibited in childhood are echoed in adulthood. Attachment measures that could assess the quality of attachment in adulthood took two main pathways. Mary Main and her colleagues developed the Adult Attachment Interview (AAI), which looked retrospectively at the adult's experiences. It was only in the 1980's that the assumption that "the same motivational system that gives rise to the close emotional bond between

parents and their children is responsible for the bond that develops between adults in emotionally intimate relationships” (Fraley, 2004, ¶ 1), was explored. Researchers such as Hazan and Shaver propose that adult attachment is a vital facet of marriage and equivalent relationships. The attachment system is therefore viewed to be central in the choice of partner. Attachment questionnaires have therefore started to include romantic relationships (Fraley, 2004).

One of the difficulties with attachment literature is that the terms Ainsworth originally utilised to describe categories have been altered, with some researchers adding categories and others renaming them (see Table 3.4.2.3 for more information). The AAI allowed the classification of adult attachment styles (Holmes, 1993). The interview schedule utilises retrospective analysis of the adults’ memories of their relationships with their parents. The four categories of attachment are: autonomous-secure (secure), dismissing-detached (the adult has few memories), pre-occupied-entangled (the memories are inconsistent and rambling, reflecting over-involvement and unresolved issues with the parent), unresolved-disorganised (which refers to unresolved childhood trauma).

The main suppositions derived from the idea that a connection exists between childhood and adulthood attachment are:

- Adulthood should be a reflection of a childhood experiences
- Similar patterns of attachment should be exhibited in adulthood as in childhood.
- Therefore security type in childhood should be related to romantic attachment.

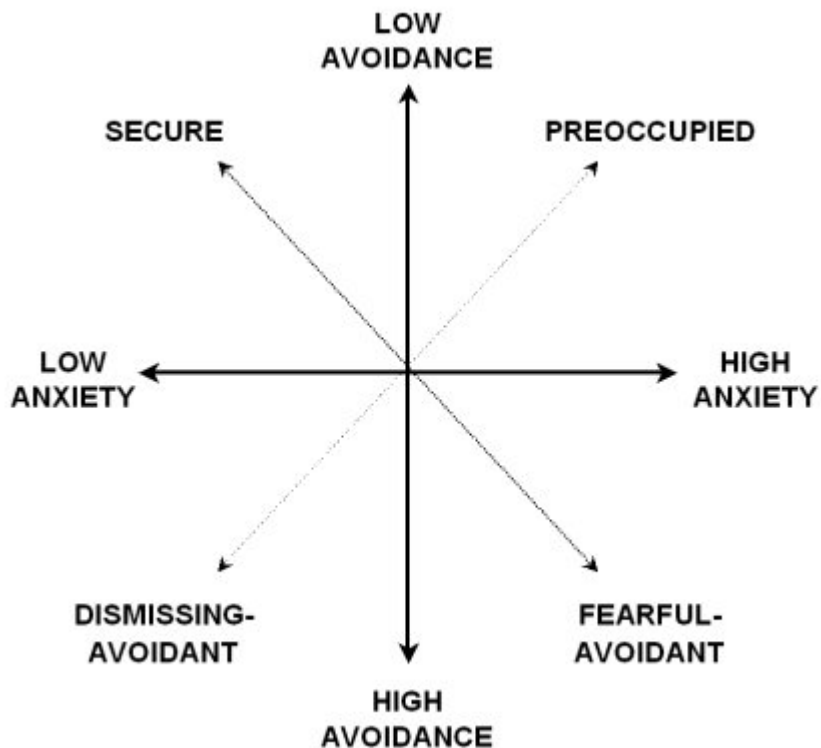
**Table: 3.4.2.1 A summary of attachment styles and their characteristics** (Adapted from Ainsworth, *et al*, 1978; Belsky, *et al*, 1995; Holmes, 1993)

| <b>Attachment classification as child</b> | <b>Behaviour during Strange-Situation</b>   | <b>Caregiver style</b>  | <b>Attachment classification as adult</b> | <b>Working model as adult</b>  |
|---|---|---|---|--|
| Secure (type B):                          | Less anxious than other infants, uses mother as secure base. Child engages in exploratory play. Greets mother upon reunion, but then returns to play. | This includes prompt responsiveness to distress, appropriate stimulation in the correct quantities, and warmth. | Secure/autonomous                         | Has a sense of worthiness to be loved and sees others as worthy of being loved |
| Insecure-avoidant (type A):               | Not very distressed at separation from mother. Engaged in inhibited play, but ignore caregiver at reunion.  | Maternal care is intrusive and excessively stimulating, Rejecting   | Dismissing                                | Views self as worthy of love, but does not trust others to provide care.       |

| Attachment classification as child               | Behaviour during Strange-Situation   | Caregiver style  | Attachment classification as adult | Working model as adult   |
|--|--|--|------------------------------------|--|
| Insecure-ambivalent/insecure resistant (type C): | Child is inconsolable on separation and not calmed even at reunion. Alternate anger and clinging, while play is inhibited. Child is unable to use mother as a secure base from which to explore. | Unresponsive, uninvolved (but not rejecting) care giving | Preoccupied                        | Extremely dependent. The person does not view himself or herself as worthy of being loved. |
| Insecure-disorganised (type D):                  | Confused behaviours (huge variety), e.g. stereotyped behaviour on reunion  | Inconsistent   | Unresolved                         | Do not trust others to provide care and view themselves as unworthy of                     |

This has led to another debate on the taxonomical qualities of attachment. In their attempts to refine attachment theory, researchers are asking how accurate it is to use definitive categories when describing working models. This is where the idea of dimensionality enters the fray.

Brennan, Clark and Shaver (in Fraley, 2004) found that attachment in adulthood could be measured using two main dimensions: attachment related anxiety and attachment related avoidance. Overlaps with these two dimensions have been found in the childhood dimensions of attachment anxiety and avoidance and the child's willingness to use the attachment figure as a safe base. A schematic representation of these dimensions is set out in Figure 3.4.2.1.



**Figure 3.4.2.1:** Attachment along two dimensions (from Fraley, 2004, ¶ 8).



The Experiences in Close Relationships-Revised (ECR-R) questionnaire that is utilised in this study was developed by Fraley, Waller and Brennan (2000). The properties of the test are discussed further in chapter four. What is important to note when discussing the relationship between the ECR-R and the measurement of attachment is that the test offers the location of the person’s attachment style along these two dimensions, but can also be converted into one of the categories suggested by Horowitz *et al.* (1993). A representation of these categories is given in Table 3.4.2.2.

**Table 3.4.2.2:** Attachment style (amended from Horowitz *et al.*, 1993, p. 555).

|                |   |  |
|----------------|---|--|
| Model of self  | Cell I<br>Secure:<br>Comfortable with intimacy and autonomy (type B)  | Cell II<br>Preoccupied:<br>Preoccupied with relationships.<br>Corresponds to Anxious (type C)/<br>Resistant/Ambivalent     |
| Model of other | Cell IV<br>Dismissing-avoidant:<br>Dismissing of intimacy, counter-dependent.<br>Corresponds to Avoidant (type A) | Cell III:<br>Fearful-avoidant:<br>Fearful of intimacy, socially avoidant. Corresponds to<br>Insecure-disorganised (type D) |

Secure attachment provides a base from which the infant can explore its world while insecure attachments lead to anxiety, which makes exploration of the world difficult. As mentioned earlier, people who have a secure sense of attachment constitute approximately 55 % of the population (Hunter & Maunder, 2001). As adults such people experience a worthiness to be loved and see others as worthy of being loved. These traits are learned from a caregiver-infant relationship that sees the infant’s needs being responded to appropriately. An insecure-avoidant attachment style results when the caregiver is aloof and rejecting of the baby’s needs. The child grows up to be an aloof adult who views himself or herself as worthy of love, but does not trust others to provide

care. An unpredictable caregiver helps create a working model of an insecure-anxious attachment style, which is characterised by extreme dependence in adulthood. The person does not view himself or herself positively and seeks validation through others. The insecure-disorganised style, meanwhile manifests in concomitantly exaggerated help-seeking and help-rejecting behaviour. Such people do not trust others to provide care and view themselves as unworthy of being loved. An inconsistent caregiver plays a role in the development of this attachment style (Gomez, 1997; Hunter & Maunder, 2001; Wenar & Kerig, 2000). As mentioned, these categories have undergone name and concept changes since their inception. A brief summary of these changes and their description of attachment across the lifespan is presented in Table 3.4.2.3.

**Table 3.4.2.3:** The taxonomy of attachment throughout the lifespan (adapted from Goldberg, 1995, p. 10-11; Goldberg, 2000, p. 37).

| Age                                    | Secure  | Insecure   |  |   |
|--|---|--|--|---|
| Infancy (Strange Situation)            | Secure (B)  | Avoidant (A)   | Anxious (C)/<br>Resistant/Ambivalent   | Disorganised (D)  |
| 5-7 years                              | Secure or balanced (B)  | Avoidant or defended (A)   | Dependent or coercive (C)  | Controlling (D)   |
| Adolescence                            | Balanced (B)  | Limiting (A)   | Preoccupied (C)  | Disorganised (D)  |
| Adulthood (Adult Attachment Interview) | Secure/autonomous<br>Best corresponds to Horowitz <i>et al.</i> 's (1993) secure category | Dismissing.<br>Best corresponds to Horowitz <i>et al.</i> 's (1993) dismissing category. | Preoccupied.<br>Best corresponds to Horowitz <i>et al.</i> 's (1993) preoccupied category. | Unresolved regarding loss or trauma.<br>Best corresponds to Horowitz <i>et al.</i> 's (1993) fearful category |

### **3.5 ATTACHMENT AND PSYCHOPATHOLOGY**

It is central to the concept of attachment that human development is about creating and maintaining attachments to significant others (Gomez, 1997). When the basic foundation of this ability to relate to others is damaged, the results can be devastating. Attachment research has revealed strong links between the security of attachment in early life and the development of psychopathology. Pierrehumbert, Miljkovitch, Plancherel, Halfon and Ansermet (2000) state clearly that attachment security is related to a number of outcomes in later life, including cognitive and social development and psychological well being. Although the progression from being insecurely attached to suffering from a psychiatric disorder seems logical and possibly even inevitable, no discussion on the development of pathology can be complete without a reference to resilience. Before entering this sphere, some literature on attachment and psychopathology will be reviewed.

#### **3.5.1 THE PROBLEMS WITH PATHOLOGISING ATTACHMENT**

While it is generally agreed that insecure attachment results in the child developing psychopathology, it is not certain which types of pathology correlate with which attachment styles. Wenar and Kerig (2002) state that avoidant attachment is most likely to result in externalising behaviours in children (such as Conduct Disorder), while resistant attachment produces children with internalising disorders, e.g. depression. The authors do not take a definitive stance on the matter, stating that there may be overlaps in attachment styles and comorbid disorders. They further emphasise that attachment only produces pathology in interaction with other variables and that secure attachment in itself can present a risk. Radke-Yarrow (1991) also points out that secure attachment can form even when the mother is mentally ill and that this may pose a threat to the child's state of well-being. The child could possibly learn that little emotional input and response from significant others is necessary in life and might then become aloof or even rejecting of others.

Strodl and Noller (2003) point out that there are not enough attachment typologies to be uniquely associated with every pathology listed in the DMS-IV-TR. Further difficulty in relating attachment categories to pathologies is presented by the existence of comorbid

conditions, the inaccuracy of symptom reporting and the possibility of exaggerated or underplayed illness behaviour.

In addition, studies on childhood psychiatric illnesses and attachment are limited. Those that do exist are difficult to compare, as many did not use the full four-category classification scheme. Reports about adulthood are, similarly, not uniform. Yet from the studies that Goldberg (2000) compared, it was concluded that insecure attachment was more likely to occur in children with behavioural problems than in those without. Partial support was also found for the hypothesis that insecure-avoidant children are more likely to manifest internalising and externalising behaviour problems than resistant children. Disorganised children presented with more externalising behaviour than secure and avoidant children (Goldberg, 2000).

### **3.5.2 FROM CHILDHOOD TO ADULTHOOD**

As mentioned, Bowlby believed that attachments remain active throughout life. From the primary attachment figures, the developing person develops new relationships that may result in a new hierarchy of significant others. Attachment then plays a role in choice of and ability to relate to peers and romantic partners. This view may seem pessimistic and Hazan and Shaver (in Akister & Reibstein, 2004, p. 7) point out that:

It would seem overly pessimistic – from the perspective of insecurely attached people – to conclude that continuity is the rule rather than the exception between early childhood and adulthood...It seems likely that continuity between childhood and adult experiences decreases as one gets further into adulthood.

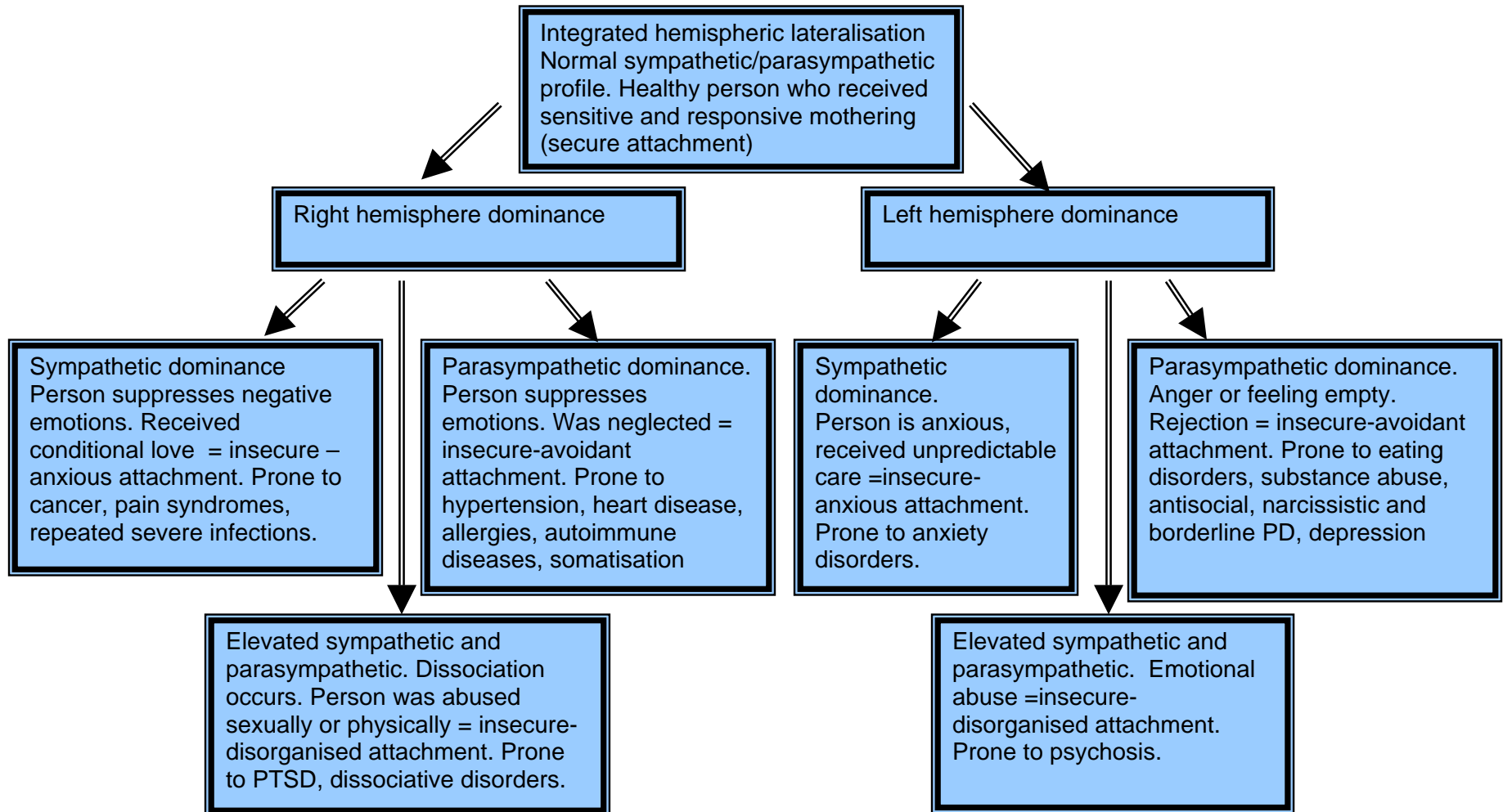
However, the argument over continuity and variation of attachment during adulthood is not simply resolved by weighing up childhood and adulthood experiences. A complex transaction between the person's experiences, perceptions, emotional capacity, coping skills and even neurological makeup is involved in the manifestation of attachment behaviour.

Some evidence is offered in support of the theory that insecure attachment behaviours remain in adulthood. The most striking of these is related to abuse. Bacon and Richardson (2001) reviewed the literature available on the cycle of abuse that sees many abused children go on to become abusers themselves. According to these authors, previous research on abused toddlers found evidence of abusive behaviour amongst survivors. This continuity of insecure attachment produces a cycle of violence and insecure attachment.

Such evidence brings one back to the impact of culture on attachment distribution. In a society where the rate of child abuse is comparatively higher than the rest of the world, the distribution of both childhood and adulthood attachments cannot be comparable to other countries.

Although it is not difficult to see how insecure attachment in childhood can manifest in insecure attachment and even psychopathology in adulthood, not all studies are congruent with this statement. For example, Fraley (2004) states that longitudinal studies on the correlation between childhood and adulthood attachment are limited in number. One study reported a mere 0.17 correlation rate (Steele, Waters, Crowell & Treboux in Fraley, 2004). The correlation can therefore be described as moderate (at best). And yet, in the absence of quantitatively based longitudinal studies, there are a number of researchers and practitioners who have gathered retrospective information about insecure attachment in mentally ill patients. Some of these will now be described.

Panzer and Viljoen, (2003) reviewed literature on the neurophysiological make-up of psychiatric patients. These researchers noted a link between hemispheric lateralisation, heart rate variability and attachment. Drawing from profiles of such patients, they concluded that psychiatric illnesses could be classified - and even predicted - using these three parameters. According to this model, attachment style is therefore not the only predictor of psychopathology. It also propagates the idea that biological prewiring plays a large role in mental illness. Figure 3.5.2.1 illustrates Panzer and Viljoen's (2003) theory.



**Figure 3.5.2.1:** A classification of human diseases based on hemispheric lateralisation, type of autonomic control and attachment style (Panzer & Viljoen, 2003)

Grossman and Grossman (in Horowitz *et al.*, 1993) hold that there is a connection between early losses and the vulnerability to disorders such as depression. Radke-Yarrow (1991) concurs with the assertion that childhood insecure attachment can result in adult depression. Panzer and Viljoen (2003) link depression to insecure-avoidant attachment.

Interestingly, Fonagy *et al.* (in Goldberg, 2000) report that preoccupied attachment is more common in Borderline Personality patients than other populations. Panzer and Viljoen (2003) meanwhile place this disorder in a group with depression (insecure-avoidant attachment). Panzer and Viljoen's (2003) theory does, however concur with Carlson's study (in Goldberg, 2000) that shows that disorganised attachment is most commonly associated with those suffering from dissociative disorders. In one of the few longitudinal attachment studies conducted on this phenomenon, Carlson (in Goldberg, 2000) followed up 157 participants who had been classified as disorganized in infancy. Disorganised attachment in infancy consistently predicted dissociative experiences at the age of 19 years.

With reference to FMS specifically, the number of studies involving attachment style and this disorder are few and far between. Hallberg and Carlsson (1998) utilized discourse analysis to ascertain the type of attachment in such patients and concluded that FMS sufferers display insecure attachment.

### **3.6 MEDIATING FACTORS IN ATTACHMENT**

The two disparate views produced by attachment research are:

- Adult attachment is continuous with childhood attachment style, or
- It may alter between childhood and adulthood

In terms of psychopathology this means that some research presents a picture of childhood mental illness that stretches into adulthood. Other researchers view insecure attachment as capable of being altered in such a way that childhood pathology does not extend to adulthood. This study does not attempt to reconcile the chasm between these opposing arguments. Rather, both voices are offered a chance to be heard. While FMS may not necessarily be a classifiable psychopathology, it often results in (or is accompanied by)



problems such as depression and anxiety. The examination of factors that may contribute to the onset, maintenance or augmentation of symptoms is therefore vital for the planning of treatment and the understanding of the disorder.

According to Belsky *et al.* (1995), secure attachment represents ego strength: “the ability to form mutually satisfying intimate relationships, the capacity to change, good self-esteem, and a sense of competence” (p.181). This emotional autonomy allows one to have a constructive self-view and a view of others that is conducive to the formation and maintenance of healthy (health-promoting) relationships. Factors that may be related to emotional autonomy include the individual’s capacity to make cognitive and emotional sense of his or her world – these capabilities are reflected in the SOC and Attributional Style.

### **3.6.1 SALUTOGENESIS AND THE SOC**

Salutogenesis means ‘the genesis of health’ (Antonovsky, 1979). Salutogenesis proposes that the focus should be on mental health and not mental illness. Antonovsky soberly pointed out that, despite being constantly bombarded by myriad stressors, not everyone succumbs to a state of continuous illness. “We are all terminal cases,” he states, “And we are, so long as there is a breath of life in us, in some measure healthy” (Antonovsky, 1987, p.3). One of the contributions that Antonovsky has made to the health sciences is the predication that health and disease are not dichotomous, but that they lie on two ends of a continuum of health ease/dis-ease. Salutogenesis constitutes a means of positioning people along this continuum.

Barsky (in Goldenberg, 2002) describes what is referred to as the paradox of health: society is continually under stress. Under such stressors, we have become a world of worried wells. Viewing life as nothing more than one stressor after the other promotes the illness ideology, but when viewed salutogenically, one is likely to notice, that we can live relatively efficiently in spite of our obvious deficiencies. Antonovsky (1979) puts forth Sorochan’s definition of well-being in order to explain the health-ease end of the continuum. In such a state, a person is able to cope with stressors and to adapt to change,

to be creative, while feeling as though he or she is a worthy citizen with a sense of responsibility towards others.

Implicit in salutogenesis is the idea that the ‘deviant cases’ (those exceptions in studies – the people who, having been subjected to similar stressors, defied the statistical probabilities and did not develop some form of pathology) are of cardinal importance. The paradigm seeks answers to its own question “Whence the strength?” (Antonovsky in Strümpfer, 1995, p. 81). The knowledge of how people manage to remain healthy is core to salutogenesis and is viewed as a prerequisite for moving towards health-ease (Antonovsky, 1987). Antonovsky derived from his salutogenic view a major determinant of how people can move towards the healthy end of the continuum. Antonovsky called this concept the SOC. He defines SOC as follows (Antonovsky, 1987, p. 19):

The SOC is a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one’s internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement.

SOC measures to what extent a person views experienced events as meaningful, comprehensible and manageable. These three themes can be further explained as follows:

- **Meaningfulness:** This is a measure of whether or not life is viewed as meaningful, as making sense (not only on a cognitive, but also on an emotional level).
- **Manageability:** Antonovsky (1987, p.17) defines this as “the extent to which one perceives that resources are at one’s disposal which are adequate to meet the demands posed by the stimuli that bombard one.” Resources may be those controlled by others in one’s life (such as friends or spouses) or those possessed by the individual.
- **Comprehensibility:** relates to how much cognitive sense an event makes, i.e. how predictable, ordered and explicable it is (Antonovsky, 1987).

Generalized resistance resources can be explained as qualities (belonging to an individual, group, culture or society) that allow one to combat or avoid stressors (Strümpfer, 1995). Antonovsky (1979) divides the GRRs into a number of categories, including:

- Cognitive and emotional GRRs: including knowledge and intelligence. On the emotional side, a sense of identity is considered crucial.
- Valuative-attitudinal: this category consists of aspects such as rationality, flexibility and farsightedness.
- Interpersonal-Relational: this is often referred to as social support.
- Macrosociocultural: this may include religion and other institutions that play a role in the person's life.

When one utilizes these resources to combat stressors, a feedback loop is created between one's SOC and the resources. When there is a positive outcome to dealing with a stressor, this enhances one's SOC and makes it more likely that one will employ these resources at a future date.

### **3.6.1.1 FEATURES OF THE SOC**

Antonovsky's source of inspiration for his theory appears to have been survivors of the Nazi concentration camps. While comparing the emotional well-being of such survivors to those of a control group, Antonovsky became intrigued by the few survivors who, despite their tumultuous lives, had managed to remain reasonably healthy (Antonovsky, 1987). These individuals can be identified as having a strong SOC. What exactly are the characteristics of someone with a strong SOC? Individuals with a strong SOC lie closer to the health-ease side of the continuum. Feldt, Leskinen, Kinnunen and Ruoppila (2003) report that a strong SOC has been highly correlated with good health. Some positive correlates of a strong SOC are: success in interpersonal relationships, careers and societal involvement (e.g. political functioning) (Strümpfer, 1995). A strong SOC is the result of a high sense of meaningfulness, comprehensibility and manageability that allows a person to remain healthy despite stressful situations (in contrast, those with a weak SOC are more likely to experience stagnation). The former therefore view life in the following manner:

- Life is viewed as ordered and not chaotic. Events make sense and, even when they do sometimes occur as a surprise, they are explicable and can be made orderly.
- Extreme events are regarded as challenges that can be borne.
- Incidents that occur are viewed as welcome challenges and as “worthy of emotional investment and commitment” (Antonovsky, 1987, p.18). As such, challenges do not represent burdens that one would rather do without. They are welcomed with a sense that they can be tackled.

It is paramount to distinguish a strong SOC from a rigid personality trait. Having a strong SOC is not equivalent to a fixed personality style. In fact, SOC emphasizes flexibility in dealing with situations. Antonovsky (1987, p.26) explains this by borrowing from Koestler’s work on hierarchical systems: “fixed rules, which, however, leave room for flexible strategies, guided by feedback.” This also implies that one need not necessarily view all aspects of life as being of equally high meaningfulness, manageability and comprehensibility.

Antonovsky (1987) extends his definition of a strong SOC by distinguishing it from those who rigidly insist that they have all the answers to life’s challenges. Such persons may seem inauthentic. A genuinely strong SOC allows one to be involved in work and love, and to have cathectic investment. This overlaps with Freud’s definition of an optimally functioning human being.

It is possible to arrive at eight subtypes of SOC by combining the three facets of SOC in various ways. Antonovsky concluded that those with extremes of all three (i.e. those with a low or a high SOC) would generally have a stable SOC. People who have a low sense of comprehensibility combined high meaningfulness and manageability are rare, as are those with a mixture of low meaningfulness and comprehensibility but a high sense of manageability. On the other hand, people with the four remaining possible combinations are likely to experience a pressure to change (either to a lower SOC or a higher one). Antonovsky viewed meaningfulness as central to determining whether one experiences the pressure to change as a push towards a higher or lower SOC. For example: A person with a high comprehensibility and manageability but a low meaningfulness is likely to

experience a downward force. Being able to understand events and believing that one has the resources to succeed means very little if one does not care.

**Table 3.6.1.1** The dynamic interrelatedness of the components of SOC (Antonovsky, 1987, p. 20)

| <b>Component</b> |                          |                      |                       |                       |
|------------------|--------------------------|----------------------|-----------------------|-----------------------|
| <b>Type</b>      | <b>Comprehensibility</b> | <b>Manageability</b> | <b>Meaningfulness</b> | <b>Prediction</b>     |
| 1                | High                     | High                 | High                  | Stable                |
| 2                | Low                      | High                 | High                  | Rare                  |
| 3                | High                     | Low                  | High                  | Pressure to move up   |
| 4                | Low                      | Low                  | High                  | Pressure to move up   |
| 5                | High                     | High                 | Low                   | Pressure to move down |
| 6                | High                     | Low                  | Low                   | Pressure to move down |
| 7                | Low                      | High                 | Low                   | Rare                  |
| 8                | Low                      | Low                  | Low                   | Stable                |

### 3.6.2 SOC AND FMS

Söderberg, Lundman and Norberg (1997) investigated the daily stressors and coping mechanisms of thirty healthy women with Type A personality traits versus thirty women with FMS. Their results revealed that most of the women with FMS reported experiencing a high SOC. Those with a stronger SOC reported greater well-being than those with a low SOC. This contrasts with Hallberg and Carlsson's (1998) findings that revealed low SOC amongst their sample of women with FMS.

### 3.6.3 ATTRIBUTIONAL STYLE

Rotter first proposed the social learning cognitive approach in 1954 (Meyer, Moore & Viljoen, 1997). The basic principle underpinning his view is that human behaviour occurs as a result of learning and expected outcomes. Learnt helplessness is one of the social learning concepts used to explain pathologies such as depression, the formation of ulcers and a proneness to heart attacks. Seligman (in Garber & Seligman, 1980) characterises learnt helplessness as a means of explaining the “debilitating consequences of experience with uncontrollable events” (p.4). Seligman later found a number of shortcomings in the learnt helplessness hypothesis and modified it, creating what is currently called Attributional Theory. This theory postulates that what the individual attributes the event to will determine whether or not the individual feels helpless (and therefore gives up in the face of adversity). Repeated experiences and the individual’s learning from these experiences determine Attributional Style. Attributional Styles are usually described as either internal or external. A person that views problems as controllable is said to have an internal Attributional Style. A person with an extreme external Attributional Style, on the other hand, sees problems as being of external origin, uncontrollable and generally the result of external factors (such as other people). Attributional Style also includes people’s views on whether a problem affects them globally (influences a number of areas in their lives) or only affects a specific aspect of life. In addition, the concept encompasses the person’s perspective on whether problems will remain stable (and therefore have enduring effects) or are transient (Garber & Seligman, 1980).

The Attributional Style Questionnaire (Peterson, Semmel, Von Bayer, Abramson, Metalsky & Seligman in Howlett & Lindegger, 1996), which was used to measure Attributional Style in this study offers scores not only for the stable/transient, global/specific and internal/external dimensions of the concept, but also explores whether the internal and external attributions made are related to positive events or negative ones, i.e. does the person attribute positive events to the one’s own abilities (internal positive) and negative events to others (external negative)? Some researchers have indicated a connection between internal Attributional Style and depression (Howlett & Lindegger, 1996; Lefcourt, 1980; Parkes in Petrosky & Birkimer, 1991). It is probably more accurate

to describe depression as being the result of an extreme negative internal Attributional Style (which could result in excessive self-blame). It is possible, though that an extreme negative external Attributional Style could also result in feelings of helplessness that could also be factors in depression. Lefcourt (1980), for example, points out that internal and external have become attached to value judgments, but emphasises that both an extreme internal and an extreme external Attributional Style can lead to feelings of helplessness, hopelessness and even mental illness, such as depression.

Attributional Style represents a cognitive aspect of one's means of representing the world and one's self in it and one can therefore hypothesise a link between Attributional Style, SOC and attachment. Both Attributional Style and the SOC can be major determinants of one's position on the health ease/dis-ease continuum and of movement toward the healthy end (Antonovsky, 1987, p.15). With the development of an attachment style comes the view of self and others. In insecure attachment this view may cause a person to have a negative feeling towards the self and/or towards others. Such negative perceptions of people may spill over into one's Attributional Style. A person with an insecure attachment may, for instance, view him or herself as not being worthy of affection and from there develop a sense of not having the ability to influence their own circumstances. Seeing events as being beyond one's control may manifest as a negative internal Attributional Style (in which the person employs excessive self-blame because of a poor self-concept) or, alternatively, a negative external Attributional Style, in which external factors are seen as controlling one's life (as might be the case with someone who views others as not capable of providing care or as threatening, e.g. someone with an dismissing-avoidant attachment style). Both scenarios may lead to two interrelated outcomes. The first outcome relates to interpersonal relationships. A person with an insecure attachment style and an extreme negative (either internal or external) Attributional Style will find it difficult to create and maintain meaningful relationships. The second outcome concerns the SOC. SOC can be influenced by a lack of one of the vital GRR's, namely significant others, who can help one to create meaning, understand events and manage stress. SOC can also be impaired by the perception of a lack of control over one's life. Therefore, attachment style can play a significant role in

influencing both Attributional Style and SOC and all three factors can influence the existence of depressive symptoms. This study therefore hypothesises that FMS patients with a low SOC will tend to exhibit insecure attachment, negative Attributional Style and high levels of depression.

### **3.7 ATTACHMENT, FMS AND MEDIATING FACTORS: SUMMARY**

As described in chapter two, there are a number of studies that propose links between FMS and a variety of mental illnesses (e.g. Lisspers *et al*, 1998; Martinez *et al*, 1995). Both SOC and Attributional Style can be viewed as mediators in the relationship between insecure attachment and FMS symptoms such as depression or the triggering of the onset of the disorder.

Mallinckrodt (in Strodl & Noller, 2003) found that secure attachment was negatively associated with an external Attributional Style. This is quite significant when contrasted with findings reported in chapter two that people with FMS often hold a pessimistic life view and feel a high external pressure to perform in their lives. Hassett, Cone, Patella and Sigal (2000) found that FMS patients are more likely to catastrophise than patients with rheumatoid arthritis. Catastrophising is the tendency to have a pessimistic outlook on the future, oneself and others. This can be connected to both Attributional Style and SOC: high catastrophising rates are connected to poor medical outcomes in patient populations (Hassett *et al.*, 2000). It is emphasised that “dysfunctional attitudes and low self-esteem mediate the relationship between insecure attachment and depression in a non-clinical sample” (Strodl & Noller, 2003, p. 173). It is possible that such perceptions (represented by SOC and Attributional Style) exist in patients with disorders that have a strong link to mental illnesses, as is the case with FMS.

In terms of the two proposed mediating factors, these findings can be translated as follows:

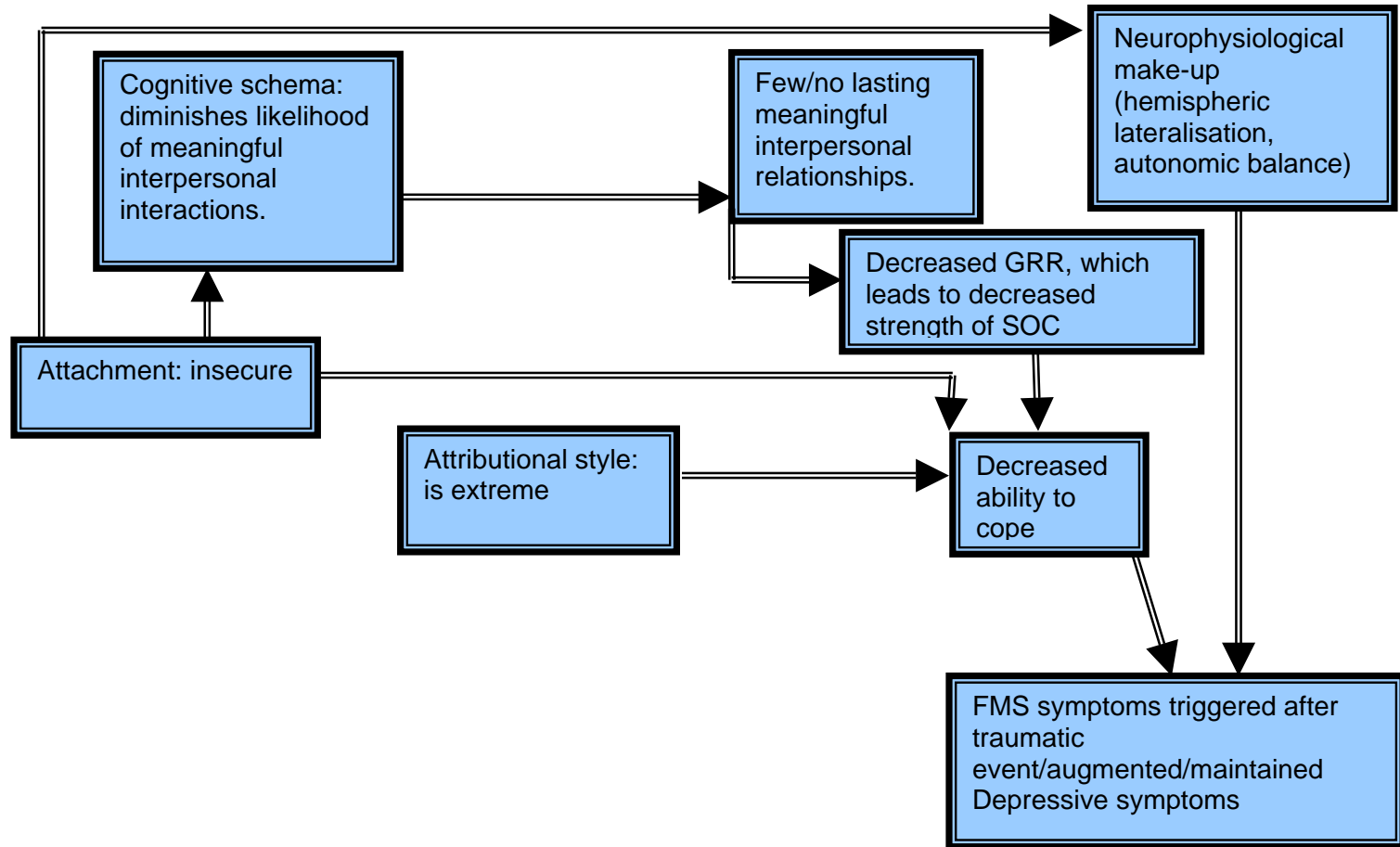
- People with FMS have an extreme Attributional Style (either high external negative or high internal negative, which may relate to sub-groupings of patients)
- People with FMS do not possess a strong ability to make meaning, to find their lives manageable or understandable.



Radke-Yarrow (1991) reports on the work of Harris and Bifulco, who found a correlation between insecure attachment and development of depression in adulthood. The study revealed a type of ‘conveyor belt’ effect that starts with inadequate care and ends in depression, but only in the individuals who were unable to negotiate some form of earned attachment security in adulthood. Earned attachment can be viewed as a form of resilience that develops when protective factors are available to the person, who is then able to form secure, healthy attachments despite an insecure start. The conveyor belt was described as follows for the female participants: Lack of care as child → unsupportive marriage, premarital pregnancy, socio-economic inadequacy (provoking agents) → negative evaluation of self, lack of support, helplessness → → → → → depression.

A similar conveyor belt is proposed in FMS (see Figure 3.7.1). It must be held in mind, though, that the schema represented in Figure 3.7.1 may in fact be re-drawn in a more positive light for people who, despite negative attachment relationships in childhood are able to earn security in adulthood and may also have a strong SOC and healthy Attributional Style. Liotti (1991, p.263) aptly quotes Harris and Bifulco:

The perspective of attachment theory not only gives an account of how early relationships can set us on a downward spiral, but also gives us hope that secure attachments in later life can help us climb up once more.



**Figure 3.7.1:** From attachment to FMS – a possible trajectory.

## **CHAPTER 4**

### **METHOD**

The purpose of this chapter is to describe the research design of the study. The research questions and process of data collection will be discussed. Ethical considerations of the research and psychometric properties of the measures utilised will also be included in this chapter.

#### **4.1 THE RESEARCH DESIGN**

The research design employed in the study is quantitative. Quantitative studies are based on the tenets of positivism. According to Cohen, Manion and Morrison (2003), the ontological assumption of positivism is that a true reality, which can be uncovered through empirical observation, exists. Deductive logic coupled with precise empirical observations of individual behaviour are the tools used to confirm a hypothesis, which can then be generalised to the broader population (Neuman, 1997). Epistemologically, positivism assumes that knowledge is an objective entity that can be acquired (Cohen *et al.*, 2003). The methods of choice in quantitative research are therefore based on the natural scientific tradition, which utilises hypothesis testing and measurements of a situation (Campbell, 1988). The use of statistical (quantifiable) procedures is therefore exploited in positivism.

The study involves the completion of questionnaires by 29 respondents who have been diagnosed with FMS. The design is non-experimental, with no intervention or randomisation being employed.

#### **4.2 THE SAMPLE**

Purposive sampling was utilised for this research. A leading specialist in the area of pain treatment was approached to provide patients for the study. This health care practitioner contacted a number of his own patients and informed them about the study. Those who expressed an interest were referred to the researcher for further information.

The 29 respondents are white South African males and females in the age group 20-60 years. Potential respondents over the age of sixty-five were excluded because of the high rate of comorbid conditions that occur in this group. The exclusion of respondents under the age of 20 years of age was merely a consequence of patient availability. The size of the sample is also related to the availability of patients.

All respondents have grade twelve qualifications and are fluent in English. The group consisted of four males and 25 females. These respondents were not remunerated for their participation. A qualified physician, who specialises in pain syndromes, diagnosed patients utilising the ACR criteria for FMS (Sadock & Sadock, 2002). Standard screening included a physical examination and laboratory tests to rule out diseases such as hypothyroidism and rheumatoid arthritis. The inclusion and exclusion criteria for respondents are as follows:

- Age (below sixty-five years were included)
- Patients with a confirmed diagnosis of FMS by a qualified physician using ACR criteria for FMS were included
- Patients with a concomitant diagnosis of Chronic Fatigue Syndrome and/ or any psychiatric disorders other than depression and anxiety were excluded
- Patients currently undergoing psychotherapy were excluded

A total of thirty-one patients were referred for the research and contacted telephonically. Of these, twenty-nine people completed and returned the questionnaire. One respondent declined participation, while another did not return the questionnaire. Twenty-one of the participants completed the questionnaires at the University of Pretoria, while eight elected to do so at home. Of the twenty-nine questionnaires, one was excluded from the analysis of the Attributional Style Questionnaire because of incomplete data. Therefore the analysis of Attributional Style is only based on twenty-eight respondents.

### **4.3 ETHICAL CONSIDERATIONS**

The Ethics Committee of the Faculty of Humanities at the University of Pretoria approved the investigation in 2004. Although the vernacular for most of the participants (68.97%) is Afrikaans, all of the respondents have at least a high school qualification in English. The items of the tests utilised are easily followed. The investigator did avail herself during the evaluation to explain any uncertainties. None of the respondents required consent to be given by a legal guardian as all of them were of consenting age and legally competent.

It was explained in the consent form and discussion that any person was entitled to withdraw from the study at any stage and that this would have no repercussions for the individual. Furthermore, it was made clear that the psychological investigations did not cause any side effects. The mental state of the individuals participating is of great concern to the investigator. Owing to this, patients were not required to discontinue any prescribed medication. All respondents were encouraged to speak to the investigator or their referring doctor if they felt they required a consultation with any other professionals (e.g. a physiotherapist or psychologist). The investigator planned to liaise with the referring doctor to recommend a suitable practitioner in such a case. None of the participants requested assistance in this area.

Bearing in mind the concerns that information may be utilised to the detriment of the respondents, strict precautions were taken when handling raw data and results. Every respondent was randomly assigned a unique numerical code. All reference to the respondents was made utilising these codes. The investigator will only store the raw data for further research purposes. Consent has been obtained from the participants to publish results of this study in this mini-dissertation and any scientific publications that may arise from this study. A copy of the informed consent form is attached in Appendix A.

#### **4.4 DATA COLLECTION AND MEASURING INSTRUMENTS**

Information was gathered using four questionnaires: the Experiences in Close Relationships-Revised Questionnaire (ECR-R from Fraley, 2003), the Attributional Style Questionnaire or ASQ (Peterson, Semmel, Von Bayer, Abramson, Metalsky & Seligman in Howlett & Lindegger, 1996), the Sense of Coherence Scale (SOCS) and the Beck's Depression Inventory-II (BDI-II). The respondents were also requested to complete a biographical data sheet. Questionnaires were only administered once the participants had provided the appropriate consent.

##### **4.4.1 EXPERIENCES IN CLOSE RELATIONSHIPS QUESTIONNAIRE**

This scale is a revised version of Brennan, Clark and Shaver's 1998 Experiences in Close Relationships (ECR) questionnaire (Fraley, 2003). The test is a self-report questionnaire with 36 items scored on a Likert Scale. The aim of the scale is to assess attachment in terms of degree of attachment-related anxiety and attachment-related avoidance. Attachment-related anxiety represents the degree to which the respondents feel secure versus their insecurity about their partners' availability and responsiveness. Attachment-related avoidance is the respondents' feelings of discomfort in a close relationship versus their comfort with being dependent on others (Fraley, 2003). The test yields two scores: one is related to attachment-related avoidance and the other to attachment-related anxiety.

Although this scale measures attachment on a dimensional rather than taxonomic model, Bartholomew's four prototypes for attachment (i.e. secure, fearful, preoccupied and dismissing) can be conceptually correlated using the avoidance and anxiety scores. Fraley (2004) describes an example of this regression using relationship satisfaction as the dependent variable. For this research, SOC was used as a measure of relationship satisfaction. Since Antonovsky listed social support and significant others as an important GRR, it is postulated that poor relationship satisfaction is reflected in a low SOC.

The test-retest reliability of a subset of five ECR-R items displays a correlation of over 0.70. Systematic collection of data on the validity of the instrument has been taking place

since the ECR-R was released, but Fraley (2003) reports that the information has not yet been collated. Norms for the ECR-R are based on 22 000 online respondents (78% female) and are noted in Table 4.4.1.1. The lack of researched data on the questionnaire is one of the limitations of the instrument. In addition, it is based on the assumption that respondents have been in one or more intimate relationships in their lives. This makes the test difficult to apply across contexts. Furthermore, the instrument does not leave room for cultural debates. The authors and researchers employ Bowlby's belief that attachment should remain constant across cultures. For this reason, there are no norm scores available for individual countries or cultural groups.

| <i>Variables</i>             | <i>Avoidance</i>                  | <i>Anxiety</i>                    |
|------------------------------|-----------------------------------|-----------------------------------|
| <b>Overall (full sample)</b> | <i>M</i> = 2.93, <i>SD</i> = 1.18 | <i>M</i> = 3.64, <i>SD</i> = 1.33 |
| <b>Sex</b>                   |                                   |                                   |
| <b>Male</b>                  | <i>M</i> = 2.88, <i>SD</i> = 1.15 | <i>M</i> = 3.64, <i>SD</i> = 1.33 |
| <b>Female</b>                | <i>M</i> = 2.95, <i>SD</i> = 1.19 | <i>M</i> = 3.64, <i>SD</i> = 1.33 |
| <b>Marital status</b>        |                                   |                                   |
| <b>Married</b>               | <i>M</i> = 2.87, <i>SD</i> = 1.27 | <i>M</i> = 3.64, <i>SD</i> = 1.33 |
| <b>Single</b>                | <i>M</i> = 2.94, <i>SD</i> = 1.16 | <i>M</i> = 3.71, <i>SD</i> = 1.31 |
| <b>Age</b>                   |                                   |                                   |
| <b>20</b>                    | 2.90                              | 3.67                              |
| <b>30</b>                    | 2.97                              | 3.56                              |
| <b>40</b>                    | 3.04                              | 3.45                              |
| <b>50</b>                    | 3.11                              | 3.34                              |
| <b>60</b>                    | 3.18                              | 3.23                              |

**Table 4.4.1.1:** A summary of the findings on the ECR-R taken online (Fraley, 2003, ¶ 10).

#### **4.4.2 ATTRIBUTIONAL STYLE QUESTIONNAIRE**

This Attributional Style Questionnaire or ASQ (Peterson, Semmel, Von Bayer, Abramson, Metalsky & Seligman in Howlett & Lindegger, 1996) is essentially a determination of the Attributional Style of the person. Seligman's concept of Attributional style delineates to what extent a person's response to a situation is positive or negative for his or her functioning. This scale consists of thirty-six items graded on a Likert Scale and twelve open-ended questions. The latter are not used in scoring, but serve merely as a guide to the respondent. Three features of cognition are assessed, namely:

- Does the person view problems as stable or unstable?
- Does the person view problems as internal or external?
- Does the person view problems as global or specific?

These features are then utilised to determine whether the person has a largely negative or positive, internal or external Attributional Style. Eleven scores are derived from the ASQ. The composite negative score is obtained by summing the scores on negative events and then dividing the total by the number of bad events (i.e. six). The composite positive score is calculated in the same fashion, utilising the positive events. The next six scores are individual determinations of the dimensions internal/external, stable/unstable and global/specific. The internal/external dimension describes to what extent one views events as internally or externally controlled. Stable/unstable refers to the durability of events and global/specific to whether events are viewed as encompassing large parts of one's life or not. The last two scores are measures of hopefulness and hopelessness.

Howlett and Lindegger (1996) report that the ASQ has a high internal reliability. This supports the evidence presented by Robinson, Shaver, Wrightsman and Lawrence (1991), who state that the Cronbach  $\alpha$  score for the ASQ is 0.75 for positive events and 0.72 for negative events. Both research groups also report that the questionnaire has good test-retest reliability and adequate construct, criterion and content validity.

#### **4.4.3 SENSE OF COHERENCE**

Antonovsky's thirteen-question Orientation to Life Questionnaire (OLQ) was used to measure SOC. This scale is aimed at establishing what factors in a person's life can be construed as promoting mental health. Sense of Coherence is the term Antonovsky used to describe to what extent one views one's life as comprehensible, manageable and meaningful. The original scale consists of 29 items. Items are graded on a 7-point Likert scale. Gana (2001) states that the SOC concept measures mental health, well-being and coping. The test has a consistently high validity and reliability (Cronbach  $\alpha$  0.84 – 0.93) (Robinson, Shaver, Wrightsman & Lawrence, 1991). The questionnaire has been widely used amongst people of Israeli origin (both a national survey and a survey of Israeli army officers have been conducted by Antonovsky, 1987). The scale's use has been widened to



a number of populations and has even been translated into French in recent years (Gana, 2001).

#### **4.4.4 BECK'S DEPRESSION INVENTORY**

The Beck's Depression Inventory- second edition (BDI-II) was developed by Beck, Steer and Brown (1996). According to these authors, the instrument has become one of the most widely used measures of depression. This inventory allows the researcher to determine to what extent the patient's symptoms match those of the diagnostic criteria of depression according to the DSM-IV-TR. Twenty-one items are rated on a Thurstone scale. The scores are then added and the respondent's experience of depressive symptoms is then classified as minimal, mild, moderate or severe. The split-half reliability coefficient is 0.86 for this test, indicating a high internal consistency, while the test-retest reliability is in the 0.70's range. This indicates a high reliability. The validity of the test is also consistently high (Robinson, Shaver, Wrightsman & Lawrence, 1991).

One of the main limitations of the test is its high face validity. This means that the respondent may easily be able to manipulate the outcome of the test. In addition, FMS has a number of physical attributes, which overlap with the symptoms of depression measured on the BDI-II. This makes it impossible to separate FMS symptoms from depressive ones.

### **4.5 DATA ANALYSIS**

The researcher scored all the questionnaires and the data was captured via computer. Since this study is quantitative in nature, statistical analyses were performed on the data.

#### **4.5.1 DESCRIPTIVE STATISTICS**

The main aim of this study was to describe the sample of FMS patients with regard to attachment styles, Attributional Style, SOC and depression. Descriptive statistics were utilised for this purpose. Constructs such as the mean and standard deviation (SD) were calculated and are used to delineate the characteristics of the sample.

#### **4.5.2 CORRELATION ANALYSIS**

This study aimed to evaluate any relationship between the variables of attachment, SOC and Attributional Style. Correlational analyses detect relationships between variables (Breakwell, Hammond & Fife-Shaw, 1995). Univariate analysis was used to draw up a correlation matrix for the variables.

Pearson's product-moment correlation coefficient is a parametric statistic that is used to determine the relationship between variables. The results yielded provide information on both the size of the relationship and its direction (Cohen *et al.*, 2000). Although the size of the sample may lend itself to the use of non-parametric statistics, the use of Pearson's coefficient is justifiable when the data reflects linear relationships between variables (Breakwell *et al.*, 1995). For this reason, the Pearson correlation coefficient was utilised, as opposed to statistics for non-parametric designs, such as Spearman's coefficient. The level of significance for correlations was set at  $p \leq 0.05$ .

#### **4.5.3 BETWEEN-GROUP COMPARISONS**

One of the assumptions this study examined is related to attachment styles in FMS patients. The assumption is that FMS patients will tend to display insecure attachment rather than a secure attachment style. In order to establish if there were particular variables associated with the secure and insecure groups, an analysis of variance (ANOVA) was conducted. The level of significance was set at  $p \leq 0.05$ .

The ANOVA test is a parametric statistic (Cohen *et al.*, 2000). Although this sample is not representative of the general population, multiple modes do not exist for any of the measures. Furthermore, age and gender were included as covariates to evaluate whether their existence contributed to skewness in the data (Breakwell *et al.*, 1995). For these reasons it was determined that the use of a parametric statistic would not unduly undermine the quantitative process.

#### **4.5.4 INFERENCE STATISTICS**

Multiple regression analysis was employed in this study to investigate to what extent the dependent variables are affected by more than one independent variables (Babbie, Mouton, Payze, Vorster, Boshoff & Prozesky, 2001). The r-squared values for these models were calculated. A level of significance was set at  $p < 0.0001$  for these regressions. Two analyses were conducted. The first involved the use of SOC as the dependent variable and anxiety and avoidance as the independent variables. The second utilised stepwise regression to explore the best predictors of depression from the variables analysed. This was carried out in order to assess which factors played a role in influencing depression scores. It was decided that it was necessary to include this calculation, since the literature presents strong evidence that SOC, Attributional Style and attachment can be strong mediators in depression, and possibly also in FMS.

#### **4.6 CONCLUSION**

This study examined four psychological concepts in twenty-nine FMS patients. Although the design is not experimental in nature, it does make use of quantitative principles in analysing the data. The novelty of the research in terms of FMS contributed to a number of difficulties in executing the study and analysing the data. The absence of a control group and the small sample size further limited the findings.

The quantitative nature of the study allowed the use of descriptive and inferential statistical methods. The four measures employed (namely the ECR-R, the SOCS, the ASQ and the BDI-II) were first scored and used to describe measures of central tendency in the data. Correlation analysis was then used to determine if any variables showed negative or positive relationships to one another. Although the sample is too small to draw precise conclusions, the inferential analysis of regression was utilised to account for variance in the SOC and depression scores. Furthermore, between-group comparisons were drawn between the secure and insecurely attached respondents in order to establish whether any significant differences with regard to patterns of psychological functioning existed between the two groups.

## **CHAPTER 5**

### **RESULTS**

The results of the study on twenty-nine people with FMS are presented in this chapter. The biographical characteristics of the sample are described, as they need to be considered in the analysis and interpretation of the data. The psychological parameters discussed in chapter three are then described with reference to the results.

#### **5.1 SAMPLE DEMOGRAPHICS**

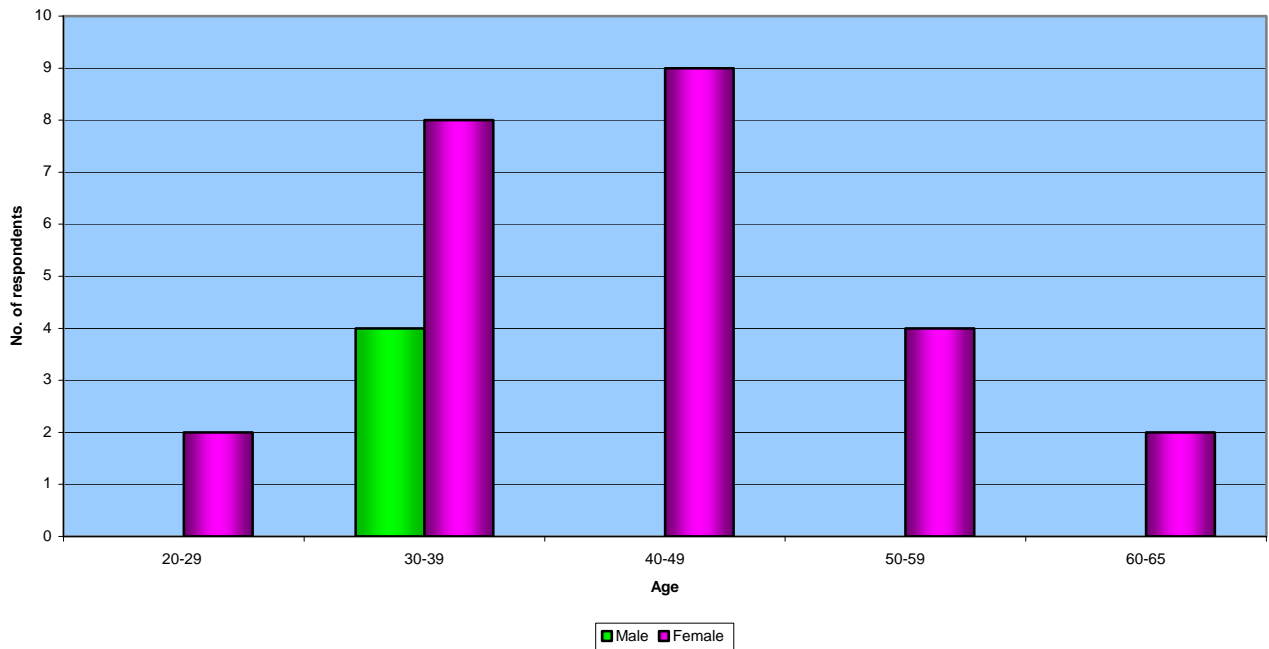
Twenty-nine respondents completed the questionnaires and returned them to the researcher. The data on one of the questionnaires was not complete for the ASQ and therefore could not be utilised in the analysis of this parameter. The completed data for the other parameters were, however, utilised. The demographics of the sample are described under the following subheadings.

##### **5.1.1 AGE**

The participants' ages ranged from twenty-two years to sixty-four years. The mean age was 37.59 years.

##### **5.1.2 GENDER**

Gender distribution is biased toward females. Twenty-five women and four men participated in this study. Figure 5.1.1 shows the distribution of participants according to age and gender.



**Figure 5.1.1:** Age and gender distribution of the sample.

### 5.1.3 EDUCATION

The majority of the respondents (seventeen or 58.62%) had completed a tertiary qualification, while nine (31.03%) had begun but not completed a tertiary qualification and three (10.34%) had completed high school alone.

### 5.1.4 LANGUAGE

The sample consisted of twenty (68.97%) Afrikaans speaking and nine (31.03%) English speaking people. All participants had studied English up to high school or at university and were therefore well equipped to answer the English questionnaire.

### 5.1.5 RACE/ETHNICITY

All participants were white.

### **5.1.6 RELATIONSHIP STATUS**

At the time of responding to these measures, twenty-three (79.32%) of the respondents were in an intimate relationship, while six (20.68%) were single.

### **5.1.7 EMPLOYMENT STATUS**

Twenty respondents (68.97%) were employed and nine (31.03%) unemployed. Unfortunately no distinction was made between those who were retired, unemployed or medically boarded. This information could have been valuable in describing the impact or the severity of the FMS symptoms on the patient's life.

### **5.1.8 MEDICAL AND PSYCHIATRIC HISTORY**

One of the exclusion criteria for this study was a diagnosis of any psychological disorder other than depression or anxiety. None of the respondents had to be excluded on this criterion. The majority of respondents (nineteen or 65.52%) had never been diagnosed with a psychological illness. The remaining ten (34.48%) noted a diagnosis of depression, anxiety or depression and anxiety.

## **5.2 PSYCHOLOGICAL PARAMETERS**

Both the descriptive and analytical statistics are described under this heading. The descriptive statistics are offered first. The relationships between the variables are presented thereafter.

### **5.2.1 ATTACHMENT PROFILES**

The data from the ECR-R was analysed using classical test theory. Fraley, Waller and Brennan (2000) suggest that classical test theory is not as accurate as item response theory (IRT) in estimating the parameters of self-report attachment scales. They propose the scoring of the items using the MULTILOG programme (Thissen in Du Toit, 2003). These authors are of the opinion that categorising attachment leads to less accuracy in the determination of psychological functioning and that strong measurement models necessary to accomplish higher accuracy are not readily available. They propose IRT as a framework for overcoming the limitations of classical test theory.

The main limitation of classical test theory is the assumption that precision in measurement remains constant even as the data approaches the extremes of the measure (Fraleley, *et al.*, 2000). The authors go on to state that most scales are suitable for differentiating between those who fall into the higher ends of a trait continuum, but may not be as precise in differentiating those in the normal-to-low ends. Despite this, it was decided that the traditional method of calculating ECR-R scores (as endorsed by its authors) would be employed. Since a normal-to-low score on anxiety or avoidance in any case places the respondent in the secure space in relation to both dimensions, there was no need to subcategorise them further. For this reason, it was felt that the use of IRT would be redundant.

The mean for both the anxiety and avoidance dimensions of the ECR-R in this sample was 3.23 out of a possible seven, while the SD were found to be 1.5 and 1.6, respectively. Fraley (2004) summarized the responses of 22 000 respondents on the ECR-R online version (see Table 4.4.1.1) and found the mean anxiety score to be 3.64 with a SD of 1.33. The mean avoidance score was 2.93 with a SD of 1.18. The sample in this research therefore displays a mean anxiety score that is smaller than that of the online sample of 22 000, but a higher mean on avoidance.

Although it would be interesting to investigate how significant this difference is, one must bear in mind that the online sample was created from people who have access to the internet. No controls were put in place to establish a particular sample. The sample targeted for this research is a very particular one, with stringent inclusion and exclusion criteria. Comparing the two through other statistical means would be tantamount to comparing a general population with a specific target sample. Although this is useful for comparisons of central tendency and even dispersion, it does not lend itself to further analysis.

Although Fraley (2004) warns that categorizing attachment is less exact than measuring it along two dimensions, Bartholomew's four categories provide a useful representation for

attachment styles. The attachment data was analysed using a two-way frequency table. The intercept was set at four, which is the mode of both subscales. A graph of the distribution of the attachment styles of the sample (in terms of Bartholomew's categories) is provided in Figure 5.2.1.1. Fifteen (51.72%) of the respondents scored lower than four on both anxiety and avoidance. Six (20.69%) exhibited scores high on avoidance and anxiety. Four (13.79%) respondents scored high on anxiety and low on avoidance. The remaining two (6.90%) scored high on avoidance, but low on anxiety. When categorizing these respondents along Bartholomew's criteria, it is found that 51.72% of the respondents are securely attached (i.e. score low on both anxiety and avoidance), 20.69% are fearfully-avoidant (i.e. scored high on both anxiety and avoidance), 13.79% are pre-occupied (high on anxiety, but low on avoidance) and 6.90% are dismissing-avoidant (high on avoidance, but low on anxiety). In other words, 49.38% of the sample is insecurely attached.

There are three conclusions that can be drawn from this evidence. Firstly, when compared with the 45% population estimate of insecurely attached people put forward by Hunter and Maunder (2001) the sample is found to have 4.38% more insecurely attached respondents. Meanwhile, a comparison with the 40% estimate found in other literature shows that this sample has 9.38% more insecure people than this. At first glance the difference may seem to be legitimate, but once again the constraints of comparing a general population with a very specific sample must be taken into account. A tentative conclusion is that the first assumption (that FMS patients will tend to display insecure attachment rather than a secure attachment style) is found not to be valid.



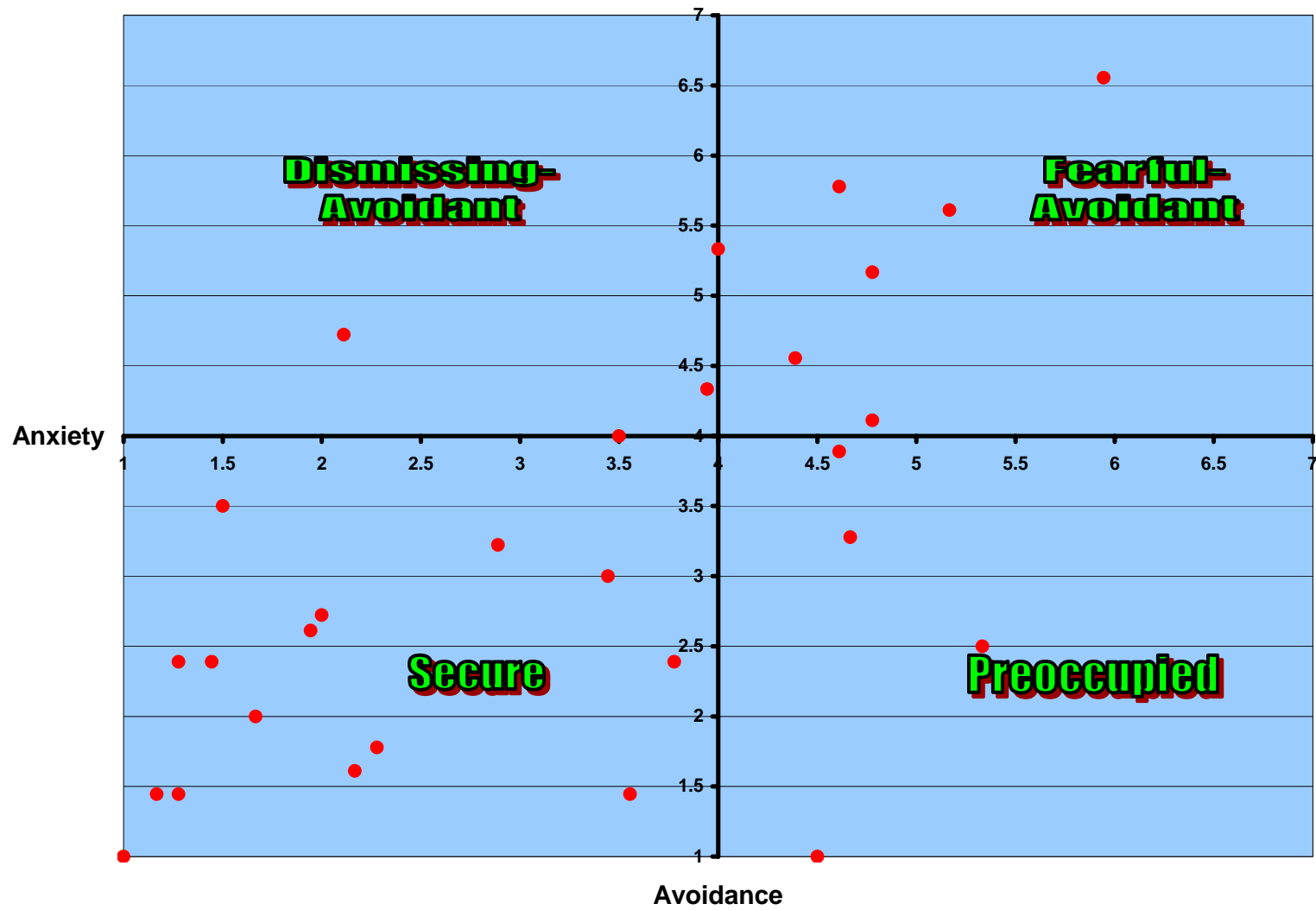


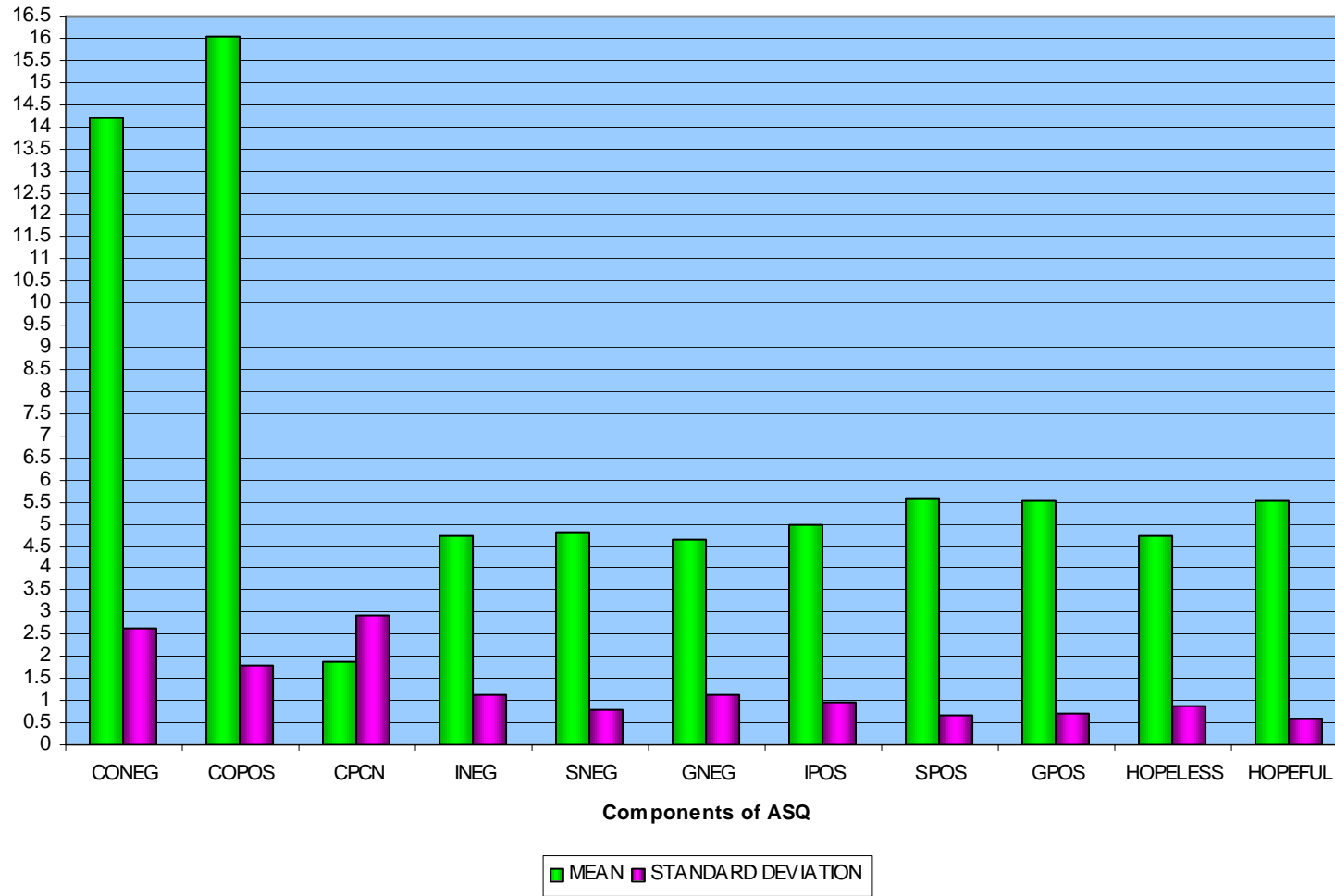
Figure 5.2.1.1 Distribution of attachment styles in terms of Bartholomew's categories

### **5.2.2 SOC**

In order to determine what percentage of the group exhibited a high SOC, a median split was established. The median was found to be 61. Fifteen respondents (51.7%) then fell into the category of low SOC and 14 (49.3%) fell into the high Sense of Coherence category.

### **5.2.3 ATTRIBUTIONAL STYLE**

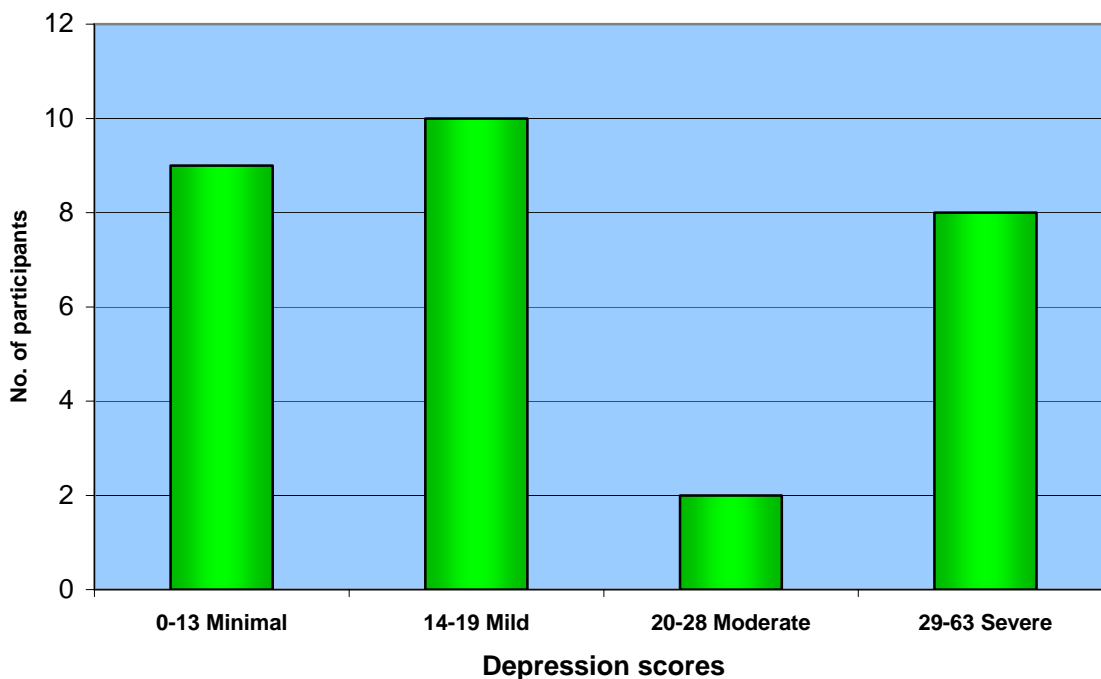
Only twenty-eight respondents correctly completed the ASQ. The data represented here therefore only reflect this part of the sample. The mean of the composite negative scores (CONEG) is slightly lower (14.18) than the mean of the composite positive scores (COPOS mean is equal to 16.06). Meanwhile the respondents also scored slightly higher on the internal positive (IPOS, mean is equal to 4.964), stable positive (SPOS, mean is 5.578) and global positive (GPOS, with mean at 5.518) than they did on the negative internal (INEG, mean is equal to 4.720), stable (SNEG, mean is 4.804) and global (GNEG, which has a mean of 4.655) subscales. This can be interpreted in the following way: The people in this sample are more likely to ascribe the occurrence of positive events than negative events to themselves. They also view positive events as more globally affecting their lives and more stable than the negative occurrences. The group is also more hopeful (mean is 5.545) than despairing (mean is equal to 4.729). The third assumption put forward at the beginning of this research (i.e. that FMS patients will display negative Attributional Styles, rather than positive ones) does therefore not hold true.



**Figure 5.2.3.1** The means and SD of the ASQ subscales

### 5.2.4 BDI-II

The mean score for the BDI-II was 21.07 and the SD 14.27. Nineteen respondents (65.52%) scored 19 or below on this scale, which places them on the low end of the depression scale. Of these 19, nine were classified as having minimal symptoms of depression and 10 as having mild to moderate symptoms. Two respondents (6.90%) reported moderate symptoms and the remaining 10 (28.59%) reported symptoms that could be classified as severe depression.



**Figure 5.2.4.1** Graph of BDI scores

### 5.2.5 COMPARISON OF ATTACHMENT CATEGORIES

In order to determine if the attachment categories were associated with particular patterns of psychological functioning, an ANOVA was conducted. Owing to the size of the groups, the three insecure styles (fearful-avoidant, dismissing-avoidant and preoccupied) were combined to form a single insecure group. The scores of this group on the various dimensions were then contrasted with those of the secure group.

**Table 5.2.5.1** Attachment classifications and the mean scores for SOC, depression and Attributional Style dimensions for the two groups.

| Dimension           | Attachment Style   |       |  |        |
|---------------------|--------------------|-------|--|--------|
|                     | Secure<br>n=51.72% |       | Insecure<br>(Dismissing-Avoidant: n=6.9%,<br>Fearful-Avoidant: n=20.67%,<br>Preoccupied: n=13.79%) |        |
|                     | Mean               | SD    | Mean   | SD     |
| <b>SOC</b>          | 68.467             | 7.210 | 48.714   | 10.418 |
| <b>Depression</b>   | 13.267             | 6.076 | 29.429   | 15.922 |
| <b>COPOS</b>        | 16.345             | 1.339 | 15.774   | 2.167  |
| <b>CONEG</b>        | 12.774             | 1.991 | 15.583   | 2.519  |
| <b>CPCN</b>         | 3.571              | 2.517 | 0.190  | 2.306  |
| <b>HOPEFULNESS</b>  | 5.548              | 0.518 | 5.548  | 0.679  |
| <b>HOPELESSNESS</b> | 4.202              | 0.602 | 5.256  | 0.822  |
| <b>INEG</b>         | 4.369              | 1.028 | 5.071  | 1.126  |
| <b>GNEG</b>         | 4.012              | 0.964 | 5.298  | 0.939  |
| <b>SNEG</b>         | 4.393              | 0.406 | 5.214  | 0.848  |
| <b>IPOS</b>         | 5.250              | 0.550 | 4.679  | 1.226  |
| <b>GPOS</b>         | 5.548              | 0.615 | 5.488  | 0.799  |
| <b>SPOS</b>         | 5.548              | 0.575 | 5.607  | 0.738  |

Neither age nor gender appears to have influenced the distribution of the data. Further analysis was conducted using ANOVA. The aim of this analysis was to determine whether any of the group mean differences were significant. A summary of the ANOVA is provided in Table 5.2.5.2.

**Table 5.2.5.2** Between-group comparisons of the secure and insecure groups (ANOVA)

|                     | <b>p-values for the group</b> | <b>p-values with age as covariate</b> | <b>p-values with gender as covariate</b> |
|---------------------|-------------------------------|---------------------------------------|--|
| <b>SOC</b>          | <0.001*                       | 0.741                                 | 0.746                                    |
| <b>Depression</b>   | 0.002*                        | 0.552                                 | 0.482                                    |
| <b>COPOS</b>        | 0.329                         | 0.724                                 | 0.298                                    |
| <b>CONEG</b>        | 0.006*                        | 0.432                                 | 0.261                                    |
| <b>CPCN</b>         | 0.002*                        | 0.642                                 | 0.786                                    |
| <b>HOPEFULness</b>  | 0.727                         | 0.875                                 | 0.095                                    |
| <b>HOPELESSness</b> | 0.002*                        | 0.478                                 | 0.321                                    |
| <b>INEG</b>         | 0.144                         | 0.484                                 | 0.303                                    |
| <b>GNEG</b>         | 0.003*                        | 0.526                                 | 0.223                                    |
| <b>SNEG</b>         | 0.005*                        | 0.528                                 | 0.680                                    |
| <b>IPOS</b>         | 0.165                         | 0.640                                 | 0.919                                    |
| <b>GPOS</b>         | 0.603                         | 0.871                                 | 0.139                                    |
| <b>SPOS</b>         | 0.946                         | 0.913                                 | 0.154                                    |

\*Significant at the  $p \leq 0.05$  level

The secure group exhibited significantly higher SOC than the combined insecure group ( $p < 0.05$ ). This was also the case when referring to CPCN. The insecure group displayed higher depression scores, higher CONEG scores and more hopelessness than the secure group. Significant differences were also found between the two groups for GNEG and SNEG, with the insecure group scoring higher on both. Neither age, nor gender played any significant role in the data.

### **5.3 CORRELATION ANALYSIS**

Pearson correlation coefficients were calculated to determine the relationship between attachment style, SOC and Attributional Style. The level of significance for the Pearson coefficient was set at 0.05. The results are as described in the following sections and summarized in Table 5.3.1. Only those correlations that were significant ( $p < 0.05$ ) are included in the table.

#### **5.3.1 ANXIETY AND AVOIDANCE**

The Pearson correlation coefficient was found to be 0.626 for avoidance and anxiety. This means that a positive relationship exists between these two dimensions - as anxiety increases, so does avoidance.

Avoidance is also more highly correlated to the BDI-II than anxiety is in this sample. The Pearson correlation for anxiety and the BDI is 0.467, while that for avoidance and the BDI is 0.617. However, anxiety is positively correlated with CONEG, SNEG, GNEG and Hopelessness.

#### **5.3.2 SOC**

A negative relationship was found between anxiety and SOC as well as between avoidance and SOC. The Pearson correlation coefficient for SOC and anxiety was  $-0.736$  and for SOC and avoidance,  $-0.650$ . This suggests that a high negative correlation exists between the two dimension of attachment and SOC. High scores on anxiety or avoidance are likely to be paired with a low SOC. This supports the second expectation, i.e. that an insecure attachment style would be related to a low SOC.

#### **5.3.3 ATTRIBUTIONAL STYLE**

The CPCN, CONEG and COPOS scores are the most valid predictors of depression and other mental health issues (Peterson *et al.* in Howlett & Lindegger, 1996). The other dimensions of the ASQ are less reliable and less valid as they are formed from a smaller number of questions. In this sample it was found that CPCN did have a strongly negative

correlation with the BDI-II (-0.596), while CONEG had a positive correlation with BDI-II scores (0.467). Furthermore, INEG had a strong positive correlation with depression scores. Meanwhile, COPOS did not to have a significant correlation with depression.

#### **5.3.4 DEPRESSION SCORES**

As already mentioned, three of the ASQ dimensions (i.e. CPCN, CONEG and INEG) were strongly correlated to depression scores in a positive direction. In addition, SOC was strongly related to the BDI-II scores in a negative direction. Both anxiety and avoidance were correlated to the depression scale in a positive direction, but avoidance seemed to be more highly related to depression than to anxiety.



**Table 5.3.1** Correlation matrix for relationships significant at the  $p \leq 0.05$  level.

|           | ANXIETY           | AVOIDANCE        | SOC               | BDI               | CONEG             | COPOS            | CPCPN             | INEG             | SNEG             | GNEG              | IPOS             | SPOS             | GPOS             | HOPE-LESS         | HOPE-FUL         |
|-----------|-------------------|------------------|-------------------|-------------------|-------------------|------------------|-------------------|------------------|------------------|-------------------|------------------|------------------|------------------|-------------------|------------------|
| ANXIETY   | 1.000             | 0.625<br>0.0003  | -0.736<br><0.0001 | 0.467<br>0.0107   | 0.518<br>0.0047   | NS               | -0.540<br>0.0030  | NS               | 0.602<br>0.0007  | 0.512<br>0.0054   | NS               | NS               | NS               | 0.592<br>0.0009   | 0.410<br>0.0304  |
| AVOIDANCE | 0.625<br>0.0003   | 1.000            | -0.650<br>0.0001  | 0.617<br>0.0004   | NS                | NS               | -0.483<br>0.0092  | NS               | NS               | NS                | NS               | NS               | NS               | NS                | NS               |
| SOC       | -0.736<br><0.0001 | -0.650<br>0.0001 | 1.000             | -0.713<br><0.0001 | -0.494<br>0.0076  | NS               | 0.600<br>0.0007   | NS               | -0.523<br>0.0043 | -0.544<br>0.0028  | 0.470<br>0.0116  | NS               | NS               | -0.578<br>0.0013  | NS               |
| BDI       | 0.467<br>0.0107   | 0.617<br>0.0004  | -0.713<br><0.0001 | 1.000             | 0.467<br>0.0122   | NS               | -0.596<br>0.0008  | 0.492<br>0.0079  | NS               | 0.409<br>0.0308   | -0.386<br>0.0427 | NS               | NS               | 0.387<br>0.0418   | NS               |
| CONEG     | 0.518<br>0.0047   | NS               | -0.494<br>0.0076  | 0.467<br>0.0122   | 1.000             | NS               | -0.798<br><0.0001 | 0.863<br><0.0001 | 0.841<br><0.0001 | 0.905<br><0.0001  | NS               | NS               | NS               | 0.948<br><0.0001  | NS               |
| COPOS     | NS                | NS               | NS                | NS                | NS                | 1.000            | 0.455<br>0.0150   | NS               | NS               | NS                | 0.788<br><0.0001 | 0.821<br><0.0001 | 0.696<br><0.0001 | NS                | 0.862<br><0.0001 |
| CPCPN     | -0.540<br>0.0030  | -0.483<br>0.0092 | 0.600<br>0.0007   | -0.596<br>0.0008  | -0.798<br><0.0001 | 0.455<br>0.0150  | 1.000             | -0.702<br><0.001 | -0.593<br>0.0009 | -0.763<br><0.0001 | 0.546<br>0.0026  | NS               | NS               | -0.749<br><0.0001 | NS               |
| INEG      | NS                | NS               | NS                | 0.492<br>0.0079   | 0.863<br><0.0001  | NS               | -0.702<br><0.001  | 1.000            | 0.577<br>0.0013  | 0.633<br>0.0003   | NS               | NS               | NS               | 0.659<br>0.0001   | NS               |
| SNEG      | 0.602<br>0.0007   | NS               | -0.523<br>0.0043  | NS                | 0.841<br><0.0001  | NS               | -0.593<br>0.0009  | 0.577<br>0.0013  | 1.000            | 0.707<br><0.0001  | NS               | 0.464<br>0.0129  | NS               | 0.891<br><0.0001  | 0.410<br>0.0304  |
| GNEG      | 0.512<br>0.0054   | NS               | -0.544<br>0.0028  | 0.409<br>0.0308   | 0.905<br><0.0001  | NS               | -0.763<br><0.0001 | 0.633<br>0.0003  | 0.707<br><0.0001 | 1.000             | NS               | NS               | NS               | 0.951<br><0.0001  | NS               |
| IPOS      | NS                | NS               | 0.470<br>0.0116   | -0.386<br>0.0427  | NS                | 0.788<br><0.0001 | 0.546<br>0.0026   | NS               | NS               | NS                | 1.000            | 0.453<br>0.154   | NS               | NS                | NS               |
| SPOS      | NS                | NS               | NS                | NS                | NS                | 0.821<br><0.0001 | NS                | NS               | 0.464<br>0.0129  | NS                | 0.453<br>0.154   | 1.000            | 0.539<br>0.0031  | NS                | 0.867<br><0.0001 |
| GPOS      | NS                | NS               | NS                | NS                | NS                | 0.696<br><0.0001 | NS                | NS               | NS               | NS                | NS               | NS               | 0.539<br>0.0031  | 1.000             | 0.887<br><0.0001 |
| HOPE-LESS | 0.592<br>0.0009   | NS               | -0.578<br>0.0013  | 0.387<br>0.0418   | 0.948<br><0.0001  | NS               | -0.749<br><0.0001 | 0.659<br>0.0001  | 0.891<br><0.0001 | 0.951<br><0.0001  | NS               | NS               | NS               | 1.000             | NS               |
| HOPE-FUL  | 0.410<br>0.0304   | NS               | NS                | NS                | NS                | 0.862<br><0.0001 | NS                | NS               | 0.410<br>0.0304  | NS                | NS               | 0.867<br><0.0001 | 0.887<br><0.0001 | NS                | 1.000            |

#### 5.4 REGRESSION

Fraley (2004) reports that the two attachment scores can be utilised to predict a dependent variable, through multiple regression. The following equation was used to set up the regression:

$$\text{Relationship Satisfaction} = (\text{constant/intercept}) + \text{Beta1} * \text{Anxiety} + \text{Beta2} * \text{Avoidance} + (\text{error/residual variance})$$

SOC was utilised as the dependent variable as the positive experience of interpersonal relationships is central to this concept. The  $R^2$  value for this equation is 0.600. This means that 60% of the variance in SOC can be accounted for by anxiety and avoidance (scores obtained from the ECR-R) acting in concert. Furthermore, both anxiety and avoidance are negatively related to SOC. This means that the effect on SOC is driven by both variables. A low SOC is therefore partly accounted for by insecure attachment styles.

A stepwise regression was then carried out using depressive symptoms as the dependent variable and SOC, anxiety, avoidance, CONEG and CPCN as independent variables. This was done in order to determine the level of influence the variables played in the reporting of depressive symptoms. The best combination of predictors of the variance in depression scores was found to be SOC and CPCN. The  $R^2$  value for SOC was 0,51 and for CPCN it was 0,55. These variables were found to be significant at the 0.0001 level. The other variables (anxiety, avoidance and CONEG) were only found to be significant at the 0,1500 level.

#### 5.5 CONCLUSION

Owing to the lack of conclusive physiological evidence in the pathology of FMS, psychological anomalies have been sought. A significant concept in psychological development is that of attachment. Insecure attachment has been linked to numerous pathologies (e.g. Panzer & Viljoen, 2003; Wenar & Kerig, 2002; Bacon & Richardson, 2001), including FMS (Hallberg & Carlsson, 1998). However, this sample does not

reflect an overwhelming percentage of insecure attachments. Although the balance of attachment styles falls slightly more into the secure realm, the statistics are limited both by the size of the sample and the size of the insecure/secure split. In addition, the group seems to exhibit more of a positive internal Attributional Style than a negative one. This seems to be contrary to predictions about the catastrophising features of FMS patients (Hassett *et al.*, 2000). Further implications of this finding are discussed in chapter six.

Although this may seem to indicate a lack of psychological mediators in FMS, some interesting information was gathered using correlation and regression analyses. The most interesting of these relates to the strong correlation between SOC and the attachment dimensions. In addition, variance in SOC was strongly accounted for by the differences in attachment scores. These results and their possible implications are also explored further in the final chapter.

## **CHAPTER 6**

### **DISCUSSION AND CONCLUSIONS**

This study attempted to delineate the characteristics of a group of FMS patients with regard to attachment styles, Attributional Style, depression and SOC. The results were analysed using correlations, between-group comparisons and regression analysis. Varying degrees of support were found for the three assumptions proposed in chapter one. These assumptions may be stated as follows:

- FMS patients will tend to display insecure attachment rather than a secure attachment style.
- SOC profiles will manifest as low rather than high in FMS patients.
- FMS patients will display negative Attributional Styles, rather than positive ones.
- Patients with FMS will score within the moderate to severe range of depressive symptoms, rather than in the minimal or mild range.

The hypothesis of the research is therefore stated as follows: FMS patients with a low SOC will tend to exhibit insecure attachment, negative Attributional Style and high levels of depression. This chapter addresses these results by comparing them to the hypothesis of the research, as well as to the existing literature findings. Owing to a number of limitations of the study, though, the conclusions drawn are tentative.

#### **6.1 DISCUSSION**

The philosophical dualism inherent in modern health professions is heavily underlined in the FMS debate. Theories of the aetiology of pain emphasise the physiological and the psychological components separately, which leads to the assumption that, when overwhelming physical support for a disorder is not found, the origin must lie in the mind (Ang and Wilke, 1999; Turk & Monarch, 2002; White & Schweitzer, 2000). Although this research focuses on the assessment of psychological features of people with FMS, it does so with the intention of highlighting the importance of the interaction of the psychological with the physiological in the onset, perpetuation and augmentation of pain symptoms. Psychological features in FMS have not been as widely examined as the

physical aspects of the disorder and it is important for case management and treatment of patients that these parameters be investigated.

This research focuses on the psychological constructs of attachment, SOC, depression and Attributional Style in patients with FMS. Of great interest has been the relationship between early childhood experiences and attachment styles in adulthood. Bowlby held that early childhood relationships became internalised and were used as a model for later relationships. The internal working models that develop through life experiences shape the person's view of self and others in terms of being worthy of and able to provide care (Collin & Read, 1990). Traditional assumptions describe attachment as unvarying across the lifespan, while revisionist approaches see it as a construct that is modifiable by life experiences (Fraley, 2002). Although the aims of this research are mainly descriptive, a possible mediating effect on attachment by SOC and Attributional Style is proposed.

The concept FMS has endured a rocky existence, with some researchers and practitioners viewing it as nothing more than reification (Goldenberg, 2002; Malt & Ursin, 2003). Taking into account the correlation of FMS with numerous, disparate features (e.g. Lisspers, *et al*, 1998; Martinez, *et al*, 1995; Sansone, Levegood & Sellbom, 2004; Yunus, 1994), it is questionable if typical characteristics of the general FMS population can exist. Research practices such as drawing samples from pain clinics and omitting control groups (both of which this study does) may reveal some common characteristics amongst patients, but cannot be held to be highly reliable on their own.

### **6.1.1 ATTACHMENT IN FMS**

The assumption that FMS patients will tend to display insecure attachment rather than a secure attachment style is not supported by the findings. The study does, however, seem to endorse Hallberg and Carlsson's (1998) supposition that FMS patients exhibit higher insecure attachment than the general population, although these findings cannot be confidently generalised. Few other research articles dealing explicitly with FMS and attachment could be found for comparison.

Kobak and Sceery (1988) state that, if attachment is to be perceived as invariant across contexts (cultural, assessment or otherwise), then it is necessary to define its components either in terms of affect regulation, as working models or in other ways that allow clear definition of the concept. This research focuses on attachment in terms of intimate relationships and therefore conceptualises attachment as both the rules that guide an individual's response to distress (Kobak & Sceery's, 1988 definition of affect regulation) and as a working model of self and other. The parameters evaluated alongside attachment are therefore interpreted in terms of their contributions to affect regulation and models of self and other. For example, depression is closely related to the ability to regulate distress and is psychodynamically linked to the direction of aggression towards the self (Sadock & Sadock, 2002). Therefore, the BDI-II serves as a means of assessing the tendency to internalise aggression and other negative feelings (which is related to affect regulation). The internal negative and positive (INEG, IPOS) dimensions of the ASQ meanwhile, can be viewed as providing further information on the person's self-view (i.e. to what degree do I contribute to the positive/negative events in my life?).

Securely attached people are described as viewing both themselves and others as worthy of love and care. They are able to acknowledge affect and to manage it appropriately (Ainsworth, *et al*, 1978; Belsky, *et al*, 1995; Holmes, 1993). This sample reflected that the secure group had a significantly higher CPCN score than the insecure group. CPCN is negatively correlated with the depression score. This means that secure people are less likely to suffer from the symptoms of depression in this study. This group also exhibited a less negative Attributional Style (regarding the CONEG scores) than the insecure group.

People classified as having a fearful-avoidant attachment style have trouble regulating anxiety and negative affect (Kafetsios & Nezlek, 2002). Such people also have a negative view of both self (as unworthy of love) and others (as not being able to provide love) (Hunter & Maunder, 2001). People with a dismissing-avoidant attachment style aim to minimize negative affect (Kafetsios & Nezlek, 2002). They generally do not trust others to provide care. High levels of avoidance characterise this style of attachment. Those

classified as being preoccupied in their attachment style are preoccupied with relationships, viewing others, but not themselves, as worthy of love. This translates into high levels of anxiety. Owing to the small sample size, it was not possible to evaluate each of these categories individually. The combinations of the three insecure groups did provide some noteworthy points, though. The insecurely attached FMS patients reflected higher levels of depression and higher scores on the negative attributions (CONEG, GNEG and SNEG). This may be interpreted as meaning that insecurely attached FMS patients are less likely to have a positive view of their lives than those who are securely attached. They are more likely to experience problems as globally affecting their lives and difficult to resolve. In addition, they are less capable of regulating negative affect and are therefore more likely to suffer from depression than their secure counterparts.

An obvious exception in the factors that exhibited significant between-group differences is the INEG. It would be logical to assume that people with a stronger global and stable negative Attributional Style would also score higher on the INEG component. In other words, one would expect insecurely attached people to be more likely to attribute the occurrence of negative events to themselves than to external factors, which may reflect in overly harsh self-blame. Even though the insecure group did score slightly higher on the INEG than the secure group, the difference was not significant at the 0.05 level.

This seems to partially validate the definition of secure people having positive views of self and other and better affect regulation skills than those with an insecure attachment style. What does this mean in terms of FMS, though? The answer to this question is inherently linked to SOC and Attributional Style. Examination of the latter seems also to offer partial support for the hypothesis that FMS patients will display negative Attributional Styles, rather than positive ones. Significant between-group differences were found for the secure and insecure categories. Both these findings seem to reveal a more complex distribution of both attachment and Attributional Style across FMS patients. It would no longer appear accurate to simply state that those with FMS are insecurely attached and have a negative internal Attributional Style. A more qualified statement is actually the hypothesis put forward in this research, i.e. that FMS patients

with a low SOC will tend to exhibit insecure attachment, negative Attributional Style and high levels of depression. The questions need to be posed: Which FMS patients reflect these characteristics and how come?

### **6.1.2 SOC IN FMS**

The present study revealed an almost 50% split in high and low SOC in patients with FMS. This is comparable to the mean scores obtained in other samples (such as Soderberg *et al.*, 1997). Patients classified as insecurely attached exhibited significantly lower SOC scores than their securely attached counterparts. These findings are important as they may offer clues as to the coping capacities of people with FMS and the role that attachment plays in those abilities.

Söderberg *et al.* (1997) believe that creating meaning in life can be especially difficult for people living with the everyday effects of FMS. As noted earlier, the ability to make meaning out of life's events is a vital component of SOC. It would follow then, that SOC is lower in FMS patients than many other patient and non-patient populations. Yet Söderberg *et al.* (1997) revealed no significant differences between FMS patients and healthy controls characterized as showing Type-A behavioural traits. It is proposed that this result points to a wider discussion on the nature of coping with FMS and necessitates further comparison between findings in both studies.

The median SOC score for this study (61) and the range (31 to 75) are considerably lower than that in Söderberg, *et al.*'s (1997) work: the median in the latter was 147.5 and the range 114 to 180. This may be accounted for by the fact that Söderberg, *et al.*'s (1997) research utilized the 29-item questionnaire and not the shorter version, which was employed in this study. In isolation this finding may mean very little, but when reflected on, while taking into consideration the theory that FMS patients do not form a homogenous group, it may be significant. Söderberg, *et al.*'s (1997) patients were involved in a support group and, on examining and comparing their scores on the SOC, seem to have more effective coping mechanisms than the sample in this study. Factors such as severity of FMS symptoms and duration of symptoms must be examined for



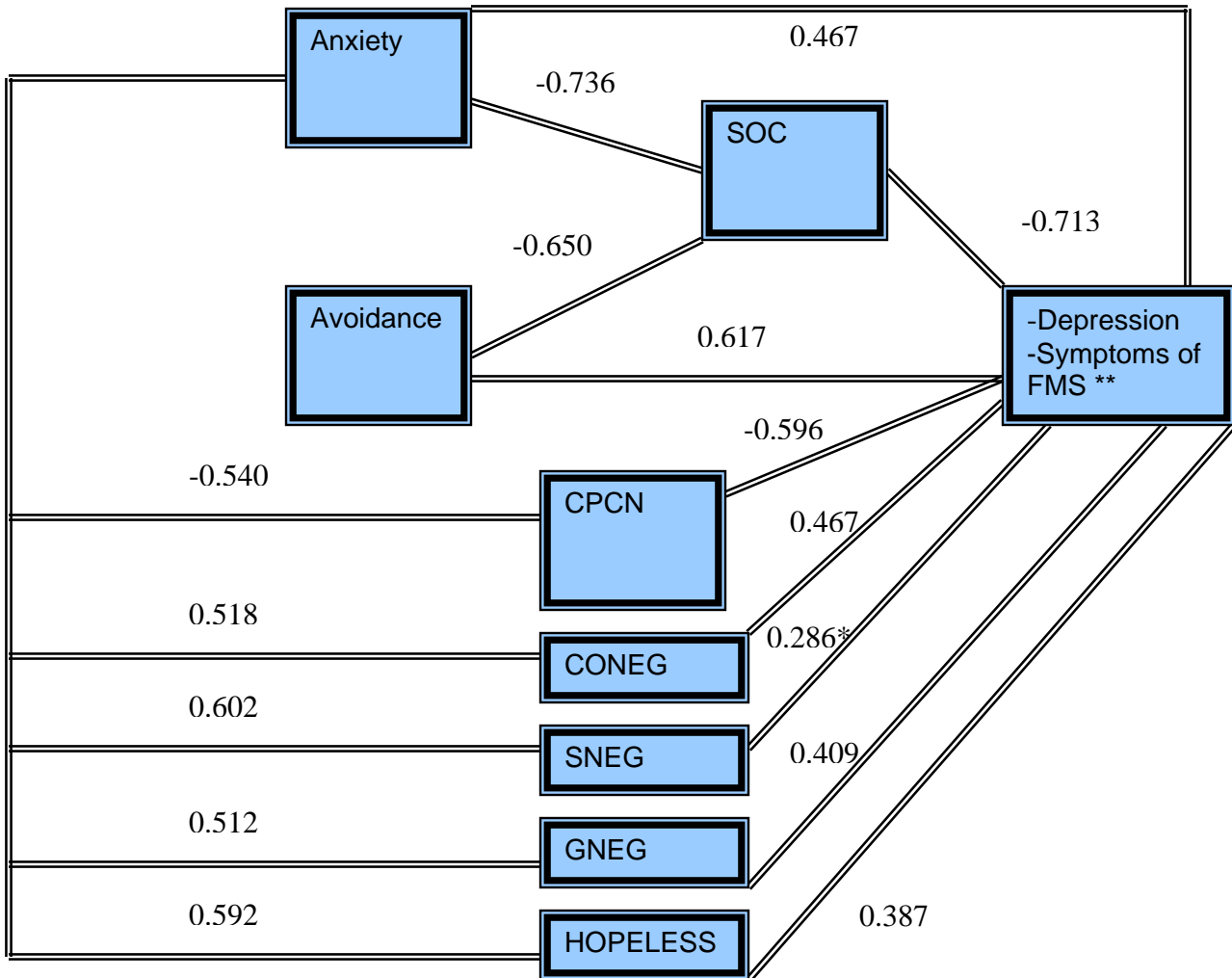
possible clustering of patients. Naturally, the first step would have to be a statistical comparison between the items used in both studies.

Comparison of the avoidance and anxiety scores with the other dimensions also provided some interesting findings. For example, the avoidance dimension of the ECR-R was more highly correlated to the BDI-II than to the anxiety dimension. This is noteworthy as, according to Kafetsios and Nezlek (2002), anxiety is most frequently associated with depressive symptoms. It is possible that people with high avoidance tendencies (those with dismissing-avoidant and fearful-avoidant attachment styles) perceive their relationships as less supportive and therefore are unable to access certain resources that could help them cope with negative affect. In as much as SOC is definable as a means of accessing resources, it is viewed as playing a role in this scenario. The stepwise regression process concluded that SOC and CPCN accounted for 52 % and 55% of the variance in depression, respectively. These two factors were significant on the  $p < 0.0001$  level. The model also included anxiety, avoidance and CONEG as independent variables, but these three factors were only found to be significant at the 0.1500 level and therefore can be seen as not having played a significant role in influencing the depression scores.

## **6.2 CAUSE, MEDIATION AND CORRELATION**

Scores on the relationships between the different variables in this study exhibit a number of strong correlations. Using Cohen *et al.*'s (2000) criteria for classifying the strength of correlations, it was found that the strongest correlations ( $>0.85$ ) occurred between various ASQ dimensions (namely CONEG and INEG, GNEG; HOPELESSness and CONEG, SNEG, GNEG; HOPEFULness and COPOS, SPOS and GPOS). This indicates a close relationship between these variables, which is not surprising since the test enjoys a high reliability and validity. Correlations ranging from 0.65 to 0.85 are strong enough to be utilised for predictions. Aside from the ASQ variables that fall into this range, SOC is strongly negatively related to anxiety and to avoidance as well as to the depression index. This validates the hypothesis that insecure attachment styles are related to a low SOC. An  $R^2$  of 0.600 confirms this relationship between SOC, avoidance and anxiety, making it possible to account for 60% of the variance in SOC from the last two dimensions. In

terms of working towards a predictive model of FMS, this study lays the basis for further investigation into a possible aetiological pathway. The following diagram denotes the correlations found in the study.



**Figure 6.2.1** Schematic presentation of correlation analysis. *Level of significance  $p \leq 0.05$ .*

\*not significant at  $p \leq 0.05$

\*\*not included in this study.

The fact that this is merely a cross-sectional study does not allow for assumptions on the direction of causality amongst the variables. For example, although approximately 60% of the variance in SOC can be accounted for by avoidance and anxiety, the cross-sectional nature of this study adds to the difficulty with assuming causality. In addition, it is plausible that being diagnosed with a controversial disorder such as FMS has profound effects on a patient's psyche. People with a high SOC may find themselves unable to make sense of the tedious confirmatory process or to manage the disbelief of significant others that may accompany diagnosis. Consider that the person diagnosed with FMS seeks support from one of the most important GRR's – significant others. Continual negative reactions and affirmations of hypochondriacal behaviour or malingering could increase anxiety and avoidance behaviour, while decreasing SOC. This may in turn exacerbate hopelessness and internal negative assumptions about the self. Furthermore, it cannot be assumed that these correlations are unique to FMS patients and continued investigation into other mediating factors is necessary. A larger sample size would allow for a programme such as LISREL to be utilised in a path analysis.

### **6.3 LIMITATIONS**

As mentioned, the conclusions arrived at in this study must be seen in the light of its limitations. These limitations are described below.

- Undoubtedly the strongest threat posed to any hypotheses reached from this research arises from the size of the sample. The size of the sample is very small, which decreases the confidence with which one can draw conclusions.
- The absence of a control group in this instance leaves little room for valid comparisons to be made.
- Researchers must take into account the reported tendency of people to catastrophise. Malt and Ursin (2003) state that self-report measures provide an opportunity to describe one's own experiences, but rely on the assumption that people have self-insight and will be honest about their experiences. They go on to state that test-takers "consciously or unconsciously, will falsify their self-evaluations" (¶ 2). Suhr (2003) adds to this argument by noting that the

complaints of memory and attentional deficits reported by FMS patients are exaggerated by these patients. With specific reference to the BDI on this matter, it cannot be ignored that a number of physical symptoms overlap with the criteria for depression. Martinez *et al.* (1995) note that any organic pain syndromes will be positive for a number of qualities seen in depression, hypochondria and hysteria scales, false positives and even social desirability. While the classic theory is that FMS patients will catastrophise, it should also be considered that some respondents might unconsciously play down their depressive/pain syndrome symptoms. The BDI-II specifies that one should answer in terms of the last two weeks of one's life. All of the respondents had been living with FMS for years and some even noted that they could not state that they experienced *more of* a particular scenario (such as crying more than usual) since they had been living with high occurrences of the variable for a long time.

#### 6.4 RECOMMENDATIONS

- Firstly, the results warrant further examination with larger samples. The relatively high number of variables that could play a role in FMS does not lend itself to small samples.
- A longitudinal or intervention study would ideally be able to explore some of the points elucidated in this research, such as the direction of causality with regard to attachment and SOC.
- It is also recommended that future quantitative studies include control groups for more reliable comparisons.
- A scale should be utilised to rate the severity of every respondent's FMS symptoms. This will help investigate the effect symptom severity has on the patients.
- Other attachment measures should be used and compared to these findings. Collins and Read (1990) put forward that the existing attachment classifications are too limited for the analysis of adult attachment and that subcategories may exist within the larger classes. Further comparisons using cluster analysis may be useful in untangling this complicated concept. A multimodal approach to

investigating attachment and FMS is suggested. Davis and Roberts (in Collins & Read, p.661) state: “The time appears ripe for an exploration of how individual differences in conceptions of personal relationships determine the type of relations sought out and created by individuals...and the nature of satisfactions gained in relationships.”

- Panzer and Viljoen’s (2003) model of classification of diseases poses some interesting questions about the nature of FMS. According to this model, FMS patients should fall predominantly into Bartholomew’s Preoccupied category. This model provides a unique insight into both psychological and physiological variables in FMS and should be explored more extensively. In addition, testing the hypotheses formulated by these authors allows the researcher to adopt the multimodal approach suggested earlier.
- In order to remain true to the proposed integration of psychological and physiological thought, physiological correlates (such as cortisol measurement) of the psychological parameters examined should be included in future studies.
- In light of the arguments still raging about the viability of FMS, it would be valuable to examine the influence of the attitudes of others towards variables such as anxiety and avoidance in FMS patients.
- It would be interesting to compare these results with the outcomes of MULTILOG analyses. Although the use of Classical test theory is justifiable in this study, the use of a more powerful statistical model such as IRT is likely to refine the results.

## **6.5 NOVEL PERSPECTIVES ON FMS**

When examining the psychological characteristics of a particular patient group, it is easy to fall into the trap of using findings as negative labels that invariably spiral into self-fulfilling prophecies. As Mischel (in Safran & McMMain, 1992, p. 60) states

My intentions in writing that book were not to undo personality but to defend the individuality and the uniqueness of each person against what I saw as the prevalent form of clinical hostility: the tendency to use a few behavioral signs to categorize people enduringly and into fixed slots on the basis of the assessor’s favorite nomothetic trait

dimensions and to assume that these slot positions were sufficiently informative to predict specific behavior and to make extensive decisions about a person's whole life.

The tests utilised in this study do not measure change or potential or even experiences, but rather rigid slots. Many more investigations must be carried out into the FMS group before being able to conclude that a rigid and dysfunctional interpersonal style exists. It cannot be disregarded either that insecure attachment style, relatively high scores on depression as well as negative attributional dimensions have been linked to other disorders. Buckley, MacHale, Cavanagh, Sharpe, Deary and Lawrie (1999) found that CFS patients have higher levels of neuroticism and introversion than healthy controls. Neuroticism and introversion have both been noted as specific risk factors for depression. Cope, Mann, Pelosi and David (1996) earlier uncovered that CFS patients have a higher morbidity with relation to a number of psychiatric disorders (including depression) than healthy controls. Similarities are also noted in the trajectory for the development of FMS proposed in this study and White and Schweitzer's (1999) suppositions regarding CFS. White and Schweitzer (1999) integrate negative experiences of self and others (although they do so under the heading of self-esteem), attribution of symptoms and a sense of failure as agents in the onset of CFS. Insecure attachment has been implicated in the onset of a host of disorders (Pierrehumbert, *et al*, 2000; Radke-Yarrow, 1991; Wenar & Kerig, 2002 to name but a few). Negative Attributional Style, meanwhile has also been described in patients with depression (Howlett & Lindegger, 1996), Obsessive-Compulsive Disorder and somatic complaints (Petrosky & Birkimer, 1991), proneness to heart disease (Garber & Seligman, 1980), and so forth.

Science has mainly relied on questions of pathogenesis in the hope of discovering information on preventing and curing diseases. In the past decade, however, the focus has shifted to questions of the origins of health and coping strategies. Salutogenesis has played an important role in this new stream of research (Geyer, 1997). Examining SOC in this research engenders questions of its role in overcoming or preventing FMS symptoms. Using the information gathered in this study from a salutogenic perspective allows the researcher the opportunity to be respectful of suffering, while nurturing assets. A

salutogenic perspective on the proposed trajectory of attachment to FMS would enquire: How did nearly 50% of the FMS patients manage to maintain or form a high SOC in spite of their illness?

Although it may seem as though SOC is a straightforward construct that explains the relationship of coping styles and resilience to pathology, this is not the case. SOC may be considered an individual coping resource that allows one to maintain a position on the health-ease side of the continuum, but it is unclear whether it is in actual fact a predictor of health or an outcome variable or merely a measure of depression (Gana, 2001; Sperber, Carmel, Atzmon, Weisberg, Shalit, Neumann, Fich & Buskila, 1999). As mentioned earlier, FMS (a confirmed or contended diagnosis) may have a great impact on the patient's psychological functioning. Sperber *et al.* (1997) commented on this possibility in their research of 79 Irritable Bowel Syndrome patients. They concluded that further longitudinal studies were required before definitive statements could be made.

Further questions on FMS and SOC relate to the stability of both concepts. Despite Antonovsky's pessimistic outlook that SOC is set by the age of thirty, there has been evidence to contradict this (e.g. Feldt, *et al.*, 2003; Geyer, 1997). What of FMS then? Although symptoms are viewed as largely unremitting (Inanici & Yunus, 2001; Rachlin, 1994), it would seem equally untenable to assume that the psychological functioning of patients with FMS will remain constant throughout the duration of the disorder. In this small sample alone, it was discovered that there are varying degrees of coping and distress. On a speculative level then, the psychological factors that may contribute in the onset and maintenance of the disease, can also be altered. As a strong SOC has been revealed as a correlate of more adaptive coping strategies, overall more effective use of resources and higher degrees of resilience, improvements in an FMS patient's SOC could lead to improvements in quality of life. White and Schweitzer (2000) believe that the chronicity of CFS is related to the individual's reaction to the disorder. Those who are able to reflect on the dismantling effect of CFS on their established way of life are able to recover or adapt to the disorder. Those who withdraw from the challenge may experience chronic somatic complaints. This argument may also apply to FMS. Yet, before any form

of counteracting the disorder can occur, the patient may need to adopt the stance of those with a high SOC and view FMS as a challenge. Only then can they hope to create meaning from their situation, to understand it and to manage its effects.

It is hoped that, despite the number of limitations of this research, it does make a valuable contribution to science. It certainly adds to the existing knowledge on FMS, opening the door for further hypotheses. It also prompts what is hoped to be the start of a more salutogenic outlook on a disorder, which is notoriously characterised by the deficit approach. Furthermore, it challenges health care practitioners to question their established assumptions about FMS. Even the mere suggestion of belief in a patient's symptoms may be enough to lift their spirits and aid them on a trajectory towards health-ease.



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## Appendix A

### **PATIENT INFORMATION LEAFLET AND INFORMED CONSENT**

(Each patient must receive, read and understand this document before the start of the study)

#### **TRIAL TITLE**

The profiles of Fibromyalgia patients: towards a model of taxonomy and maintenance of the illness.

#### **INTRODUCTION**

You are invited to volunteer for a research study. This information leaflet is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully understand what is involved. If you have any questions, which are not fully explained in this leaflet, do not hesitate to ask the investigator. You should not agree to take part unless you are completely happy about all the procedures involved. In the best interests of your health, it is strongly recommended that you discuss with or inform your personal doctor of your possible participation in this study, wherever possible.

#### **WHAT IS THE PURPOSE OF THIS TRIAL?**

You have been diagnosed as suffering from Fibromyalgia Syndrome and the investigator would like you to consider taking part in the research. The study involves an interview and the completion of 4 questionnaires. You will not be expected to pay for any of the tests.

#### **WHAT IS THE DURATION OF THIS TRIAL?**

If you decide to take part you will be one of approximately 30 patients. The study will last for up to 1 week per patient (in total). You will visit the investigator to:

- a.) discuss the trial and to complete the informed consent form.
- b.) complete the questionnaires. It is important that you let the investigator know of any medicines (both prescriptions or over-the-counter medicines), alcohol or other substances that you are currently taking.

#### **HAS THE TRIAL RECEIVED ETHICAL APPROVAL?**

This clinical trial Protocol was submitted to the Research Ethics Committee (for the Faculty of Humanities at the University of Pretoria) and written approval has been granted by those committees. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2000), which deals with the recommendations guiding doctors in biomedical research involving human/subjects. A copy of which may be obtained from the investigator should you wish to review it.

### **WHAT ARE MY RIGHTS AS A PARTICIPANT IN THIS TRIAL?**

You participation in this trial is entirely voluntary and you can refuse to participate or stop at any time without stating any reason. Your withdrawal will not affect your access to other medical care. The investigator retains the right to withdraw you from the study if it is considered to be in your best interest. If it is detected that you did not give an accurate history or did not follow the guidelines of the trial and the regulations of the trial facility, you may be withdrawn from the trial at any time.

### **MAY ANY OF THESE TRIAL PROCEDURES RESULT IN DISCOMFORT OR INCONVENIENCE?**

Some people may find it uncomfortable to complete the questionnaires in the same venue as other participants.

### **WHAT ARE THE RISKS INVOLVED IN THIS TRIAL?**

The investigation poses no threat to the subject's well-being

### **ARE THERE ANY WARNINGS OR RESTRICTIONS CONCERNING MY PARTICIPATION IN THIS TRIAL?**

You are requested to inform the investigator of any changes in medication that you may be taking.

### **INSURANCE AND FINANCIAL ARRANGEMENTS**

Neither you, nor your medical aid will be required to pay for the assessments carried out.

### **SOURCE OF ADDITIONAL INFORMATION**

For the duration of the trial, you will be under the care of Dr H.P. Meyer. If at any time between your visits you feel that any of your symptoms are causing you any problems, or you have any questions during the trial, please do not hesitate to contact him. The telephone number is 012 373 1018 through which you can reach him or another authorised person.

### **CONFIDENTIALITY**

All information obtained during the course of this trial is strictly confidential. Data that may be reported in scientific journals and in the investigator's mini-dissertation will not include any information, which identifies you as a patient in this trial.

In connection with this trial, it might be important for domestic and foreign regulatory health authorities and the Research Ethics Committee of the South African Medical Association, the Medicines Control Council, as well as your personal doctor, to be able to review your medical

records pertaining to this trial. Therefore, you hereby authorise your investigator to release your medical records to Professor H.P. Meyer and his associates, domestic and foreign regulatory health authorities, the Medicines Control Council and the Research Ethics Committee of the South African Medical Association. You understand that these records will be utilised by them only in connection with carrying out their obligations relating to this clinical trial.

Any information uncovered regarding your test results or state of health as a result of your participation in this trial will be held in strict confidence. You will be informed of any finding of importance to your health or continued participation in this trial but this information will not be disclosed to any third party in addition to the ones mentioned above without your written permission. The only exception to this rule will be cases in which a law exists compelling us to report individuals infected with communicable diseases. In this case, you will be informed of our intent to disclose such information to the authorised state agency.

### **INFORMED CONSENT**

I hereby confirm that I have been informed by the investigator, CO Govender about the nature, conduct, benefits and risks of this clinical research project. I have also received, read and understood the above written information (Patient Information Leaflet and Informed Consent) regarding the clinical trial.

I am aware that the results of the trial, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a trial report.

I may, at any stage, without prejudice, withdraw my consent and participation in the trial. I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the trial.

Patient's name \_\_\_\_\_ (Please print)  
Patient's signature \_\_\_\_\_ Date \_\_\_\_\_  
Investigator's name \_\_\_\_\_ (Please print)  
Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

I, ..... herewith confirm that the above patient has been informed fully about the nature, conduct and risks of the above trial.

Witness's name\* \_\_\_\_\_ (Please print)  
\*Consent procedure should be witnessed whenever possible.  
Witness's signature \_\_\_\_\_ Date \_\_\_\_\_

### **INFORMED CONSENT FOR PARENTS / GUARDIANS**

(on behalf of minors under 18 years old)

CO Govender has provided me with a copy of the Patient Information Leaflet and Consent Form regarding clinical trial number ..... and has fully explained to my the nature, risks, benefits and purpose of the trial. She has given me the opportunity to ask any questions concerning both

the drug and the trial. It has been explained to me that I will be free to withdraw my child from the trial at any time, without any disadvantage to future care. I have understood everything that has been explained to me and I consent for my child to participate in this clinical trial.

Parent/Guardian(s) Name \_\_\_\_\_ (Please print)  
Parent/Guardian(s) Signature \_\_\_\_\_ Date \_\_\_\_\_  
Patient's Name \_\_\_\_\_ (Please print)  
Patient's Signature \* \_\_\_\_\_ Date \_\_\_\_\_  
(\*Minors competent to understand must participate as fully as possible in the entire procedure.)  
Investigator's Name \_\_\_\_\_ (Please print)  
Investigator's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Witness's Name \_\_\_\_\_ (Please print)  
Witness's Signature \_\_\_\_\_ Date \_\_\_\_\_

**VERBAL PATIENT INFORMED CONSENT**  
(applicable when patients cannot read or write)

I, the undersigned, ....., have read and have explained fully to the patient, named ..... and/or is/her relative, the patient information leaflet, which has indicated the nature and purpose of the trial in which I have asked the patient to participate. The explanation I have given has mentioned both the possible risks and benefits of the trial and the alternative treatments available for his/her illness. The patient indicated that he/she understands that he/she will be free to withdraw from the trial at any time for any reason and without jeopardising his/her subsequent injury attributable to the drug(s) used in the clinical trial, to which he/she agrees.

I hereby certify that the patient has agreed to participate in this trial.

Patient's Name \_\_\_\_\_ (Please print)  
Investigator's Name \_\_\_\_\_ (Please print)  
Investigator's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Witness's Name \_\_\_\_\_ (Please print)  
Witness's Signature \_\_\_\_\_ Date \_\_\_\_\_



# Please Note

## **Voluntary Consent concerning questionnaires and certain procedures:**

### **Note:**

The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the investigator in charge.

As all information or data are anonymous, you must understand that you will not be able to recall your consent, as your information will not be traceable.