**Gordon Institute
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Households' review of their budgets to deal with the paradox of COVID-19 financial disruptions and increased health-related expenses: a mental accounting approach

by

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Abstract

The WHO (World Health Organisation) declared COVID-19 a global pandemic in mid-March 2020. To curb the spread of the virus, many countries, South Africa included, implemented lockdowns which restricted people's movement and limited economic activity. As a result, South African household earnings decreased by 30% in 2020, with incomes of lower educated households decreasing by approximately 40%. As a result of the financial impact, many households had to reprioritise their budgets, decreasing the amount available in specific budget categories but increasing amounts in others, such as preventative OTC medication and general medical expenses, which became a priority. This study aims to explore how households reprioritised their budgets to deal with the predicament of COVID-19 financial disruptions and increased health-related expenses using mental accounting as a theoretical framework. This study used a mono-method, quantitative research approach following a positivist research philosophy, using a descripto-explanatory strategy within a cross-sectional time-horizon. Data was collected by means of an electronic survey that made use of Likert-type scales to facilitate ease of completion on handheld devices. The results demonstrate that financial disruptions caused by the pandemic negatively impacted all income groups and further indicated that households prioritised medical related expenses as essential items on their budget. Households that were members of a medical aid were more inclined to increase budget amounts allocated towards preventative healthcare such as OTC medication and supplements, compared to households with no medical aid to support them. Finally, it was observed that COVID-19 has altered South Africans' perceptions of budgeting, with indications that the pandemic has driven them to be more cautious with future spending, and more conservative with future budgeting behaviour.

Keywords

Declaration

I hereby declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Chapter 1: Introduction

1.1 Background for the study

The WHO (World Health Organisation) declared COVID-19 a global health emergency at the end of January 2020, with it subsequently declared a pandemic in mid-March 2020 (WHO, 2020). The first South African COVID-19 positive case was logged on March 6th, with the country going on a 21-day national lockdown from March 27th (Arndt et al., 2020; de Villiers, Cerbone, & Van Zijl, 2020; IRI, 2021). This national lockdown was characterized by limited movement and economic activity in South Africa. The only services permitted to operate were essential services (Arndt et al., 2020). The national lockdown was followed by a two-week extension, and subsequent easing of the lockdown restrictions in distinct levels (IRI, 2021). While many industries were severely affected during the COVID-19 pandemic, within a very short period of time, this study draws attention to how households' attention was suddenly drawn to medical and healthcare, and how membership of a medical aid (or not) impacted on households' financial decisions during times when household incomes were severely threatened.

The South African healthcare industry that is split into public and private, was put under severe pressure during the pandemic due to the high infection rates (Marivate & Combrink, 2020). To provide some background, the public health sector accommodates around 84% of the market and the remaining 16% of households have access to healthcare through the private sector (Mahlathi & Dlamini, 2015). Notwithstanding, resources are more or less equally split between the private and the public sectors (Maphumulo & Bhengu, 2019). The unequal distribution of human resources and equipment between the public and private sectors compared to the percentage of the population that is serviced by each sector, confirms that the public sector is grossly under-resourced (Maphumulo & Bhengu, 2019).

The less than ideal state of the public healthcare system attests to the growing importance of a well-functioning private healthcare system, especially if South Africa is to attract foreign direct investment and slow down the mass exodus of skilled individuals. South Africans fund private healthcare using medical aid schemes, with approximately 8.95 million South Africans being active members (Council for Medical

Schemes, 2019). Medical aid memberships are generally funded by individuals in their private capacity, or membership is subsidised by their employer - either in full or partially (Nevondwe & Odeku, 2014).

South Africa's Gross Domestic Product (GDP) shrunk by seven percent in 2020, primarily due to the various lockdown restrictions implemented by the South African Government due to the COVID-19 pandemic (Statistics South Africa, 2020). This represents the most significant decrease in activity since 1946, at a time when South Africa's unemployment rate is over 30% (Statistics South Africa, 2020). The lockdown resulted in massive declines in many industries' demand and supply sides, including travel, tourism, entertainment, restaurants, and hotels, to the detriment of the South African economy (Arndt et al., 2020).

South African household wage earnings decreased by 30% in 2020, with incomes of lower educated households decreasing by approximately 40% (Arndt et al., 2020). The main reasons for decreased earnings, were job losses and reduced working hours (TransUnion, 2021). Worth noting, is that household spending decreased by 49.8% during the lockdown period because of the lockdown restrictions and financial pressure on households due to job losses and salary cuts (Statistics South Africa, 2020). In March 2021, 62% of South African consumers indicated that their income was still negatively impacted due to the COVID-19 pandemic (TransUnion, 2021). Understandably, this caused concern about not being able to honour their debt. Interestingly, consumers expressed more interest and concern about the need to have savings, compared to how they felt pre-COVID-19 (TransUnion, 2021).

There is a growing body of knowledge around the way COVID-19 has affected consumer behaviour in Europe, some arguing that the pandemic, unprecedented in nature, has changed the way consumers and businesses behave (Eger, Komárková, Egerová, & Mičík, 2021). Some of the trends noticed among households were 1) hoarding and stockpiling behaviour of food (water, meat, bread), toilet paper, and cleaning products; 2) embracing digital technology through e-commerce to shop online, for groceries; and 3) shifting to digital platforms for work, education, and connecting with family (Baker, Farrokhnia, Meyer, Pagel, & Yannelis, 2020; Donthu & Gustafsson, 2020; Sheth, 2020; Wang et al., 2020; Yuen, Wang, Ma, & Li, 2020).

South Africa was no exception, with consumers pantry loading food items, toilet paper, and even recreational alcohol items in anticipation of alcohol bans (IRI, 2021).

People were also psychologically impacted by the virus outbreak, experiencing increased stress levels, depression, feelings of helplessness, and fear of dying due to COVID-19 infection (Donthu & Gustafsson, 2020; Ho, Chee, & Ho, 2020; Yuen et al., 2021). This pushed people to focus on personal protection (Donthu & Gustafsson, 2020). Building on this, an interesting, although not surprising trend, was consumers increased focus on preventative healthcare measures, resulting in a growth of the over-the-counter (OTC) pharmaceutical wellness categories (Donthu & Gustafsson, 2020; IRI, 2021). In South Africa, OTC medicines and supplements are easily accessible, being sold in supermarkets and pharmacies (Padayachee, Rothberg, Truter, & Butkow, 2019). South African consumers pay for OTC products out of their pockets, or through the out-of-hospital benefit if they are members of a medical aid scheme (Padayachee, Rothberg, Butkow, & Truter, 2020). The total South African OTC category grew by 27% during the pandemic, with the subcategories growing as follows: multivitamins (32%), single supplements (39%), and function-specific products (23%) (IRI, 2021). The spikes in these categories were linked mainly to the waves of infection related to the COVID-19 pandemic (IRI, 2021). In South Africa, Google search trends also showed a spike in queries concerning immunity (IRI, 2021).

1.2 Research problem

During the COVID-19 pandemic, South African households coped by adjusting their budgets to accommodate changes in their income, with 74% of consumers indicating decreased discretionary spending and 42% indicating that they had cancelled some subscriptions and memberships to cope (TransUnion, 2021). Approximately 44% of consumers also expected that their medical bills would change in the months to come (TransUnion, 2021). As indicated, only 16% of South Africans access healthcare through the private sector, using medical aids (Mahlathi & Dlamini, 2015). Considering South Africa's developing country status, with a healthcare system being under pressure, OTC medicines and supplements represent a cheap, fast way to

access healthcare support, also serving as a preventative healthcare measure (IRI, 2021; Marathe, Kamat, Tripathi, Raut, & Khatri, 2020).

Considering the financial impact, the pandemic has had on the budgets of South African households, it is yet unclear exactly how budgets were reprioritised to accommodate different categories of expenses amidst the financial pressure. Despite the financial impact on many consumers and the declines across various industries, solid growth was seen in the OTC medication category in 2020. To this end, it is unclear how consumers reprioritised their already constrained budgets to accommodate increasing medical costs (if any) and OTC medication and supplements that were promoted to protect people from falling ill. While many households had to cope with reduced earnings, health-related categories especially, attracted more attention in their budgets. Empirical evidence concerning how household budgets were revised and how budget items were reprioritised or reallocated to cope with increased medical expenses (such as medical services and medication), is lacking. While OTC medication is generally not necessarily items of significance in households' budgets, the situation changed significantly with the onset of the COVID-19 pandemic, as is indicated by the soaring sales figures for OTC medication, when people started panicking and purchased more of these products as a precautionary measure. Soaring sales figures were probably also due to the relatively low percentage of South Africans that are members of medical schemes, and the need to guard themselves against infection. The COVID-19 pandemic, therefore, created many uncertainties, some of which negatively affected household incomes, and others that have nevertheless increased expenditure in certain budget categories. These have challenged the ways in which households could make ends meet, and how they contemplated the importance of other expenses. This study is particularly interested in households' perceptions of the need for medical aid membership, which is usually quite expensive, and the accommodation of OTC medication to cope with the unexpected reality. Undoubtedly, within households' budgets, the prioritisation of expenses, particularly medical aid membership (which is generally rather expensive), and the allocation of funds towards OTC medication (which has drawn considerable attention in the fight against the virus), would have drawn considerable attention while households had to

juggle available (probably reduced) financial resources to cope with the pandemic that caught all off guard.

1.3   Purpose of the research

Indisputably, the pandemic has had a notable financial impact on many households, increasing underlying fear concerning their health, the ability to cope with financial expenses, and not being covered aptly by medical aid (TransUnion, 2021). Considering (1) the financial impact experienced by consumers, (2) South Africa's developing country status, with a healthcare system that is under pressure, (3) increasing general medical expenses due to COVID-19, and (3) based on evidence that sales of OTC supplements have soared during the recent pandemic, this research undertaking aimed to assess how consumers have reprioritised amounts allocated in their budgets for different categories of expenses, particularly to deal with increased medical expenses, and purchases of OTC medication, furthermore investigating how membership of a medical aid had influenced households' budget decisions (IRI, 2021; Statistics South Africa, 2020).

1.4   Theoretical contribution

Previous research within the South African context focused on how COVID-19 was expected to spread exponentially, and how changes in households' income might affect their food security (Arndt et al., 2020; Marivate & Combrink, 2020). However, no research has been conducted yet, on the way household budgets had been adapted during extreme events, such as the recent COVID-19 pandemic, that constrained many households' incomes on the one hand, while putting severe pressure to increase certain budget categories, on the other hand. Extreme events mostly result in extreme financial crises and increased concerns about people's health, heightening the need for measures to cope with potential health threats. The COVID-19 pandemic presented a unique opportunity to conduct a study of this nature in South Africa, as a guideline to employers and insurers in terms of financial guidance and consumer facilitation in the future. The current work also seeks to contribute to the growing body of literature around household budgeting behaviours

during times of financial restraint and, in so doing, will contribute to economic models of consumption and savings behaviour.

1.5   Business contribution

The managerial implications of this research are two-fold. Firstly, businesses should have the ability to adapt at a fast pace to accommodate changing consumer landscapes (Sheth, 2020). During the COVID-19 pandemic, consumers' need for OTC medication increased rather drastically within a short period of time, according to sales figures - to the extent that pharmacies often ran out of stock. As this pandemic is not yet an issue of the past, this research would indicate how businesses could align themselves to serve consumers' needs more aptly in the future. Businesses, therefore, need to be agile in matching supply with an ever-changing demand (Sheth, 2020). Secondly, businesses should be mindful that consumers will most likely revert to their old behaviour post COVID-19 (Sheth, 2020). This study will indicate a possible mindset shift in consumers' willingness to take precautionary measures concerning medical aid membership to prevent a re-occurrence of the hardships experienced during the recent pandemic, where households had to deal with significant financial and health threats. This study will assist medical aid schemes in understanding consumers' perceptions around the importance of being a part of a medical aid and will assist them in tailoring their product offerings to have a broader appeal, while being cost-effective. It will also assist financial institutes in tailoring programmes to assist South Africans to be more financially savvy and more resistant to financial shocks. This study will contribute information from a real-life event about South African consumers' behaviour during the COVID-19 pandemic - an issue that will certainly be remembered for the hardship that households had to endure.

1.6   The nature of the study

A mono-method, quantitative research approach was used in this research undertaking, which means that a single method was used to collect data (Edmondson & McManus, 2007). A survey was conducted using a structured, online questionnaire. The survey allowed for data to be collected from a sizeable population

in a structured way. The study was cross-sectional as the research was conducted at a specific point in time over a single period.

This study used a descripto-explanatory strategy. This strategy uses descriptive data to understand and explain the relationships between selected variables (Kelley, Clark, Brown, & Sitzia, 2003; Saunders & Lewis, 2012). A positivist approach was followed (Delice, 2010), using a structured methodology that produced data suitable for law-like generalisations (Delice, 2010; Saunders & Lewis, 2012). Finally, a deductive research approach was used to test the theoretical proposition and explain the causal relationship between variables (Edmondson & McManus, 2007).

1.7 Measures to eliminate error

Every effort was made to minimise error during the research process to ensure the validity and reliability of study. Thaler's mental accounting theory was selected as the theoretical framework for the study. A thorough review of extant literature was conducted to inform the research questions, data collection, data analysis, data interpretation, and finally future research recommendations.

A survey format was used to collect quantifiable data, using a structured questionnaire (Edmondson & McManus, 2007) that included a combination of structured and closed-ended questions (Johnson & Turner, 2003). The questions used in the questionnaire were a combination of the researcher's own, as well as adapted questions from the following studies: Xiao and O'Neill (2018), Muehlbacher and Kirchler (2019), the United States National Financial Capability Study (2015), and Wöcke and Chiba (2020).

1.8 Ethics

Prior to data collection, ethical clearance was obtained from the from the Gordon Institute of Business Science (GIBS) ethics committee. The letter of approval is in Appendix A. The cover page of the questionnaire gave a brief description to respondents, of the research purpose. Informed consent was obtained from them before commencing with the survey (Creswell, 2012). This covered the statements that (1) participation is voluntary, (2) participants have the right to withdraw whenever

they wish without penalty, (3) all participants will remain anonymous, (4) only aggregate data will be reported, and (5) no known risks are associated with participating (Creswell, 2012). This study followed the strictest ethical standards, honouring respondents' privacy and confidentiality.

1.9 Structure of the research

This research report is presented in the format of an academic thesis and is organised into seven chapters, namely:

Chapter 1: The introduction to the study. This section has given background information to this study, stated the research problem that revolves around many households' predicament to deal with salary cuts while they had to accommodate increased expenses in health-related budget categories. The aim of the research was stated, and the theoretical and business contributions of the research were clarified.

Chapter 2: The literature review. This section gives an in-depth review of extant literature. It covers what is known in this area of research and where there are gaps in the knowledge.

Chapter 3: Research questions and hypotheses. This section summarises the research questions and accompanying hypotheses of the study, supported by the literature.

Chapter 4: Research methodology. This section defends the methodological choices and gives a detailed description of all steps followed during the research process. It covers details on the type of study, data collection, data analysis, quality control and limitations of the study.

Chapter 5: Results. This section summarizes all the trends and key findings observed in the data. It is structured so that each research question and the accompanying statistical analyses (assumptions and tests) are grouped together.

Chapter 6: Discussion of results. This section considers the findings of the study in relation to the extant literature. It offers explanations for observed findings and highlights where findings contradict and align to existing literature.

Chapter 7: Conclusions and recommendations. This is the final section of the document. It summarizes the findings of the research, the implications of these findings for business and areas that warrant further research in the future.

Chapter 2: Literature review

2.1 Introduction

This chapter gives an overview of extreme events and how these events may influence households' everyday living. Particular attention is devoted to the most recent COVID-19 pandemic that is health-related and how it has influenced healthcare in countries and households' ability to deal with unexpected health-related expenses. At the same time, many were simultaneously confronted with significant income cuts, which put household budgets under severe pressure.

2.2 Extreme events and the associated financial burden on societies

This section gives an overview of extreme events and how these events may influence households' everyday living.

"To be classified as a prolonged extreme event, the event needs to be associated with immense material, psychological and physical consequences to the individual, which the individual considers to be unbearable and must be unable to prevent the event from occurring" (Hannah, Uhl-Bien, Avolio, & Cavarretta, 2009, p. 02). The world has not experienced a prolonged extreme crisis in over a century (Laato, Islam, Farooq, & Dhir, 2020). According to Barro, Ursúa, and Weng (2020), examples of recent, prolonged extreme events include World War I (1914-1918), World War II (1939-1945), Spanish Flu (1918-1920), the Great Depression (1929 until the late 1930s) and most recently, the COVID-19 pandemic (Figure 2.1).
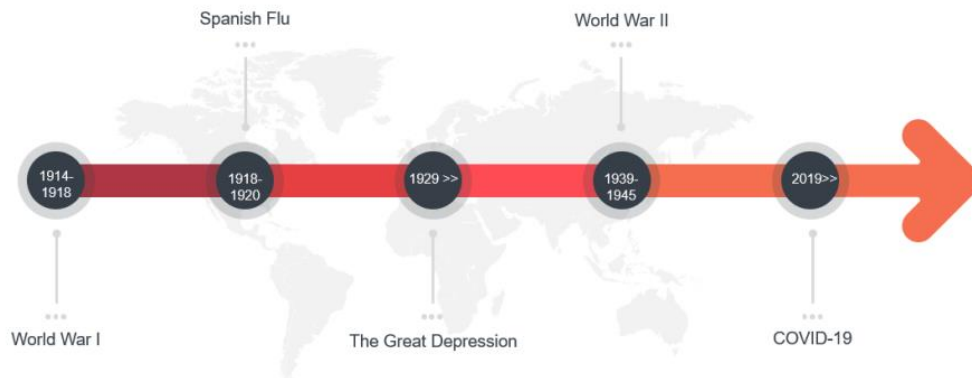
Figure 2.1: Timeline of recent prolonged extreme events across the world
(Source: Constructed by researcher)

These events are associated with high mortality rates, and on a macro level, devastating economic impacts, including declines in countries' per capita Gross Domestic Product (GDP) and altered inflation rates (Barro et al., 2020). The extreme event context creates an environment with a unique set of eventualities, restrictions, and causations (Hannah et al., 2009). Studies around extreme events have depicted how leaders react and need to adapt their behaviour during trying times (Hannah & Parry, 2014). An example of this, is how followers viewed decisive leaders as more effective during extreme events than consultative leaders during regular times (Hannah et al., 2009). Sarewitz and Pielke Jr (2001) focused on how systems and communities accelerate decision-making to reduce their vulnerability in the face of adversity (Sarewitz & Pielke Jr, 2001). While another study looked at how extreme events present an opportunity to elicit change, whether societal, economic, environmental, or political, compared to the context of the pre-extreme event (Birkmann et al., 2010). While the research available on extreme events is limited, the common theme emerging from the extant literature is that extreme events alter the behaviour of people, and society at large.

Prolonged extreme events inevitably lead to financial crises, which imply a disturbance to the financial markets where adverse selection and moral hazard challenges escalate, resulting in the markets being unable to focus on growth investment opportunities (Mishkin, 1992). Financial crises are associated with

stagnating economic growth, high inflation rates, lower wages, and increased unemployment rates (Mishkin, 1992).

The most recent financial crisis in South Africa was the Global Financial Crisis of 2008, which moved the country into recession for the first time since 1991 (Steytler & Powell, 2010). This crisis negatively impacted the South African economy and has intensified historical issues of poverty, unemployment, and racial inequality (Mongale, Mukuddem-Petersen, Petersen, & Meniago, 2013; Steytler & Powell, 2010). The country's GDP shrunk by 7.4 % in 2008, driving job losses through retrenchment, resulting in increased consumer inflation, and subsequent significant decreases in consumer demand (Madubeko, 2010; Steytler & Powell, 2010). During financial crises, consumers' spending generally decline, investments decrease, and levels of debt increase (Madubeko, 2010). While there is a lack of information on the way consumers reprioritised their budgets during the global financial crisis, observed trends resemble the impact of COVID-19 on consumer behaviour in the country.

2.3 The global COVID-19 pandemic

2.3.1 Overview of the COVID-19 pandemic

COVID-19 is an infectious disease which is caused by the recently discovered coronavirus (WHO, 2020). COVID-19 is estimated to have an infection rate of 2.5 people, which means that, on average, an infected person would spread the virus onto 2.5 other people, hence snowballing (Kaye et al., 2020). As a phenomenon, COVID-19 could be classified as an extreme event. It causes a respiratory illness with mild to moderate symptoms and does not require special treatment in most people. However, it is more likely to be fatal in the elderly and people with comorbidities such as cancer, cardiovascular disease, diabetes, and chronic respiratory disease (Khari, Sharma, & Agarwal, 2021). It is spread from person to person through contact with saliva droplets and nose discharge from infected people (WHO, 2020). First identified in China, the virus had spread exponentially worldwide, with devastating consequences for all countries' health systems (Ozili & Arun, 2020). The virus has since killed over three million people across the world, and has infected millions globally, earning it pandemic status (WHO, 2020).

2.3.2 The financial impact of COVID-19

The pandemic has had disastrous effects on the world economy, with many countries closing their borders, schools, and pausing public and private sectors' activities (Baldwin & Di Mauro, 2020; Ozili & Arun, 2020; Ngwakwe, 2020). The global economy is estimated to have shrunk by 4.9% in 2020, with poorer countries bearing the brunt of this decline (Figure 2.2) (International Monetary Fund, 2021; Kaye et al., 2020). The main reasons can be summarized in three overarching themes (Baldwin & Di Mauro, 2020). Firstly, supply - the lockdown measures implemented worldwide restricted travel and saw the closure of schools, factories, and the service industries (Baldwin & Di Mauro, 2020; Khari et al., 2021). This severely disrupted global supply chains, resulting in decreased to no production or global export. Secondly, demand – the restricted movement, cancellation of events, and the financial impact on people saw a decreased demand for non-essential goods (Baldwin & Di Mauro, 2020). Thirdly, lowered confidence – the uncertainty caused a delayed consumption of goods and delayed or foregone investment decisions (Baldwin & Di Mauro, 2020).
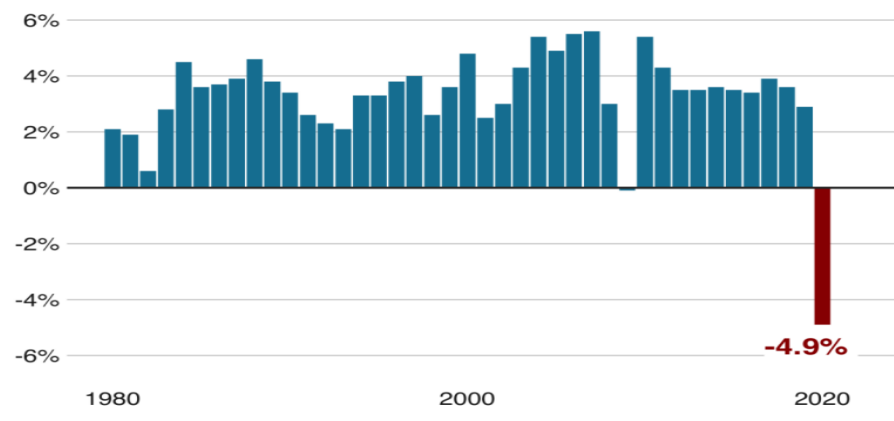
Figure 2.2: Global GDP growth since 1980
(Source: https://www.bbc.com/news/business-53164304)

There has been a significant adverse financial impact on people worldwide (Coibion, Gorodnichenko, & Weber, 2020). Less educated and unskilled people who could not work from home experienced a greater negative financial impact than their skilled counterparts (Kansiime et al., 2021; Whitehead, Taylor-Robinson, & Barr, 2021). Consumers in the United States of America (USA) indicated that they had lost $5000

in earnings on average because of the pandemic, with double-digit increases in unemployment observed (Coibion et al., 2020; Kaye et al., 2020). The average loss in wealth was $33 500 (Coibion et al., 2020). Consumers in Australia also experienced a negative financial impact because of COVID-19, driven mainly by a decrease in working hours (Borland & Charlton, 2020). In the United Kingdom (UK), a median income decline of approximately 30% was evident (Surico, Känzig, & Hoke, 2020).

Like the trend observed in South Africa, lower-earning Australian citizens were more impacted than the higher income earners (Borland & Charlton, 2020). According to Kansiime et al. (2021), 70% of their study's participants in Kenya and Uganda reported a negative impact on their earnings, with some participants citing complete job losses. In South Africa, household wage earnings decreased by 30% in 2020, with lower educated households' incomes decreasing by around 40% (Arndt et al., 2020). The main drivers of a decrease in earnings, were job losses and reduced working hours (TransUnion, 2021). Unavoidably, the extent to which a consumer is financially impacted, has implications for the way a consumer would behave.

2.3.3 Impact of COVID-19 on consumers' behaviour

During a period of financial uncertainty, consumers' behaviour tends to change, irrespective of whether they have been financially impacted or not (Laato et al., 2020). This is because consumers inadvertently reconsider their needs, prioritising basic needs, such as food and health, and will reduce luxury spending as a financial coping mechanism (Loxton et al., 2020). Generally, however, consumers' behaviour normalises once stability returns (Loxton et al., 2020).

To date, numerous studies have documented changes in consumer behaviour during COVID-19 (Baker et al., 2020; Donthu & Gustafsson, 2020; Eger et al., 2021; Sheth, 2020; Surico et al., 2020; Wang et al., 2020; Yuen et al., 2020). General trends reported, were (1) hoarding and stockpiling behaviour of food (water, meat, bread), toilet paper, and cleaning products; (2) embracing digital technology through e-commerce to shop online for groceries; and (3) shifting to digital platforms for work, education, and to connect with family (Donthu & Gustafsson, 2020; Sheth, 2020; Wang et al., 2020; Yuen et al., 2020). The trend in South Africa was similar, with

consumers pantry loading food items, toilet paper, and recreational alcohol items (in anticipation of alcohol bans) (IRI, 2021). Consumers in the USA and South Africa also purchased more OTC products like vitamins, minerals, and supplements (IRI, 2021).

2.3.4 Impact of COVID-19 on consumer spending and budgets

Not many studies have reported on how households adjust their spending patterns during a pandemic (Baker et al., 2020). According to Surico et al. (2020), consumer spending in the UK dropped by 40 to 50% at the start of COVID-19. In addition, mortgage providers reported a 20% decrease in monthly repayments from the account holders (Surico et al., 2020). Declines in spending patterns were more significant among lower earning households, which further increased the inequality gap (Surico et al., 2020).

Households in the USA used credit to fund their initial stockpiling purchases (Baker et al., 2020). Similar spending patterns were observed across different income categories, with the spending patterns being influenced by the relevant lockdown and movement restriction laws. The trends observed in the USA, were initial increases in spending across the retail, restaurant, travel, grocery, and credit card segments, followed by sharp declines in spending (Baker et al., 2020). As the lockdown progressed, spending on travel remained depressed, with increases seen in home food delivery services (Baker et al., 2020). These findings are consistent with the UK trends. However, what is not clear, is how consumers adjusted spending in their budgets to accommodate increased healthcare expenses, if any, as the focus of this pandemic largely evolved around health-related issues.

A comparison of pre- and amid COVID-19 spending was conducted on households in Spain (Carvalho et al., 2020). The pre-COVID-19 spending patterns indicated that consumers from more affluent income groups had spent more on dining outside of the home, travel, well-being, health, and time-efficient transportation (Carvalho et al., 2020). In contrast, the lower-income households spent more on making food at home, household maintenance, and tobacco products (Carvalho et al., 2020). During COVID-19, households across all income groups continued to spend on food. However, categories such as clothing, entertainment, and leisure collapsed

(Carvalho et al., 2020). In addition, the study showed that the consumption patterns of the rich and poor mimicked each other more closely during COVID-19 compared to before COVID-19.

There was a 29% decrease in consumer household spending in Denmark during the pandemic (Andersen, Hansen, Johannesen, & Sheridan, 2020). This is a steep drop compared to the typical unemployment response, but smaller than the UK's 40-50% drop (Andersen et al., 2020). However, the spending levels returned to almost parity of the pre-COVID-19 levels once the infection wave had passed. The reason why households bounced back relatively quickly, was because the Danish Government absorbed pandemic-related losses so that the citizens experienced minimal to no disruption to their income stream (Andersen et al., 2020).

While we have seen general trends on how consumers have had to cut down on discretionary spending to deal with the financial impact caused by COVID-19, it is uncertain how consumers have reallocated spending among different categories within their budgets to deal with increasing medical costs.

2.3.5 Impact of COVID-19 on healthcare systems globally

The COVID-19 pandemic has placed crippling pressure on healthcare systems around the globe (Maharaj, 2020). At the onset of the pandemic, healthcare staff reported futile attempts to treat the virus, and many first-world nations such as Germany, France, and the United Kingdom implemented lockdowns to curtail the spread. While effective at preventing the spread of COVID-19, the lockdown around the world brought additional challenges to people's lives globally. These included mental health-related issues such as increased stress and anxiety that were further exacerbated by income loss and fear of getting infected (Kaye et al., 2020).

Healthcare workers faced numerous challenges because of COVID-19. These included increased work hours, challenging decision-making all the time, and battling the fear associated with infecting their loved ones at home (Giusti et al., 2020; Kaye et al., 2020). Healthcare facilities buckled and struggled to cope with the magnitude of daily COVID-19 infections, which was amplified by a lack of preparedness (Kaye et al., 2020). Some of the global challenges experienced by healthcare facilities, were (1) shortages of personal protective equipment (PPE), (2) delays in treating patients

with non-communicable diseases such as cancer, diabetes, and lung disease, (3) decreased access to vaccinations and antenatal services in countries like Nigeria, Bangladesh, Kenya, and Pakistan, (4) increased cost of healthcare, despite decreases in household earnings (Kaye et al., 2020).

There was a surge in unemployment in the USA, with numbers reaching 20 million people (Blumenthal, Fowler, Abrams, & Collins, 2020), which resulted in many unemployed people losing their health insurance sponsored by their employer, thereby becoming uninsured (Blumenthal et al., 2020). The effect of COVID-19 on the American healthcare system has been double-edged. In one instance, there was an increase in demand for acute care against the virus infection, while on the other hand, a decrease in demand for routine procedures was unavoidable (Blumenthal et al., 2020).

2.3.6 *Impact of COVID-19 on household healthcare expenses*

COVID-19-associated medical expenses are estimated to cost four times more than other infectious diseases such as influenza (Bartsch et al., 2020). This is due to the higher likelihood of hospitalisation following COVID-19 infection and treatment of complications associated with infection (Bartsch et al., 2020). According to Wapner (2020), Americans noted increases in household healthcare expenses through co-payments, taxes, monthly coverage fees, and deductibles.

According to Wapner (2020), the increased medical bills strain households' budgets, may use up savings, and causes debt. These unexpected increases in medical expenses alters the household budget whereby a greater portion of funds are allocated towards these expenses (Damme, Leemput, Por, Hardeman, & Meessen, 2004). In a study conducted before COVID-19, Leive and Xu (2008) described the effect unexpected medical expenses had on households in 15 African countries. To deal with unexpected medical expenses, households were found to use savings, sell assets, borrow from their circle of family and friends or incur debt through loans or credit, using assets as collateral (Leive & Xu, 2008).

2.3.7 Opportunities in healthcare resulting from the COVID-19 pandemic

In contrast to the challenges brought about by the COVID-19 pandemic, some opportunities were realised within the healthcare space (Hebbar, Sudha, Dsouza, Chilgod, & Amin, 2020; Mann, Chen, Chunara, Testa, & Nov, 2020). Firstly, healthcare facilities worldwide restructured themselves to continue healthcare provision, while minimizing infection risks and constructing field hospitals in a matter of weeks to accommodate growing patient numbers (Hebbar et al., 2020). Secondly, to honour social distancing rules, an acceleration was seen in the adoption of telemedicine, digital consultations, and remote monitoring to ensure continuity in patient treatment across both urgent and non-urgent hospital visits (Hebbar et al., 2020; Kaye et al., 2020; Mann et al., 2020). Thirdly, the rise of the start-ups during COVID-19 saw medication being home-delivered once the script had been uploaded online (Hebbar et al., 2020). All these reports accentuate that households' attention to their health became more prominent, and that health-related expenses increased, for many.

2.4 The South African healthcare system

The South African healthcare industry is split into public and private, with the public sector accommodating 84% of the market, and the remaining 16% accessing healthcare through the private sector (Mahlathi & Dlamini, 2015). Regarding resources, 51% of healthcare resources sit in the private sector, which services 16% of the population (Maphumulo & Bhengu, 2019). In comparison, 49% of healthcare resources sit in the public sector, which caters to the bulk of the population at 84% (Maphumulo & Bhengu, 2019). The unequal distribution of human resources and equipment between the public and private sectors infers that the public sector is grossly under-resourced (Maphumulo & Bhengu, 2019).

2.4.1 Private healthcare and medical aids

While the private healthcare industry mainly caters to the wealthy, it plays a vital role in the South African healthcare system (Hasumi & Jacobsen, 2014). Private hospitals reduce the distance to the closest healthcare facility for many, relieving the overburden and pressure on the public hospital system (Matsebula & Willie, 2007).

The cost of accessing private healthcare in South Africa, is exorbitant, and therefore, many South Africans access private healthcare using medical aid schemes, although some are still self-funded patients (Matsebula & Willie, 2007).

Uninsured households that attempt to access the South African private healthcare system can face high out of pocket expenses which may lead to debt. Medical expenses are the third most significant cause of bankruptcy in households and can threaten a household's financial fluidity (Sullivan, Warren, & Westbrook, 2020). Countries such as the USA have introduced public health insurance to lower these out of pocket expenses and reduce the financial burden (Leightner, 2021; Scott et al., 2020). Unexpected healthcare events may affect a household's occupational stability, may increase debt burden, and ultimately makes repayment of medical debt challenging.

2.4.2 Types of medical aid plans

Approximately 8.95 million South Africans are active members of medical aid schemes (Council for Medical Schemes, 2019). Medical aids (termed health insurance in the USA) are governed by the Medical Schemes Act of 1998. The Council for Medical Schemes is the regulatory body that provides regulatory supervision of private healthcare financing through medical aids. There are just over 80 registered medical aid schemes in South Africa, which are a combination of open and restricted schemes (Padayachee et al., 2019). Open medical aids can be joined by any public member, while restricted schemes have specific criteria that the member needs to satisfy. The largest open medical aid scheme is Discovery Health, with the Government Employees Medical Scheme (GEMS) being the largest restricted medical aid scheme (Council for Medical Schemes, 2019).

Medical aids may offer different plans, ranging from basic hospital cover to more elaborate and more expensive benefit options depending on the patients' needs and affordability (Padayachee et al., 2019). However, the Medical Schemes Act has a feature called the Prescribed Minimum Benefits (PMB), which stipulates that all medical schemes have to provide their members with cover for (1) all emergency medical conditions, (2) a list of 271 predefined medical conditions as laid out in the Act, and (3) a list of 26 chronic conditions (Council for Medical Schemes, 2019).

A common type of benefit is termed the day-to-day benefit, where the patient is awarded a fixed amount of money at the start of the year that can be used to fund out-of-hospital expenses such as General Practitioner (GP) visits and the purchase of OTC medicines (Padayachee et al., 2020). The set limits for OTC medicine purchases are to ensure that the benefit is not unnecessarily used by patients. The allocation of a fund for OTC medicines promotes patient well-being and drives down healthcare costs later down the line (Padayachee et al., 2020).

2.4.3 Medical aid funding

South Africans access medical aid to ensure they are financially prepared if they require medical services and are not confident that they will receive the right level of care through the public healthcare system. The financial responsibility for the payment of a medical aid membership may be the sole responsibility of the incumbent or may be subsidised in part or entirely by the incumbent's employer (Nevondwe & Odeku, 2014). Generally, medical aid membership in South Africa is associated with individuals with a higher socioeconomic status (Nevondwe & Odeku, 2014). However, studies in the USA have shown that even people who can afford health insurance often choose to forgo it (Mittal & Griskevicius, 2016). In comparison, people under financial threat had a higher propensity to pursue medical insurance (Mittal & Griskevicius, 2016).

2.4.4 Impact of COVID-19 on the South African healthcare system

The COVID-19 pandemic has placed additional pressure on the South African healthcare system, which was already dealing with Human Immunodeficiency Virus (HIV) and Tuberculosis, amid an already struggling public healthcare system (Maharaj, 2020). The prevalence of HIV in South Africa is approximately 7.7 million people, which is among the highest in the world. Unfortunately, South Africa remained grossly under-equipped and under-resourced to launch an adequate response to the rising COVID-19 cases after the first case in March 2020. Many provinces ran out of hospital beds during peak infection periods, and President Cyril Ramaphosa admitted in July 2020, a shortage of 12 000 healthcare workers in the country (Wadvalla, 2020).

The Government's response to deal with the rapid spread of the virus was to announce a strict lockdown, involving movement restriction and cigarette and alcohol bans (Banerjee, Robinson, Sathian, & van Teijlingen, 2020). This provided the healthcare system with much-needed relief. During this time, field hospitals were created, more personal protective equipment (PPE) and medical equipment were procured, and the country focused on increasing the number of COVID-19 tests that it could conduct per day (Banerjee et al., 2020). These challenges contributed to anxiety within households, as it was never clear - whether someone had medical aid or not - how a household could be affected financially in the months to come, and how they might be financially challenged.

2.5 Over the counter medicines (OTC)

2.5.1 The relevance of OTC medication

Over-the-counter (OTC) medicines refer to products which a pharmacist may legally sell directly to consumers without a prescription from a doctor (Marathe et al., 2020). Consumers use OTC products to treat minor illnesses like common colds, diarrhoea, fever, pain, and allergies. The global OTC market is worth approximately 120 billion US dollars (Statista, 2020). The market is split into different categories: cough and cold, pain, digestive health, allergy, and nutritional health (vitamins, minerals, and supplements abbreviated to VMS) products. The largest category within this market is the cough and cold category (Statista, 2020). OTC products are relevant because they are a cheap, fast way to access healthcare support and serve as a preventative healthcare measure (IRI, 2021; Marathe et al., 2020).

In South Africa, OTC products account for 26% of the total expenditure on all medicines, confirming a high level of relevance in the marketplace (Padayachee et al., 2019). OTC products are categorised as Schedule 0, 1, and 2 (S0, S1, and S2), with S0 being available at supermarkets, general stores, and pharmacies, and S1-2 being located at the back shop (behind the counter) of the pharmacy but still available without a prescription (Table 2.1) (Padayachee et al., 2019). OTC products can be obtained through cash payments or the consumers' medical aid scheme benefits (Padayachee et al., 2019). While many of the symptoms associated with COVID-19 infection, were cold and flu related, OTC medication was in high demand. In addition,

preventative supplements also increased in demand, because people intentionally made an effort to avoid falling ill. Increased sales figures in these categories bear testament to increased, and unexpected expenses in households' budgets (Donthu & Gustafsson, 2020; Ho et al., 2020; Yuen et al., 2021).

Table 2.1: Scheduling classification of medicines in South Africa

Medicine Schedule	Where and How Made Available	Example	Medicine Schedule	Where and How Made Available	Example
S0	On the shelf at a general store or pharmacy	Simple analgesics like aspirin	S5	Prescription only; available at the pharmacy dispensary. Repeats stipulated	Psycho-active medicines like sedatives and anti-depressants
S1	Over the counter at a pharmacy. A sale record must be kept	Antibacterial and anti-fungal skin creams	S6	Prescription only; available at the pharmacy dispensary	Narcotic painkillers
S2	Over the counter at a pharmacy. A sale record must be kept	Cough and cold preparations	S7	Controlled substances	Drugs like cannabis and heroin
S3	Prescription only; available at the pharmacy dispensary. Can be repeated for 6 months	Medicines for hypertension and diabetes	S8	Strictly controlled substances	Amphetamine, dexamphetamine and nabilone
S4	Prescription only; available at the pharmacy dispensary. Can be repeated for 6 months	Anti-infectives such as antibiotics and antivirals			

(Source: Padayachee et al., 2020)

2.5.2 Trends in OTC medicine sales during COVID-19

The fear of dying through COVID-19 infection pushed people to focus on personal protection (Donthu & Gustafsson, 2020; Ho et al., 2020; Yuen et al., 2021). There was an increased focus on preventative healthcare measures, resulting in the OTC pharmaceutical wellness categories growing (IRI, 2021). In the USA, the VMS category grew by 19.5% in 2020, with 56% of consumers claiming to use supplements to support their immunity (IRI, 2021). Users within the VMS category were older, and higher educated, with 17% of American consumers expecting to spend even more on VMS products in 2021 (IRI, 2021). In South Africa, the total OTC category grew by 27%, with the subcategories growing as follows: multivitamins (32%), single supplements (39%), and function-specific products (23%) (IRI, 2021). The spikes in these categories were primarily linked to the waves of infection related

to the COVID-19 pandemic. In South Africa, Google search trends also showed a spike in queries concerning immunity (IRI, 2021).

2.6 Explicating consumers purchasing behaviour: mental accounting

The American Marketing Association describes consumer behaviour as the way in which consumers - whether individual or on an organizational level - satisfy their product and service needs and wants, therefore, their related choice, purchase, use, and disposal behaviour (Consumer Behaviour AMA, n.d.). A consumer's financial decisions and choices depend on numerous factors and perceptions.

Thaler (1985) characterised consumer choice in a model that he coined mental accounting, distinguishing three areas. The first depicts how consumers mentally code gains and losses, which deals with viewing value in relative terms and not absolute value (Thaler, 1985, 2008). The second refers to how consumers evaluate purchase decisions, termed transaction utility, which deals solely with consumers' perception of the value gained through the purchase or transaction. Transaction utility is the difference in price between the actual price paid and the consumer's reference price (what they expect to pay) (Thaler, 2008). The third area represents the budgeting process, acknowledging budget constraints that may influence consumers' behaviour due to the current income flow considering the present value of lifetime wealth (Thaler, 2008). Consumers engage in the budgeting process monthly, due to bills and income being set up on a month-to-month basis (Thaler, 1999, 2008).

It seems logical that, when so many households experienced salary cuts or job losses coupled with increasing medical expenses during the COVID-19 pandemic, they had to reconsider their budgets in accordance with current income and longer-term wealth. Redistribution of money had to be considered, decreasing the amount available in specific budget categories but increasing amounts in others, such as preventative OTC medication, which became a priority (IRI, 2021; TransUnion, 2021). Unexpected medical expenses may have resulted in new mental expense accounts being opened as a method to cope (Thaler, 2008).

According to Loxton et al. (2020), consumers may experience changes in their behaviour during extreme events because of survival psychology. Some of these changes include adverse appearances of the herd mentality, changes in discretionary purchasing patterns, panic buying, and changes in investment decision-making (Loxton et al., 2020). In times of economic downturn and financial uncertainty, one way in which consumers cope, is by prioritising non-discretionary spending that includes, but is not limited to living expenses such as rent, groceries, and fuel (Loxton et al., 2020). There is no data in the South African context that covers consumer behaviour changes during prolonged extreme events.

2.7 Households' budgeting behaviour

Household budgeting is a widely used method to manage a household's finances (Zhang, Sussman, Wang-Ly, & Lyu, 2020). People do this by allocating funds to different categories or mental accounts of expenses over time, then monitoring their spending within the categories (Galperti, 2019; Zhang et al., 2020). According to Zhang et al. (2020), household budgeting is prominent across the varying income categories, even among people with higher disposable incomes. Therefore, people are not only motivated to budget when under financial strain. Some studies advocate that household budgeting is a way for consumers to manage self-control (Ameriks, Caplin, & Leahy, 2003; Antonides, De Groot, & Van Raaij, 2011; Galperti, 2019). Other studies have shown that budgeting generally happens within specific budgeting categories, with allocated funds not being fungible across categories (Zhang & Sussman, 2018).

2.7.1 Budgeting categories

Ernst Engel proposed a hierarchy of different household needs (Chai & Moneta, 2013). The so-called Engel's law states that lower-income households spend a more significant portion of their earnings on food, or as he termed it, nourishment. In addition, as a household's income increases, the amount spent on food does not necessarily increase accordingly (Chai & Moneta, 2010). The classifications he arrived at, are not vastly different from those in present times (Table 2.2). Chai and

Moneta (2013) confirmed Engel's income distribution in low-income UK households over 150 years after the initial article was published.

Table 2.2: Engel's expenditure categories

Needs (*Bedürfnisse*)	Relevant Expenditures
1. Nourishment (*Nahrung*)	Daily nourishment from meals and beverages, spices, stimulants (e.g. alcohol, coffee), tobacco, occasional dining out, etc.
2. Clothing (*Kleidung*)	Clothing and shoes of all kinds; underwear, jewelry and toiletries; clothing accessories.
3. Housing (*Wohnung*)	Shelter, furniture, household appliances; beds and bedding; insurance for housing and furniture.
4. Heating and Lighting (*Heizung*)	Wood, coal and gas heating; lighting via candles, oil and gas.
5. Tools for Work (*Geräthe*)	Tools, machines, mechanical instruments; crockery and vessels etc.; all kinds of metal, earths, stones, glass, porcelain, leather, pulp, rubber etc.; wagons, boats, saddles and equipment etc.; means of communications etc.
6. Intellectual Education (*Erziehung*)	Education, tuition; church; tools for education, tuition and worship; scientific equipment, literary and artistic production; intellectual rejuvenation and educations, music, theater etc.; musical instruments .
7. Public Safety (*öffentliche Sicherheit*)	Legal protection; administration; police; state defence; care for the poor etc.
8. Health and Recreation (*Gesundheitspflege*)	Medical treatment and pharmaceutical expenses, bathing; outdoor recreation, play, recreational travel.- Life insurance.
9. Personal Service (*Dienstleistungen*)	Personal services attained from use of domestic servants of all kinds.

(Source: Engel (1857: 5-6) as cited in Chai and Moneta (2013))

Engel curves are commonly used to show how the amount spent on a particular budget category varies within the total budget, while assuming that the price remains fixed (Kamakura & Yuxing Du, 2012). During recession or reduced earnings, consumers cut budgets in non-essential categories first, then move on to essential categories with spending moving along the Engel curve (Kamakura & Yuxing Du, 2012; Morris, Devlin, & Parkin, 2007). However, Kamakura and Yuxing Du (2012) postulate that the amounts spent on non-essential categories also depend on the broader social context, and how spending would affect the household's social standing.

In the 2015/2016 South African household living conditions survey, in keeping with Engels law, it was found that low-income households spend approximately 40% of their income on food related expenses, with this percentage decreasing as

2 5

household earnings increase (Statistics South Africa, 2015). Higher earning households spend up to 8% of their income on food. Across all earning groups, the top three categories for household spending are housing with utilities, transport, and miscellaneous goods (Figure 3); however, it is important to note that medical aid and insurance fall under this category of expenses (Statistics South Africa, 2015).
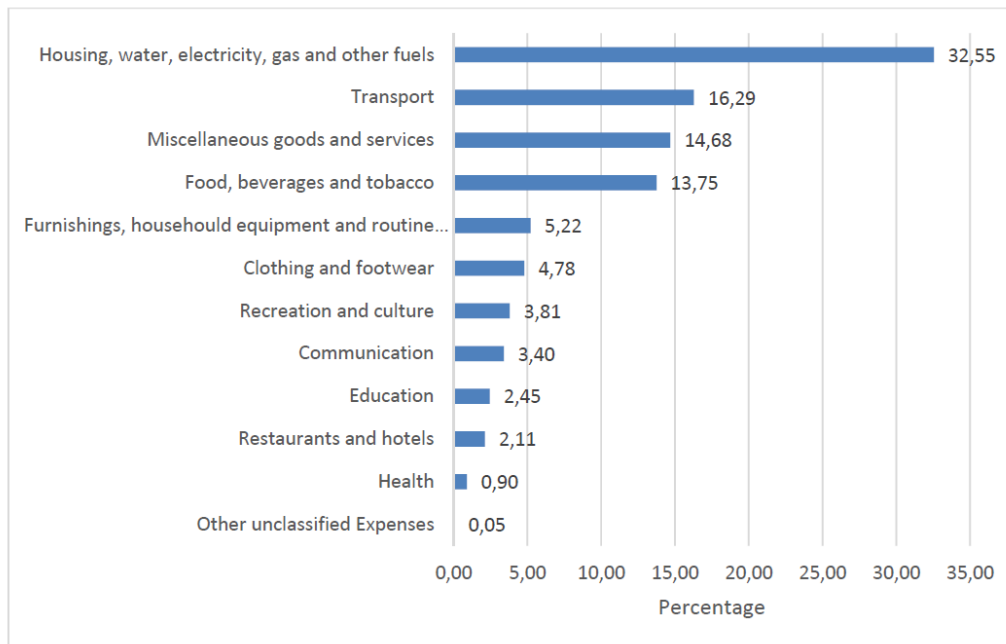
Figure 2.3: Budget breakdown of South African homes across all income groups (Source: Statistics South Africa, 2015)

2.7.2 Budgeting behaviour in times of financial constraints

There appears to be a gap in the extant literature on the way people budget in the presence of financial constraints (Zhang et al., 2020). Financial constraints limit consumers' buying power and ultimately restrict their desired consumption habits (Hamilton, Mittal, Shah, Thompson, & Griskevicius, 2019).

According to Zhang and Sussman (2018), households may adopt different strategies when constrained financially. These strategies can include (1) efficiency planning where consumers make available financial resources stretch further (an example can include buying discounted products), (2) priority planning where consumers eliminate non-essential items or goals from the budget, and (3) establishing a list of friends and family who can assist financially, before turning to the banks (Fernbach, Kan, &

Lynch Jr, 2015; Kamakura, & Yuxing Du, 2012; Zhang & Sussman, 2018). The disadvantage associated with priority planning is that consumers felt a sense of loss when they had to give up something. Fernbach et al. (2015) explain that as a financial constraint increases, consumers prioritise even more. Finally, it showed that consumers who engaged in monthly budgeting were less likely to overspend on purchases.

Building on this work, Hamilton et al. (2019) demonstrated that irrespective of consumers' tactics to overcome financial constraints, their response happens in three distinct phases. The first phase is "reacting", where the consumer launches a response to the constraint. The second "coping" phase involves the consumer learning to cope within the restriction of the constraint. The third and final stage is "adapting", in which the consumer adapts to the constraint in the long run (Hamilton et al., 2019).

2.8   Impact of COVID-19 on consumers' future perceptions

If nothing else, the COVID-19 pandemic has demonstrated the importance of future preparation for the loss of one's income (Kurowski, 2021). While there have been numerous studies on how consumer behaviour has changed during the pandemic, it remains to be seen whether these changes will be permanent and will persist post-pandemic. According to Gerlich (2021), consumers demonstrated saving behaviour during the pandemic due to financial and health uncertainty. Jin, Zhao, Song, and Zhao (2021) predict that post COVID-19, consumers will revert to their pre-COVID-19 savings practices and concluded that the current trends observed are temporary.

Limited to no information exists concerning how consumers' perceptions about the need for medical aid membership or medical insurance will change when thinking about the future. While consumers experienced increased medical bills and did not have adequate medical insurance coverage in the USA (Wapner, 2020), little is known about how South Africans coped amidst increasing medical costs.

2.9 Summary

This literature review has given an overview of extreme events and the resulting financial crises that have impacted on households' financial well-being and their budgets. It highlighted the global impact of COVID-19, also reflecting on the South African context, and how COVID-19 has altered consumers' behaviour. Considering the financial impact of the pandemic on South Africans and the growth seen in the overall OTC medication and supplements category in 2020, it is unclear how South Africans view the importance of OTC medication and supplements, particularly the need for it in household budgets. It is also unclear how households have reprioritised their already constrained budgets to accommodate OTC products and increasing medical expenses, whether having medical aid or not. The current research will shed light on this.

Chapter 3: Research questions and hypotheses

3.1 Introduction

From the literature, it is evident that consumers around the world have experienced financial difficulties as a direct result of COVID-19 restrictions. Consumers in the USA, Australia, and the UK all indicated decreases in household earnings and increases in unemployment (Borland & Charlton, 2020; Coibion et al., 2020; Kaye et al., 2020; Surico et al., 2020). Closer to home, in South Africa, household wage earnings decreased by 30% in 2020, with lower educated households' incomes decreasing by around 40% (Arndt et al., 2020), primarily caused by job losses and a reduction in working hours (TransUnion, 2021).

The financial impact and fear related to the COVID-19 pandemic has resulted in changes in consumer behaviour, including (1) hoarding and stockpiling of certain commodities such as food (water, meat, bread), toilet paper, and cleaning products; (2) embracing digital technology through e-commerce to rather shop online for groceries; and (3) shifting to digital platforms for work, education, and connecting with family (Donthu & Gustafsson, 2020; Sheth, 2020; Wang et al., 2020; Yuen et al., 2020). The trends in South Africa followed similar patterns. In addition, spikes in the sales of OTC medicines and supplements were observed as consumers focused on preventative healthcare. While we have seen general trends on how consumers have had to cut down on discretionary spending to deal with the financial impact caused by COVID-19, we have not seen how consumers have reallocated spending among different categories within their budgets and dealt with increasing medical costs.

The rapid spread of COVID-19 resulted in healthcare systems, globally, being placed under tremendous pressure (Maharaj, 2020). The South African public healthcare system remained grossly under-equipped and under-resourced to launch an adequate response to the rising COVID-19 cases after the first case in March 2020. The South African private healthcare system was a means to support the public healthcare system, that is available to those who could afford it. However, in countries such as the USA, many unemployed people lost their health insurance sponsored by their employer, thereby becoming uninsured (Blumenthal et al., 2020). It is unclear how COVID-19 has affected South African households' prioritisation of

budget items, especially towards medical expenses, OTC products and medical aid. Being in the pharmaceutical industry that has experienced a soar in sales while other industries have suffered, the researcher was keenly interested to understand consumers' attention to this product category in their household budgets.

3.2 Research questions and hypotheses

Based on uncertainties concerning the effect of COVID-19 on household budgets, several research questions were formulated to gain a better understanding of households' budgeting behaviour, while hypotheses that were derived from literature, were posed for investigation. The research questions, and where relevant, the related hypotheses are presented in Table 3.1.

Table 3.1: Research questions and hypotheses

Research question	Related hypothesis
Research question one: How has the COVID-19 pandemic disrupted household incomes across the different income groups?	**Hypothesis one**: COVID-19 has had a severe negative impact on household incomes across all income groups (Arndt et al., 2020; Borland & Charlton, 2020; Coibion et al., 2020).
Research question two: Were the level of income disruption experienced by households significantly different across different income categories?	**Hypothesis two**: COVID-19 had a significantly larger financial impact on lower income households compared to the higher income households (Arndt et al., 2020; Kansiime et al., 2021).
Research question three: How flexible were the different amounts allocated in households' budgets prior to the COVID-19 pandemic?	
Research question four: How have unexpected medical expenses and medical aid membership influenced households' budgets during the COVID-19 pandemic?	

Research question five: How does households' perception of the need for medical aid membership relate to their medical expenses and hospitalisation during the pandemic?	**Hypothesis five:** Households that have had increased medical expenses during the COVID-19 pandemic will have a significantly stronger regard for medical aid membership in the future (Wapner, 2020).
Research question six: What is the relationship between households' spending on self-medication (OTC) during the pandemic and their membership of a medical aid?	**Hypothesis six:** Membership of a medical aid has not influenced consumers' purchase of OTC medication and supplements during the COVID-19 pandemic (Padayachee et al., 2020).
Research question seven: How have salary cuts impacted the following items: - Households' termination of medical aid membership - Households' decision to budget their income more seriously in the future - Households' decision to keep track of household expenses more seriously in the future - Households' decision to maintain a savings account for unexpected expenses in the future - Households' decision to be more cautious in the future and to spend less	**Hypothesis seven:** The impact of salary cuts during COVID-19 will encourage more conservative future spending patterns, and more focused budgeting practices including medical aid membership (Gerlich, 2021; Kurowski, 2021).
Research question eight: During the COVID-19 pandemic, how have households revised budget items related to (a) loan accounts, medical aid, and insurance, (b) food and clothing, (c) leisure and personal grooming, and (d) health-related expenses such as prescribed, and OTC medication?	

A summary of the research model for this study is presented in Figure 3.1 below.
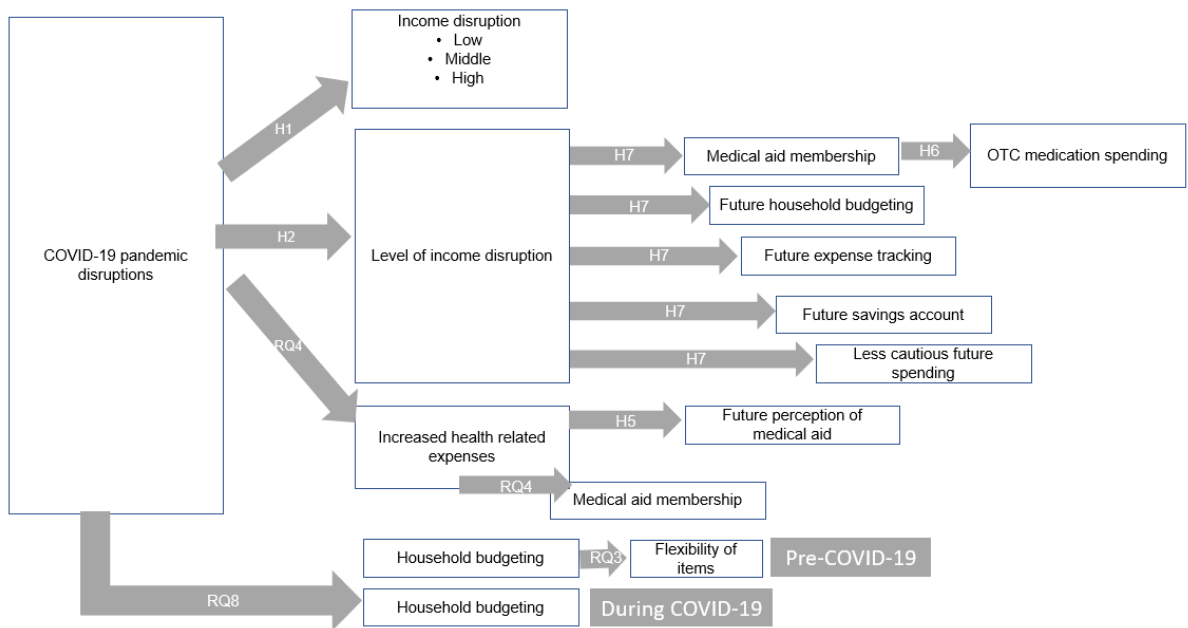
Figure 3.1: Research model demonstrating hypotheses and research questions.

Note: Research questions (instead of hypotheses) are only listed if those questions were answered descriptively. Chapter 4 presents the research design and methodology that guided the research.

Chapter 4: Research methodology

4.1 Research design

This section presents the research methodology used for this study. Relevant quantitative research literature was used to defend the methodological choices. This chapter presents the research design, research approach, the population, sample and sampling method, design of the research instrument, the procedure for data collection, data analysis, limitations encountered during the process, as well as measures to eliminate error, enhancing the validity, and reliability of the research, and the measures used to ensure ethical conduct.

4.2 Research design

The purpose of this research was to describe and explain how consumers adapted their budgets during the COVID-19 pandemic to accommodate (1) financial disruptions and (2) increased health-related expenses (with a focus on over-the-counter medication and supplements), as evidence showed that sales of over-the-counter (OTC) medication soared during this period (IRI, 2021). Particularly relevant in this study, was membership of a medical aid scheme, and its possible mediating influence on consumers' behaviour and budgeting decisions.

To achieve the anticipated outcomes for the research, a mono-method, quantitative research approach was used, implying that a single data collection method was used (Edmondson & McManus, 2007). A quantitative methodology makes use of the scientific method but has its theory rooted in sociology. A survey was conducted using a structured, online questionnaire. The survey allowed for data to be collected from a sizeable population, in a structured way, in order to perform the relevant statistical analyses (Zikmund, Babin, Carr, & Griffin, 2010). The study was cross-sectional as the research was conducted at a specific point in time over a specific, single period, due to time limitations posed for the completion of the research as an academic undertaking that had to be completed before a specific date. In addition, the nature of the research topic is such, that it should be cross sectional and not longitudinal, reflecting on households' recent experiences. These choices were therefore made based on the nature of the topic, relevance, and time constraints.

This study applied a descripto-explanatory strategy, using descriptive data to understand and explain the relationships between selected variables (Kelley et al., 2003; Saunders & Lewis, 2012). The dependent variables, in this case, were budget categories/ expenses, prioritisation of budget categories, specifically OTC products; while the independent variables, were household income post the budget cuts. This type of study aims to describe the "how" rather than the "why" of observed trends (Jahn & Hinz, 2017). The current study aims to understand "how" households reprioritised their budgets to deal with financial disruptions and increased health-related expenses caused by COVID-19. This study serves as a first step and base for subsequent studies which may further scrutinise the "why" of observed trends and relationships.

4.3 Research philosophy

A positivist approach was followed to gather quantifiable budget-related data that could be analysed statistically (Delice, 2010), using a structured methodology that produced data suitable for law-like generalisations (Delice, 2010; Saunders & Lewis, 2012). Hypotheses were developed based on the existing theory and literature (Creswell, 2012). Essentially, positivism involves the use of a pragmatic approach, similar to the sciences, to study social phenomenon (O'Reilly, 2012). The researcher maintained neutrality throughout the study, being guided by factual evidence to arrive at conclusions.

4.4 Research approach

A deductive research approach was used to test theoretical propositions and to identify the causal relationship between variables (Edmondson & McManus, 2007). In this approach, the theory was defined at the start of the study (Edmondson & McManus, 2007), specifically adopting the theoretical proposition of Thaler's mental accounting approach as a theoretical framework for consumer choice (Thaler, 1985, 2008).

4.5   Population

A population constitutes members of a group with one or more defining characteristics (Creswell, 2012). Therefore, a population is all group members from which a sample is taken (Saunders & Lewis, 2012). The population for this study comprised all South African consumers between the ages of 25 to 59 years, across all races and gender. This demographic was selected to include members of the prime working-age (Statistics South Africa, 2019) who are most likely to have experienced or witnessed some form of financial impact within their close circle of friends and family during the COVID-19 pandemic. A consumer may be defined as having the following characteristics (1) can, want, and express a product/service preference; (2) can search to fulfil the want; (3) can select and purchase; (4) can assess the products and their alternatives (Valkenburg & Cantor, 2001). It is estimated that over 26 million people fall into this category in South Africa (Statistics South Africa, 2019).

4.6   Unit of analysis

The unit of analysis refers to who or what was studied and at what level of aggregation (Glasow, 2005; Zikmund et al., 2010). The individual responses of participants as a representative of their households' or personal budgets formed the unit of analysis in the current research. Any consumer between the ages of 25 to 59 years old, across all races and gender, could potentially form part of the unit of analysis if they could gain access to the link that was distributed electronically as an invitation for participation in the study. The study was particularly interested in people who were employed (at least before the pandemic's onslaught on jobs and incomes), and therefore the age limitation was set at below 60 years of age.

4.7   Sampling method and size

Sampling is done as it is not always practical or even plausible to collect data from the entire population (Tille & Matei, 2016). A sample is a part or subset of the population (Etikan, Musa, & Alkassim, 2016). The sampling method used was non-probability sampling, where the sample members were not randomly selected

because the researcher did not have access to a complete list of the population (Kelley et al., 2003; Tille & Matei, 2016; Wegner, 2016). The sampling technique used was a two-layered non-probability technique, including self-selection and snowball sampling. In self-selection sampling, participants identify themselves and volunteer to participate after receiving an invitation (Saunders & Lewis, 2012). In snowball sampling, the members of the sample set are not easy to identify because of sensitivity or confidentiality, so when one member is found, that member then identifies the next, and so on (Saunders & Lewis, 2012). A sample size must be large enough to command statistical power and high levels of precision to infer generalisations (Glasow, 2005). Using the Qualtrics sample size calculator, the population's minimum sample size was calculated at 385 participants, at a 95% confidence level and 5% margin of error. Due to time constraints posed on the completion of this study, it was decided that the sample size of 300 respondents would be sufficient to conduct the envisaged statistical procedures.

4.8   Measurement instrument

A survey format was used to collect data, using a structured questionnaire (Edmondson & McManus, 2007) that included structured, closed-ended questions that would produce quantifiable numerical data (Johnson & Turner, 2003). Four and five-point Likert-type scales were used. According to Revilla, Saris, and Krosnik (2014), five-point Likert-type scales are best suited for easy completion of agree-disagree questions compared to seven and eleven-point scales, which generally yield lower data quality. The current scale was modelled on a mental accounting study by Anolam, Okoroafor, and Ajaero (2015). The questions used in the questionnaire were a combination of the researcher's own, when established questions could not be found, as well as adapted questions from the following studies: Xiao and O'Neill (2018), Muehlbacher and Kirchler (2019), the United States National Financial Capability Study (2015), and Wöcke and Chiba (2020).

The advantages of using this type of data collection method are that: (1) it offers the researcher some level of control, (2) it is attractive for research undertakings that need to be completed within a specified time, and (3) it is inexpensive to develop and administer (Glasow, 2005; Saunders & Lewis, 2012). However, one of the

disadvantages of this data collection method is that the data is not as detailed as data collected using other techniques that allow respondents the opportunity to provide free, uninhibited responses (Glasow, 2005). The survey was created using Survey Monkey, and the link was distributed online through WhatsApp, LinkedIn, and Email platforms.

The questionnaire consisted of five sections :

Section A: focused on establishing the financial impact which consumers experienced, utilising a five-point Likert-type scale.

Section B: focused on how consumers' medical aid membership was affected during COVID-19, utilising a four-point Likert-type scale.

Section C: focused on how consumers allocated money to different items on their budget before COVID-19, utilising a four-point Likert-type scale.

Section D: explores how consumers revised their budget allocation to different items during COVID-19, utilising a four-point increment, Likert-type scale.

Section E: explores how consumers' budgeting behaviour has been altered post COVID-19, utilising a five-point Likert-type scale.

Section F: captures demographic information, including gender, age, income level, education level, and medical aid membership.

Details are presented in Table 4.1.

Table 4.1: Summary of Research questions (RQ) with the corresponding questions in the questionnaire, which were used to test the hypotheses.

Research questions	Relevant sections in the questionnaire
Research question one: How has the COVID-19 pandemic disrupted household incomes across the different income groups?	A1 – five-point extent scale F4 – Seven income categories
Research question two: Were the level of income disruption experienced by households significantly different across different income categories?	A2 – five-point extent scale F4 – Seven income categories
Research question three: How flexible were the different amounts allocated in households' budgets prior to the COVID-19 pandemic?	C 1-7 – four-point scale C 8-16 – four-point scale
Research question four: How have unexpected medical expenses and medical aid membership influenced households' budgets during the COVID-19 pandemic?	A3 – five-point extent scale B1 – four-point scale
Research question five: How does households' perception of the need for medical aid membership relate to their medical expenses and hospitalisation during the pandemic?	E5 – five-point agreement scale D13, 15 – four-point scale
Research question six: What is the relationship between households' spending on self-medication (OTC) during the pandemic and their membership of a medical aid?	D14 – four-point scale F5 (yes/no)
Research question seven: How have salary cuts impacted the following items:	A2 – five-point extent scale B1 – four-point scale

- Households' termination of medical aid membership	E1 – five-point agreement scale
- Households' decision to budget their income more seriously in the future	E2 – five-point agreement scale
- Households' decision to keep track of household expenses more seriously in the future	E3 – five-point agreement scale
	E4 – five-point agreement scale
- Households' decision to maintain a savings account for unexpected expenses in the future	
- Households' decision to be more cautious in the future and to spend less	
Research question eight: During the COVID-19 pandemic, how have households revised budget items related to (a) loan accounts, medical aid, and insurance, (b) food and clothing, (c) leisure and personal grooming, and (d) health-related expenses such as prescribed, and OTC medication?	(a) D1-7

(b) D8, 9

(c) D11,16

(d) D13, 14, 15 |

4.9   Data gathering process

The data collection method refers to the technique used to gather data (Johnson & Turner, 2003). Before collecting any data, ethical clearance was obtained from the Gordon Institute of Business Science (GIBS) ethics committee. The approval letter is presented in Appendix A. The questionnaire was distributed electronically using the social platforms WhatsApp and LinkedIn, as well as E-mail. E-mail addresses and contacts were accessed through the researcher's own network of people and acquaintances. The cover page of the questionnaire gave a brief description of the research purpose. Before sending out the survey for data collection, a pre-test was conducted on 30 participants that met the criteria for inclusion in the sample, excluding friends and immediate family. This was done as a test and learn to understand the overall user experience. The feedback from these participants was used to improve the questionnaire and data collection process before the final distribution. However, there were no suggested changes to improve the user experience, hence no further changes were made to the survey. Respondents were

asked to indicate how long it took them to complete the survey, and to indicate any problems that they may have encountered. Apart from not always being sure about the amounts allocated to specific budget categories, and having to rethink that cautiously, no changes were recommended.

4.10 Data analysis

All responses from the survey were exported from Survey Monkey into an Excel sheet. After several discussions and alignment with the researcher, the data was then coded and shared with a qualified statistician for processing.

- **Descriptive statistics**

Collected data was statistically analysed using IBM SPSS (Statistical Package for Social Sciences). The raw data was edited, ensuring that the data set was complete and consistent. There were 348 respondents in the study; however, 48 were removed due to not qualifying or having incomplete responses. This left a total of 300 valid responses that formed a part of the dataset. Descriptive statistics were then done to understand data characteristics, such as the demographic profile of the participants, the general tendencies in the data (percentages, frequencies, mean, median, and mode), and data spread (standard deviation, standard error, and range). Data was distinguished in terms of respondents being on medical aid or not and the level of financial impact.

- **Exploratory Factor Analysis**

Exploratory factor analysis (EFA) was conducted on section D, which dealt with budget allocation during COVID-19 and section E, which focused on households' perceptions post the pandemic. The EFA was done to validate scale dimensions and reduce data into groups to understand the interrelationships between variables (Pallant, 2007). This aided the ease of reporting and contributed to the consistency and reliability of the findings.

The extraction method used for the EFA was the Principal Axis Factoring (PAF), with the rotation method being the Varimax Rotation. The PAF method was chosen as it is most suitable for use on Likert and Likert-type scale data as it does not assume a

normal distribution of data (Osborne, 2015). Kaiser's criterion was selected as the extraction technique, which only considers factors with an eigenvalue above one (Pallant, 2007). The Kaiser's criterion was selected as it is a commonly used technique (Pallant, 2007). In addition, a scree plot was also used to validate the factor groupings.

- **Reliability**

Post the EFA, the reliability of the scales was assessed. Reliability refers to the consistency within the measurement instrument. Chronbach's alpha was used as a measure of reliability. These values should be above 0.7 to be considered reliable (Pallant, 2007). However, should there be less than 10 items on the scale, the inter-item correlation may be used to measure reliability (Pallant, 2007). The scale is considered reliable should the values be above 0.2 (Pallant, 2007).

The statistical procedures that were used for each research question will now be discussed.

- **Research questions one and two**

Research question one sought to understand how the COVID-19 pandemic has disrupted household incomes across the different income groups. Research question two sought to understand whether the level of income disruption experienced by households were significantly different across different income categories. These research questions were answered using cross tabulations. Cross tabulations are used to analyse the relationship between two or more variables (Momeni, Pincus, & Libien, 2018). The cross tabulation summarises the data into a table displaying the frequencies within that category (Momeni et al., 2018). Statistical tests can then be conducted to assess the significance of the relationship. Pearson Chi-Square tests were done to assess the significance of the relationships. For the relationship to be significant, $p < 0.05$ (Pallant, 2007).

- **Research question three**

Research question three sought to understand how flexible the different amounts allocated in households' budgets were, prior to the COVID-19 pandemic. A factor analysis was not conducted on section C due to the type of scale (see questionnaire

in Appendix B). The scale items did not follow any chronological order, and it was not suitable to have mean values for grouped items, either empirically or theoretically. Therefore, this question was answered descriptively. The frequencies for each scale item for the various budget items were represented as a percentage of the total and findings were discussed accordingly.

- **Research question four**

Research question four sought to understand how unexpected medical expenses and medical aid membership have influenced households' budgets during the COVID-19 pandemic. This research question was assessed descriptively due to the nature of the scale and therefore, no hypotheses were tested. The frequencies for each scale item for medical aid membership and unexpected medical expenses were represented as percentages of the total and findings were discussed accordingly.

- **Research question five**

Research question five sought to understand how households' perception of the need for medical aid membership relate to their medical expenses and hospitalisation during the pandemic. Two sets of cross-tabulations and Pearson Chi-Square tests were conducted. The first set was between households' expenses towards prescribed medication (medical expenses) and the associated relationship to their perception of the need for medical aid membership. The second set was between households' expenses towards hospitalisation and the associated relationship to their perception of the need for medical aid membership. The Pearson Chi-Square test was used to assess the significance of the relationships. For the relationship to be significant, $p<0.05$ (Pallant, 2007).

- **Research question six**

Research question six sought to understand the relationship between households' spending on self-medication (OTC) during the pandemic and their membership of a medical aid. A cross-tabulation and a Pearson Chi-Square test were done to assess how households allocated funds towards OTC products during the pandemic.

- **Research question seven**

Research question seven sought to understand how salary cuts have impacted the following items: (a) households' termination of medical aid membership, (b) households' decision to budget their income more seriously in the future, (c) households' decision to keep track of household expenses more seriously in the future, (d) households' decision to maintain a savings account for unexpected expenses in the future, and (e) households' decision to be more cautious in the future and to spend less.

Correlation analyses were done to assess the strength and direction of relationships between the impact of salary cuts during COVID-19 and the following variables:
- Medical aid membership
- Propensity to budget in the future
- Future budget expense tracking
- Future savings behaviour
- More cautious future spending

The assumption of normality was tested and not satisfied; therefore, the non-parametric alternative (Spearman's rho) was done. The Spearman's test assumptions of ordinal data and a monotonic relationship were assessed and satisfied (Pallant, 2007). Correlations were deemed to be significant if $p<0.05$ (Pallant, 2007).

- **Research question eight**

This research question sought to understand how households have revised budget items related to (a) loan accounts, medical aid, and insurance, (b) food and clothing, (c) leisure and personal grooming, and (d) health-related expenses such as prescribed, and OTC medication, during the COVID-19 pandemic. This research question was assessed descriptively, therefore, no hypotheses were tested. The frequencies for each scale item for the different budget items were represented as percentages of the total and findings were discussed accordingly.

4.11 Quality controls

Quality control is critical in research to ensure the validity and reliability of the research, which impacts the integrity of all the research procedures, the results, and

subsequent conclusions (Saunders & Lewis, 2012). Valid research can be defended, is trustworthy, is plausible, and also refers to the research design's ability to exclude other possible and generalizable interpretations of its results (Marczyk, DeMatteo, & Festinger, 2005). The method used to test the validity of the research instrument was an exploratory factor analysis (Lo, 2020). In this study, validity was accounted for by ensuring that the questions used in the research instrument answer the study's research questions around consumers' reallocation of funds in their budgets and how different categories (including OTC medication) were reprioritised (Saunders & Lewis, 2012). The current undertaking ensured external validity by guaranteeing anonymity and ensuring a sample size of no less than 300 participants. Internal validity was accounted for by ensuring the rigorous conduct of the study, including attention to recent research on the topic in reputable journals (Connelly, 2013). High randomisation and controlled research environments contribute to high internal validity (Connelly, 2013).

For research to be classified as reliable, repeating the research with the same research instrument should yield consistent findings each time (Delice, 2010; Glasow, 2005). Reliability measures assess the degree of individual variances between answers across the different participants. The reliability of the research instrument was tested using the Cronbach's Alpha, accepting a score of at least 0.7 (Lo, 2020; Taber, 2018). Details about these calculations were presented in section 4.10.

4.12 Data storage

The data collected from the questionnaires will be stored electronically (at the academic institution upon completion of the research) without identifiers in accordance with the POPIA Act. All responses to questionnaires will be anonymous. The information gathered during this study will also be stored on a password-protected external disk and will be backed up on the researcher's personal computer, which remains confidential and stored on secure premises for the duration of this project. Only the researcher has access to the study data and information. Upon completion of the study, the data will be handed in for storage at the academic institution.

4.13 Ethical considerations

This research undertaking adhered to the strictest ethical conduct throughout the process. The following steps were taken to ensure ethical integrity:

- The methodology for data gathering was verified to ensure data integrity.
- The methodological choices were scrutinised to ensure that these were the best and most appropriate.
- All ideas, concepts, and frameworks were adequately referenced to ensure that there was no risk of plagiarism.
- Participation in the study was voluntary and informed consent was obtained from participants at the beginning of the survey (Creswell, 2012). This covered the statements that (1) participation is voluntary, (2) participants have the right to withdraw whenever they wished to do so, without penalty, (3) that participation would be anonymous, and remain confidential, (4) only aggregate data will be reported, and (5) no known risks were associated with participating (Creswell, 2012).
- This study followed the stringent ethical standards, honouring respondents' privacy and confidentiality. It is important to note that although the study focused on financial issues concerning expenditure on health-related expenses and medical aids, no medical-related information was required, and no medical tests on human subjects were performed. Neither was banking statements required. Only aggregate data was used for statistical analysis and reporting.

4.14 Limitations of the research

This research undertaking provides a preliminary understanding of the financial impact of the COVID-19 pandemic on consumers' budgets in specific categories, attending to the mediating influence of medical aid membership and subsequent prioritisation of health-related expenses during COVID-19.

- The study was centred around consumers in the South African context; therefore, it may not be relevant outside South Africa.

- This quantitative study will yield rich data about the interaction between variables; however, a qualitative study follow-up study might produce in-depth insights to explain the numerical evidence produced by this research.

- Due to the sampling method, the questionnaire may not reach participants who have valuable information to share.

- The researcher was employed by a pharmaceutical company at the time and had a vested interest in the study but made a concerted attempt not to be biased.

Chapter 5: Results

5.1 Introduction

This chapter provides the empirical results of the research that explored the impact of COVID-19 on households' review of their budgets to deal with the paradox of COVID-19 financial disruptions and increased health-related expenses. The results are presented in three parts. The first part consists of descriptive statistics to give a perspective on the characteristics of the data. The second part addresses the data validation and scale reliability, which entailed the exploratory factor analysis and Cronbach's alpha. The final part consists of each research question and hypothesis with its associated statistical analysis.

All the tables that are referred to and which are not included in this chapter, may be perused in the relevant appendices. Only a few of the tables will be included in this chapter to facilitate the discussion of the results.

5.2 Demographic profile of the sample

There were 346 responses to the survey, of which 46 were excluded due to participants not qualifying to participate and incomplete responses. The qualifying criteria were that participants had to be between the ages of 25-59 years and had to be earning a regular income before the onset of the COVID-19 pandemic. This left a total of 300 valid, completed responses, which formed part of the data set. All surveys were completed digitally, using Survey Monkey.

Of the final sample (N = 300), the gender composition of the sample was 47.3% male, 52% female, and 0.7% preferred not to disclose (Appendix C: Table 9.1). There was a good representation of both males and females within the sample. The age composition of the sample was 14.3% between the ages 25-29 years, 49% aged 30-39 years, 30.7% aged 40-49 years, and 6.0% aged 50-59 years (Appendix C: Table 9.2). Almost half of the sample respondents were between 30-39, followed by the 40-49 age group. The 25-29 and 50-59 age groups formed the tails of the age distribution.

The education level of respondents was: 1.0% had a Grade 11 or lower, 19.3% had a Grade 12 (Matriculated), 42% had a Bachelor's degree/Diploma, while 37.7% had a Post Graduate Degree/Diploma (Appendix C: Table 9.3). The sample was skewed towards participants with tertiary qualifications, forming 79.7% of the sample. The monthly income of respondents were: 0.7% less than R7500, 8.0% between R7500 and R16 667, 22.7% between R16 668 and R33 333, 26.7% between R33 334 and R58 333, 17.7% between R58 334 and R 75000, 20.3% between R75 001 and R125 000 and 4.0% earning more than R 125 000 (Appendix C: Table 9.4). Incomes were well distributed across the groups between R16 668 and R125 000. Fewer respondents fell on either side of the extremities of the income distribution.

Due to the data spread within the different income segments, income segments were collapsed to form larger and more similar group sizes for viable statistical tests. Income segments were combined as follows (Appendix C: Table 9.5):

- The first new grouping merged the first three segments up to R33 333, hence forming the lower middle-income group.
- The second new grouping combined segments four and five, with incomes up to R75 000, to represent the upper middle-income.
- The third new grouping combined segments six and seven of the questionnaire, hence up to more than R125 000, to form the upper-income group.

5.3   Factor analysis

5.3.1   Factor analysis – Section D

For ease of reference, the budget items within section D are summarised in table 5.1 below.

Table 5.1: Summary of what each item within section D represented

ITEM NUMBER	DESCRIPTION
D1	Home loan/rent
D2	Municipal account: water and taxes
D3	Car payment
D4	Home and car insurance
D5	Life insurance
D6	Retirement fund
D7	Medical aid
D8	Food
D9	Clothing
D10	Fuel, Travel costs
D11	Leisure, recreation
D12	School fees
D13	Medication, prescribed
D14	Self-medication (OTC), vitamins
D15	Hospitalisation
D16	Personal care, grooming

An exploratory factor analysis (EFA) was done to understand the interrelationships between variables (Pallant, 2007). The extraction method used for the EFA was the Principal Axis Factoring (PAF), with the rotation method being the Varimax Rotation. The PAF method was chosen as it is most suitable for use on Likert and Likert-type scale data as it does not assume a normal distribution of data (Osborne, 2015; Pallant, 2007).

Three steps are generally followed when conducting a factor analysis (Pallant, 2007). The first step is assessing the data appropriateness for factor analysis. This step is done by looking at the sample size and the strength of the relationships between items. According to Tabachnick, Fidell, and Ullman (2007), at least 300 cases or, in this case, respondents will suffice for factor analysis. This study's data set was 300 and deemed to be suitable for further analysis. The strength of the relationships between items was assessed using the correlation matrix (Appendix D: Table 9.6). Tabachnick et al. (2007) recommend having many correlations with coefficients

above 0.3. Upon looking at this study's correlation matrix, item D5 was found to have a communality exceeding one, which is referred to as an ultra-Heywood case (indicates the presence of a negative variance) and was therefore removed from the dataset. Upon further inspection of the correlation matrix, there were more than a few coefficients above 0.3 (Appendix D: Table 9.6). It was concluded that this data set satisfied the requirements of appropriate sample size and strength of the relationship.

Thereafter the factorability of the data set was assessed (Pallant, 2007). This was done using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, which yielded a value of 0.767, greater than the threshold of 0.6 and so deemed suitable (Tabachnick et al., 2007). In addition, Bartlett's Test of Sphericity should be statistically significant. In this case, Bartlett's test yielded a $p < 0.0.5$, indicating its significance (Pallant, 2007). The final measure of sampling adequacy (MSA) was assessed using the anti-image correlation. For this test, the MSA values need to be larger than 0.6 to proceed (Pallant, 2007). For this study, all values were above 0.6; therefore, no additional items needed to be removed.

The communalities were assessed next using Principal Axis Factoring. All communalities are required to be above 0.3 and below one. The values obtained for this data set ranged between 0.333 and 0.650 except for items D1 (0.273), D6 (0.269), and D12 (0.241). However, considering the values were above 0.2, and the MSA values were above 0.6, it was decided to keep the items in the analysis. At this point, the dataset met all the requirements to proceed with the factor analysis.

The second step in factor analysis is factor extraction, which entails selecting the minimum number of factors used to describe the interrelationships between variables (Pallant, 2007). This was done using the Kaiser criterion, which requires an Eigenvalue of over one (Pallant, 2007). The factor analysis yielded four factors with individual Eigenvalues: Factor 1 – 3.278, Factor 2 – 2.717, Factor 3 – 1.604, and Factor 4 – 1.091 (Appendix D: Table 9.7). The four factors collectively explained a total variance explained of 57.936% before rotation and 43.546% after the rotation. An assessment of the scree plot showed a clear break between factors four and five. Hence the first four factors were used.

The third and final step in the exploratory factor analysis is the factor rotation and the interpretation (Pallant, 2007). To better understand the factors, a Kaiser normalised rotation was used. The four factors and the subsequent loadings are presented in Table 5.2. To be considered, loadings had to exceed 0.32, as was the case in this data set, including items D1, D6, and D12 that had low communalities above. The factors were named, and their corresponding groupings are presented in Table 5.2:

Factor 1 (Non-essential spending): D9, D11, D16, D10

Factor 2 (Insurance and essential spending): D2, D4, D7, D1, D8

Factor 3 (Health-related expenses): D13, D14, D15

Factor 4 (Car and future benefit expenses): D3, D12, D6

Table 5.2: Pattern and structure of coefficients

Rotated Factor Matrix				
	Factor			
	1	2	3	4
D9	**0,77**	0,08	-0,11	0,21
D11	**0,76**	0,11	-0,07	0,05
D16	**0,58**	0,08	0,12	-0,15
D10	**0,55**	0,15	-0,06	0,06
D2	0,21	**0,60**	-0,10	-0,06
D4	0,09	**0,60**	0,04	0,49
D7	0,02	**0,57**	0,17	0,18
D1	0,15	**0,50**	-0,05	0,06
D8	0,41	**0,42**	-0,05	-0,17
D13	0,00	-0,05	**0,81**	0,22
D14	0,00	0,07	**0,63**	0,03
D15	-0,18	-0,03	**0,57**	0,38
D3	0,11	0,30	0,12	**0,51**
D12	0,05	-0,07	0,24	**0,42**
D6	-0,14	0,28	0,24	**0,34**
Extraction Method: Principal Axis Factoring.				
Rotation Method: Varimax with Kaiser Normalization.[a]				
a. Rotation converged in 6 iterations.				

(Source: SPSS output)

The reliabilities of the scales were then assessed using the Cronbach's Alpha as a measure of reliability. These values should be above 0.7 to be considered reliable.

However, should there be less than 10 items on the scale, the inter-item correlation may be used to measure reliability (Pallant, 2007). The scale is considered reliable should the values be above 0.2 (Pallant, 2007). Theoretical factor groupings were created based on the literature and are listed below:

Theoretical Factor 1 (Loan accounts, medical aid, insurance): D1 – D7, D12

Theoretical Factor 2 (Food, clothing, travel expenses): D8, D9, D10

Theoretical Factor 3 (Health-related expenses): D13, D14, D15 (same as empirical factor)

Theoretical Factor 4 (Leisure and personal grooming): D11, D16

A comparison of the empirical and theoretical reliabilities are listed in Table 5.3 below. Upon inspection of the comparisons, it was decided to proceed with the theoretical factor grouping that was marginally better on the intercorrelation mean.

Table 5.3: Summary of the reliabilities for the Empirical and Theoretical factor groupings

EMPIRICAL			THEORETICAL		
	Cronbach Alpha	Intercorrelation mean		Cronbach Alpha	Intercorrelation mean
Factor 1 (Non-essential spending)	0.76		Loan accounts, medical aid, insurance	0.74	
Factor 2 (Insurance and essential spending)	0.68	0.31	Food and clothing	0.49	0.33
Factor 3 (Health-related expenses)	0.73		Health-related expenses	0.73	
Factor 4 (Car and future benefit expenses)	0.45	0.22	Leisure and personal grooming	0.64	0.47

The mean scores for the theoretical factor groupings indicate that the highest score was achieved for the Health-related expenses grouping – 2.87 (Table 5.4). This was followed by the loan accounts, medical aid, and insurance grouping – 2.75, food and

clothing – 2.31, and finally, leisure and personal grooming 1.82. Scale item coding is represented in Appendix D: Table 9.8. For the Health-related expenses grouping and the loan accounts, medical aid, and insurance grouping, the mean values fell between two and three, albeit closer to three, which represented "amount stayed the same" on the scale. For the food and clothing grouping, the mean value also fell between two and three but closer to two, representing "amount decreased" on the scale. For the leisure and personal grooming grouping, the mean value fell between one and two but closer to two, which was "amount decreased" on the scale.

Table 5.4: Mean score per theoretical factor grouping (N = 300; Missing: N = 0)

	Mean**	Median	Std. Deviation
Loan Accounts, Medical Aid and Insurance (Section D)	2,75	2,86	0,47
Food and Clothing (Section D)	2,31	2,50	0,71
Leisure and Personal Grooming (Section D)	1,82	1,50	0,65
Health-Related Expenses such as Prescribed and OTC Medication (Section D)	2,87	3,00	0,85

** Maximum = 4; Minimum = 1 (Source: SPSS output)

5.3.2 Factor analysis – section E

For ease of reference, the items within section E are summarised in table 5.5 below.

Table 5.5: Summary of what each item within section E represents

ITEM NUMBER	DESCRIPTION
E1	I will more seriously budget my income in terms of the type of expenses
E2	I will more seriously maintain my budget to keep track of my expenses
E3	I will try to maintain a savings account for unexpected expenses
E4	Life is uncertain; I will be more cautious and spend less
E5	Medical aid is a necessity that I should try to accommodate
E6	Medical aid is a necessity that I cannot afford

E6 was omitted from the dataset as it had an MSA value of 0.42, which is less than the tolerance of 0.6 (Pallant, 2007). The strength of the relationships between items in the remaining data set was then assessed using the correlation matrix (Appendix E: Table 9.9). Upon inspection of the correlation matrix, all coefficients were above 0.3 (Appendix E: Table 9.9), and therefore, met the appropriate strength of the relationship requirement (Tabachnick et al., 2007).

The factorability of the data set was then assessed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Pallant, 2007). This yielded a value of 0.85, greater than the threshold of 0.6 and so deemed suitable. In addition, Bartlett's Test of Sphericity should be statistically significant. In this case, Bartlett's test yielded a $p < 0.0.5$, indicating its significance (Pallant, 2007). The final measure of sampling adequacy (MSA) was assessed using the anti-image correlation. For the data subset, all MSA values were above 0.6; therefore, no additional items needed to be removed.

The communalities were assessed next, with all communalities to be above 0.3. The values obtained for this data set ranged between 0.43 and 0.74.

The factor extraction was done using the Kaiser criterion (Pallant, 2007). The factor analysis yielded a single factor with an Eigenvalue over of 3.26 (Table 5.6). The factor explained a total variance explained of 65.2%. An assessment of the scree plot showed a clear break between factors one and two.

Table 5.6: Total variance explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	**3,26**	65,20	**65,20**	2,85	56,90	56,90
2	0,58	11,69	76,89			
3	0,51	10,12	87,01			
4	0,37	7,39	94,40			
5	0,28	5,60	100,00			
Extraction Method: Principal Axis Factoring.						

(Source: SPSS output)

Finally, the factor matrix was assessed using principal axis factoring. The subsequent loadings of the factor items can be found in Appendix E: Table 9.10. In

order to be considered, loadings should be above 0.32. The loadings for this data subset were all above 0.32. The factor was named "future perceptions and planning."

The reliabilities of the scales were then assessed using the Cronbach Alpha as a measure of reliability. These values should be above 0.7 to be considered reliable. The only difference between the theoretical factor groupings and the empirical grouping is the inclusion of E6 in the theoretical grouping. The Chronbach's Alphas are listed in Table 5.7, indicating a higher value for the empirical grouping, which was hence selected to proceed further.

Table 5.7: Summary of the reliabilities for the Empirical and Theoretical factor groupings

EMPIRICAL		THEORETICAL	
	Cronbach Alpha		Cronbach Alpha
Factor 1 (Future perception excluding E6)	0.864	Future perception including E6	0.731

For the empirical factor, M = 4.23 (Appendix E: Table 9.11). Scale item coding is represented in Table 9.12 (Appendix E). The mean score for budget decisions post COVID-19, was between four and five, which means that respondents agreed with practising cautious financial behaviour in the future.

5.4 Results applicable to each research question

The research questions are now dealt with, in chronological order.

5.4.1 Research question one

RQ1: How has the COVID-19 pandemic disrupted household incomes across the different income groups?

H1: COVID-19 has had a severe negative impact on household incomes across all income groups (Arndt et al., 2020; Borland & Charlton, 2020; Coibion et al., 2020).

To determine how COVID-19 disrupted incomes across different income groupings, cross-tabulations, and a Pearson Chi-Square test were done. The Chi-Square test demonstrated there was no significant difference in the income disruptions across different income brackets X^2(6, N = 300) = 4.67, p = 0.59. Almost half of all respondents across all income groups indicated that their salaries were not impacted during COVID-19, with the percentage income impact decreasing as the impact intensified (Appendix F: Table 9.13). This demonstrates that irrespective of the level of earnings, there was no significant difference in the financial impact for different income groups. Figure 5.1 presents a visual image of the outcomes.
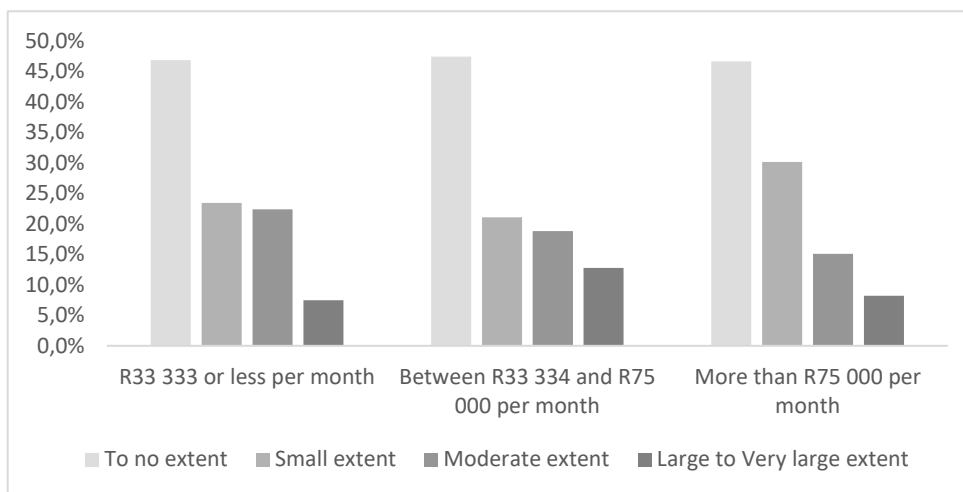
Figure 5.1: Graph illustrating the percentage of respondents that experienced financial impact across the four scale items within each income group

5.4.2 Research question two

RQ2: Were the level of income disruption experienced by households significantly different across different income categories?

H2: COVID-19 had a significantly larger financial impact on lower income households compared to the higher income households (Arndt et al., 2020; Kansiime et al., 2021).

Cross-tabulations and a Pearson Chi-Square test were done to determine whether the quantified level of income disruption was significantly different across different income groupings during COVID-19. Due to the low number of responses, three

scale items (between 41 and 60% cut, between 61 and 80% cut, more than 80% income loss) were collapsed into one (more than 40% cut) to increase the size of the group. The Chi-Square test demonstrated there was not a significant difference in the level of income disruptions across different income brackets $X^2(6, N = 300) = 1.90, p = 0.93$. Almost half of all respondents across all income groups indicated that their salaries were not impacted during COVID-19, with the percentage income impact decreasing as the impact increased. The smallest percentage of respondents within each group experienced more than a 40% salary cut (Appendix G: Table 9.14). A visual presentation of the results is presented in Figure 5.2.
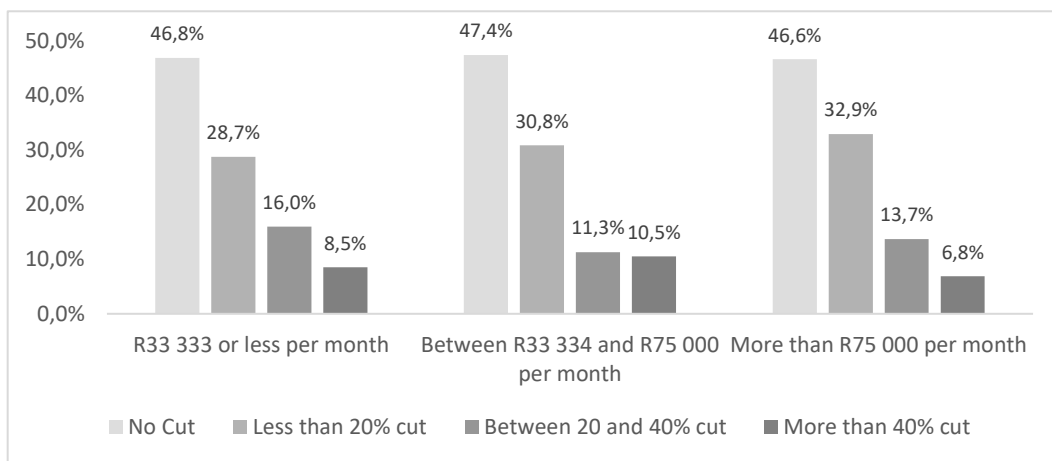
Figure 5.2: Graph illustrating the percentage of respondents that experienced financial impact (quantified) across the four scale items within each income group

Responses to research question one and two demonstrated that income disruptions due to the COVID-19 pandemic were not statistically significantly different across the different household income levels. Almost half (47%) of all respondents across all income groups indicated that their salaries were not impacted during COVID-19. Moreover, results indicated that the income disruptions due to the COVID-19 pandemic were not statistically significantly more severe among lower income households. Therefore, the related hypotheses that proposed a severe negative impact on household incomes across all income groups (H1), and a significantly larger financial impact on lower income households (H2), were not supported.

5.4.3 Research question three

RQ3: How flexible were the different amounts allocated in households' budgets prior to the COVID-19 pandemic?

A factor analysis was not conducted on section C due to the type of scale (see questionnaire in Appendix B). The scale items did not follow any chronological order, and it was not suitable to have mean values for grouped items either empirically or theoretically. Therefore, this question is answered descriptively.

Before COVID-19, it was apparent that more than 70% of respondents indicated that items C1, C3, C4, C5, C6, and C7 (Loan accounts, medical aid, insurance) were allocated a fixed amount in the budget monthly (Table 5.8). At the same time, over 50% of respondents indicated that item C2 was allocated a fixed amount in the monthly budget. The budget allocated towards food was split between the variable amounts (49.3%) and approximate (41.7%), while clothing was skewed mainly towards being variable or not included in the budget. Health-related expenses, including prescribed medication, self-medication (OTC products), and hospitalisation, were skewed towards being variable or not included in the budget.

Table 5.8: Respondents allocation of the budget before COVID-19 (N = 300)

	Not included in budget	Amount variable every month	Approximate amounts, allowing some deviation	FIXED amount every month
C1 Home loan/rent	9,3%	3,3%	8,3%	79,0%
C2 Municipal account: water and taxes	5,3%	22,0%	20,3%	52,3%
C3 Car payment	23,7%	3,0%	2,7%	70,7%
C4 Home and car insurance	11,0%	3,3%	1,7%	84,0%
C5 Life insurance	15,0%	2,7%	1,0%	81,3%
C6 Retirement fund	11,0%	3,3%	2,0%	83,7%
C7 Medical aid	7,7%	1,7%	0,3%	90,3%
C8 Food	1,3%	49,3%	41,7%	7,7%
C9 Clothing	30,7%	61,3%	5,3%	2,7%
C10 Fuel, Travel costs	5,3%	54,3%	35,0%	5,3%
C11 Leisure, recreation	23,7%	63,7%	9,3%	3,3%
C12 School fees	50,7%	3,3%	2,7%	43,3%
C13 Medication, prescribed	52,3%	21,0%	7,7%	19,0%
C14 Self-medication (OTC) vitamins, etc.	24,7%	60,3%	10,3%	4,7%
C15 Hospitalisation	90,3%	3,0%	2,0%	4,7%
C16 Personal care, grooming	13,0%	70,7%	11,7%	4,7%

All shaded figures represent approximately half of the respondents, or more.

This research question was answered descriptively. Household budgets were shown to be less flexible on essential items such as medical aid, insurance, and loan accounts compared to the non-essential items such as leisure, personal grooming, and clothing. Noteworthy, is that the figures were all together not very flexible, and the figures with the largest flexibility, were, in descending order: personal care (>70%), leisure, clothing, and OTC medication (>60%).

5.4.4 Research question four

RQ4: How have unexpected medical expenses and medical aid membership influenced households' budgets during the COVID-19 pandemic?

This research question was assessed descriptively due to the nature of the scale; therefore, no hypotheses were tested. It was found that 17.3% of households had unexpected medical expenses, that were large to very large expenses; followed by 22.3%, at a moderate extent; 32.7% at a small extent, and 27.7% of households

experiencing no unexpected medical expenses due to COVID-19. A small percentage (5.3%) of households terminated their medical aid memberships, with the bulk of households (83.3%) not amending their medical aid membership. A total of 9.4% of households changed to minimum cover or to a cheaper cover, while a small percentage (2.0%) of households changed to more expensive medical aid options. Table 9.15 in Appendix H presents the details.

> *This research question was answered descriptively. The majority (72.3%) of households had increased medical expenses, of which approximately a third (32.7%) indicated small increases, and 39.7% reported moderate to a very large increase. Notwithstanding, most households (83.3%) made no change to their medical aid, with 9.4% reverting to cheaper options, and only 5.3% completely cutting medical aid from the budget. The exception (2.0%) opted for a more expensive option.*

5.4.5 Research question five

RQ5: How does households' perception of the need for medical aid membership relate to their medical expenses and hospitalisation during the pandemic?

H5: Households that have had increased medical expenses during the COVID-19 pandemic will have a significantly stronger regard for medical aid membership in the future (Wapner, 2020).

Two sets of cross-tabulations and Pearson Chi-Square tests were conducted to assess the relationship between households' expenses towards prescribed medication (medical expenses) and hospitalisation during the pandemic and their perception of the need for medical aid membership. The cross-tabulations for prescribed medication and medical aid are represented in Table 9.16 in Appendix I, but a visual presentation of the results is presented in Figure 5.3 below. A Pearson Chi-Square test was done to determine significant differences between groupings in the cross-tabulation matrix. Six cells (37.5%) had an expected count of less than five. This was greater than the 20% tolerance; therefore, the Pearson Chi-Square was not valid for this data subset. To circumvent this issue, the following scale item groupings were combined to form a single group: strongly disagree; disagree; and neither agree

nor disagree. The Pearson Chi-Square test was re-run with three groupings with the following outcome X^2(6, N = 300) = 4.96, p = 0.55, indicating no significant difference among the groupings.

That said, upon further inspection of the cross-tabulation matrix, it is visible that almost half of all respondents (N = 143) indicated that there was no change in the amount they spent on prescribed medication during COVID-19. However, many respondents either agreed or strongly agreed that medical aid is a necessity that should be accommodated in the budget (Figure 5.3). For those who saw an increase in the amount spent on prescribed medication, 96% of respondents agreed/strongly agreed that medical aid is a necessity. For those who saw no change in the amount spent on prescribed medication, 91% of respondents agreed/strongly agreed that medical aid is a necessity. If the amount spent on prescribed medication decreased, or was cut, 88% of respondents agreed/strongly agreed that medical aid is a necessity. It is evident that irrespective of changes in the budget towards prescribed medication, respondents generally view medical aid as a necessity that should be accommodated.
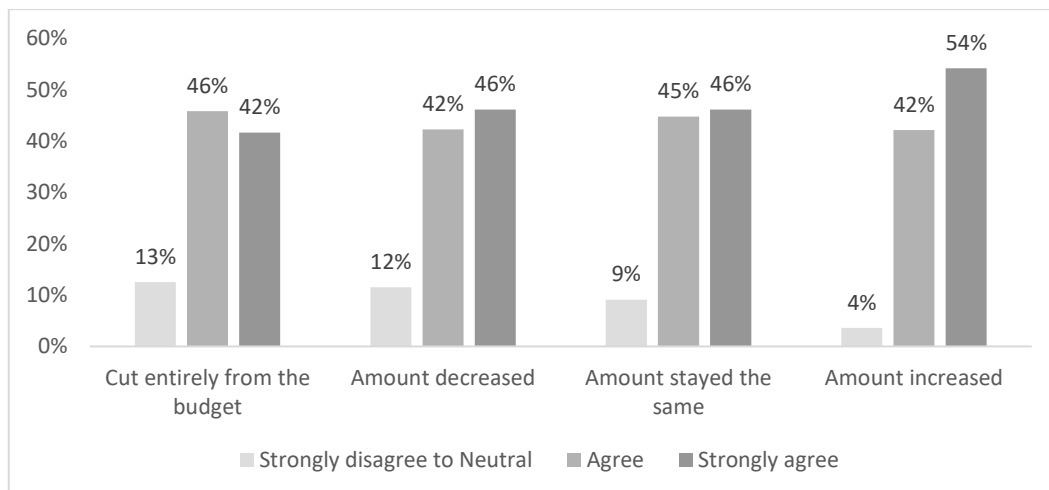
Figure 5.3: Graph illustrating the respondent's perception of the need for medical aid relating to the changes experienced in the budget allocated for prescribed medication during COVID-19

The cross-tabulations for hospitalisation and medical aid are presented in Table 9.17 (Appendix I). To determine whether there were significant differences between groupings in the cross-tabulation matrix, a Pearson Chi-Square test was done. Scale

items (for the perception of medical aid importance) were collapsed to form a single group: strongly disagree, disagree, and neither agree nor disagree. The Pearson Chi-Square test had the following outcome X^2(6, N = 300) = 9.477, p = 0.148. This means that there was no difference in the responses between the groupings.

That said, upon further inspection of the cross-tabulation matrix, it is visible that irrespective of how the budgets were adapted towards hospitalisation, more than 80% of all respondents within each group indicated that medical aid is a necessity that should be accommodated (Figure 5.4).
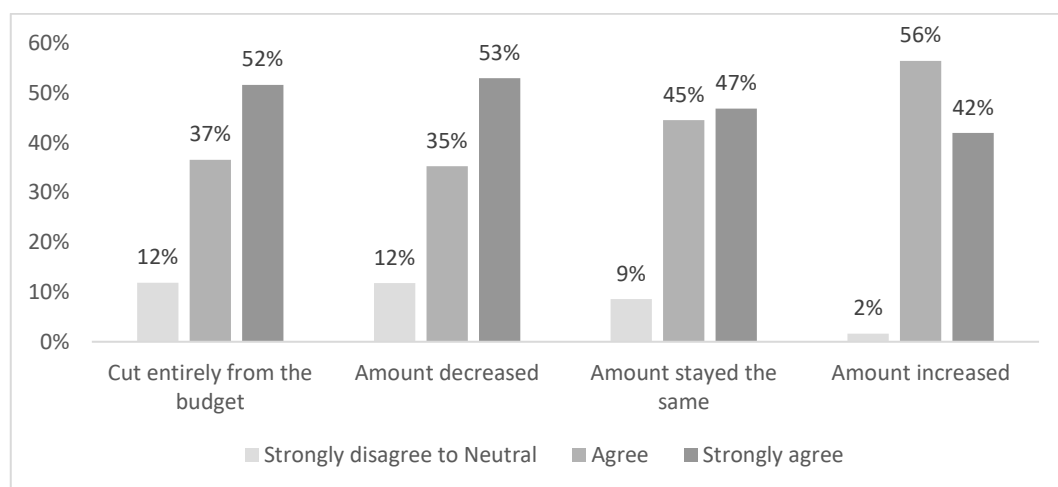
Figure 5.4: Graph illustrating the respondent's perception of the need for medical aid relating to the changes experienced in the budget allocated towards hospitalisation during COVID-19

There were no statistically significant differences between medical expenses (prescription medication, hospitalisation) and respondents' perception around the need for medical aid membership. However, upon inspection of individual budget items, it was evident that irrespective of changes in the budget towards prescribed medication and hospitalisation, respondents generally viewed medical aid as a necessity that should be accommodated. Therefore, H5: Households that have had increased medical expenses during COVID-19 pandemic will have a significantly stronger regard for medical aid membership in the future is not supported.

5.4.6 Research question six

> RQ6: What is the relationship between households' spending on self-medication (OTC) during the pandemic and their membership of a medical aid?
>
> H6: Membership of a medical aid has not influenced consumers' purchase of OTC medication and supplements during the COVID-19 pandemic (Padayachee et al., 2020).

A cross-tabulation and a Pearson Chi-Square test were done to assess how households allocated funds towards OTC products during the pandemic. The results of the cross-tabulation are presented in Table 9.18 (Appendix J). A Pearson Chi-Square test was the run with the following results X^2(3, N = 300) = 20.48, p = 0.00, indicating a significant difference in households spending on OTC products between those on a medical aid versus those not. However, the Pearson Chi-Square results could not be used because two cells (25%) had an expected count of less than five. This is greater than the 20% tolerance; therefore, the Pearson Chi-Square was not valid for this data subset. The data was then looked at descriptively.

From a total count perspective, 277 respondents were currently on medical aid while 23 respondents were not. Within the medical aid group, it was observed that over half (56.3%; N = 156) of the respondents increased the amount spent on OTC products with 23.1%, indicating the amount stayed the same (Figure 5.5). Finally, 11.2% and 9.4% indicated that the amount spent on OTC products decreased and were cut entirely from the budget, respectively. When compared to the group of respondents who indicated not being on medical aid, it was observed that 39.1% (N = 9) indicated that there was no change in the amount spent on OTC products, followed by 34.8% (N = 8) who indicated a cut in the amount spent. Only 17.4% (N = 4) of respondents indicated an increase in the amounts spent, with 8.7% indicating a decrease. Respondents on medical aid (56.3%) were more likely to increase their OTC product spending than respondents who were not on medical aid (17.4%). A larger percentage of respondents who were not on medical aid (34.8%) cut OTC products entirely from the budget compared to only 9.4% on medical aid.
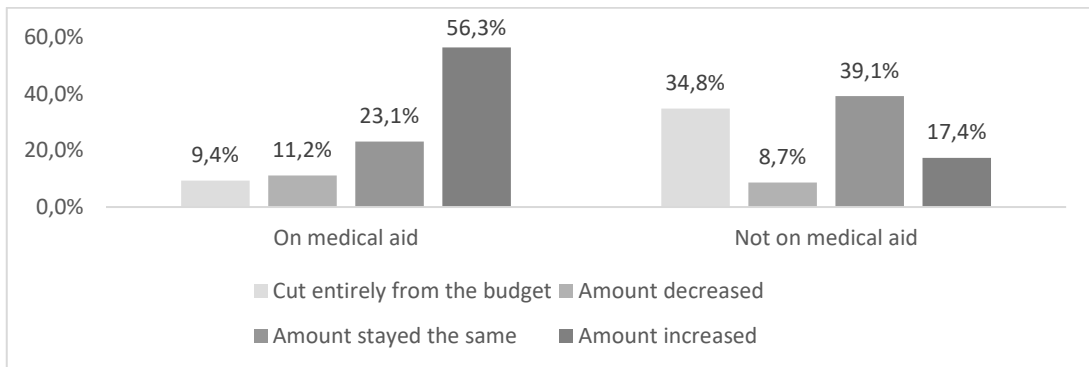
Figure 5.5: Graph illustrating the respondent's perception of the need for medical aid relating to the changes experienced in the budget allocated for OTC medication during COVID-19

While there was a statistically significant difference between the purchase of OTC medication and those with medical aid membership and those who were not covered, the Pearson Chi-Square results could not be used because two cells (25%) had an expected count of less than five, which is greater than the 20% tolerance. Further inspection of the cross-tabulation matrix showed that 56.3% of households on medical aid increased their OTC medication and product spending compared to respondents who were not on medical aid (17.4%). A larger percentage of respondents who were not on medical aid (34.8%), and who had to pay from their own pockets, cut OTC products entirely from their budgets, compared to only 9.4% on medical aid. Medical aid membership, therefore, may have made it easier to afford the OTC medication.

5.4.7 Research question seven

RQ7: How have salary cuts impacted the following items:

- Households' termination of medical aid membership

- Households' decision to budget their income more seriously in the future

- Households' decision to keep track of household expenses more seriously in the future

- Households' decision to maintain a savings account for unexpected expenses in the future

- Households' decision to be more cautious in the future and to spend less

H7: The impact of salary cuts during COVID-19 will encourage more conservative future spending patterns, and more focused budgeting practices including medical aid membership (Gerlich, 2021; Kurowski, 2021).

In order to test the strength and direction of relationships between variables, a correlation analysis was done rather than a regression analysis because the aim was to test the relationship between these variables, not to get a predictor model to make future predictions. In addition, there is a single independent variable (salary cuts), so there were no other variables to control for hence the decision to proceed with correlation analysis.

A Kolmogorov-Smirnov test was conducted on all variables to test for normality. This test for normality was selected as the sample size is bigger than 50. The *p* values were less than 0.05 across all variables indicating that the data is not normally distributed (Appendix K: Table 9.19).

Even though the data across all variables were not normally distributed and did not satisfy the assumption for a parametric test, a Pearson's correlation and its non-parametric alternative (Spearman's rho) was done as the Pearson's correlation is quite robust against deviations to normality. However, due to the data being quite skewed, final assumptions and conclusions will be based on the Spearman's rho analysis. The Pearson's correlation analysis may be found in Appendix K: Table 9.20.

Spearman's test assumes that the data is ordinal and a monotonic relationship between the variables (Pallant, 2007). Both these assumptions were satisfied. The results from the Spearman's correlation are presented in Appendix K: Table 9.21.

The analysis showed a moderately weak negative correlation between financial impact and the respondents' medical aid membership (Correlation coefficient: -0.352). This relationship was significant as $p = 0.000$. This means that as the salary impact of respondents increases, there was a decrease in medical aid memberships.

There was a weak positive correlation between salary impact and respondent's propensity to budget in the future (Correlation coefficient: 0.157) and future budget expense tracking (Correlation coefficient: 0.156). These relationships were significant as $p = 0.006$ (propensity to budget in the future) and $p = 0.007$ (future budget expense tracking). This means that as the impact on respondents' salaries increased, so too did the propensity to budget more in the future and future budget expenses tracking.

The relationship between salary impact and respondent's future savings behaviour was insignificant ($p = 0.753$). Finally, there was a weak positive correlation between salary impact and respondents being more cautious with future spending behaviour (Correlation coefficient: 0.165). This relationship was significant as $p = 0.004$. This means that as the impact on respondents' salaries increased, the propensity to be more cautious with future spending increased.

There were significant correlations between the impact of salary cuts and medical aid membership (weak negative correlation), respondent's propensity to budget their income in the future (weak positive correlation), the tracking of budget expenses in the future (weak positive correlation), and being more cautious with future spending (weak positive correlation). The relationship between the impact of salary cuts and the propensity to save in the future was statistically insignificant.

5.4.8 Research question eight

RQ8: During the COVID-19 pandemic, how have households revised budget items related to (a) loan accounts, medical aid, and insurance, (b) food and clothing, (c) leisure and personal grooming, and (d) health-related expenses such as prescribed, and OTC medication?

This research question was answered descriptively and attempted to understand how households adapted their budgets during COVID-19. It was observed that the budget allocated towards non-discretionary items such as home loans, car payments, insurance, retirement fund, medical aid, and school fees did not change for more than 60% of households. Discretionary items such as leisure and personal grooming decreased or were cut entirely from the budget for over 70% of households. Medical expenses such as prescribed medication and OTC medication leaned towards the budget staying the same or increasing. Interestingly the budget item which showed the highest number of households increasing their budget allocation was OTC medication at 53.3%. Results are summarised in Table 5.9 below.

Table 5.9: Changes in budget allocation during the COVID-19 pandemic

	Cut entirely from the budget	Amount decreased	Amount stayed the same	Amount increased
D1 Home loan/rent	4,7%	28,0%	60,7%	6,7%
D2 Municipal account: water and taxes	4,3%	23,3%	52,3%	20,0%
D3 Car payment	17,7%	15,0%	64,7%	2,7%
D4 Home and car insurance	17,7%	14,7%	61,0%	6,7%
D5 Life insurance	12,0%	3,3%	76,3%	8,3%
D6 Retirement fund	7,7%	4,7%	80,0%	7,7%
D7 Medical aid	8,3%	6,0%	76,3%	9,3%
D8 Food	1,0%	38,3%	24,0%	36,7%
D9 Clothing	58,0%	22,3%	16,7%	3,0%
D10 Fuel, Travel costs	15,7%	65,0%	14,0%	5,3%
D11 Leisure, recreation	58,7%	28,3%	11,7%	1,3%
D12 School fees	27,3%	6,0%	62,3%	4,3%
D13 Medication, prescribed	16,0%	8,7%	47,7%	27,7%
D14 Self-medication (OTC) vitamins, etc.	11,3%	11,0%	24,3%	53,3%

D15 Hospitalisation	31,0%	5,7%	42,7%	20,7%
D16 Personal care, grooming	21,7%	53,0%	21,0%	4,3%

The items were grouped according to categories. Results indicate that:

- *Near 60% cut clothing and leisure items (thus non-essential) from the budget entirely;*
- *The largest decreases (more than 50%) were for fuel/transport, personal care, and leisure;*
- *For the majority, loans, insurance and school fees remained the same;*
- *Allocation towards OTC medication increased for the majority, while prescribed medicine and food also increased for near one in three households.*

5.5 Summary

Through the relevant statistical procedures, all the research questions were aptly addressed, and the outcomes are discussed in relation to existing literature in the following chapter.

Chapter 6: Discussion

6.1 Introduction

This chapter discusses the findings of the research by addressing each research question and its accompanying hypothesis. It will combine the results, concepts, and theories from the literature to explain the observed trends. An updated research model is presented in Figure 6.1 below demonstrating supported hypotheses (green) and unsupported hypotheses (red).
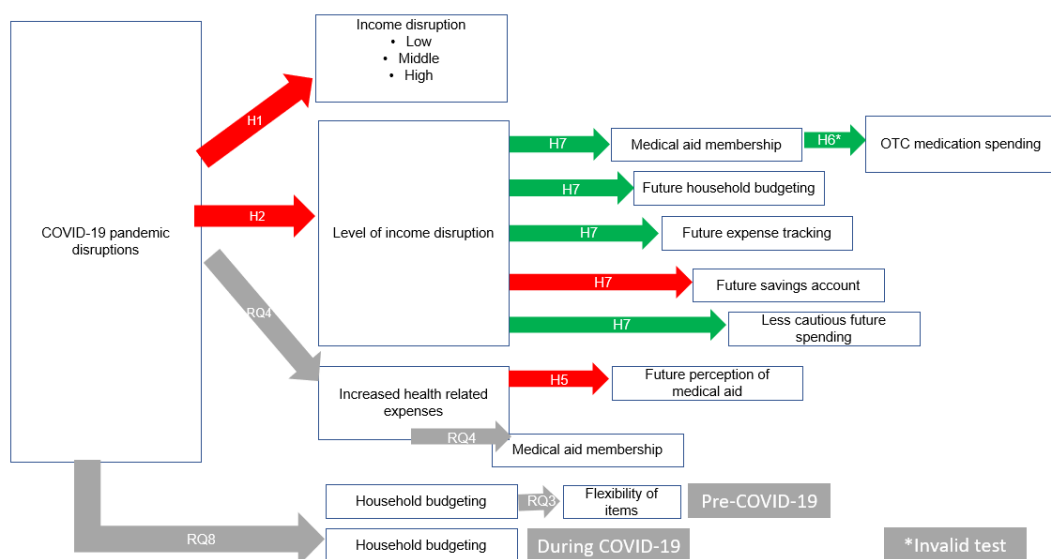
Figure 6.1: Updated research model demonstrating supported hypotheses (green) and unsupported hypotheses (red)

6.2 Research questions one and two

Research question one sought to understand how the COVID-19 pandemic has disrupted household incomes across different income groups. At the same time, research question two sought to understand if households' level of income disruption was significantly different across different income categories. Based on the literature, it was hypothesized that lower-earning households experienced a more significant impact than their higher-earning counterparts due to reduced working hours and inability to work from home (Arndt et al., 2020; Borland & Charlton, 2020).

> *Responses to research question one and two demonstrated that income disruptions due to the COVID-19 pandemic were not statistically significantly different across the different household income levels. Almost half (47%) of all respondents across all income groups indicated that their salaries were not impacted during COVID-19. Moreover, results indicated that the income disruptions due to the COVID-19 pandemic were not statistically significantly more severe among lower income households. Therefore, the related hypotheses that proposed a severe negative impact on household incomes across all income groups (H1), and a significantly larger financial impact on lower income households (H2), were not supported.*

This study assessed three income groups: R33 333 or less per month, between R33 334 and R75 000 per month, and more than R75 000 per month. The findings are surprising as lower-income households were expected to have experienced a more significant impact than the higher income bracket. These findings speak to the fact that the financial impact of COVID-19 is far-reaching and non-discriminatory based on wealth or income. Plausible explanations could be that many companies retrenched workers or cut salaries across all levels to ensure business survival.

Previous studies demonstrated that South African household wage earnings decreased by 30% in 2020, with lower educated households decreasing by approximately 40% (Arndt et al., 2020). Similar trends were observed among Australian consumers (Borland & Charlton, 2020). The reasons for this were that the lower educated households were not considered so-called knowledge workers and were, therefore, less resilient in terms of working from home and maintaining continuity in earnings.

Further supporting the proposed hypothesis, Whitehead et al. (2021) noted that COVID-19 had had a greater impact on lower-income households worldwide. These people have experienced higher rates of infection due to their face-to-face jobs, in addition to densely populated living arrangements. The higher infection rates have led to higher levels of income loss linked to job loss and work disruption (Whitehead et al., 2021).

In contrast to what was expected, Arndt et al. (2020) went on to show that lower-income, not necessarily lower-educated households experienced less of an impact on their salaries. However, one would assume that lower-educated households are lower-income (Figure 6.1) (Arndt et al., 2020). The disparity was because the impact on the education levels was calculated through the number of hours worked, and the income levels are based on monetary values. In addition, the lower-income households generally receive regular exogenous transfers from the Government, which may have cushioned the impact on their earnings (Arndt et al., 2020).
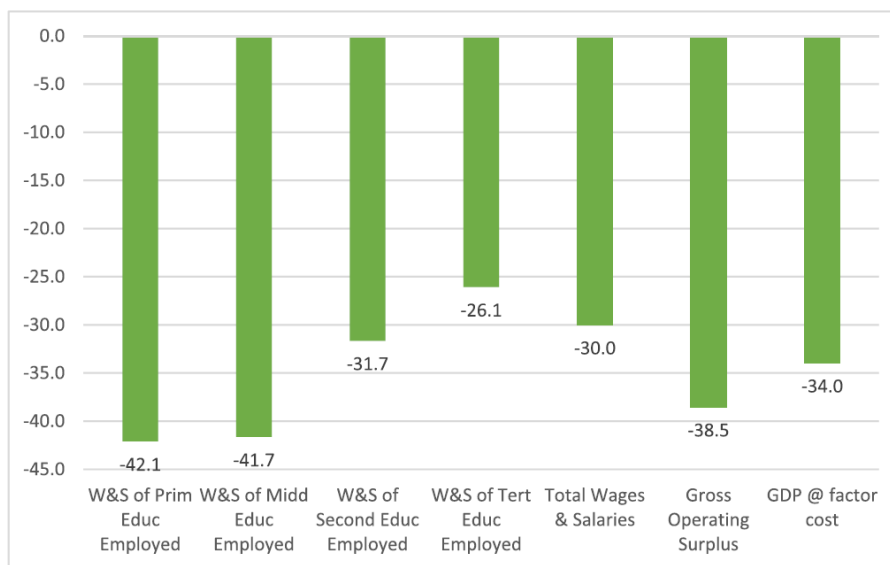
Figure 6.2: Salary impact across different levels of education groups and income GDP components in South Africa represented as a percentage standard deviation from pre-COVID-19 (Source: Arndt et al., 2020)

In conclusion, this study found that there were no significant differences in the income disruption (and its associated intensity) of households across different income levels.

6.3 Research question three

Research question three sought to understand how flexible household budget items were before the COVID-19 pandemic. It was expected that essential budget items such as loan accounts, medical aid, insurance are less flexible than non-essential budget items such as leisure, personal grooming, and clothing (Kamakura & Yuxing Du, 2012; Loxton et al., 2020; Zhang et al., 2020).

This research question was answered descriptively. Household budgets were shown to be less flexible on essential items such as medical aid, insurance, and loan accounts compared to the non-essential items such as leisure, personal grooming, and clothing. Noteworthy, is that the figures were all together not very flexible, and the figures with the largest flexibility, were, in descending order: personal care (>70%), leisure, clothing, and OTC medication (>60%).

These findings are understandable in that consumers are generally more flexible on discretionary, non-essential budget items, because households can readily go without these items (Figure 6.2). The findings align with the mental accounting theory, more specifically, the allocation of expenditures into categories of expenses (Thaler, 1999). Households allocate expenditures into specific categories or mental accounts and constrain their spending through implicit or explicit budgets (Thaler, 1999). These allocations enable consumers to track their spending and ensure that they are not over-spending (Thaler, 1999). It is unknown how often the household budgets were checked to assess spending (Thaler, 1999). The essential budget items can be classified as non-discretionary spending (Loxton et al., 2020). In times of economic downturn and financial uncertainty, one way for consumers to cope, is by prioritising non-discretionary spending.

Household budgeting has been shown to occur across different income categories, even among households with high disposable income, which talks to the motivation behind budgeting not being part of a financial pressure scenario (Zhang et al., 2020). Some studies advocate that household budgeting is a way for consumers to manage self-control (Ameriks et al., 2003; Antonides et al., 2011; Galperti, 2019), while, other studies have shown that budgeting generally happens within specific budgeting categories, with allocated funds not being fungible across categories (Zhang & Sussman, 2018).

Carvalho et al. (2020) made a comparison between pre- and during COVID-19 household spending. Higher-income households spent more on dining outside of the home, travel, well-being, health, and time-efficient transportation pre-COVID-19 (Carvalho et al., 2020). In contrast, the lower-income households allocated more

funds towards making food at home, household maintenance, and tobacco products (Carvalho et al., 2020).
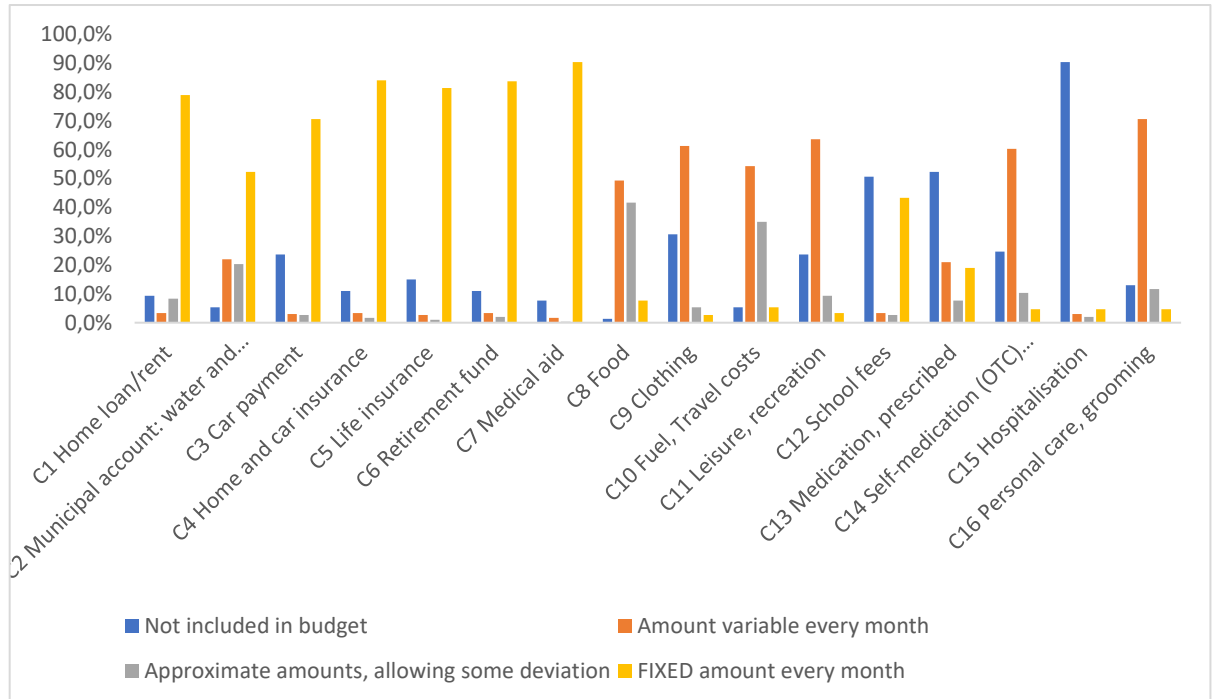
Figure 6.3: Allocation of funds to various budget items before COVID-19
(Source: Constructed by researcher)

To conclude on how flexible household budget items were before the financial impact of the COVID-19 pandemic, results indicate that households are more flexible on discretionary items and less so on non-discretionary items.

6.4 Research question four

Research question four sought to understand whether households had unexpected medical expenses due to COVID-19 and how medical aid membership was affected during this period. It was expected that many households had some form or the other of increased medical expenditure and had to change the level of medical aid cover to deal with their financial situation (Bartsch et al., 2020).

This research question was answered descriptively. The majority (72.3%) of households had increased medical expenses, of which approximately a third (32.7%) indicated small increases, and 39.7% reported moderate to a very large increase. Notwithstanding, most households (83.3%) made no change to their medical aid, with 9.4% reverting to cheaper options, and only 5.3% completely cutting medical aid from the budget. The exception (2.0%) opted for a more expensive option.

The findings show that over 70% of households experienced an increase in medical expenses. This is not surprising as people could have had COVID-19 or taken preventative measures by purchasing OTC medication and products. Despite 53% of households experiencing salary cuts, only 5.3% of households cut medical aid from their monthly budgets indicating that households prioritised medical aid over many other items in their budgets. This shows that most South African households viewed medical aid as an essential expense item in their budget.

According to Wapner (2020), the increased medical bills strain households' budgets, may use up savings, and causes debt. From a mental accounting perspective, increases in medical expenses can be associated with the opening of new expense mental accounts within the households' budget and its accompanying burden. In a study conducted before COVID-19, Leive and Xu (2008) described the effect unexpected medical expenses had on households in 15 African countries. To deal with unexpected medical expenses, households were found to use savings, sell assets, borrow from their circle of family and friends or incur debt through loans or credit using assets as collateral (Leive & Xu, 2008).

Unexpected increases in medical expenses alters the household budget in such a way that a greater portion of funds are allocated towards these expenses (Damme et al., 2004). As highlighted above, this can lead to increased levels of debt, and within the South African landscape, this risk of debt increases without medical aid membership. Given, that in South Africa, one can access almost free healthcare through the public sector, if given the choice, many South Africans would opt for private healthcare considering the dismal state of the public sector (Wadvalla, 2020).

According to Bartsch et al. (2020), medical expenses associated with COVID-19 are four times higher than other infectious diseases such as influenza. The disparity is

associated with COVID-19 having higher probabilities of hospitalisation and mortality than influenza (Bartsch et al., 2020). Also driving costs up, are the treatment of complications which are sometimes associated with COVID-19. These are sepsis and acute respiratory distress syndrome (ARD's), which require follow-up medical care (Bartsch et al., 2020). Americans noted increases through co-payments, taxes, monthly coverage fees, and deductibles (Wapner, 2020).

To conclude, it was found that most households experienced increased medical expenses due to COVID-19. However, the majority of households made no changes to their medical aid membership, which shows that medical aid was prioritised in the household budget.

6.5   Research question five

Research question five sought to understand whether households' perception of the need for medical aid membership is related to their medical expenses and hospitalisation budget during the pandemic. It was hypothesized that the more significant respondents' expenses on prescribed medication and hospitalisation, the stronger their perceived need for medical aid membership (Wapner, 2020).

There were no statistically significant differences between medical expenses (prescription medication, hospitalisation) and respondents' perception around the need for medical aid membership. However, upon inspection of individual budget items, it was evident that irrespective of changes in the budget towards prescribed medication and hospitalisation, respondents generally viewed medical aid as a necessity that should be accommodated. Therefore, H5: Households that have had increased medical expenses during COVID-19 pandemic will have a significantly stronger regard for medical aid membership in the future is not supported.

The results do not support the hypotheses. It was expected that respondents would have been more likely to perceive medical aid as a necessity if the costs towards medical expenses and hospitalisation increased. This finding probably indicates a universal view of the importance of medical aid among South Africans. However, the

result is not surprising as 92.3% of respondents were members of a medical aid while only 7.7% were not. At present, there are approximately 8.95 million South Africans who are active members of medical aid schemes (Council for Medical Schemes, 2019). People generally invest in some form of medical aid, firstly, to ensure that they are financially covered should they require medical services and, secondly, when they are not confident that they will receive the right level of care through the public healthcare system.

Considering the massive difference in quality between private and public health services in South Africa, it is not surprising that South Africans who can afford private healthcare, are using medical aids to access the services they want. The public healthcare system users have cited issues such as unhygienic conditions, rude staff, lack of medication availability, and long waiting times (Hasumi & Jacobsen, 2014). Different cost structures and regulations drive the gap in the quality between public and private healthcare in the country. The private sector competes for paying clients, and therefore ensures high quality standards to win business (Hasumi & Jacobsen, 2014).

Health insurance is critical in other countries like the USA as well, to ensure good healthcare without facing exorbitant expenses and risk financial ruin (Leightner, 2021). Despite this, studies in the USA have shown that even people who can afford health insurance choose to forgo it (Mittal & Griskevicius, 2016). In comparison, people under financial threat have shown a higher propensity to pursue medical insurance (Mittal & Griskevicius, 2016). These findings talk to health insurance or even medical aid membership being a personal choice and subject to the households' discretion.

In concluding how households perceived the need for medical aid membership considering their medical expenses and hospitalisation during the pandemic, there was no significant difference in respondents' perception of the need for medical aid, whether respondents had experienced increased medical expenses, or not.

6.6   Research question six

Research question six sought to understand the relationship between households' self-medication (OTC) spending and medical aid membership during the pandemic.

It was hypothesized that medical aid members spent more on OTC products than those not on medical aid (Padayachee et al., 2020).

> *While there was a statistically significant difference between the purchase of OTC medication and those with medical aid membership and those who were not covered, the Pearson Chi-Square results could not be used because two cells (25%) had an expected count of less than five, which is greater than the 20% tolerance. Further inspection of the cross-tabulation matrix showed that 56.3% of households on medical aid increased their OTC medication and product spending compared to respondents who were not on medical aid (17.4%). A larger percentage of respondents who were not on medical aid (34.8%), and who had to pay from their own pockets, cut OTC products entirely from their budgets, compared to only 9.4% on medical aid. Medical aid membership, therefore, may have made it easier to afford the OTC medication.*

The total South African OTC category grew by 27%, with the subcategories growing as follows: multivitamins (32%), single supplements (39%), and function-specific products (23%) (IRI, 2021). The spikes in these categories were linked mainly to consumers' increased focus on preventative healthcare measures (Donthu & Gustafsson, 2020; IRI, 2021). South African consumers pay for OTC products out of pocket or through the out-of-hospital benefit, if they are members of a medical aid scheme (Padayachee et al., 2020).

With the out-of-hospital benefit, the patient is awarded a fixed amount of money at the start of the year that can be used to fund out-of-hospital expenses such as the purchase of OTC medicines (Padayachee et al., 2020). The medical aid members are then subjected to payment limits and co-payments on certain OTC medicines. These methods and set limits for OTC medicine purchases aim to ensure that patients do not abuse the benefit (Padayachee et al., 2020).

This study showed that individuals on medical aid were more likely to increase their purchase of OTC medicines and products. This finding makes sense as individuals on medical aid would not have to cover OTC medication costs over and above their monthly medical aid contribution, unless, co-payments were involved. Those individuals who were not medical aid members would have had to cover 100% of the

costs and accept full financial responsibility for these costs. While there are no studies supporting the OTC trend seen here, Wapner (2020) showed that people who are not members of a medical aid or some form of health insurance, were more reluctant to engage in medical treatment. These treatments include COVID-19 testing or seeking emergency room treatment for fear of the monetary costs and future debt associated with such treatment. According to Leightner (2021), Americans with health insurance made 70% and 45% more inpatient and outpatient visits, respectively, compared to their uninsured counterparts.

In addition, there exists the possibility that individuals who were not on medical aid accessed OTC medication through the public hospital system and hence did not report increased spending. The public hospital system procures OTC medication across different categories for dispensing to patients as and when required.

In concluding whether there was a relationship between households' spending on self-medication (OTC) during the pandemic and their membership of medical aid; it was found that 56.3% of households on medical aid increased spending on OTC medication and health products compared to 17.4% of respondents who were not on medical aid. This indicates that households who are members of a medical aid are more likely to purchase OTC medicines and products.

6.7 Research question seven

Research question seven sought to understand the impact of salary cuts during COVID-19 on medical aid membership, future budgeting behaviour, future budget tracking, future saving behaviour, and future spending behaviour. It was hypothesized that the impact of salary cuts during COVID-19 will encourage more conservative future spending patterns, and more focused budgeting practices including medical aid membership (Gerlich, 2021; Kurowski, 2021).

There were significant correlations between the impact of salary cuts and medical aid membership (weak negative correlation), respondent's propensity to budget their income in the future (weak positive correlation), the tracking of budget expenses in the future (weak positive correlation), and being more cautious with future spending (weak positive correlation). The relationship between the impact of salary cuts and the propensity to save in the future was statistically insignificant.

Regarding the relationship between salary cuts and medical aid, medical aid costs in South Africa are reserved for privileged South Africans who can afford it (Matsebula & Willie, 2007). The financial responsibility for the payment of these medical aid memberships may be the sole responsibility of the incumbent or may be subsidised in part or total by the incumbent's employer (Nevondwe & Odeku, 2014). Therefore, it may have been impossible for those that faced extreme financial difficulty to sustain medical aid memberships. While many may perceive medical aid as an essential expense, individuals can still access healthcare through the public sector at no cost or highly subsidised rates depending on the individual's profile.

Therefore, the finding of this study that consumers cut medical aid membership due to financial impact aligns with the theoretical framework of Engel's law of Expenditure. The law postulates that as a family's income increases, the budget allocation towards food as a percentage of total income decreases, but other items such as education and healthcare increase (Chai & Moneta, 2010). Healthcare can be classified as a normal good, where, as household income increases, demand for the good increases. From the Engel curve in Figure 6.3 below, normal goods are plotted on the x-axis while inferior goods are on the y-axis. As income decreases or shifts to the left, there is a decrease in the normal good and an increase in the inferior good (Morris et al., 2007).
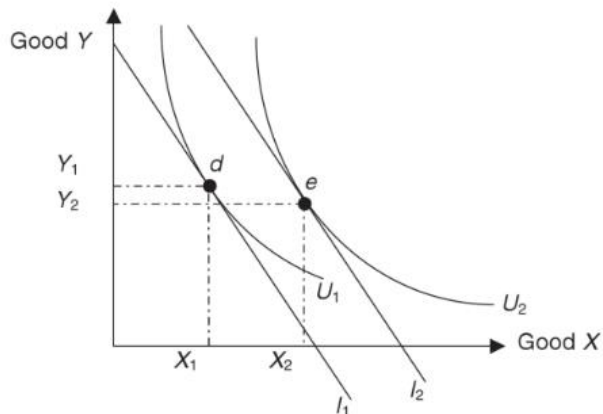
Figure 6.4: Engel's curve showing changes in demand for inferior and normal goods and different incomes (Source: Morris et al., 2007)

Regarding observed trends on future budgeting behaviour, future budget tracking, and future spending behaviour, the trend observed was that the higher the financial impact, the more likely consumers would be to practice more conservative financial behaviour in the future. The hypothesis was supported. Kurowski (2021) noted that, if nothing else, the COVID-19 pandemic has demonstrated the importance of future preparation for the loss of one's income, with the pandemic demonstrating the importance of effective management of the household budget. Many households incurred over-indebtedness during COVID-19 to deal with the paradox of decreasing incomes and increasing expenses (Kurowski, 2021). This indebtedness resulted from households being unprepared to deal with unexpected financial requirements and difficult times (Kurowski, 2021). The study went on to show that households were able to better manage their finances with greater financial literacy (Kurowski, 2021).

To the contrary, Gerlich (2021) noted that post-COVID-19, consumers could revert to their pre-COVID-19 savings practices and concluded that the current trends observed are temporary. This view lends itself to the view that risk perception is seen as a situational psychological variable and as the situation changes, so does the perception of said risk (Gerlich, 2021).

The results in this study indicate no significant relationship between the impact on a respondent's salary and their future saving behaviour, probably due to a lack of surplus funds. Consumers may want to save; however, they may not have enough disposable income to save. According to Mongale et al. (2013), South Africa has one

of the lowest household savings rates of 15%, compared to other developing countries at 34%. This can be due to low levels of disposable income and South African households' high debt levels, which negatively affect savings (Mongale et al., 2013).

In contrast to the findings of this study, Jin et al. (2021) showed that half of the Chinese households increased their savings during COVID-19 compared to the same period in the previous year. The increased savings were attributed to consumers' risk perception, which highly likely increased due to the pandemic. Consumers tried to mitigate the risk by strengthening their financial reserves (Jin et al., 2021). A similar trend was observed among Americans, who also showed increased levels of savings (Bureau of Economic Analysis, 2020).

In conclusion, there were significant correlations between the level of salary cuts and medical aid membership (weak negative correlation), respondent's propensity to budget their income more cautiously in the future (weak positive correlation), the tracking of budget expenses in the future (weak positive correlation), and being more cautious with future spending (weak positive correlation). The relationship between the impact of salary cuts and the propensity to save in the future was statistically insignificant.

6.8 Research question eight

Research question eight sought to understand how budgets were revised on specific budget items during the COVID-19 pandemic. It was expected that households would prioritise non-discretionary items such as loan accounts, medical aid, and insurance. In addition, it was expected that households' would have an increased willingness to allocate funds towards medical expenses such as OTC medication, while decreasing spending on discretionary budget items such as clothing, leisure and personal care (IRI, 2021; Laato et al., 2020; Loxton et al., 2020).

The items were grouped according to categories. Results indicate that:

- *Near 60% cut clothing and leisure items (thus non-essential) from the budget entirely;*
- *The largest decreases (more than 50%) were for fuel/transport, personal care, and leisure;*
- *For the majority, loans, insurance and school fees remained the same;*
- *Allocation towards OTC medication increased for the majority, while prescribed medicine and food also increased for near one in three households.*

The budget item which had the highest number of households increasing the monthly amount spent, was OTC medicines and products (Figure 6.4). This was in line with what was anticipated as households focused on preventative healthcare using products such as immune boosters (Donthu & Gustafsson, 2020; IRI, 2021). Furthermore, consumers and households may have experienced these changes in their behaviour during COVID-19 because of survival psychology (Loxton et al., 2020). From the data, it is also evident that households prioritised other medical expenses such as prescribed medication, which were probably for chronic conditions. Where the amounts for prescribed medication decreased, it was assumed that those were not for chronic conditions but rather temporary treatments.
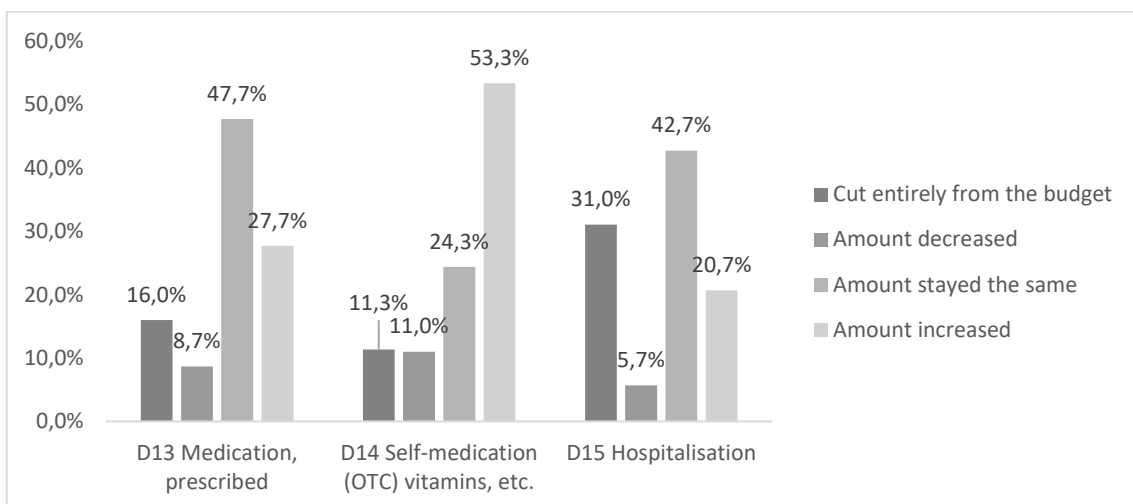
Figure 6.5: Changes in the allocation of funds towards medical expenses
(Source: Constructed by researcher)

The trends observed on the non-discretionary spending items (loan accounts, medical aid, and insurance) (Figure 6.5) and the discretionary items (leisure and personal grooming) were anticipated. According to Loxton et al. (2020), other behavioural changes during extreme events such as COVID-19 include adverse appearances of the herd mentality, changes in discretionary purchasing patterns, panic buying, and changes in investment decision-making. In times of economic downturn and financial uncertainty, one way consumers cope is by prioritising non-discretionary spending. Non-discretionary spending includes, but is not limited to, living expenses such as rent, groceries, and fuel (Loxton et al., 2020). There is no data in the South African context that covers consumer behaviour changes during prolonged extreme events.

According to Whitehead et al. (2021), households with children experienced increased costs during COVID-19, driven by children being home from school, leading to increased spending on food and activities to occupy them. In addition, Borland and Charlton (2020) noted that lower-income households cut back on discretionary spending to a lesser extent than their higher-income counterparts because they had lower discretionary spending levels even before the COVID-19 pandemic. This contrasts with findings on UK consumers, where it was found that lower-earning households showed more significant declines in spending patterns which contributed to an increase in the inequality gap (Surico et al., 2020). In addition, home loan providers in the UK reported a 20% decrease in monthly repayments from the account holders (Surico et al., 2020).

Not surprisingly, during COVID-19, households across all income groups continued to spend on food; however, categories such as clothing, entertainment, and leisure collapsed (Carvalho et al., 2020). In the current study, there was no general trend observed with changes in allocation towards food. Some households increased the amount allocated towards food (36.7%), with others decreasing (38.3%) and 24% maintaining the same pre-COVID-19 allocation. In addition, the study showed that the consumption patterns of the rich and poor mimicked each other more closely during COVID-19 compared to post COVID-19.

There have been efforts by Governments worldwide to try and assist households through the pandemic. The South African Government's response to assist the

vulnerable members of society saw the allocation of a special social relief of distress grant of R350. The grant was for South Africans not currently receiving any other forms of Government aid (de Villiers et al., 2020). Over and above this, South Africans who were already receiving social grants saw this being increased. A breakdown of these increases can be found in Appendix L. In Australia, the Government supported regular benefit receivers by providing a stimulus payment of two $750 (Australian) lump-sum payments and a COVID-19 benefit payment of $550 (Australian) every fortnight. In the USA, households received once-off stimulus payments of $1400 (American) to support those in need and stimulate the American economy (Borland & Charlton, 2020).
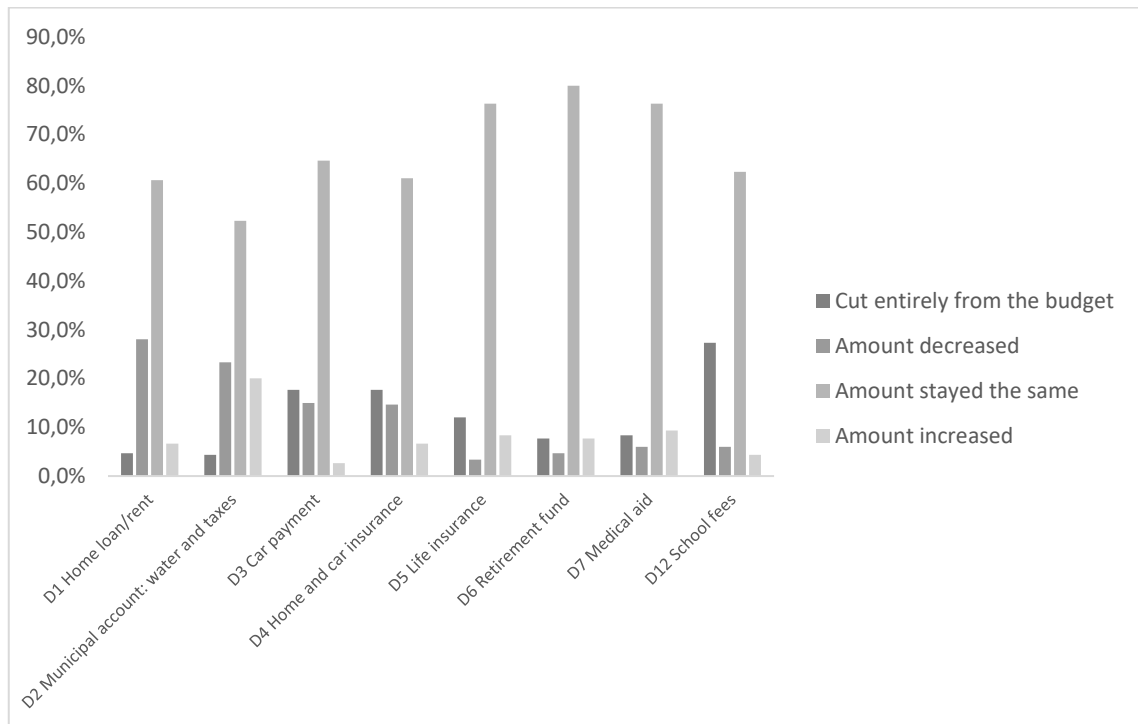
Figure 6.6: Changes in the allocation of funds towards loan accounts, medical aid, and insurance (Source: Constructed by researcher)

In conclusion, it was found that the majority of households made no changes in their budget allocations towards medical aid, retirement fund, life insurance, home loans, municipal account, car repayment, and car/home insurance. Medical expenses either stayed the same or increased, while amounts allocated towards non-essential

expenses, including personal grooming and leisure declined, probably to cover other expenses that had increased.

Chapter seven concludes with an overview of the results and experiences of the research process that might be of value in future research.

Chapter 7: Conclusion, Limitations, and Recommendations

7.1 Introduction

The previous chapter presented a discussion of the results in accordance with the research questions and hypotheses, as well as related literature and theoretical frameworks. This chapter will lay out the study's primary findings associated with the research questions and the accompanying hypotheses. From this, recommendations are made for consideration by relevant business practitioners, specifying the limitations of the study and the potential for future research.

7.2 Principal findings

- Principal finding one (research question one and two combined)

The level of income disruption was not significantly different across the different income levels that were specified in this study (R33 333 or less per month, between R33 334 and R75 000 per month, and more than R75 000 per month), that included lower middle-, upper middle-, and high income households. Therefore, the financial impact of the COVID-19 pandemic, was similar across lower middle-, upper middle- and upper-income households.

- Principal finding two

Household budgets were less flexible on loan accounts and insurance, such as medical aid, home and life insurance, and loan accounts, while the contrary was true for non-essential items in the budget, such as leisure, personal grooming, and clothing

- Principal finding three

The majority (72.3%) of households had experienced increased medical expenses, of which 32.7% experienced relatively small increases, and the remaining 39.7% experienced moderate to very large increases. The majority of households (83.3%) had made no change to their medical aid membership, while near one in ten respondents (9.3%) opted for cheaper options, only 5.3% completely cut medical aid from their budgets, and 2% changed to a more expensive option

- Principal finding four

No statistically significant difference could be found between respondents' medical expenses (prescription medication, hospitalisation) and their perceptions concerning the need for medical aid membership.

- Principal finding five

The majority of households (56.3%), who were members of a medical aid increased expenses towards OTC medication and health products during the COVID-19 pandemic, compared to only 17.4% who were not members of a medical aid. A noteworthy larger percentage of respondents who were not members of a medical aid (34.8%), had cut OTC products entirely from the budgets compared to only 9.4% of respondents who could rely on medical aid support.

- Principal finding six

Significant correlations were confirmed between the extent of salary cuts and medical aid membership (weak negative correlation); respondent's propensity to budget their income in the future (weak positive correlation); the tracking of budget expenses in the future (weak positive correlation); and being more cautious with future spending (weak positive correlation). Although correlations were not strong, indications are that respondents had a fresh view of how to deal with their budgets in the future. The relationship between the impact of salary cuts and the propensity to save in the future, was insignificant.

- Principal finding seven

It was found that over 75% of households made no change to their existing medical aid membership, retirement fund, and life insurance during the COVID-19 pandemic, with over 50% of households made no changes to monthly account payments such as home loans, municipal account, car repayment, and car/home insurance. Food, clothing, and travel expenses were however more susceptible to changes, with clothing and travel decreasing or being cut from the budget entirely. Budget allocations towards medical expenses either stayed the same or increased while expenditure on personal grooming and leisure activities declined.

7.2.1 *Summary*

As highlighted in previous chapters, mental accounting is the cognitive process which households or individuals perform as a way to categorise, assess, and track their financial activities (Thaler, 1999). Mental accounting offers an explanation for how households split expenses into categories, the subsequent allocation of funds to said categories and how these allocations are rationalised through cost-benefit analyses (Zhang & Sussman, 2018). The way in which households set and label the individual mental accounts influences the decision-making of the household (Zhang & Sussman, 2018).

During COVID-19, households faced financial pressure through salary cuts. This led to many households needing to reassess their budgets and prioritise non-discretionary expenses. This finding is aligned to mental accounting as households constrained their spending through implicit or explicit budgets (Thaler, 1999). These allocations enabled consumers to track their spending and ensure that they are not over-spending (Thaler, 1999).

The unexpected increases in medical expenses observed in this study would have ordinarily altered the household budget in such a way that a greater portion of funds are allocated towards these expenses. This could result in the opening of new mental expense accounts accompanied by the associated debt burden (Damme et al., 2004). However, medical aid membership played an important role in circumventing this and has such garnered support for its relevance and importance in the South African context that's facing a struggling public healthcare system.

As highlighted above, increased medical expenses can lead to increased levels of debt, and within the South African landscape, this risk of debt increases without medical aid membership. Given, that in South Africa, one can access almost free healthcare through the public sector, if given the choice, many South Africans would opt for private healthcare considering the dismal state of the public sector (Wadvalla, 2020). Medical aid membership also enabled more households to focus on preventative healthcare measures through OTC medications and supplements without having to open new mental accounts and shift spending within their budgets.

7.3 Application to the work environment/implications to management

The COVID-19 pandemic introduced a socioeconomic crisis of note in South Africa due to a decrease in human-, business- and industrial activities (Mbunge, 2020). The lack of cross travel, changes in demand and supply patterns affected currencies as well as commodities. Many businesses were unable to handle the shock and subsequently closed doors for good resulting in job losses and salary cuts that affected households severely (Mbunge, 2020).

7.3.1 Principal finding one

The finding that the severity of financial impact was not significantly different across different income groups means that income level did not spare households the financial brunt associated with the pandemic. Previous research indicates that during periods of financial uncertainty, consumers' behaviour tends to change, irrespective of whether they have been financially impacted or not (Laato et al., 2020). The implication for business, is that consumers across all income groups may have become more price-sensitive making it vital for businesses to acknowledge consumers' needs. It has been proposed before that businesses should have the ability to adapt very fast to accommodate changing consumer landscapes (Sheth, 2020), which inevitably applies to the situation that the world finds itself in at the moment.

According to Morgan, Anokhin, Ofstein, and Friske (2020), businesses need to have the ability to pivot to deal with exogenous shocks, for example by using existing resources to produce new items or finding new distribution channels. An example of an organisation that managed to pivot its offering locally, was the Checkers sixty-60 service, which offered a home delivery service for online grocery purchases within 60 minutes during the pandemic. The initiative of Checkers was particularly clever, as household's expenditure on food and groceries remained an essential item on their budgets, and therefore households would have been very interested in their service. In times of struggle, businesses are also obliged to invest in social capital by lending a helping hand to communities (Morgan et al., 2020).

7.3.2 Principal finding two and seven

The second finding is that households are more flexible on non-essential spending covering clothing, leisure, and personal care while less flexible on essential items such as rent/home loan repayments, insurance, and medical aid. This trend was the same before and during COVID-19. The findings align with the mental accounting theory, more specifically, the allocation of money into categories of expenses according to how essential the expenses are (Thaler, 1999). Households eventually allocate expenditures into specific categories or metal accounts that are distinguished in terms of how essential they are, for example food versus clothing, and constrain their spending accordingly (Thaler, 1999).

In applying this to the work environment, it becomes crucial for employers and financial service providers to provide financial planning training, even at its most basic level, to equip households to be more resilient to external shocks and ensure that they are better prepared to deal with a loss of income. Financial service providers should tailor their product offerings to include possible solutions for unexpected events.

7.3.3 Principal finding three and four

Over 70% of households reported increased medical expenses during the COVID-19 pandemic. This probably explains why, most households (83.3%) made no changes to their medical aid cover, although it is a rather expensive item in the budget. In addition, households perceived the need for medical aid membership as highly important, irrespective of the amount spent on medical expenses. Most South African households in this sample, therefore, viewed medical aid as an essential expense item in their budget. South Africans join medical aids to ensure that they are financially prepared should they require medical services of some kind and are not confident that they will receive the right level of care through the public healthcare system.

This study also demonstrates consumers' willingness to take precautionary measures concerning medical aid membership to prevent a re-occurrence of any hardships experienced during the recent pandemic where households had to deal with significant financial and health threats, rather unexpectedly. If nothing else, the

pandemic has demonstrated the challenges in health delivery in South Africa, more especially in the public sector. This may push more households that can afford it, to adopt avenues to pursue private healthcare in the future. Medical aid scheme providers should subsequently leverage consumers' favourable perceptions of the importance of medical aid membership, and tailor products that have a broader appeal while being cost-effective.

7.3.4 Principal finding five

There was an increased focus on preventative healthcare measures during the pandemic, resulting in the OTC pharmaceutical wellness categories growing (IRI, 2021). Products including multivitamins, single supplements, and function-specific all grew in double digits to the extent that pharmacies often ran out of stock (IRI, 2021). This study showed that more than half of households on medical aid increased their spending on OTC medication compared to the less than 20% of respondents who were not on medical aid. Not surprisingly, a larger percentage of respondents who were not on medical aid, cut OTC products entirely from the budget, indicating that medical aid membership is also associated with access to preventative care, which is comforting.

The managerial implication of the trends observed within the OTC segment demonstrates that businesses should have the ability to adapt at a fast pace to accommodate changing consumer landscapes (Sheth, 2020). Businesses need to align themselves to better serve consumers' needs in the future and need to be agile in matching supply with an ever-changing demand (Sheth, 2020). This could be done by ensuring that there are business contingency plans that include having approved and qualified third-party manufacturers on hand to accommodate changing consumer needs. In addition, as one of the categories that grew during COVID-19, OTC brands within this space need to leverage their communication platforms to encourage more South Africans to get themselves vaccinated.

7.3.5 Principal finding six

The termination of medical aid membership correlated with the level of financial impact faced by households. It is assumed that these households would not have

otherwise terminated memberships or changed to cheaper/minimum cover unless necessary. The financial impact of the COVID-19 pandemic correlated with households' increased propensity to budget their income in the future, to track budget expenses better in the future, and to be more cautious with future spending. This accentuates the importance of consumer education around financial planning and ensuring that financial service providers and medical aid providers tailor products to assist consumers to deal with external shocks.

Surprisingly, the impact of salary cuts did not influence households' propensity to save in the future. As previously indicated, this could be attributed to households not having enough disposable income to save anyway. Considering that South Africa has the lowest household savings rates at 15% compared to other developing countries at 34%, this exposes a lack of awareness of financial planning among South African households.

7.4 Theoretical contribution

Within the South African context, research has been conducted on how COVID-19 was expected to spread exponentially and how consumers' income distribution affected their food security (Arndt et al., 2020; Marivate & Combrink, 2020). However, there was no research available, concerning how households had adapted their budgets during the COVID-19 pandemic, that constrained many households' incomes on the one hand, while putting severe pressure to increase certain budget categories (such as medical expenses), on the other hand. This study has demonstrated how households were financially impacted during the COVID-19 pandemic and how this, and the uncertainty caused by COVID-19, resulted in budget reprioritisation. Consumers who were members of medical aids appeared to be better equipped to deal with increased medical expenses, while the majority of households categorised medical aid as an essential budget item. It was also found that households perceive medical aid as a priority in their budgets and will be even stricter with future budgeting and spending behaviour. A plausible reason for this shift in future behaviour was to be more financially prepared to deal with external shocks. The study demonstrated that even during extreme events such as COVID-19, the household budgeting process does follow the principles of mental accounting and

Engel's law which distinguished expenses in terms of relative importance, which is an exciting contribution to the existing body of knowledge.

7.5 Limitations

This study was quantitative in kind, and the following limitations should be noted:

- Being quantitative, the study yielded exciting revelations about the interaction between selected variables; however, in-depth insights about these interactions were not obtained due to the nature of the data.

- The study was focused on South Africa and, therefore, subject to the nuances and behaviour characteristic of this locality. The trends may not be applicable outside of the local borders.

- The sample involved a relatively low percentage of households who did not belong to a medical aid. By increasing this subset of the sample, a better idea of the challenges experienced by these households, could be gained.

- There may have been sampling biases, for example not attracting enough lower income households, despite the wide distribution of the questionnaire. Due to the researcher sharing the sample through personal networks, the sample may represent people within the researcher's societal grouping and may not have reached a more representative audience.

- Despite the questionnaire being derived from literature, it may not have been exhaustive in terms of questions and options provided as answers to respondents, the derision of questions may have been from adjacent study areas to this.

7.6 Recommendations for future research

Two suggestions are presented for future research:

- This study yielded valuable findings on how households prioritise different items in their budgets by using different mental accounts. However, the reasons for this behaviour can only be assumed. Therefore, this study should be followed up with a qualitative study to get more in-depth insights into the

household budgeting decisions and budget reprioritisation taken during times of extreme external pressure.

- This study was conducted during the COVID-19 pandemic. It would be interesting to note whether consumers' perceptions during the pandemic are maintained post-pandemic and whether there have been significant behavioural changes in households' budgets over time.

7.7 Conclusion

This study has shown how COVID-19 has impacted middle- and upper-income households' finances and how consumers have had to reprioritise their budgets to accommodate these shifts. Surprisingly, it was found that the financial impacts of the pandemic did not discriminate based on the level of household income, with high earning households facing similar challenges as the lower-earning households. This demonstrated the far-reaching impact of the pandemic. The study also demonstrated the importance of medical aid membership in the South African context, with households categorising medical aid as an essential budget item before COVID-19 and their subsequent reprioritisation behaviour demonstrating a similar trend. Being members of a medical aid allowed more consumers to focus on preventative healthcare by purchasing OTC medication and products compared to non-medical aid members. Finally, while the pandemic has impacted households physically and financially, it has also ignited shifts in consumer thinking, especially around being more conservative in future spending and more aggressive in future financial planning. Businesses should leverage these insights to create financial and medical aid products that are affordable but appealing to consumers across different income categories, which will allow them to be more resilient towards external financial shocks.

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Appendix A: Ethical clearance

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Prathiva Pillay,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

Masters Research

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Appendix B: Questionnaire

Dear respondent,

As part of my MBA journey at the Gordon Institute of Business Science (GIBS), I am conducting research concerning the impact of the COVID-19 pandemic on consumers' finances, expenditure on health-related expenses, and how these expenses and medical aid memberships may (or may not) have affected households' budgets during very trying economic times. I would highly appreciate your assistance in completing my questionnaire to fulfil the requirements for completing my degree. All responses are and will remain anonymous. All data that is collected will be kept confidential and will only be used in aggregate format to honour confidentiality. By completing this questionnaire, you are indicating that your participation is voluntary. You may exit the questionnaire at any point, without penalty, if you decide to do so at a later stage. Your contribution is highly appreciated.

For any further questions or details, please feel free to contact myself or my supervisor using the contact details below.

Researcher: Prathiva Pillay

Contact Details: 27160395@mygibs.co.za or +27 73 637 6544

Supervisor: Prof. Alet Erasmus

Contact Details: erasmusa@gibs.co.za or +27 82 784 2467

Screening questions		
	Yes	**No**
Are you between and including the ages of 25-59 years old?		
Have you been earning a regular income before the onset of the COVID-19 pandemic		

Please answer every question, and respond by ONLY selecting one option on the scale for each item

	Section A: Financial impact during the COVID-19 pandemic					
	During the COVID-19 pandemic:	**To no extent**	**Small extent**	**Moderate extent**	**Large extent**	**Very large extent**
1	My salary was negatively impacted	1	2	3	4	5
2	The impact on my salary was	1 Less than 20% cut	2 Between 20 and 40% cut	3 Between 40 and 60% cut	4 Between 60 and 80% cut	5 Total income loss
3	I had unexpected medical expenses due to COVID-19	1	2	3	4	5
4	I had to revise my budget to deal with my financial circumstances	1	2	3	4	5
	Section B: Medical aid					
	During the COVID-19 pandemic:	**Total cut**	**Changed to minimum cover e.g. (hospital plan)**	**Changed to a cheaper option**	**No change**	
1	My medical aid membership was affected due to financial reasons	1	2	3	4	
	Section C: Budget allocation BEFORE the COVID-19 pandemic					
	Please indicate only ONE option per line item					
	Budget allocation	Not included in budget	Amount variable every month	Approximate amounts, allowing some deviation	FIXED amount every month	
1	Home loan/rent	1	2	3	4	
2	Municipal account: water and taxes	1	2	3	4	
3	Car payment	1	2	3	4	
4	Home and car insurance	1	2	3	4	
5	Life insurance	1	2	3	4	
6	Retirement fund	1	2	3	4	
7	Medical aid	1	2	3	4	
8	Food	1	2	3	4	
9	Clothing	1	2	3	4	
10	Fuel, Travel costs	1	2	3	4	

11	Leisure, recreation	1	2	3	4	
12	School fees	1	2	3	4	
13	Medication, prescribed	1	2	3	4	
14	Self-medication (OTC) vitamins, etc	1	2	3	4	
15	Hospitalisation	1	2	3	4	
16	Personal care, grooming	1	2	3	4	

Section D: Budget allocation during the COVID-19 pandemic						
How was your budget REVISED? Please indicate only ONE option per line item						
	Budget allocation due to the pandemic	Cut entirely from the budget	Amount decreased	Amount stayed the same	Amount increased	
1	Home loan/rent	1	2	3	4	
2	Municipal account: water and taxes	1	2	3	4	
3	Car payment	1	2	3	4	
4	Home and car insurance	1	2	3	4	
5	Life insurance	1	2	3	4	
6	Retirement fund	1	2	3	4	
7	Medical aid	1	2	3	4	
8	Food	1	2	3	4	
9	Clothing	1	2	3	4	
10	Fuel, Travel costs	1	2	3	4	
11	Leisure, recreation	1	2	3	4	
12	School fees	1	2	3	4	
13	Medication, prescribed	1	2	3	4	
14	Self-medication (OTC) vitamins, etc	1	2	3	4	
15	Hospitalisation	1	2	3	4	
16	Personal care, grooming	1	2	3	4	

Section E: Budget decisions POST the COVID pandemic						
	Based on my experience during the preceding year:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	I will more seriously budget my income in terms of type of expenses	1	2	3	4	5

2	I will more seriously maintain my budget to keep track of my expenses	1	2	3	4	5
3	I will maintain a savings account for unexpected expenses	1	2	3	4	5
4	Life is uncertain, I will be more cautious and spend less	1	2	3	4	5
5	Medical aid is a necessity that I should try to accommodate	1	2	3	4	5
6	Medical aid is a necessity that I cannot afford	1	2	3	4	5

Section F: Demographic profile							
Please tick the relevant option that describes your personal profile best							
1	Gender	Female	Male	Prefer not to disclose			
2	Age	25-29	30-39	40-49	50-59		
3	Education level	Secondary	Bachelor's degree/ Diploma	Post Graduate degree/ Diploma	Doctoral		
4	Annual income level	Less than R86 000 per year	Between R86 000 and R197 000 per year	Between R197 001 and R400 000 per year	Between R400 001 and R688 000 per year	Between R688 001 and R900 000 per year	Between R900 001 and R1 481 000 per year	More than R1 481 001 per year
5	I am on a medical aid	Yes	No				

1 1 1

Appendix C: Demographic profile

Table 9.1: Gender distribution within the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	142	47,3	47,3	47,3
Female	156	52,0	52,0	99,3
Prefer not to disclose	2	0,7	0,7	100,0
Total	300	100,0	100,0	

(Source: SPSS output)

Table 9.2: Age representation within the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
25-29	43	14,3	14,3	14,3
30-39	147	49,0	49,0	63,3
40-49	92	30,7	30,7	94,0
50-59	18	6,0	6,0	100,0
Total	300	100,0	100,0	

(Source: SPSS output)

Table 9.3: Level of education within the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
Grade 11 or lower	3	1,0	1,0	1,0
Grade 12 (Matric)	58	19,3	19,3	20,3
Bachelor's degree/ Diploma	126	42,0	42,0	62,3
Post Graduate degree/ Diploma	113	37,7	37,7	100,0
Total	300	100,0	100,0	

(Source: SPSS output)

Table 9.4: Monthly income distribution within the sample

		Frequency	Percent	Valid Percent	Cumulative Percent
1	Less than R7500 per month	2	0,7	0,7	0,7
2	Between R7500 and R16 667 per month	24	8,0	8,0	8,7
3	Between R16 668 and 33 333 per month	68	22,7	22,7	31,3
4	Between R33 334 and R58 333 per month	80	26,7	26,7	58,0
5	Between R58 334 and R75 000 per month	53	17,7	17,7	75,7
6	Between R75 001 and R125 000 per month	61	20,3	20,3	96,0
7	More than R125 000 per month	12	4,0	4,0	100,0
	Total	300	100,0	100,0	

(Source: SPSS output)

Table 9.5: Re-coded monthly income distribution within the sample

	Frequency	Percent	Valid Percent	Cumulative Percent
R33 333 or less per month	94	31,3	31,3	31,3
Between R33 334 and R75 000 per month	133	44,3	44,3	75,7
More than R75 000 per month	73	24,3	24,3	100,0
Total	300	100,0	100,0	

(Source: SPSS output)

Appendix D: Factor analysis (section D)

Table 9.6: Correlation matrix from the factor analysis (excluding D5)

	D1	D2	D3	D4	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16
D1	1,000	0,366	0,206	0,289	0,083	0,321	0,258	0,201	0,187	0,143	-0,026	-0,030	-0,024	-0,019	0,081
D2	0,366	1,000	0,154	0,331	0,078	0,311	0,384	0,203	0,222	0,214	-0,038	-0,134	-0,025	-0,114	0,162
D3	0,206	0,154	1,000	0,471	0,232	0,246	0,096	0,208	0,150	0,086	0,226	0,176	0,137	0,254	0,024
D4	0,289	0,331	0,471	1,000	0,351	0,459	0,220	0,195	0,141	0,210	0,140	0,114	0,085	0,148	0,012
D6	0,083	0,078	0,232	0,351	1,000	0,303	-0,008	-0,085	0,002	-0,072	0,200	0,256	0,152	0,277	-0,061
D7	0,321	0,311	0,246	0,459	0,303	1,000	0,151	0,101	0,080	0,093	0,065	0,136	0,174	0,134	0,083
D8	0,258	0,384	0,096	0,220	-0,008	0,151	1,000	0,327	0,265	0,342	-0,101	-0,096	0,019	-0,199	0,301
D9	0,201	0,203	0,208	0,195	-0,085	0,101	0,327	1,000	0,451	0,626	0,129	-0,026	-0,034	-0,160	0,354
D10	0,187	0,222	0,150	0,141	0,002	0,080	0,265	0,451	1,000	0,421	0,011	-0,050	-0,038	-0,101	0,365
D11	0,143	0,214	0,086	0,210	-0,072	0,093	0,342	0,626	0,421	1,000	0,000	-0,055	-0,051	-0,144	0,466
D12	-0,026	-0,038	0,226	0,140	0,200	0,065	-0,101	0,129	0,011	0,000	1,000	0,272	0,160	0,319	-0,007
D13	-0,030	-0,134	0,176	0,114	0,256	0,136	-0,096	-0,026	-0,050	-0,055	0,272	1,000	0,531	0,550	0,035
D14	-0,024	-0,025	0,137	0,085	0,152	0,174	0,019	-0,034	-0,038	-0,051	0,160	0,531	1,000	0,354	0,064
D15	-0,019	-0,114	0,254	0,148	0,277	0,134	-0,199	-0,160	-0,101	-0,144	0,319	0,550	0,354	1,000	-0,083
D16	0,081	0,162	0,024	0,012	-0,061	0,083	0,301	0,354	0,365	0,466	-0,007	0,035	0,064	-0,083	1,000

(Source: SPSS output)

Table 9.7: Total variance explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**3,278**	21,855	21,855	2,745	18,299	18,299	2,118	14,120	14,120
2	**2,717**	18,116	39,971	2,198	14,655	32,954	1,703	11,351	25,471
3	**1,604**	10,694	50,665	1,083	7,221	40,174	1,589	10,591	36,062
4	**1,091**	7,271	**57,936**	0,506	3,371	43,546	1,123	7,484	**43,546**
5	0,812	5,413	63,349						
6	0,743	4,952	68,301						
7	0,732	4,881	73,182						
8	0,680	4,535	77,717						
9	0,611	4,074	81,791						
10	0,593	3,950	85,741						
11	0,555	3,702	89,443						
12	0,487	3,244	92,687						
13	0,417	2,780	95,466						
14	0,381	2,537	98,003						
15	0,300	1,997	100,000						
Extraction Method: Principal Axis Factoring.									

(Source: SPSS output)

Table 9.8: Section D scale and accompanying coding

Cut entirely from the budget	Amount decreased	Amount stayed the same	Amount increased
1	2	3	4

Appendix E: Factor analysis (section E)

Table 9.9: Correlation matrix from the factor analysis (excluding E6)

	E1	E2	E3	E4	E5
E1	1,00	0,69	0,56	0,60	0,48
E2	0,69	1,00	0,66	0,62	0,53
E3	0,56	0,66	1,00	0,47	0,54
E4	0,60	0,62	0,47	1,00	0,48
E5	0,48	0,53	0,54	0,48	1,00

(Source: SPSS output)

Table 9.10: Pattern and structure of coefficients

Factor Matrix	
	Factor 1
E2	0,86
E1	0,79
E3	0,74
E4	0,71
E5	0,65
Extraction Method: Principal Axis Factoring.	
a. 1 factors extracted. 6 iterations required.	

(Source: SPSS output)

Table 9.11: Mean score per theoretical factor grouping

	N		Mean""	Median	Std. Deviation
	Valid	Missing			
Budget Decisions POST the COVID Pandemic	300	0	4,23	4,20	0,67

**Maximum = 4; Minimum – 1 (Source: SPSS output)

Table 9.12: Section E scale and accompanying coding

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

Appendix F: Research question one

Table 9.13: Cross-tabulation between income groups and salary impact during COVID-19

			SALARY IMPACT DURING COVID-19				Total
			To no extent	Small extent	Moderate extent	Large to a Very large extent	
INCOME GROUP	R33 333 or less per month	Count	44	22	21	7	94
		% within INCOME GROUP	46,8%	23,4%	22,3%	7,4%	100,0%
	Between R33 334 and R75 000 per month	Count	63	28	25	17	133
		% within INCOME GROUP	47,4%	21,1%	18,8%	12,8%	100,0%
	More than R75 000 per month	Count	34	22	11	6	73
		% within INCOME GROUP	46,6%	30,1%	15,1%	8,2%	100,0%
Total		Count	141	72	57	30	300
		% within INCOME GROUP	47,0%	24,0%	19,0%	10,0%	100,0%

(Source: SPSS output)

Appendix G: Research question two

Table 9.14: Cross-tabulation between income groups and level of salary impact during COVID-19

			LEVEL OF SALARY IMPACT DURING COVID-19				Total
			No Cut	Less than 20% cut	Between 20 and 40% cut	More than 40% cut	
INCOME GROUP	R33 333 or less per month	Count	44	27	15	8	94
		% within INCOME GROUP	46,8%	28,7%	16,0%	8,5%	100,0%
	Between R33 334 and R75 000 per month	Count	63	41	15	14	133
		% within INCOME GROUP	47,4%	30,8%	11,3%	10,5%	100,0%
	More than R75 000 per month	Count	34	24	10	5	73
		% within INCOME GROUP	46,6%	32,9%	13,7%	6,8%	100,0%
Total		Count	141	92	40	27	300
			47,0%	30,7%	13,3%	9,0%	100,0%

(Source: SPSS output)

Appendix H: Research question four

Table 9.15: Combined table showing households unexpected medical expenses due to COVID-19 and changes to medical aid due to financial reasons (N = 300)

UNEXPECTED MEDICAL EXPENSES			CHANGES TO MEDICAL AID		
	n	%		n	%
To no extent	83	27,7	Total cut/terminated	16	5,3
Small extent	98	32,7	Changed to minimum cover, e.g. (hospital plan)	14	4,7
Moderate extent	67	22,3	Changed to a cheaper option	14	4,7
Large extent	42	14,0	No change to medical aid plan	250	83,3
Very large extent	10	3,3	Changed to more expensive option	6	2,0
Total	300	100,0	Total	300	100,0

Appendix I: Research question five

Table 9.16: Cross-tabulation between the budget allocated toward prescribed medication and the perception of the need for medical aid in the future

			PERCEPTION OF MEDICAL AID NEED			
			Strongly disagree to Neutral	Agree	Strongly agree	Total
BUDGET TOWARDS PRESCRIBED MEDICATION	Cut entirely from the budget	Count	6	22	20	48
		% within D13	13%	46%	42%	100%
	Amount decreased	Count	3	11	12	26
		% within D13	12%	42%	46%	100%
	Amount stayed the same	Count	13	64	66	143
		% within D13	9%	45%	46%	100%
	Amount increased	Count	3	35	45	83
		% within D13	4%	42%	54%	100%
Total		Count	25	132	143	300
		% within rrE5	8%	44%	48%	100%

(Source: SPSS output)

Table 9.17: Cross-tabulation between the budget allocated toward prescribed hospitalisation and the perception of the need for medical aid in the future

			PERCEPTION OF MEDICAL AID NEED			
			Strongly disagree to Neutral	Agree	Strongly agree	Total
BUDGET TOWARDS HOSPITALISATION	Cut entirely from the budget	Count	11	34	48	93
		% within D13	12%	37%	52%	100%
	Amount decreased	Count	2	6	9	17
		% within D13	12%	35%	53%	100%
	Amount stayed the same	Count	11	57	60	128
		% within D13	9%	45%	47%	100%
	Amount increased	Count	1	35	26	62
		% within D13	2%	56%	42%	100%
Total		Count	25	132	143	300
		% within rrE5	8%	44%	48%	100%

(Source: SPSS output)

Appendix J: Research question six

Table 9.18: Cross-tabulation between the budget allocated toward OTC medication and medical aid membership

			_____ D14 _____				
			Cut entirely from the budget	Amount decreased	Amount stayed the same	Amount increased	Total
F5	Yes	Count	26	31	64	156	277
		% within F5	9,4%	11,2%	23,1%	56,3%	100,0%
	No	Count	8	2	9	4	23
		% within F5	34,8%	8,7%	39,1%	17,4%	100,0%
Total		Count	34	33	73	160	300
		% within F5	11,3%	11,0%	24,3%	53,3%	100,0%

(Source: SPSS output)

Appendix K: Research question seven

Table 9.19: Kolmogorov-Smirnov test for normality across all variables

	Statistic	df	Sig.
Financial impact	0,255	300	0,000
Financial impact on medical aid membership	0,488	300	0,000
Propensity to budget in the future	0,293	300	0,000
Future budget expense tracking	0,289	300	0,000
Future savings behaviour	0,276	300	0,000
More cautious future spending	0,276	300	0,000
a. Lilliefors Significance Correction			

(Source: SPSS output)

Table 9.20: Summary of the Pearson's correlation

		A2	B1	E1	E2	E3	E4
A2	Pearson Correlation	1	-.426**	0,081	0,059	-0,048	0,092
	Sig. (2-tailed)		0,000	0,162	0,306	0,404	0,112
	N	300	300	300	300	300	300
B1	Pearson Correlation	-.426**	1	-0,071	-.142*	-.129*	-.122*
	Sig. (2-tailed)	0,000		0,220	0,014	0,026	0,034
	N	300	300	300	300	300	300
E1	Pearson Correlation	0,081	-0,071	1	.688**	.564**	.597**
	Sig. (2-tailed)	0,162	0,220		0,000	0,000	0,000
	N	300	300	300	300	300	300
E2	Pearson Correlation	0,059	-.142*	.688**	1	.661**	.616**
	Sig. (2-tailed)	0,306	0,014	0,000		0,000	0,000
	N	300	300	300	300	300	300
E3	Pearson Correlation	-0,048	-.129*	.564**	.661**	1	.473**
	Sig. (2-tailed)	0,404	0,026	0,000	0,000		0,000
	N	300	300	300	300	300	300
E4	Pearson Correlation	0,092	-.122*	.597**	.616**	.473**	1
	Sig. (2-tailed)	0,112	0,034	0,000	0,000	0,000	
	N	300	300	300	300	300	300
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

(Source: SPSS output)

Table 9.21: Summary of the Spearman's rank correlation

		Financial impact	Medical aid membership	Propensity to budget in the future	Future budget expense tracking	Future savings behaviour	More cautious future spending
Salary impact	Correlation Coefficient	1,000	-.352**	.157**	.156**	-0,018	.165**
	Sig. (2-tailed)		0,000	0,006	0,007	0,753	0,004

	N	300	300	300	300	300	300
**. Correlation is significant at the 0.01 level (2-tailed).							

(Source: SPSS output)

Appendix L: Adjustments to social grants

Table 9.22: South African adjustments to social grants due to COVID-19

Table 3: Adjustments to social grant spending 2020/21				
	Baseline monthly grant (R)	Number of beneficiaries	Top-up (R)	Top-up %
Child support*	445	12 811 209	300	67.4
Old age	1 860	3 672 552	250	13.4
Disability	1 860	1 045 388	250	13.4
Foster care	1 040	339 959	250	24.0
Care dependency	1 860	155 094	250	13.4
* The top-up will be replaced with a new Caregiver grant of R500 per month from the second month. This is expected to benefit over 7 million beneficiaries.				

(Source: de Villiers et al., 2020)