

THE PREVALENCE OF MENTAL DISORDERS AND ASSOCIATED OUT-OF-POCKET EXPENDITURE AMONG INSURED PATIENTS IN SOUTH AFRICA

By

Mazvita Shereen Mnangagwa Matsa

MNNMAZ001

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Supervisor: Prof Edina Sinanovic

Health Economics Division

School of Public Health and Family Medicine

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PREAMBLE

DECLARATION PAGE

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Name: Mazvita Shereen Mnangagwa Matsa

Student number: MNNMAZ001

Signature:

Signed by candidate

Date: 17/10/2022

DEDICATION

To my beloved late mother, **Fadzai Danha**, my dear husband, **Munyaradzi Matsa** and my beautiful daughter **Ivaishe Matsa**.

ABSTRACT

Mental disorders are a huge global burden, with approximately a quarter of the population developing a mental illness at some point. Despite significant advances in treatment for these disorders, massive treatment gaps still exist. In South Africa, approximately 20% of adults are believed to be struggling with poor mental health, with less than a quarter of this population ever receiving mental health care. A potential strategy for reducing such treatment gaps is private health insurance (PHI). Around 18% of the total South African population is medically insured. PHI, however, only covers a restricted set of expenses. The aim of this study is to examine the prevalence of mental disorders and the out-of-pocket costs among South African insured individuals.

Discovery Health Medical Scheme (DHMS) population was used as a proxy for the private health insurance market in South Africa. DHMS is South Africa's largest medical scheme with a 56.7% market share as of 2019. STATA version 17 and Excel were used to analyse the data on five common mental disorders (depression, anxiety disorders, bipolar, development and learning disorder, and attention deficit and hyperactivity disorder) over a 36-month period. Children and adults with or without comorbidities and with no gender restrictions were included.

The study found that, overall, 23% (CI 95%: 23.05 – 23.98) of the total insured population reported mental health issues, with females and males accounting for 60% and 40%, respectively. Depression had the highest prevalence rate of 11% (CI 95%: 10.7 – 11.1). The prevalence rates for children versus adults were found to be 4.7% (CI 95% 4.6 – 4.8) and 18.7% (CI 95% 18.4 – 19.2), respectively. Those suffering from hypertension reported the highest prevalence rate of 3% (CI 95%: 3 - 3.1) for mental health issues. Total OOP expenses were R1.87 billion over the 36-month, with in-hospital services accounting for 7% and the remaining 93% attributable to out-of-hospital treatments. The total out-of-pocket (OOP) payments constitutes 19% of total costs.

The results in this study showed that insured adults and women are more likely to be affected by mental health issues than young individuals and men, respectively. Furthermore, even though evidence suggests that health insurance promotes utilization and decreases healthcare costs, insured mental health patients still incur significant OOP expenses.

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PART A: RESEARCH PROTOCOL

1. INTRODUCTION

1.1. Background

Mental health professionals have coined the term "mental disorders" to describe a syndrome marked by clinically significant disturbances in an individual's cognition, emotion regulation or social behaviour as a result of a breakdown in the psychological, biological or developmental processes that shape mental functioning (Association, 2013).

According to the World Health Organization (WHO), mental health is described as a condition of well-being in which a person recognizes his or her own potential, can manage with typical life stresses, work productively and effectively while being able to contribute to his or her community as well (World Health Organization, 2020).

Mental disorders are among the most critical development concerns of our time, impeding the hopes of families, communities, and growing economies. As a result, the importance of mental health is widely recognized and reflected in the United Nations' post-2015 Sustainable Development Goals (SDG) (Le Blanc, 2015) where the agenda is driven by the notion that there can be no health and sustainable development without addressing mental health (Votruba et al., 2014).

A previous seminal research (WHO, 2001) discovered that around 450 million people worldwide suffered from mental disease. With such staggeringly high figures, Whiteford, et al. (2015) discovered that mental health disease generated nearly 10% of the worldwide burden of disease as assessed by disability-adjusted life years (DALYs), with nearly 80% of it borne by people living in low-to-middle-income countries (LMICs)(WHO, 2017).

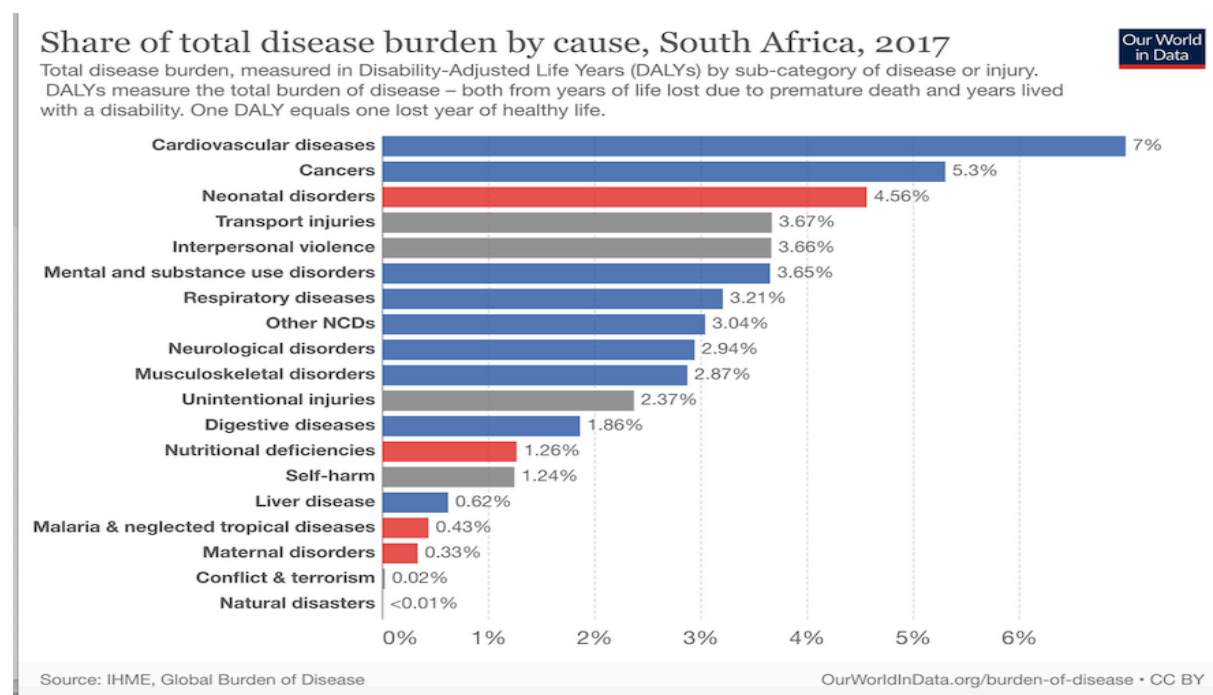
DALYs related to mental and substance use disorders are projected to be 21.5 million in Sub-Saharan Africa (SSA) and are expected to rise by 130 percent to 45 million between 2010 and 2050, owing to population increase and aging (Vos, et al.,2017). These numbers are bolstered further in South Africa where history and contemporary socioeconomic factors indicate that mental problems are likely to be a large contribution to disease burden (Williams et al., 2008). According to the Global Burden of Disease (GBD) Study (2017), mental disease (including drug

use disorders) is among the major disease areas in South Africa, accounting for 3.65% of the global burden of disease (measured in DALYs) as shown in **Figure 1**. However, there is little objective evidence on the real prevalence of mental diseases in several regions of the world. This is especially true in Sub-Saharan Africa where only a few epidemiological needs assessment surveys have been conducted (Ovuga, et al., 2005).

The South Africa Stress and Health (SASH) project, a national psychiatric epidemiological survey undertaken as part of the WHO World Mental Health (WMH) Survey, is one of the few studies conducted in LMICs. The survey sought information on the prevalence, severity, correlations, and treatment of mental illnesses (Williams et al., 2004).

Prevalence rate measures the proportion of people who have a condition at a certain moment or throughout a given timeframe. In general, prevalence estimates are computed as a proportion by dividing the total number of people who have a condition (the numerator) by the population at risk, including those who have the disorder (the denominator) (Saha, et al., 2005).

FIGURE 1: SHARE OF TOTAL DISEASE BURDEN IN SOUTH AFRICA



Source: Global Burden of Disease Study 2016 (GBD 2016)

The high prevalence of mental disorders in South Africa has been linked to risk factors such as racial discrimination, political violence, high levels of gender inequality, and criminal violence (Dawes, 1990; Dunkle et al., 2004). Furthermore, the latest COVID-19 pandemic has made it more obvious than ever that mental health is critical for wellbeing (Hewlett et al., 2021), particularly with many individuals failing to receive regular, affordable care. Many patients face an immediate barrier to care due to cost, which is frequently ascribed in part to underinsurance or a lack of health insurance (Ezeonwu, 2018).

Nowadays, health insurance is regarded as having a vital role in alleviating the burden of health expenses in emerging nations, especially for the poor (Dekker & Wilms, 2010). This is due to the fact that health insurance systems enable groups such as the government, companies, enterprises, or families to contribute in advance to the expenses incurred as a result of illnesses or service utilization. These prepayments allow for the establishment of a pool of funds out of which all or a portion of the health-care expenditures can be paid or refunded.

South Africa has 83 private health insurance schemes that cover health services for approximately 16% of the population, with the remaining 84% relying on public tax-funded health care (Govender et al., 2021). Nevertheless, just because you have insurance doesn't mean it's enough or doesn't come with a hefty price tag in the form of premiums, co-payments and deductibles (Lavarreda, et al., 2011, Fang, et al., 2016). As a result, this systematic study was done to evaluate the prevalence of mental illnesses among insured individuals in South Africa, as well as an in-depth investigation of the related out-of-pocket (OOP) costs. Such data are certainly significant in identifying the requirements of mental health services and for comprehensive mental healthcare planning, especially in the private health insurance industry.

1.2. Problem Statement

Mental disorders represent a massive public health concern in which more than half of the general population globally will suffer from at least one mental condition at some time in their lives (Trautmann, et al., 2016). Previous studies done on LMICs have revealed South Africa's

appalling mental health situation in which one-third of the population has a mental disorder, with as much as 75% just not receiving treatment (Tromp, et al., 2014) (S. Docrat et al., 2019).

Further, researchers have invariably reported that people with mental disorders have poorer health outcomes than the general population, attributable to shorter life expectancy due to unnatural causes, suicides and disability that lead to poor quality of life (Brådvik, 2018, Chesney, et al., 2014). This reported global burden of disease associated with mental disorders is exacerbated by the expanding "mental health treatment gap" (Murray et al., 2013), in which more than 70% of people in need of mental health services do not have access to care (Kohn, et al., 2004).

The issue of access in South Africa is not only due to the country's few specialised hospitals, but also to the inequitable distribution of resources, with a costing study published revealing that almost half (45%) of the funding is focused at the specialized hospital level, with little allocated at the primary and community levels (Lora et al., 2012) (S. Docrat et al., 2019).

On the other hand, mental disorders such as anxiety and depressive disorders have been linked to a rise in prevalence of other chronic ailments through their increase of hazardous behaviours such as smoking and substance abuse (Lawrence, et al., 2009). Conversely, patients suffering from chronic diseases such as cardiovascular disease, cancer, diabetes, and arthritis are also more likely to suffer from mental health problems (Patel & Chatterji, 2015). These mental and physical health issues, when combined, make it less likely that a patient would adhere to a treatment plan for their conditions (Aarons, 2008).

Consequently, untreated mental diseases cost the South African economy more than R35 billion in missed working days each year. The economic value lost due to mental diseases was about 2.2% of the country's GD (Abrahams et al., 2022). Despite this data, the department of health in South Africa is believed to spend merely 4% - 5% of its budget on addressing the crisis, arguing that other health issues such as HIV/AIDS are more pressing even though 43% of those living with HIV are also affected by mental health (Tromp, et al., 2014) (Docrat et al., 2020).

Ultimately, the main financial burden in such a health system tends to be imposed on households in the form of high OOP expenditures. OOP payments are often seen as a highly ineffective and inequitable method of financing health care since they risk unfairly burdening different socioeconomic subgroups, particularly the poor and the elderly (WHO, 2000; Knaul, et al., 2009).

There is also mounting evidence that OOP expenses serve as a financial barrier to seeking medical care and can aggravate poverty (Xu, et al., 2007, Van Doorslaer, et al., 2005). Poor families, for example, are frequently compelled by OOP costs to choose between meeting fundamental requirements like education, food, and shelter and preserving loved ones from disease and suffering (Knaul, et al., 2006).

Previous research has shown that insurance can help alleviate many of the aforementioned problems by improving health-seeking behaviour and minimizing OOP medical care costs (Dekker & Wilms, 2010). However, several of these health insurances are capped and tend to come with coverage and benefits restrictions ranging from fewer covered health consultations to higher co-pays and deductibles, resulting in further substantial OOP spending (Kaitelidou & Kouli, 2012).

As a result, this analysis seeks to investigate the prevalence of mental health in the South African private health sector along with the contributing factors and OOP expenses associated with insured persons seeking treatment.

1.3. Rationale

The number of people diagnosed with mental illnesses is steadily increasing. Previous research has found that the global prevalence of mental conditions increased by 41% between 1990 and 2010 (Whiteford, et al., 2015). Other scholars predict that the prevalence of mental diseases in Sub-Saharan Africa (SSA) will rise by 130% by 2050 owing to epidemiological and demographic changes (Charlson, et al., 2014).

However, mental illness continues to be underreported and undertreated, especially in LMICs such as South Africa where the burden of mental illnesses such as the common anxiety

disorders, drug addiction disorders, mood disorders, and depression are relatively high. People with mental health disorders frequently suffer neglect in the health system, as well as stigma and prejudice, resulting in a delay in seeking therapy or prevention altogether (Meyer, et al., 2019).

Furthermore, even though mental health illnesses continue to be neglected by the healthcare systems, they share burden similarities with other chronic medical conditions. Health insurance in any form has the potential to address overlooked mental health disorders at all levels of healthcare service. With the implementation of the National Health Insurance in South Africa, acknowledgement of mental health treatment as an integral element of the healthcare system, as well as financial protection for community-based mental health services, will be critical (Robertson, et al., 2018).

Private health insurance policies, however, only cover a restricted set of expenses. They do not cover, for example, medicines for a select number of chronic illnesses, resulting in substantial and sometimes unexpected expenditures for those with health insurance. This evidently shows that health coverage cannot fully shield households from the direct financial impact of health risks (Dekker & Wilms, 2010).

The same insurance restrictions usually also extend to individuals seeking treatment for mental illness. Hence, the purpose of this study is to evaluate OOP expenditures as well as the prevalence rate and associated determinants of popular mental disorders among insured individuals in South Africa. The evidence from this study will assist to accurately inform on conducive healthcare policy and to investigate priority areas for future research. Moreover, there is considerable evidence that causes that delay or hinder mental illness treatments include inadequate knowledge about mental illness (Henderson, et al., 2013).

According to a systematic assessment of successful treatments to reduce mental-health-related concerns, the majority of research has been undertaken in high-income economies, with only a few studies performed in middle-income economies and none in low-income countries (Mehta et al., 2015). By analysing the prevalence of mental conditions and their contributing determinants among insured persons in South Africa, this will give us a chance to

be among the first reports to offer a wide range of knowledge and expertise to address these concerns in LMICs.

This comprehensive research also has the potential to improve the critical policy problem of allocation of resources to mental health treatment in South Africa's private healthcare system. The emphasis on the private health sector is vital for policy purposes since the private sector's involvement in health care funding and delivery has grown in recent years (Hallo De Wolf & Toebe, 2016; Siddiqi et al., 2023). Improved management in this crucial area of private health care can ultimately ensure better accessibility and affordability for several populations.

2. LITERATURE REVIEW

2.1. Prevalence of Mental Disorders

The 2004 SASH survey is still the primary source of mental health prevalence statistics in South Africa. This revealed that the 12-month prevalence of common mental illnesses among South African adults was 16.5% (A. Herman et al., 2009). The SASH research, though, did not include children and adolescents, and literature on the prevalence of mental illness in this age category at a national level is limited.

A study by Robertson & Juritz (1988) reported the prevalence of behavioural problems among 10- and 13-year-olds as being between 10% and 20%. Flisher, et al. (1993) found that 7.8% of high school pupils attempted suicide and 19% had suicidal ideation. These rates were comparable to those described by Mhlongo & Peltzer (1999) and Wild, et al. (2004). Recent studies from 27 countries found that 13.4% of adolescents struggle with mental health issues (Polanczyk et al., 2015) and another one found that the overall prevalence of emotional and behavioural problems among school-going adolescents in a district in India was 24.5% (Harikrishnan & Sailo, 2021).

Teplin, et al. (2002) discovered significant psychological morbidity among adolescent offenders. Other studies reported how juveniles in detention and correctional institutions were around ten times more likely to suffer from psychosis than the general adolescent population (Fazel, et al., 2008) (Beaudry et al., 2021) (Kuranga & Yussuf, 2021).

Furthermore, researchers like Kleintjes, et al. (2006) looked at mental health issues among children and adolescents in the Western Cape province of South Africa and found an unadjusted prevalence rate of 17% for any mental condition. Morojele, et al. (2006) discovered that 41.4% of grade 8 - 10 students in Western Cape schools were at medium risk for mental health disorders while 14.9% were at high risk.

Some researchers in South Africa also focused their mental health surveys on women. One study at a district-level clinical psychology service found that women who attended the service were depressed (21%), suicidal (14%), and 9.5% suffered from anxiety (A. Pillay & A. Kriel, 2006). In other comparable studies for women, Triant (2002) revealed rates of 32% and 13% for depression and major depressive disorder, respectively, Bhagwanjee, et al., (1998) noted a combined rate of 23.9% for general anxiety disorder and depression, Cooper, et al. (1999) reported a rate of 34.7 % for postpartum depression, and Carey, et al. (2003) observed rates of 19.9% for post-traumatic depressive illness, 37% for depression, and 18.4% for somatisation disorder.

Additionally, Naidoo & Mkize (2012) sought to evaluate the occurrence of serious mental problems in an adult prison population in Durban and discovered a high prevalence of mental conditions among the prisoners. The bulk of these individuals go untreated in prison due to the mental disease not being detected. Andersen (2004) corroborated this in research for Danish inmates, finding that there was indeed an increasing number of mentally ill prisoners who were not being diagnosed and treated adequately.

Fazel & Danesh (2002) observed that several million inmates globally are likely to have serious mental disorders, but it is unclear how effectively prison services manage these issues. Fazel, et al. (2005) later investigated the prevalence of mental health issues amongst refugees placed in Western countries, discovering that most of them may be ten times more likely to have post-traumatic stress disorder versus their age-matched counterparts in the general populace of those countries.

2.2 Health Insurance and Out-of-Pocket Expenditure for Mental Health Patients

There is scant information from developing economies on the impacts of health insurance on

members' health and economic well-being. According to published reviews, while insurance may promote utilization and decrease personal expenditures, there still exists inconsistencies regarding health outcomes (N Sood et al., 2014). Roberts, et al. (2018) and Carter, et al. (2020) (Docrat et al., 2020) found that having health insurance was usually, but not consistently, associated with health treatment utilization for prevalent mental disorders.

Furthermore, health insurance was shown to slash typical out-of-pocket costs by almost 200 percent, particularly among the poor (Jowett, et al., 2003). Another study found that the Health Care Fund for the Poor dramatically lowered health care spending as a percentage of overall poor spending (Thanh, et al., 2010). A similar result was established on the significant drop in the poor's out-of-pocket healthcare expenditures (Wagstaff, 2010).

This impact, however, has not been observed in all research. In one research conducted in the United States, for example, the insured had to make considerable out-of-pocket expenses (Rubin & Koelln, 1993). Wagstaff & Magnus (2008) discovered that expanding health insurance coverage in China did not enhance financial security but instead raised the probability of substantial and catastrophic healthcare spending.

Similarly, Ringel & Sturm (2001) believes that under private health insurance plans, consumers have long experienced serious out-of-pocket payments for mental health and substance abuse treatment. Mental health coverage has traditionally been less generous than physical health benefits with separate deductibles, higher co-payments or co-insurance and lower caps on covered treatments, a tendency that still persists despite a recent wave of "parity" legislation (McKusick et al., 2002).

In-depth studies for analysing the effects of health insurance for people suffering from mental problems in South Africa are minimal and have not been conducted formally. This cross-sectional research will apply secondary data to evaluate health insurance coverage, out-of-pocket expenditure and the factors that influence mental health issues in South Africa. The findings in this study may provide policymakers with evidence to promote changes to the health insurance plan for people living with mental health challenges and reduce households' out-of-pocket (OOP) expenses.

3. AIMS AND OBJECTIVES

3.1. Aim

The aim of this study is to analyse the 12-month prevalence of mental disorders and associated out-of-pocket costs of insured individuals using data from the Discovery Health population as a proxy for the private market in South Africa.

3.2 Study Objectives

The objectives of the study are to:

1. Determine the overall prevalence of mental disorders among the insured individuals.
2. Examine the prevalence of mental disorders in the specified cohort by demographic characteristics
3. Estimate the overall out-of-pocket payments incurred by the insured patients.

4. METHODOLOGY

4.1. Study Design

This study is a cross-sectional secondary data analysis of mental health prevalence and associated out-of-pocket expenditure among South African insured individuals using the Discovery Health Medical Scheme (DHMS) data collected over a 36-month period (2018 to 2020) in all nine provinces. DHMS is South Africa's largest non-profit open medical scheme with a 56.7% market share as of 2019. DHMS works on the basis of social solidarity principles, in which the scheme pools and administers individual contributions in order to support each member's healthcare equitably (Discovery Health Medical Scheme, 2022). For this study, DHMS was utilised as a proxy for the country's private health industry.

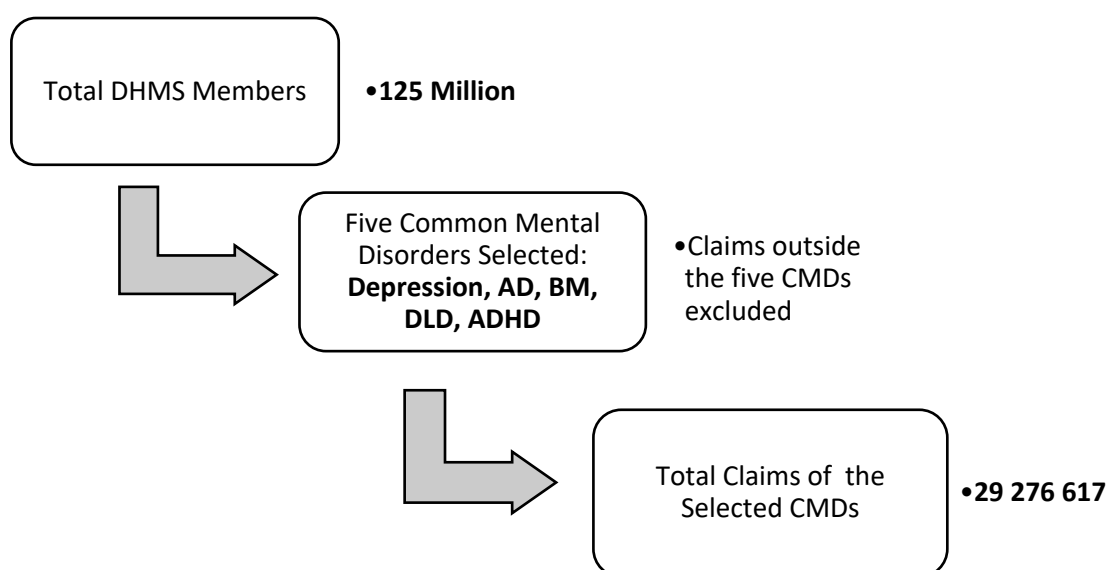
The DHMS data for mental health disorders was examined using the applicable DEG (Discovery Disease Episode Grouper) code and ICD-10 codes for each occurrence. The Disease Episode Grouper (Whiteford et al.) by Discovery Health (DH) was used to aggregate claims related with a single episode of a specific diagnosis. Utilizing WHO's classification of illnesses, ICD codes were used to identify the condition associated with a claim (WHO, 2019).

Secondly, out-of-hospital medical care expenditures for calculating OOP costs will include medication and consultation costs, and in-hospital expenditures will consist of hospital, consultation, medication, and device costs. Thirdly, prevalence will be characterized as any existing mental disorder patient who is actively claiming for all related treatments in a particular year. In other words, if a patient had the condition in the past and still has it in the present, then this is the prevalence (Mental health incidence and prevalence data, 2021).

4.2. Sample Size and Description

The total of the DHMS data used consisted of about 125 million members over the 36-month period, including children under the age of 19 and adults over the age of 19 with or without co-existing physical health conditions and with no gender restrictions in all nine provinces of South Africa. Using DEG codes, a search will be performed for all claims relating to the five common mental diseases (CMDs) used for this study: Depression (D)- PSY080, Anxiety Disorder (AD)- PSY090, Bipolar Mood Disorder (BMD)- PSY070, Development and Learning Disorder (DLD)- PSY200, and Attention Deficit and Hyperactivity Disorder (ADHD)- PSY190. Patients with mental health claims outside of the selected five CMDs will be excluded. As a result of this criterion, 29 276 617 members claimed for the selected five CMDs over the 36-month period (**Figure 2**).

Figure 2: Total Claims of Insured Mental Health Patients included in the study



4.3. Data Analysis

Demographic Characteristics

The demographic variables of Age (categorized into five age groups: 0 – 19 years, 20 – 34 years, 35 – 49 years, 50 – 64 years, 65 - 70+ years), Gender (male or female), Comorbid health conditions (HIV, TB, Hypertension, Diabetes), and Geographic area (Western Cape (WC), Eastern Cape (EC), Northern Cape (NC), Mpumalanga (MP), Gauteng (G), Limpopo (LP), Free State (FS), KwaZulu Natal (KZN), North West (NW)) will be considered for this study. Demographic characteristics will be described using frequencies and percentages (**Table 1**).

Statistical Analysis

The prevalence rates and confidence intervals for the mental disorders will be evaluated using STATA version 17. Prevalence trends according to sociodemographic characteristics (sex, age, comorbid health, and geographic location) will also be analysed. The significance level was set at .05. Moreover, this study will focus on a comprehensive evaluation of out-of-pocket expenditures incurred by insured mental health patients. Total out-of-pocket spending will be calculated as the difference between the total amount of expenses claimed (in-hospital and out-of-hospital) by DH members and the total amount of the expenditure actually paid by DHMS as given in the data. All costs will be presented in 2020 South African Rands.

Table 1. Base characteristics of insured individuals with common mental disorders, 2018-2020, N = 29 276 617

Variable	N (%)
Gender	
Male	11 774 828 (40.2)
Female	17 501 789 (59.8)
Age, years	
0 - 19	5 856 572 (20.0)
20 - 34	6 190 032 (21.1)
35 - 49	8 670 758 (29.6)
50 - 64	5 497 002 (18.8)
65 - 70+	3 062 253 (10.5)
Comorbidity	
HIV ¹	360 199 (1.2)
TB ¹	66 623 (0.23)
Hypertension ¹	3 803 134 (13)
Diabetes ¹	983 925 (3.4)
Geographic Location	6 073 976 (20.7)
Western Cape (WC)	1 570 171 (5.4)
Eastern Cape (EC)	369 636 (1.3)
Northern Cape (NC)	942 536 (3.2)
Mpumalanga (MP)	14 231 435 (48.6)
Gauteng (G)	408 673 (1.4)
Limpopo (LP)	1 001 699 (3.4)
Free State (FS)	3 754 937 (12.8)
KwaZulu Natal (KZN)	923 554 (3.2)
North West (NW)	

¹being binary variables coded 0 if there is no presence of the disease and 1 if the disease exists together with mental disorders.

5. ETHICAL APPROVALS

This protocol will be submitted to the Human Research and Ethics Committee (HREC) at the University of Cape Town. The South African Medical Research Council granted ethical approval for this study (REF: EC018-4/2021). Because this study will not utilize or collect any data including personal identifiers, confidentiality and privacy will be maintained at all times.

Further, this study is not expected to pose any potential risk or injury to any individual. Collecting applicable cost and outcome data from secondary sources has no direct risks. Instead, the research is expected to provide indirect advantages for society and public health in terms of mental health disorder management (including diagnosis and treatment).

6. PUBLICATION AND DISSEMINATION POLICY

The dissertation will be submitted to fulfil the requirements of the Master of Public Health, Health Economics Degree. A policy brief will also be prepared for the government in order to make accurate recommendations regarding mental health benefits under the National Health Insurance fund. In addition, a manuscript will be submitted to a peer reviewed journal.

7. LOGISTICS

The study will be carried out over 10 months.

TABLE 2: STUDY ACTIVITIES AND TIMELINE

Activity	2022									
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Finalise Protocol	x	x								
Full Literature Review		x	x	x						
Ethics Approval					x					
Analyze data					x	x				
Write-up						x				
Draft Dissertation							x			
Finalize Dissertation								x	x	
Submission										x

8. BUDGET

The data gathering component of this project is not expected to incur any financial costs.

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PART B: STRUCTURED LITERATURE REVIEW

1. INTRODUCTION

The Sustainable Development Goals of the United Nations, which set out the post-2015 agenda, clearly reflect the importance of mental health on a global scale (Dybdahl & Lien, 2018). Mental health disorders share similarities with notable infectious diseases like HIV/AIDS and tuberculosis, all of which are chronic diseases that frequently co-occur and require ongoing monitoring and management (Meyer et al., 2019). 970 million individuals worldwide, about one in every eight people, suffer from a mental illness, with anxiety and depressive disorders being the most prevalent (Tichenor, 2019).

The COVID-19 pandemic fuelled a surge in the number of individuals suffering from anxiety and depressive disorders in 2020. According to early predictions, major depressive disorders and anxiety disorders both increased by 26% and 28% in just one year, respectively (WHO, 2022). The majority of those who suffer from mental diseases do not, however, have access to appropriate care, despite the fact that effective methods for prevention and treatment of mental illnesses exist (Ali & Agyapong, 2015; Thyloth et al., 2016).

This section begins with a description of mental disorders and a discussion of the factors that contribute to mental health issues. Next, we analyse the global prevalence and burden of mental diseases in the general population using past literature. Thereafter, we'll highlight the material that has been published about the prevalence of mental diseases in South Africa. Additionally, the study will examine other relevant studies on health insurance among people with mental health issues. Then lastly, the chapter will discuss prior studies on out-of-pocket (OOP) expenditures for mental health services and their burden across different populations.

To ensure that all important relevant studies were used for the research, various comprehensive literature was reviewed. A thorough search of PubMed, Scopus, Google Scholar, APA Psycnet, Elsevier, Frontiers in psychology, and Jstor was employed to identify existing papers and publications to use in this thesis. Keywords like mental health, social determinants, mental health problems, global mental health, health insurance, insurance coverage, out-of-pocket health expenditure, and other related synonyms were used to search for literature in these major scientific databases, and some of the keywords were combined.

Policy documents, economic evaluations, qualitative and quantitative research, reports, conference proceedings, and policy briefs were among the documents retrieved. Documents that explored the prevalence of mental health in adults, adolescents, or vulnerable populations at the regional or national level were selected for this literature review.

Anxiety disorders, behavioural and emotional disorders in children, bipolar disorders, depression, eating disorders, obsessive compulsive disorder, post-traumatic stress disorder (PTSD), psychosis, and schizophrenia were among the mental health issues examined in the selected articles. We did not include articles or studies published in languages other than English.

Furthermore, a meta-analysis was not possible due to the differences in settings (clinic vs. community-based, adults vs adolescents), different assessment tools, and different criteria used to establish mental disorder prevalence statistics. For South African literature, only a few published studies on the prevalence of mental disorders on a national level were found. As a result, evaluating the South African trend for mental illnesses over time may be difficult using the various prevalence estimates reported in the papers included.

2. MENTAL DISORDERS

2.1 What are mental disorders?

Mental disorders have no universally acceptable definition largely because whatever is considered abnormal in one culture may be accepted as normal or appropriate in another, and it is hard to make a clear distinction between a healthy and abnormal mental status. Mental disorders are often regarded as the mental health conditions. The term mental health is relatively broad and includes mental disorders, psychosocial disabilities, and numerous different mental states linked to major distress, impaired functioning, or the risk of self-harm (WHO, 2004).

An acceptable definition would describe mental illness as essentially the absence or lack of sound mental health—meaning, a state of mental well-being, balance, and resilience that enables an individual to work and function effectively and were the individual is able to cope

with life's conflicts and stresses (Lynn et al., 2020). A more common definition defines mental disorders as short-term or long-term conditions that affect one's thoughts, feelings, emotions, and behaviour. These conditions can have an impact on your ability to interact with others and function on a daily basis (Zhang & Yu, 2022).

2.2 What are some types of mental disorders?

There are numerous types of mental disorders. MedlinePlus (2020) describes some common ones as anxiety disorders, depression, bipolar disorder, eating disorders, personality disorders, post-traumatic stress disorder and psychotic disorders, including schizophrenia and neurodevelopmental disorders. The World Health Organization (2022) describes and defines the common mental disorders as below:

- **Anxiety disorders**

Anxiety disorders are identified by extremely high levels of fear and worry as well as associated behavioural problems. There are several types of anxiety disorders which include generalised anxiety disorder (excessive worry), panic disorders, social anxiety disorders and separation anxiety disorders and phobias.

- **Depression**

Depression is distinguishable from regular mood swings and short-term emotional reactions to everyday problems. During a period of depression, an individual feels sad, irritable, or empty. Other symptoms may include a lack of concentration, low self-worth, loss of hope for the future, suicidal thoughts, inconsistent sleep patterns, fluctuations in appetite or weight, and fatigue. Suicide is highly probable in people who suffer from depression.

- **Bipolar Disorder**

People suffering from bipolar disorder have depressive episodes that alternate with manic symptoms. Manic symptoms may include feelings of euphoria or irritability, high levels of activity or energy, and other symptoms such as increased talkativeness, racing thoughts, high self-esteem, insomnia, distractibility, and impulsive behaviour.

- **Post-traumatic stress disorder (PTSD)**

PTSD can develop as a result of witnessing terrifying or extremely threatening incidents. PTSD

is distinguished by the following characteristics: 1) reliving the horrific events in the present as flashbacks or nightmares; 2) suppression of memories of the event or avoidance of anything associated with the experience; and 3) continual feelings of real or perceived threat. These symptoms can persist for several weeks and can significantly impair functioning.

- Psychotic disorders, including schizophrenia

Schizophrenia is associated with impaired perceptions and significant behavioural changes. People suffering from schizophrenia may exhibit signs of extreme delusion, tend to hallucinate, have fragmented thoughts, are highly irritable and also have difficulties with their cognitive functions.

- Eating Disorders

Eating disorders like anorexia nervosa and bulimia nervosa are characterised by abnormal eating and food obsession along with major body weight and shape issues. The symptoms or behaviours cause serious health risks or damage, significant distress, or decreased quality of life in functioning. Anorexia nervosa typically begins early in life and is connected with premature death from health complications or suicide. Individuals suffering from bulimia nervosa are at a much higher risk of substance abuse, suicidal tendencies, and health complications.

- Neurodevelopmental disorders

Neurodevelopmental disorders develop during childhood and are made up of behavioural and cognitive disorders that involve significant difficulties in executing intellectual, motor, language, or social functions. Intellectual development disorders, autism spectrum disorder, and attention deficit hyperactivity disorder (ADHD) are examples of neurodevelopmental disorders.

3. DETERMINANTS OF MENTAL HEALTH

There is published research that strongly suggests that various determinants of mental health place populations at high risk for mental disorders. Genetics, race and ethnicity, gender, age, income level, education level, geographic location, and comorbidities have all been linked to

poor mental health (Jain et al., 2015). Other social conditions such as interpersonal, family, and community dynamics, housing quality, social support, employment opportunities, and work and school conditions can have either a positive or negative impact on mental health risk and outcomes. Understanding these factors, how they interact, and what they mean is critical to improving and maintaining the mental health of all individuals (Healthy People, 2003).

Several studies have been conducted to investigate the prevalence and impact of mental disorders on specific vulnerable groups. Those with noncommunicable conditions such as diabetes (Ali et al., 2006), those with communicable diseases such as Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) (Freeman et al., 2008), those exposed to trauma such as abuse, wars, and tribal conflicts (Vinck et al., 2007) and prison populations (Macciò et al., 2014) are some of the most vulnerable groups explored.

A study by Myer, Seedat, Stein, Moomal, & Williams (2009) revealed that 19% of those receiving routine follow-up care for HIV in Cape Town had mental disorders such as depression, PTSD, or alcoholism. Furthermore, Alsaadi, El Hammasi, & Shahrour (2015) found that depression was very common in people suffering from multiple sclerosis (MS) with a lifetime prevalence estimate for major depression as high as 50%. In a similar survey in Australia, 12-month prevalence of 6.3% for major depression in the MS community was reported (Andrews et al., 2001).

And in Canada, data from the Canadian Community Health Survey (CCHS) revealed that the 12-month prevalence of depression for people with MS was 25.7% compared to 8.9% for those without MS (Patten et al., 2017). The high rates of depression in MS indicated above pose the question of whether or not people with the disease are at an increased risk of suicide. A Danish study was also undertaken to analyse data from 5525 MS cases diagnosed between 1953 and 1985. The findings demonstrated that there were 53 suicides during this period, with the expected rate of suicide in a group of this size being 28 (Stenager et al., 1992).

Moreover, the socioeconomic environment in which people live, work, and play has a considerable impact on their mental health (Patel & Kleinman, 2003; Lund *et al.* 2011;

Hudson *et al.* 2012) (Hawkins *et al.*, 2020). For instance, the recent COVID-19 pandemic conditions, in particular, contributed in physical and mental exertion among healthcare professionals (Huang & Zhao, 2021). During the COVID-19 pandemic environmental conditions, 38 studies that reported on the mental health disorders of healthcare workers were assessed. The combined prevalence of mental disorders among the cohort was found to be 49% for PTSD, 40% for anxiety, and depression and distress were both 37% (Saragih *et al.*, 2021). Several other researchers also found that during the COVID-19 pandemic, mental health issues such as depression, anxiety, and stress, PTSD, burnout, fear, and insomnia were prominent among healthcare workers (Salari *et al.*, 2020) (Johnson *et al.*, 2020) (Kang *et al.*, 2020).

The investigation by the Good Childhood Inquiry on the social determinants of mental health conditions in children identified a connection between mental illness and other factors like coming from fractured, dysfunctional, or fatherless families. As per the study, children with separated, single, or step-parents were 50% more likely to struggle in school, have low self-esteem, find it difficult to socialise, and had a high chance of developing behavioural issues such as anxiety or depression (de Braal, 2010).

Further to that, there is a great deal of evidence from developed economies that highlight a relationship between poverty and mental illnesses. A Canadian study comparing men who live in the affluent 20% of suburbs to those who live in the poorest 20% of communities found that the wealthier 20% live well over 4 years longer (Hewitt *et al.*, 1996). This study concluded that low levels of income tend to lead people to social deprivation which in turn causes various physical ailments that can increase the risk of mental illness, particularly depression. Similar research in England found that children and adults in the lowest quintile (20%) of household income are three times more likely to have common mental health problems and nine times as likely to have psychotic disorders than those in the upper quintile (Jones, 2014).

The prevalence of mental illness has an ethnic component as well. Some indigenous people in many countries have historically been marginalised. Suicides among aboriginal people in Queensland, Australia, for example, contributed disproportionately to the state's suicide rate between 1990 and 1997, particularly among males who accounted for 16% of all suicide

deaths (Sherriff, 2016). As also shown in a study conducted in the United States (US), minorities made up a vastly disproportionate huge portion of the country's homeless and imprisoned people. These individuals had higher rates of mental illness than the general population (Wald et al., 2014)

In the United Kingdom, the Fourth National Survey of Ethnic Minorities found a correlation between racial prejudice and mental problems. A total of 5196 people of Caribbean, African, or Asian heritage were polled in the survey. Individuals from these minority groups were found to be three times to five times more susceptible to depression if they had experienced some form of verbal abuse or racial attack in the previous year (Bieling et al., 2004). Other research on black and minority ethnic groups found a three-fold increase in risk of psychosis (Sherry et al., 2003) and a two-to-threefold increased risk of suicide (Yoon & Lau, 2008).

The impact of war on civilian mental health is a sizable and often ignored consequence of war. Many places in the world are presently in conflict, and the effects on the population's mental health is palpable. One population-based research done in Afghanistan with 799 people over the age of 15 discovered that 62% of them had experienced 4 or more trauma events in the previous 10 years while 67.7% showed depression symptoms, 72.2% exhibited anxiety symptoms, and 42% had PTSD symptoms (Cardozo et al., 2004).

Certain types of mental disorders are more common in particular age groups than others. One study found that older age (50 years and over) was a determinant of anxiety disorders, while 30 to 39 years old was a predictor of substance-related disorders and any of the common mental disorders were associated with being younger (ages from 20 to 29 years) (Zabala-Baños et al., 2016).

One other study that investigated adolescents revealed that the prevalence of early life mental disorders such as attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD) was much higher in teenagers, particularly among males with 87% of them having ADHD (Brown et al., 2001) (Senol et al., 2018).

The above draws us to another determinant of mental health, gender. Various studies indicate that women are more likely than men to suffer from depression, anxiety disorders, and severe mental illnesses (Eaton et al., 2012). During the perinatal period, women are at an increased risk of developing mental health disorders such as postpartum depression (PPD) which affects 3 to 25% of all new mothers around the world (Dennis et al., 2017) (Bryson et al., 2021). In another Canadian study, females were found to have double the rate of mood and anxiety disorders than males whereas their counterparts were 2.6 times more likely to suffer from substance use disorders (Pearson et al., 2013).

4. GLOBAL BURDEN AND PREVALENCE OF MENTAL DISORDERS

Mental illnesses are significant contributors to the global disease burden. According to the Global Disease Burden (GBD) estimates for 2019, between 1990 and 2019, the global number of DALYs owing to mental illnesses went from 80.8 million to 125.3 million, and the proportion of global DALYs attributed to mental disorders increased from 3.1% to 4.9% (Murray et al., 2020). However, researchers argued that the figures for the prevalence of mental disorders have been grossly underestimated by the GBD study. Based on published data, different estimates for mental disorders (excluding neurological disorders) were generated with mental disorders accounting for 32.4% of YLDs and 13% of DALYs (Vigo et al., 2022).

Another study from the World Mental Health Survey (WMHS) that was undertaken in 17 countries across Europe, the Americas, and Africa discovered that the lifetime prevalence of common mental disorders (anxiety, mood, and substance-related disorders) ranged from 18.1% to 36.1% of the general population. In addition, the survey found a 12-month prevalence of 6% - 27% for any mental disorder, 3% -19% for anxiety disorders, 1.1% -9.7% for mood disorders, and 0.2% -6.4% for any substance disorder (Kessler et al., 2009).

Previously, approximately 26,000 individuals from 14 countries across Europe, the Americas, Africa, and Asia participated in a similar study as part of the WHO Collaborative Study on Psychological Problems in General Health Care. The overall lifetime prevalence of all psychological disorders assessed was reported as 17.6%, with major depression accounting for 11.6% of the diseases tested (Ustün et al., 1995).

A further research study with 829 673 participants from 174 studies in 63 countries found a 17.6% and 29.2% 12-month and lifetime prevalence of mental illnesses, respectively. Mood disorders, anxiety disorders, and substance-related disorders were among the mental health disorders (Steel et al., 2014). Other studies on the prevalence of mental disorders in LMICs have been conducted in Egypt, Morocco, Zimbabwe, Tanzania, and Kenya. Two studies from Egypt and Morocco recruited 14 640 and 5498 participants, respectively, and found a prevalence of 40.1% for common mental disorders in Morocco (Kadri et al., 2010) and 16.9% for mental health conditions in Egypt (Ghanem et al., 2009) with mood disorders being the most prevalent, ranging from 6.4% to 26.5%.

Furthermore, a comprehensive review involving 11 eligible studies from Africa (Lesotho and Zimbabwe), Asia (Indonesia and Pakistan), and Latin America (Brazil and Chile) discovered that the overall median prevalence of common mental disorders among low-to-medium income countries (LMIC) ranged from 20% to 30% (Patel & Kleinman, 2003). More studies done in Tanzania, Kenya, and Zimbabwe collected samples ranging from 172 to 2770 individuals to investigate the prevalence of mental disorders in populations. The researchers discovered that the prevalence of common mental disorders varied from 2.5% to 48% (Ndeti et al., 2009) (Jenkins et al., 2012) with 21.4% to 51.7% for depressive disorders and 11% to 30.8% for anxiety disorders (Langhaug et al., 2009); (Patel & Kleinman, 2003).

Global prevalence data for mental disorders in children and adolescents are relatively limited. Children and adolescents aged 5–17 years account for nearly a quarter of the world's population (United Nations, 2010). One study estimated the coverage of prevalence data for six mental disorders (conduct disorder (CD), attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorders (ASDs), eating disorders (EDs), depression, and anxiety disorders) in children and adolescents aged 5–17 years at the country, regional, and global levels. The average global prevalence for these mental disorders in the sampled population was reported as 6.7%, with individual rates of CD, 5%, ADHD, 5.5%, ASDs, 16.1%, Eds, 4.4%, depression, 6.2% and anxiety, 3.2% (Erskine et al., 2017).

5. PREVALENCE OF MENTAL DISORDERS IN SOUTH AFRICA

Data on the prevalence of mental health in the South African general population are limited and date back to the South African Stress and Health Survey (SASH) done in 2004. The SASH study enrolled 4351 individuals and 30.3% of them met the WHO Composite International Diagnostic Interview criteria for a lifetime mental disorder (A. A. Herman et al., 2009). According to the findings of this study, 15.8% had an anxiety disorder, 9.8% had a mood disorder, and 13.3% had a substance abuse problem (Kessler et al., 2009); (Stein et al., 2008). The SASH study, however, excluded children and adolescents (Jacob & Coetzee, 2018).

Other previous surveys on mental health in South Africa focused on children and adolescents. A teacher assessment v. parent assessment survey was conducted and an estimated 10% to 20% of 10-13-year-olds was found to be struggling with mental health problems (Robertson & Juritz, 1988). Moreover, comparative studies using samples from the Western Cape region examined the prevalence of mental health conditions among children and adolescents and found an unadjusted prevalence of 17% for all mental health diseases in one study (Kleintjes et al., 2006) while another one revealed that 41.4% of learners in grade 8 - 10 were at medium risk for mental health problems and 14.9% at high risk (Plüddemann et al., 2014).

Some investigations on mental health disorders in South Africa analysed women at district-level mental health facilities and reported that 21% of those attending the services suffered from depression, 14% were suicidal, and 9.5 % had anxiety problems (A. L. Pillay & A. J. Kriel, 2006). In other studies focusing on women, a combined rate of 23.9% for generalized anxiety disorder and depression was observed (Bhagwanjee et al., 1998), a rate of 34.7% for postpartum depression was reported (Cooper et al., 1999), and rates of 19.9% for post-traumatic stress disorder, 37% for depression, and 18.4% for somatisation disorder were also noted (Carey et al., 2003).

Alternatively, some scholars sought to determine the prevalence of serious mental disorders among South African prisoners. 193 inmates from Durban were interviewed, and 55.4 % were identified to be suffering from mental health problems with substance and alcohol abuse (42%) being the most common. Additionally, 23.3% of the offenders were said to have

psychotic, bipolar, depressive, and anxiety disorders while 46.1% were diagnosed with antisocial personality disorder (Naidoo & Mkize, 2012).

Another comparable study was conducted among offenders hospitalised in a South African correctional facility to examine the prevalence of mental disorders. Most of the participants surveyed were young males with little education and of low socioeconomic status. The study reported a 54.7% lifetime prevalence of mental disorders. Personality disorders were found to be most common, followed by substance abuse problems, depression, schizophrenia, learning disorders, and neuropsychiatric disorders (Modupi et al., 2020).

Subsequent studies by Naidoo et al. (2022) assessed the prevalence of mental illnesses among 126 female inmates. The respective lifetime prevalence rates were observed: 70.6% for depressive disorder, 48.4% for alcohol dependence, 46.8% for PTSD, 33.3% for borderline personality disorder, 31.7% for substance abuse, 15.1% for antisocial personality disorder, and 4.8% for psychotic disorder. A total of 39% of the participants admitted to having attempted suicide in the past, 64.3% previously had suicidal ideation and 36.5% currently had an episode of a psychiatric disorder.

Few studies on the prevalence of mental health illnesses in HIV/AIDS patients in South Africa have been conducted. In one study, 149 people (44 men and 105 women) were sampled to assess PTSD in newly diagnosed HIV/AIDS patients. 22 of the 149 patients (14.8 %) met the criteria for PTSD, with 29% of them having major depression, 54% suicidal, and 40% having social anxiety disorder. Additionally, patients with PTSD exhibited a trend towards increased use of alcohol as a coping mechanism (Olley et al., 2005).

Another cross-sectional study analysing 465 participants (75% female) enrolled in a HIV treatment and care facilities near Cape Town was also conducted. The median age was 33 years with 48% of them receiving antiretroviral therapy. Overall, depression, PTSD, and alcoholism were present in 14% (n = 62), 5% (n = 24), and 7% (n = 35) of the population, respectively (Landon Myer, 2008). A comparable cross-sectional study looked at the relationship between mental disease and HIV risk behavioural patterns among people living in randomly selected households in a South African township. Of the 645 people surveyed,

33% suffered from depression, 17% reported alcohol abuse, and 15% had PTSD (Smit et al., 2006).

In addition to the above, a Cape Town survey of 738 male and female participants was completed in 6 alcohol-serving establishments to assess PTSD and depression signs, traumas, sexual habits, and substance use. All the participants had traumatic experiences, depression, alcohol abuse, and HIV risk behaviour patterns in common. Age, alcohol abuse, drug use, PTSD, and depression were all linked to risky sexual behaviour (Sikkema et al., 2011).

Also, with the recent COVID-19 pandemic, Kim et al. (2020); Naidu (2020); Pillay & Barnes (2020) analysed the mental health impact of COVID-19 on South Africans living in Soweto and observed that adults who had suffered childhood trauma and other connected adverse experiences were at an increased risk of developing symptoms of depression exacerbated by the perceived risk of acquiring COVID-19. Further to that, Naidu (2020) states that the COVID-19 pandemic may contribute to mental health problems such as PTSD, mood disorders, anxiety disorders, phobias, and obsessive-compulsive disorders due to biological, psychological, and social predispositions in South Africa.

6. HEALTH INSURANCE AND MENTAL HEALTH

Health insurance is a form of healthcare coverage that pays for medical costs incurred as a result of an illness. These costs could be attributed to hospitalisation, medication, or doctor consultation fees (Taluja & Agarwal, 2021). In general, there are two types of health insurance: private health insurance, where an individual pays an insurance company a premium at fixed intervals (monthly/quarterly/annually), and public health insurance, which is government funded (Bijal et al., 2019).

According to some US studies, people with mental illnesses are less likely to have health insurance than those who do not have mental health issues (McAlpine & Mechanic, 2000). From the Medical Expenditure Panel Survey for 2004–06, Rachel Garfield and colleagues discovered that 37% of working adults with severe mental illness had no health insurance for part of the year compared to around 28% of those without mental disorders (Garfield et al.,

2011). Similarly, William Pearson and his team reported that the likelihood of having insurance coverage was 40% lower for individuals who had serious psychological distress (SPD) compared to those without SPD (Pearson et al., 2009).

However, there is not much information available on how health insurance impacts the health and economic well-being of beneficiaries including people with mental health issues. According to published reviews, while health insurance improves utilisation and lowers personal spendings, there seems to be mixed data on the effect it has on health outcomes (N. Sood et al., 2014).

In one systematic review, Roberts et al. (2018) discovered that having health insurance was commonly, but not consistently, associated with healthcare utilization for mental disorders. Other findings from the National Comorbidity Survey Replication showed that among individuals living with mental illnesses, those with health insurance are far more likely to use healthcare services, whereas the uninsured are much more inclined to utilise alternative medicine (Wang et al., 2005).

7. OUT-OF-POCKET EXPENDITURE AND MENTAL HEALTH

Out-of-pocket (OOP) expenditure in healthcare refers to the personal payments a patient makes for medical costs that are not covered by health insurance. Deductibles, coinsurance, co-payments are examples of OOP costs (Branham et al., 2022). In most countries, OOP payments account for a large proportion of total mental healthcare spending (Dixon et al., 2006). Findings suggest that the scale of OOP expenses for mental health issues tend to vary by country and methodology [(Patel et al., 2007) (Rahman et al., 2013) (Ringel & Sturm, 2001).

Data from the Medical Expenditure Panel Survey was used in one study to determine the annual and within-year proportions of healthcare spending as well as evaluating OOP costs among families with mental health issues. Families with one or more members living with mental health conditions were more likely to incur significant OOP expenses, accounting for an average of 37% of all OOP expenditures in a single month (Zuvekas & Selden, 2010).

Moreover, another study from the US found that people with bipolar disorder spent four times more than those who did not have bipolar disorder (Bryant-Comstock et al., 2002). Likewise, more studies found that having a mental condition was strongly linked to higher health care payments in Sao Paulo and USA (Chiavegatto Filho et al., 2015) (Nguyen et al., 2015).

A cross-sectional study of 8,796 people in six European countries (Belgium, France, Germany, Italy, the Netherlands, and Spain) aimed to assess the OOP expenses paid by individuals receiving mental care and treatment. The OOP expenditures varied by provider type, with non-physician medical professionals and specialists being often associated with prohibitive costs. Overall, 41% of those using mental health services paid for the treatment they received from their own pocket (Sevilla-Dedieu et al., 2011).

One other analysis sought to determine the one-year healthcare utilisation and out-of-pocket costs among young individuals newly diagnosed with bipolar disorder. In the study population of 4,973 youths, 71% of the total healthcare spending was attributed to mental health services, with OOP costs accounting for 14% of the total spending per child (Dusetzina et al., 2012).

8. OUT-OF-POCKET EXPENDITURE AMONG INSURED MENTAL HEALTH PATIENTS

Severe mental illnesses are frequently chronic or recurring, thus requiring continual medical care for successful results. Even though access to specialized services for people with serious mental problems remained fairly stable, costs to care continued to increase among the uninsured and privately insured. According to a recent study, people who have full-year private health insurance pay about 20% of their overall medical costs from their own pocket (Taylor et al., 2001). Similarly, earlier research found that insured patients pay 15% of their total medical expenses out of pocket (Crystal et al., 2000).

Furthermore, Peele et al. (2003) examined insurance claims for mental health and substance abuse services submitted in 1996 by a sample of approximately 1.66 million individuals from an employer health insurance plan in the US. Individual data was reviewed in order to calculate healthcare payments as well as patient out-of-pocket costs. The study reported that

patients with bipolar disorder incurred annual out-of-pocket expenses that were more than double (\$568) the out-of-pocket expenses incurred by other claimants without bipolar (\$232) from a total of 7.5% of all individuals who filed a claim.

Some authors sought to evaluate OOP costs between insured and uninsured individuals. In Turkey, a study looked at the amount of OOP medical costs and the factors that influence it in patients with bipolar disorder, anxiety, schizophrenia, and other psychotic disorders in a mental health outpatient facility. The study population consisted of 191 patients (both insured and uninsured) who visited the psychiatry health centre in June 2014. Although it was evident from the study that both the insured and uninsured patients did incur OOP expenses, those without health insurance had higher OOP expenses (\$45.8) than those who were insured (\$4.8) (Islek et al., 2018).

9. CONCLUSIONS

Mental illnesses have emerged among major public health concerns, impacting the quality of life, work productivity, and mortality rates of a vast majority of the overall population (Walker et al., 2015). The 2017 Global Burden of Disease estimates found that 792 million people lived with a mental health condition. This figure represents slightly more than one in every ten people worldwide (10.7%)(Dattani et al., 2021).

Although the actual cause of the majority of mental disorders is unknown, research has shown that most of these diseases are based on a combination of biological, psychological, and environmental factors (Weir, 2012) such as the current global coronavirus pandemic (Knolle et al., 2021). Consequently, the complex combination of the aforementioned factors contributed to gender differences, and most research findings on mental health disorders discovered that mental health problems were much more prevalent in women than in men (Otten et al., 2021; Spitzer et al., 2011) (Wiltink et al., 2011), some by a factor of 20% to 40% (Freeman & Freeman, 2013).

Aside from being a major contributor to the global disability burden, especially for LMICs, mental health problems have significant economic implications (Wahlbeck & McDaid, 2012)

not only on the individuals with mental problems, but also on families, communities, employers, healthcare systems, and government expenditures (Jenkins et al., 2011). Mental health issues cost global economies billions in expenses and lost productivity (Sebastian Trautmann et al., 2016). Likewise, most individuals with mental illnesses may have to bear a huge portion of the medical costs from their own pocket (Jenkins et al., 2011).

Further to that, similar trends have been reported among specific populations, with publicly insured and low-income people paying a smaller portion of out-of-pocket mental healthcare expenses than privately insured and high-income people. Out-of-pocket expenditures were found to be 6% of total treatment costs for Medicaid beneficiaries (publicly insured, low income), while those who were covered by private medical insurance paid approximately 31% of total mental health costs out of pocket. (Ringel & Sturm, 2001).

The high out-of-pocket costs for insured mental health patients are typically due to frequent visits to pharmacists and costly consultations with general and specialist doctors (Rajan et al., 2020). Thus, despite a consistent, positive relationship between medical insurance and healthcare services usage and outcomes, the continuous increase in costs for those with health insurance suggests that the healthcare financing structure in the industry is insufficient to help relieve financial burdens (K. Rowan et al., 2013).

Importantly, current research on mental health in South Africa continues to ignore the impact of health insurance and associated OOP costs. The majority of the South African studies discussed in this review are either geographically focused, gender-focused, or centred on children and adolescents. The SASH study is South Africa's first and only large-scale national research project on the prevalence of mental disorders. Nonetheless, the findings observed in the different literature reviewed in this study show that South Africa does indeed have an enormous burden of mental health disease.

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PART C: JOURNAL ARTICLE

The Prevalence of Mental Disorders and Associated Out-Of-Pocket Expenditure Among Insured Patients in South Africa.

Mazvita Shereen Mnangagwa Matsa

mnnmaz001@myuct.ac.za

Health Economics Unit, School of Public Health and Family Medicine, University of Cape Town, Anzio Road, Observatory 7925, South Africa.

ABSTRACT

Background: Mental disorders are a huge global burden, with approximately a quarter of the population developing a mental illness at some point. In South Africa, approximately 20% of adults are believed to be struggling with poor mental health, with less than a quarter of this population ever receiving mental health care. A potential strategy for reducing such treatment gaps is private health insurance (PHI). Around 18% of the total South African population is medically insured. PHI, however, only covers a restricted set of expenses. The aim of this study is to examine the prevalence of mental disorders, the associated determinants, and the out-of-pocket costs among South African insured individuals.

Method: Discovery Health population was used as a proxy for the private health insurance market in South Africa. Discovery Health collected the data using the applicable DEG (Discovery Disease Episode Grouper) code and ICD-10 codes for each occurrence. STATA version 17 was used to analyse the overall prevalence rate as well as the prevalence rates according to selected demographic characteristics of five common mental disorders (depression, anxiety disorders, bipolar mood disorders, development and learning disorders, and attention deficit and hyperactivity disorders) over a 36-month period. Children and adults with or without comorbidities and with no gender restrictions were included.

Results: 23% of the total population reported mental health issues, with females and males accounting for 60% and 40%, respectively. The highest prevalence rate among those with comorbidities was reported in individuals with hypertension, 3%. In addition, prevalence rates for young individuals below the age of 19 versus adults over the age of 19 were found to be 4.7% and 18.7%, respectively. Total OOP expenses were R1.87 billion over the 36-month, with

in-hospital services accounting for 7% and the remaining 93% attributable to out-of-hospital treatments. The study results found that the total OOP payments constituted 19% of total costs.

Conclusion: Studies analysing the effects of health insurance for people suffering from mental problems in South Africa have not been conducted formally. The results in this study showed that the prevalence rate is in line with published prevalence rates in the general population worldwide, with women more likely than men to be affected. Some mental disorders were found to be indeed consequences of other health conditions.

Furthermore, as evidence suggests, health insurance may promote utilization and decrease personal expenditures, however, there still exists substantial out-of-pocket costs since mental health coverage has traditionally been found to be less generous than physical health insurance. Policymakers are encouraged to promote changes to the health insurance plan for people living with mental health challenges in order to reduce economic burdens.

Keywords: Mental Health, Global Mental Health, Health Insurance, Social Determinants, Out-of-pocket Costs, South Africa

BACKGROUND

In low- and middle-income countries (LMIC) like South Africa, where more than 80% of the world's population resides, mental illnesses account for 11.1% of the total disease burden. These disorders are closely linked to other public health issues like HIV/AIDS, mother and child health, and child development (Patel, 2007). A study by De Kock et al. (De Kock & Pillay, 2017) revealed that one in ten participants from LMIC areas experienced mental health problems. The main social factors of mental diseases in these areas have been identified as being poverty, low education, social isolation, gender inequality, conflict, and natural catastrophes (Makwana, 2019).

However, despite the fact that mental disorders are undoubtedly one of the major comorbid conditions that contribute to poor health and a poor quality of life, mental health has been treated as a trivial and insignificant part of the healthcare industry (Burns, 2011; Pillay, 2017). This disregard of mental illnesses has impacted individuals who suffer from them by undermining and limiting access to essential healthcare.

Studies by Monteiro (Monteiro, 2015) reported that many individuals living with mental health problems globally (30% of the population) do not have access adequate treatment services. In the World Mental Health Surveys conducted in America, Europe, the Middle East, Africa, and Asia, Gyamfi et al., (2018) also found that 40% of mental health sufferers in developed countries and 80% in developing countries do not receive treatment. And those with access the treatment services also face issues like insufficient resources, stigma, social isolation, and exposure to unpleasant and negative experiences (Booyesen et al., 2021).

Similarly, most South Africans with mental disorders are often overlooked by the healthcare system and struggle to get mental health treatment (Lund et al., 2012). Statistics published by the South African College of Applied Psychology (Nguse & Wassenaar, 2021) indicate that only a small portion (27%) of South Africans with severe mental disorders receive treatment despite the fact that 40% of HIV positive South Africans have a comorbid mental disorder, 41% of pregnant women develop depression, and approximately a third of the population may be experiencing post-traumatic stress disorders (PTSD).

South Africa currently has a two-tier health system comprised of the public and private health sectors, each of which contributes equally to the total health expenditure. 84% of the population is served by the public health sector, which is primarily supported by the national treasury. The other 16% get health care from private providers via the use of prepaid health insurance intermediaries (medical plans) and/or out-of-pocket (OOP) cash payments (Maphumulo & Bhengu, 2019).

Unfortunately, both the public and private health sectors are characterized by funding inadequacy for persons with mental illnesses and their service needs (Chisholm et al., 2019; Robertson et al., 2019). The South African 2016/17 fiscal year report revealed that only 5% of the entire public health budget was allocated to mental health expenditure (Docrat et al., 2019). As a result, it is not surprising that most South African families with illness, including mental disorders, often have to spend more than 10% of their household income on health-related needs (Goudge et al., 2009).

Moreover, in the private sector, mental health care services are often not covered to the same extent as physical health care services by health insurance packages or health plans (Kathleen Rowan et al., 2013). In the late 1990s, Roland Sturm and Kenneth Wells observed that the private health insurance industry imposed severe limitations on annual benefits, outpatient visits or inpatient days for mental diseases, despite the fact that other major illnesses enjoyed full coverage (Sturm & Wells, 2000).

Consequently, beneficiaries are left with substantial OOP expenditures for mental health treatments (Vreeland, 2007), with OOP amounts ranging from 15% (Crystal et al., 2000) to 20% (Taylor et al., 2001) of the total costs. To relieve mental health sufferers of this unfair financial burden, the South African government made the commendable decision to prioritise access to mental health care via the development of legal and policy instruments like the Mental Health Care Act of 2002 and the National Mental Health Policy Framework and Strategic Plan 2013-2020 (Africa, 2002; Health, 2013).

The lack of a sustainable financing source for the implementation of the aforementioned policies and plans has since stalled progress, exacerbating the underlying issues in mental healthcare (Nguse & Wassenaar, 2021). Thus, the purpose of this research is to investigate the prevalence of mental diseases as well as the OOP healthcare spending among South Africans with private health insurance.

METHODS

Design and setting

The study's objective is to analyse the prevalence of mental health, examine the factors

associated with the condition and evaluate the OOP expenditure among insured individuals using secondary data from the Discovery Health Medical Scheme (DHMS) in South Africa. Discovery Health (DH) population was used as a proxy for the South African private health insurance market.

The study data was collected by DHMS over a 36-month period (2018 to 2020) in all nine provinces. Inclusion conditions required that individuals: (1) be aged 0 to 70+; (2) be either female or male; (3) with or without co-existing physical health conditions; (4) and have a mental health condition diagnosis.

The data also included information on age, gender, health conditions, geographic area, type of health insurance coverage, cost category, type of specialist, cost of medical care obtained at inpatient and outpatient facilities, and total OOP costs for various episodes of mental illness. Moreover, the data was matched using the applicable DEG code and ICD-10 codes for each occurrence. The DEG was used to aggregate claims related with a single episode of a specific diagnosis. The ICD codes were used to identify the condition associated with a claim as per WHO's classification of illnesses.

Data Analysis

The mental disorders included in this analysis are depression, anxiety disorders (AD), bipolar mood disorders (BMD), development and learning disorders (DLD) and attention deficit and hyperactivity disorders (ADHD), these five are among the most common mental health conditions. In this study, the monthly prevalence data for the 36-month period as provided by DHMS were analysed.

Prevalence is characterized by any existing mental disorder patient actively claiming for all related treatments in a particular period. Included in the prevalence is the incidence rate, which is the point of first diagnosis for the mental disease, and the drop-off rate, which is when a member of DHMS either dies or switches to another medical scheme (Mental health incidence and prevalence data, 2021).

Secondly, STATA version 17 was used to analyse the prevalence rate and corresponding confidence intervals of the selected five common mental disorders (depression, anxiety disorders, bipolar mood disorders, development and learning disorders, and attention deficit and hyperactivity disorders) by demographic variables (gender, age, comorbidity, geographic location) (**Table 1**) over a 36-month period.

Table 1: Demographic Variables

Age	Categorized into 5 groups ranging from 0 to 9 years up to 70+ years.
Gender	Specified as either female or male.
Comorbidity	HIV, Diabetes, Hypertension and TB, being binary variables coded 0 if there is no presence of the disease in patients and 1 if the disease exists.
Geographic location	Western Cape (WC); Eastern Cape (EC); Northern Cape (NC); Free State (FS); KwaZulu Natal (KZN); North West (NW); Limpopo (L); Mpumalanga (M); and Gauteng (G).

Thirdly, this study will conduct a comprehensive evaluation of the OOP expenditures incurred by the insured mental health patients using provided data for both in-hospital and out-of-hospital treatment services. Out-of-hospital service expenditures were reported on two categories: medication and consultation costs. In-hospital treatment expenditures were gathered from four categories: hospital, consultation, medication, and device costs.

OOP spending was calculated by DHMS as the difference between the amount of expenses claimed (in-hospital and out-of-hospital) by DH members and the amount of the claimed expenditure actually paid by DHMS (**Box 1**). All costs will be presented in 2020 South African Rand (ZAR).

Box 1. Methods for the calculation of mental health OOP costs

In-hospital OOP costs:

In-hospital costs¹ claimed - In-hospital costs paid by insurance =

OOP costs for in-hospital treatment

¹ In-hospital costs include hospital, consultation, medication, and device costs. These figures were provided for the period January 2018 to December 2020. The average length of stay in hospital was 10 days per month. The average number of hospital admissions for the period was 2100 per month.

Out-of-hospital OOP costs:

Out-of-hospital costs² claimed - Out-of-hospital costs paid by insurance =

OOP costs for out-of-hospital treatment.

² Out-of-hospital costs include medication and consultation costs.

These figures were provided for the period January 2018 to December 2020. The costs of consultations are made up of sessions with healthcare practitioners such as psychologists, psychiatrists, and other specialists. The medical costs are the costs of any medication prescribed to patients for the treatment of the relevant mental disorder.

RESULTS

Overall Prevalence of mental health conditions

This study found that the overall prevalence of mental disorders among the sample population was 23% (CI 95%: 23.05 – 23.98). This prevalence rate was consistent for the

average monthly rate and the 12-month prevalence rate which were both reported as 23% as well. Depression had the highest prevalence rate of 11% (CI 95%: 10.7 – 11.1), followed by AD with 5% (CI 95%: 5.18 – 5.42), ADHD, 3% (CI 95%: 3.12 – 3.21), and BMD and DLD both reported 2% with (CI 95%: 2.05 – 2.12) and (CI 95%: 1.99 – 2.09), respectively (**Table 2**).

Table 2: Prevalence of Mental Disorders among Insured Individuals, 2018-2020 (N = 125 Million)

Mental Disorders	%	CI 95%
Overall:	23	23.05 – 23.98
Anxiety Disorder (AD)	5	(5.18 – 5.42)
Attention Deficit and Hyperactivity Disorder (ADHD)	3	(3.12 – 3.21)
Bipolar Mental Disorder (BMD)	2	(2.05 – 2.12)
Depression	11	(10.7 – 11.1)
Development and Learning Disorder (DLD)	2	(1.99 – 2.09)

To derive to this prevalence rate calculated using the selected five mental disorders, a total population of approximately 125 million DH member claims (equally distributed among females and males) was evaluated over 36 months. Of this population under consideration, 29 276 617 claims for the five common mental health disorders were reported over the same period, which is 23% of the total member claims. This prevalence rate of 23% (CI 95%: 23.05 – 23.98) includes an incidence rate of 0.25% and a drop-off rate of 0.17%.

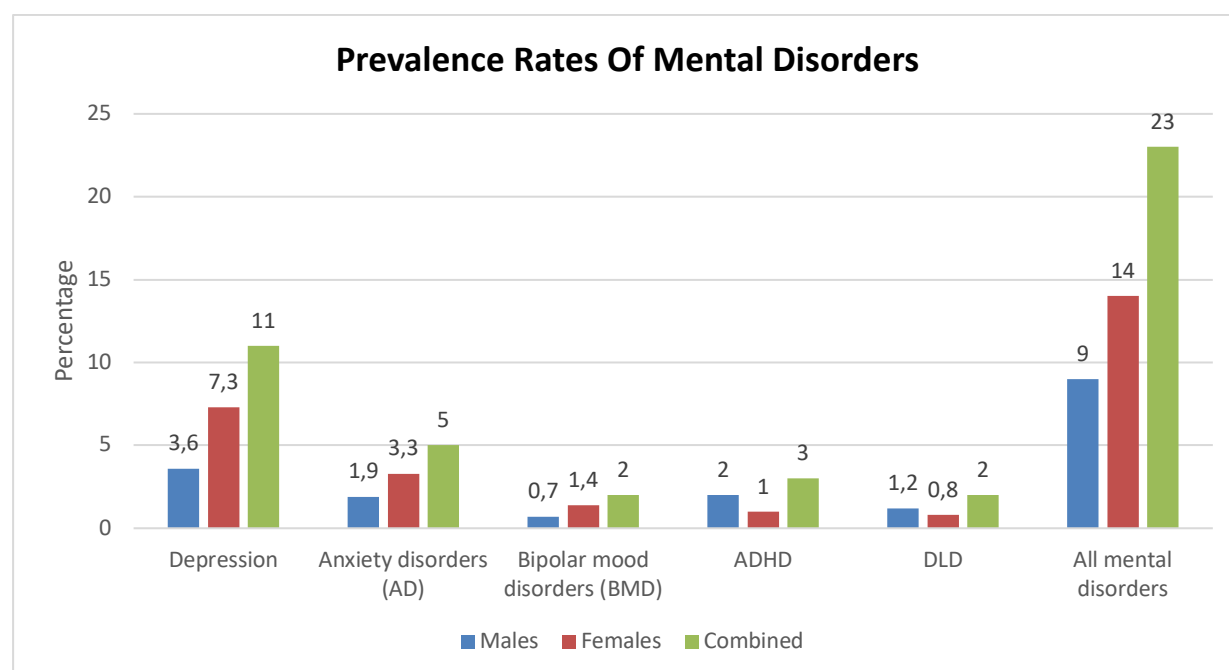
Prevalence of Mental Disorders by Demographic Characteristics

This study found that the 23% prevalence rate for all mental disorders reported comprised of about 60% females and 40% males. Among the females alone, the prevalence rate for all mental illnesses of 14% (CI 95%: 13.8 – 14.34) was reported, which was higher than their male counterparts who had a rate of 9.% (CI 95%: 9.3 – 9.7) among them. Depression 7.3% (CI 95%: 7.2 - 7.47), BMD 1.4% (CI 95%: 1.35 - 1.39) and AD 3.3% (CI 95%: 3.26 - 3.42) were more

prevalent among females as compared to males with 3.6% (CI 95%: 3.5 - 3.7), 0.7% (CI 95%: 0.69 - 0.72), and 1.9% (CI 95%: 1.91 - 2.0), respectively. Conversely, ADHD 2% (CI 95%: 1.98 - 2.04) and DLD 1.2% (CI 95%: 1.16 - 1.22) were found more among males than females 1% (CI 95%: 1.13 - 1.18) and 0.8% (CI 95%: 0.83 - 0.87), respectively (**Figure 1**).

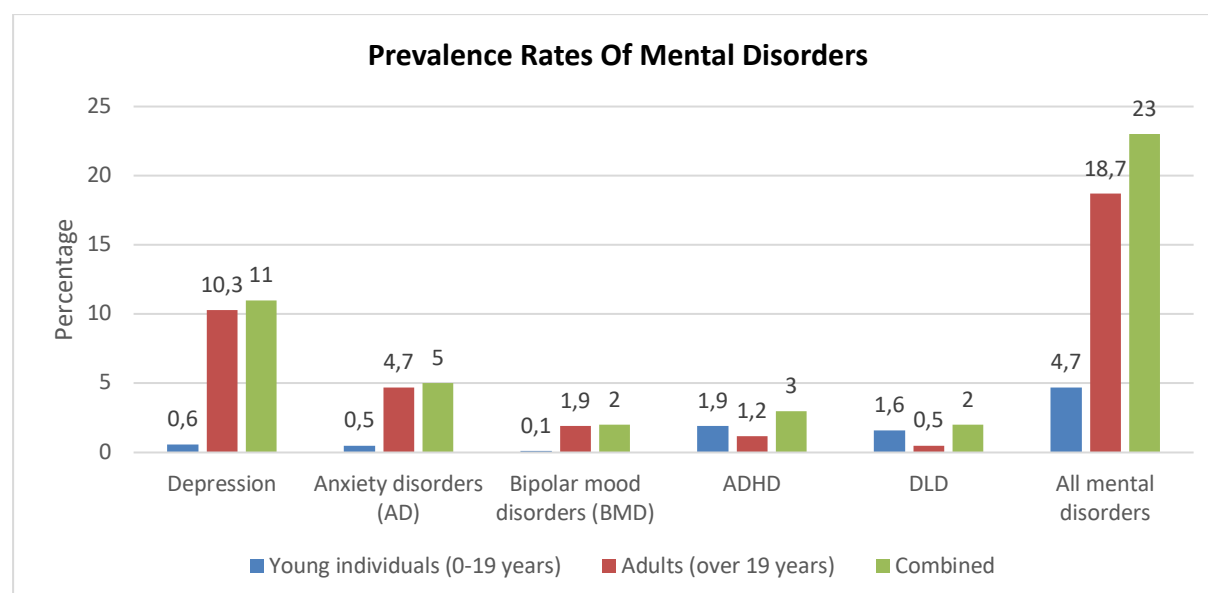
However, looking at the trend across all the nine provinces, females recorded higher prevalence rates as compared to males with Gauteng reporting the highest rate of 7% (CI 95%: 6.7 – 7) among the females whilst the lowest rates of 0.12% (CI 95%: 0.11 – 0.12) and 0.13% (CI 95%: 0.128 – 0.134) were recorded in Northern Cape and Limpopo for males, respectively (**Table 3**). Collectively, the trend was similar with Gauteng 11.4% (CI 95%: 11.2 – 11.6) reporting the highest prevalence rate and Northern Cape 0.3% (CI 95%: 0.29 – 0.3) and Limpopo 0.3% (CI 95%: 0.32 – 0.34) reporting the lowest prevalence rates for all mental disorders (**Table 3**).

Figure 1: Prevalence Of Mental Disorders By Gender, 2018–2020



In addition, mental disorders such as ADHD 1.9% (CI 95%: 1.89 – 1.91) and DLD 1.6% (CI 95%: 1.53 - 1.6) were found to be more prevalent among young individuals below the age of 19 years versus adults over the age of 19 years with ADHD 1.2% (CI 95%: 1.21 – 1.31) and DLD 0.5% (CI 95%: 0.47 – 0.5), while the adult population experienced more cases of Depression 10.3% (CI 95%: 10.1 – 10.5), BMD 1.9% (CI 95%: 1.94 – 2.01) and AD 10.3% (CI 95%: 10.1 – 10.5) as compared to the young ones below 19 years of age with Depression 0.6% (CI 95%: 0.62 – 0.65), BMD 0.1% (CI 95%: 0.103 – 0.104) and AD 0.5% (CI 95%: 0.49 – 0.51) (**Figure 2**).

Figure 2: Prevalence of Mental Disorders, Young Individuals Vs Adults, 2018–2020



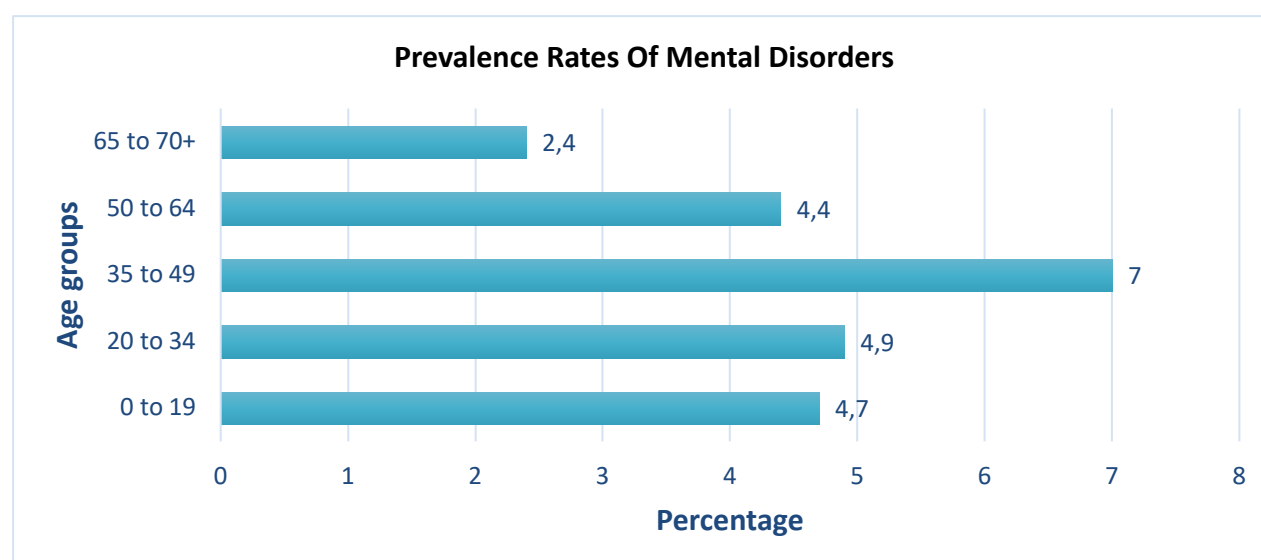
Collectively, the prevalence rate for young individuals was recorded as 4.7% (CI 95% 4.6 – 4.8), with adults reporting a rate of 18.7% (CI 95% 18.4 – 19.2). This trend was consistent across all provinces with lower prevalence rates recorded among those 19 years of age and below, with prevalence rates ranging from 0.05% (CI 95%: 0.05 – 0.1) in Northern Cape to 2.4% (CI 95%: 2.4 -2.5) in Gauteng, compared to those among adults over 19 years which ranged from 0.24% (CI 95%: 0.23 – 0.25) in Northern Cape to 9% (CI 95%: 8.8 – 9.2) in Gauteng (**Table 3**).

Table 3: Prevalence of Mental Disorders among the Insured % (CI 95%), By Province, Gender, Age Groups, 2018–2020

<i>Province</i>	<i>All Disorders</i>	<i>Females</i>	<i>Males</i>	<i>0 -19 years</i>	<i>Over 19 years</i>
EC	1.3% (1.24 – 1.29)	0.8% (0.74 – 0.8)	0.5% (0.49 – 0.51)	0.23% (0.22 – 0.23)	1% (1.01 – 1.05)
FS	0.8% (0.79 – 0.82)	0.5% (0.49 – 0.51)	0.3% (0.29 – 0.31)	0.14% (0.138 – 0.144)	0.7% (0.65 – 0.7)
G	11.4% (11.2 – 11.6)	7% (6.7 – 7)	4.6% (4.5 – 4.7)	2.4% (2.4 -2.5)	9% (8.8 – 9.2)
KZN	3% (2.95 – 3.1)	1.8% (1.74 – 1.82)	1.24% (1.2- 1.26)	0.6% (0.56 – 0.6)	2.4% (2.39 – 2.5)
L	0.3% (0.32 – 0.34)	0.2% (0.19 – 0.2)	0.13% (0.128 – 0.134)	0.06% (0.06 – 0.1)	0.3% (0.26 – 0.3)
M	0.8% (0.74 – 0.8)	0.45% (0.44 – 0.45)	0.3% (0.3 – 0.32)	0.16% (0.155 – 0.16)	0.6% (0.58 – 0.61)
NC	0.3% (0.29 – 0.3)	0.18% (0.17 – 0.18)	0.12% (0.11 – 0.12)	0.05% (0.05 – 0.1)	0.24% (0.23 – 0.25)
NW	0.7% (0.73 – 0.75)	0.43% (0.42 – 0.44)	0.3% (0.3 – 0.31)	0.14% (0.14 – 0.143)	0.6% (0.59 – 0.61)
WC	4.8% (4.77 – 5)	3% (2.9 – 3)	2% (1.89 – 2)	0.91% (0.9 – 0.93)	4% (3.9 – 4.1)

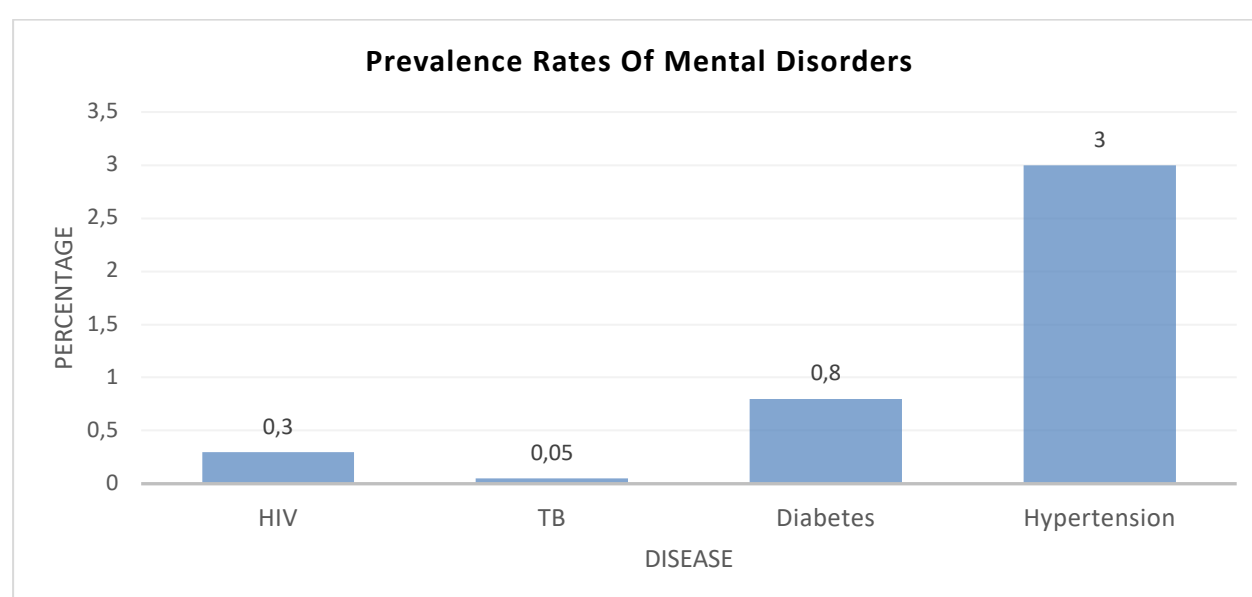
The study also recorded the overall prevalence rates by the five age groups with the highest rate recorded for age group 35-49 years 7% (CI 95%: 6.8 – 7.1) and the lowest rate reported among the 65-70+ years age group 2.4% (CI 95%: 2.38 – 2.53) **(Figure 3)**.

Figure 3: Prevalence Of Mental Disorders By Age Groups, 2018–2020



Furthermore, Comorbidities were also analysed, and the study found that 0.3% (CI 95%: 0.28 - 0.3) of the study cohort had both a CMD and HIV, 0.05% (CI 95%: 0.051 - 0.056) had both a CMD and TB, 3% (CI 95%: 3 - 3.1) had both a CMD and hypertension, while 0.8% (CI 95%: 0.77 - 0.81) had a CMD and diabetes, with the highest prevalence rate of a CMD recorded among those with hypertension (**Figure 4**).

Figure 4: Prevalence of Mental Disorders Among The Insured, By Comorbidity, 2018–2020



Out-of-pocket Expenses

This study found that the total OOP costs of inpatient and outpatient mental health services across all provinces of South Africa amounted to an estimated R1.87 billion over the 36-month period from 2018 to 2020 (**Table 4**) with in-hospital services accounting for 7% of the total OOP costs and the remaining 93% attributable to out-of-hospital treatments.

At the national level, the total OOP costs represented 19% of the total costs claimed for both inpatient and outpatient treatments. This trend was consistent across all provinces in the country with Gauteng and Western Cape recording the first and second highest share with

20% and 19%, respectively. Northern Cape had the lowest share with a total OOP proportion of 15%.

Moreover, national-level estimates show that services by psychiatrists made up the majority of inpatient treatment costs (47%) **(Figure 5)**, with treatment by psychologists accounting for 22%, group practice doctors, 20% and, occupational therapists about 11%. For the outpatient treatment care, the majority of the costs came from the pharmacy services (77%), psychologists had 8%, general practitioners (6%), psychiatrists (5%) and therapists (4%) **(Figure 5)**.

Table 4: Summary Of Total OOP Costs (Millions) Of Mental Health Services By Province

	EC	FS	GAU	KZN	LIM	MPU	NC	NW	WC	NATIONAL
INPATIENT OOP COST	3.88	4.54	71.67	16.22	2.06	4.94	3.35	5.29	22.6	134.55
OUTPATIENT OOP COST	66.06	55.22	943.27	150.72	17.41	44.27	14.67	42.12	405.66	1739.4
TOTAL OOP COST	69.94	59.76	1014.94	166.94	19.47	49.21	18.02	47.41	428.26	1873.95
PROPORTION OF TOTAL OOP PER TOTAL COSTS %	17	16	20	16	18	18	15	17	19	19

- EC, Eastern Cape; FS, Free State; GT, Gauteng; KZN, Kwa-Zulu Natal; LP, Limpopo; MP, Mpumalanga; NC, Northern Cape; NW, North West; WC, Western Cape.

Figure 5: Distribution Of Treatment Care Services For In-Hospital Mental Healthcare (%)

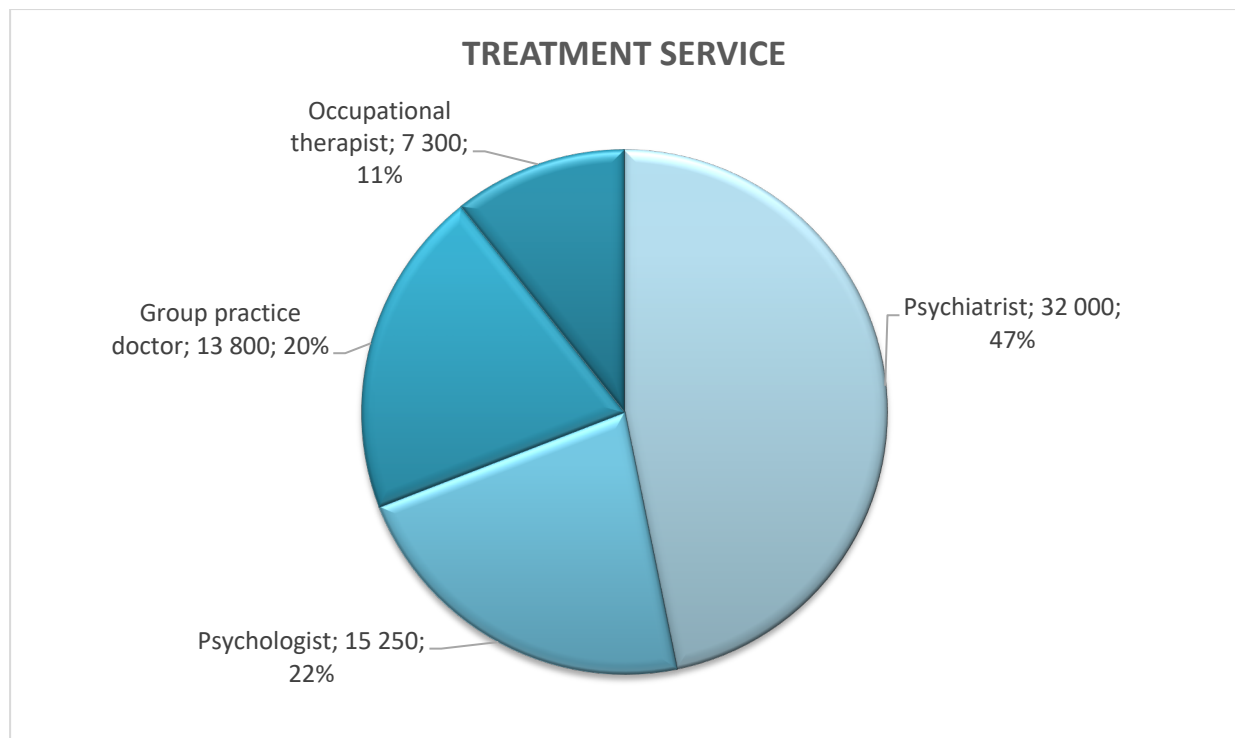
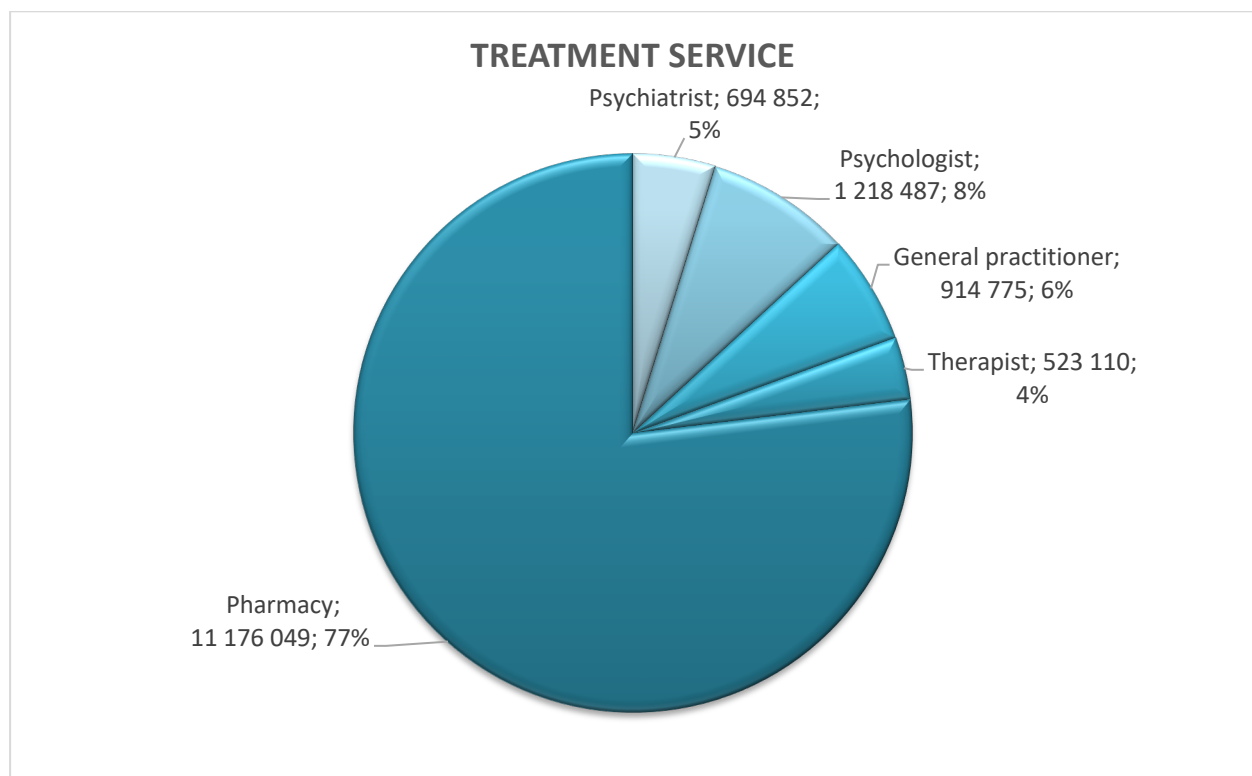


Figure 6: Distribution Of Treatment Care Services For Out-Of-Hospital Mental Healthcare



DISCUSSION

To the best of our knowledge, this is one of the first national studies to investigate the prevalence of mental health issues, identify the contributing factors, and calculate the OOP costs among South Africans who have private health insurance. A comparable research was South Africa's 2004 Stress and Health Survey (SASH), which was the first to examine mental health issues among adults on a national scale.

According to the SASH study, common mental diseases had a 16.5% 12-month prevalence and a 30.3% lifetime prevalence. Anxiety disorders were the most prevalent cause of lifetime mental illnesses (15.8%), followed by substance use disorders (13.3%) and mood disorders (9.8%). The Western Cape (39%), Free State (38%) and North West (34%) provinces had lifetime prevalence rates that were significantly higher than the countrywide rate, while the lowest rate was reported in the Eastern Cape (26%) (A. A. Herman et al., 2009).

Furthermore, a different study using SASH data discovered that females were 1.75 times more likely than males to be diagnosed with lifetime major depressive episodes (MDE) and 2.17 times more likely to experience 12-month MDE than males (Tomlinson et al., 2009), while another study revealed that males were at an increased risk of developing substance-use disorders (van Heerden et al., 2009).

Our study, however, found a considerably higher 12-month prevalence rate for mental disorders (23%) than the SASH study. Depression (11%) was found to be the most prevalent, followed by anxiety disorders (6%). Females were twice as likely to develop depression, anxiety disorders and bipolar mood disorders than males, and males were approximately 1.5

times more likely to develop ADHD and DLD than females. The Free State (27%) and Western Cape (26%) recorded the first and second highest prevalence rates, respectively, while Limpopo reported the lowest rate of 15%.

It is important to note that the SASH study analysed the mental health prevalence rates using anxiety disorders, mood disorders, impulse control disorders and substance use disorders as their common mental disorders and excluded other major, relevant mental conditions. Data was collected on adult outpatients from various sociodemographic backgrounds with or without insurance and did not include children and adolescents, individuals living in hospitals and mental institutions were also excluded (A. A. Herman et al., 2009).

The SASH study's sample size of roughly 4300 people was also small and subject to random error (Jacob & Coetzee, 2018). These variations in study design between our research and the SASH study are sufficient to account for the disparities in the 12-month prevalence rates observed.

Nonetheless, all things being equal, the higher prevalence rate in our study may be due to the individuals having health insurance, which increases healthcare utilization. Araya and colleagues discovered that 29.2% of those with private health insurance had received mental health treatment within a 6-month period, compared to 18% of the uninsured population due to a strong association between having private health insurance and the probability of accessing treatment for mental disorders (Araya et al., 2006).

Studies have also shown that when comparing insured and uninsured individuals, the duration of inpatient admissions, the number of hospitalizations, the utilisation of outpatient

treatments all increased consistently over time (Docrat et al., 2020; Jian & Guo, 2009; Xu et al., 2018). This is also evidenced in our research, with high numbers in total inpatient admissions (76,000), average monthly hospital stays (10 days), and outpatient treatment services (13 million) for the insured mental health patients over the 36-month research period.

Despite evidence proving that people with private health insurance have generally consistent access to treatment, these individuals may still incur substantial OOP expenses, indicating that existing healthcare funding system in the private insurance sector is insufficient to alleviate cost burdens (Kathleen Rowan et al., 2013). Similar findings were found in our research where insured patients were nonetheless required to pay OOP expenses totalling 19% of the total costs incurred for both inpatient and outpatient treatments.

Furthermore, comorbidities such as HIV and non-communicable diseases (NCD) like hypertension are important downstream risk factors (Myers et al., 2007; Inge Petersen & Crick Lund, 2011) that interact cohesively with mental health issues (Myer et al., 2008). According to Myer et al. (Myer et al., 2008), depression was present in 19% of participants in a standard HIV follow-up treatment campaign in Cape Town. Another survey noted how depression and anxiety were both found to increase the risk for hypertension, stroke and diabetes (Myers et al., 2007). The mental health prevalence rate reported for insured individuals living with HIV was lower in our study at 12%.

Ultimately, since each research was conducted in a distinct context, the prevalence rates in our analysis were different from those in several of the mentioned articles. The majority of

mental health research conducted in South Africa were either geographically, gender-, age-, or group-based. In a similar vein, our study's nationwide focus was entirely on insured mental health patients of all ages.

Additionally, it is worth noting the key limitations of this study. Firstly, there might be an inaccurate representation of the results due to the drop-offs which were all treated as individuals leaving the private insurance sector when in fact some of the people were moving to another medical scheme. Secondly, this study focused on the prevalence of five mental health issues which might not be a true reflection of the actual prevalence rate of mental disorders among the insured as other critical mental health conditions have been excluded.

CONCLUSION

Whilst acknowledging limitations in our analysis, this research offers a nationally representative reflection of the state of mental health diseases as well as the associated factors and OOP expenditures among those with private health insurance in South Africa. Thus, despite South Africa's positive strides in creating a supportive legislative and policy environment for mental health, there is vast evidence that mental disorders still contribute significantly to the burden of disease in the country with many mental health sufferers struggling to access treatment.

Some mental health sufferers have turned to the private health insurance sector in a bid to reduce economic burden and increase access to healthcare services, however, evidence has shown that mental health disorders do not enjoy sufficient health insurance coverage and benefits, resulting in high OOP expenditures for the insured mental health patients.

ABBREVIATIONS

AD - Anxiety disorders

ADHD - Attention deficit and hyperactivity disorder

BMD - Bipolar mood disorders

DEG - Disease Episode Grouper

DH - Discovery Health

DHMS - Discovery Health Medical Scheme

DLD - Development and learning disorder

EC - Eastern Cape

FS - Free State

GT – Gauteng

HIV - Human Immunodeficiency Virus

AIDS - Acquired Immunodeficiency Syndrome

ICD - International Classification of Diseases

KZN - Kwa-Zulu Natal

LMIC – Low- and Medium-Income Countries

LP – Limpopo

MDE - Major depressive episode

MP – Mpumalanga

NC - Northern Cape

NCD - Non-communicable diseases

NW - North West

OOP – Out-of-pocket

PTSD - Post-traumatic stress disorders

SASH - Stress and Health Survey

TB - Tuberculosis

WC - Western Cape.

WHO – World Health Organisation

DECLARATIONS

Ethical Approvals

This study made use of secondary data and did not utilize or collect any data including personal identifiers. Confidentiality and privacy were maintained at all times. Furthermore, no potential risk or injury was borne to individuals as collecting applicable data from secondary sources has no direct risks.

Consent for publication

Not applicable.

Availability of data and materials

The data used in this study is available from Quantum with accessibility restrictions. However, the author can provide data upon reasonable request and with permission from Quantum.

Competing interests

The author declares that they have no competing interests.

Funding

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Authors' contributions

MSM analysed and interpreted the data, designed the study, and wrote the paper.

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PART D: POLICY BRIEF



Health Economics Unit
School of Public Health
& Family Medicine
University of Cape Town

ABOUT THIS BRIEF:

This policy brief describes the prevalence of mental disorders together with the associated out-of-pocket expenditure among insured patients in South Africa

The prevalence of mental disorders and associated out-of-pocket expenditure among insured patients in South Africa

Key points

- In South Africa, mental health conditions continue to increase, with conditions like depression and anxiety among the most prevalent.
- 75% treatment gap for mental disorders on a national level.
- Private health insurance can serve to bridge the treatment gap.
- Insured mental health sufferers experience considerable discrimination from medical schemes, resulting in substantial out-of-pocket payments.
- Equitable insurance coverage is needed. Ideally, this should be a form of universal health care, for example, the proposed National Health Insurance (NHI).

Introduction

It is becoming widely acknowledged that mental illnesses have a crippling impact on people in both high-income countries (HIC) and low- and middle-income countries (LMIC) (Prince et al., 2007). Prior to the South African Stress and Health Study (SASH), not much was known about the prevalence, risk factors, and accessibility to treatments for mental disorders in the South Africa (A. A. Herman et al., 2009).

The SASH study revealed that more than 16.5% of adults South Africans suffer from a mental illness, while 30% are expected to have a mental illness at some point in their lives (Williams et al., 2008). Additionally, a review of existing research found that about the same percentage of children and adolescents have mental problems (Kleintjes et al., 2006).

Mental health conditions continue to increase in South Africa, with conditions like depression and anxiety among the most prevalent, but the barriers to accessing appropriate treatment remain enormous (*NHI won't offer quick fix to SA's mental healthcare crisis*, 2017). The SASH study revealed that one in every four respondents with a mental illness had received treatment in the year prior, suggesting a huge treatment gap (Seedat et al., 2008).

The treatment gap is estimated by the WHO (2004) to be between 35.5% and 50.3% in developed economies and between 76.3% and 85.4% in less developed countries. The shortage of treatments in developing nations is as a result of a variety of factors, including inadequate or non-existent mental health policies, poor government-to-mental health NGOs communication, and stigma at the community and policy-making levels (Omar et al., 2010).

Results from the SASH survey reported a 75% treatment gap for mental disorders on a national level (I. Petersen & C. Lund, 2011; Williams et al., 2008). Hence, even though South Africa performs better than many other less developed countries, the country's current healthcare funding is still inadequate to address mental health treatment needs (Lund et al., 2010).

As a result, many individuals often cite prohibitive cost of treatment or the absence of health insurance coverage as reasons for not seeking mental health treatment (Mojtabai, 2005; Sareen et al., 2007). In this context, private health insurance can serve to bridge the treatment gap by covering the financial burdens that affected individuals must bear due to the lack of public healthcare resources (Bijal et al., 2019).

However, mental health patients with health insurance experience considerable stigma and discrimination in the treatment of their conditions by many medical schemes in South Africa (Oosthuizen et al., 2004). Inadequate mental illness insurance coverage has been noted to contribute further to insufficient access to health care, leaving insured people living with mental illnesses with high out-of-pocket (OOP) payments (Claxton et al., 2006; Kathleen Rowan et al., 2013).

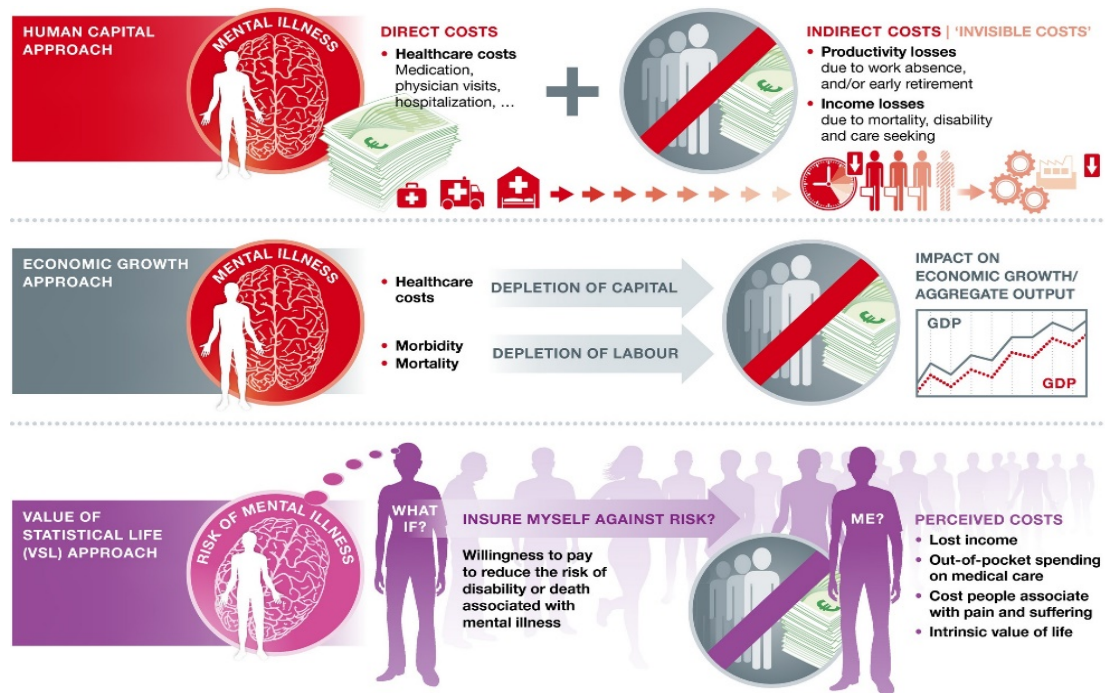
Hence, this policy brief describes the prevalence of mental disorders together with the associated out-of-pocket expenditure among insured patients in South Africa and provides an overview of some of the key areas that need to be considered in developing and implementing policy, providing examples of different approaches taken to meet some of these mental health challenges.

Mental health and economic costs

Untreated mental illness is not only a cause of individual morbidity, death, and extreme suffering, but it is also a mostly preventable burden on our economy. Mental diseases have tremendous economic implications, both directly via relatively low healthcare funding and indirectly through correspondingly significant productivity losses and the impact on economic development (**Figure1**) (S. Trautmann et al., 2016)

The SA Federation for Mental Health estimates that employee absenteeism due to depression and other related conditions costs the SA economy between R12 billion and R16 billion per year. Therefore, it is essential that medical schemes, the government, and other health care providers work together to guarantee that people get the treatment they need.

Figure 1: Economic costs of mental disorders



Source: Embopress.org

Developing and strengthening mental health policy in South Africa

South Africa has taken important measures such as restructuring the Mental Health Care Act 17 of 2002 (MHCA), developing the South African National Mental Health Policy Framework and Strategic Plan 2013–2020 (MHPF), and introducing the National Health Insurance (NHI) (Dybdahl & Lien) Policy (2017) in order to boost its mental health system as well as promote equity in healthcare provision (de Wee & Asmah-Andoh, 2021; Docrat et al., 2019).

Nationally, the Mental Health Act of 2002 was a significant step forward as it highlighted the human rights of people with mental illness, including treatment accessibility (Lund et al., 2007). Following a major review process that included provincial and national meetings between February and April 2012, the National Health Council of South Africa approved the Mental Health Policy Framework (MHPF) and the Strategic Plan 2013 - 2020 in July 2013, which aimed for complete integration of mental health treatment into general health services by 2020 (van Rensburg, 2013).

Nonetheless, while the aims of the South Africa's MHPF and Strategic Plan 2013 – 2020 were widely welcomed, it became apparent that there were many challenges with regard to the implementation of the Plan, including the integration of mental healthcare into primary healthcare and lack of a dedicated budget (Hlongwa & Sibiyi, 2019). Therefore, there is a pressing need to research and understand how the proposed policies may be implemented to further their goals and improve mental health for all South Africans.

In 2019, the National Department of Health commissioned a Mental Health Investment Case for South Africa (MHIC) to assess the costs and returns of an identified set of system and service-level interventions to help develop a clear national plan on the costs and advantages of investing in mental health over the following 15 years.

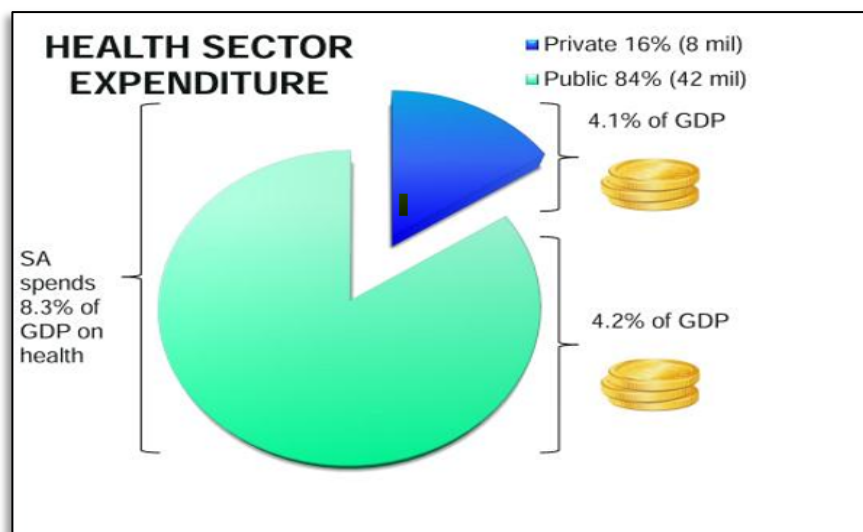
Mental Health Financing in South Africa

Data on mental health financing in South Africa is scarce, with the government serving as the primary source of funding via tax-based health budgets (Docrat, Besada et al. 2019). According to modelled projections, South Africa spent about \$59 million on mental health care in South Africa (Lund, Myer et al. 2013). Currently, South Africa does not have a budget specifically set out for mental health; instead, money comes from general healthcare budget allocations (Docrat, Lund et al. 2019).

South Africa allocates 8.3% of its GDP to the healthcare sector (Figure 2) (Michel, Tediosi et al. 2020), with 5% of it spent on mental health services (Docrat, Besada et al. 2019). Even while this is in line with the lower end of international guidelines for what countries should spend on mental health, preliminary estimates show that less than 1 in 10 South Africans without health insurance have access to treatment services (Docrat, Lund et al. 2019).

This low utilisation of mental healthcare among the uninsured brings to light the inequities in the healthcare system in South Africa where healthcare spending is divided equally between the private sector, which covers 16.2% of the population who are primarily on medical schemes, and the public sector, which serves the remaining uninsured 84% of the population who primarily rely on public healthcare facilities (**Figure 2**) (Naidoo 2012).

Figure 2: Distribution of public and private sectors.



Source: Tonic Health

The underfunding of the public sector is thus extremely obvious. The NHI system was introduced by the government in 2011 in an effort to balance the scales. The objective was to purchase medical services from healthcare specialists via a National Health Insurance Fund in order to offer universal and equal healthcare to all South Africans. The NHI is scheduled for full implementation in 2025 and will be financed by national taxes (Fusheini and Eyles 2016, Michel, Tediosi et al. 2020).

The intent of the policy is also to integrate the existing private schemes into NHI since medical aids are making huge profits and consumers in the private sector are not getting fair value for their money (Gifford 2018). The NHI policy will undoubtedly alleviate the existing financial pressures that insured people with mental health conditions endure.

Box 1: About medical schemes, coverage, and payments in South Africa

- Private medical schemes offer voluntary membership, and they almost exclusively cover formal sector workers and sometimes their dependents.
- Each scheme offers a number of alternative benefit options that includes the mandatory prescribed minimum benefits (PMBs) and a combination of other services.
- The contribution that each scheme member makes is related to the benefit option selected. Therefore, contributions are the same for each member for that benefit option.
- Each medical scheme provides cover to only those who enrol. This cover is mainly for services provided in the private sector.
- Over the years, members' contributions to medical schemes in South Africa have been increasing and are becoming unaffordable.
- These members still have to make substantial co-payments when using health services. These co-payments represent additional out-of-pocket payments demanded by health service providers from scheme members.
- In order to cushion the effect of unaffordable contributions, a scheme member downgrades to a low-cost benefit option that provides limited cover. Some choose to purchase cover for hospitalisation alone and pay out-of-pocket for outpatient services.
- The out-of-pocket payments and choice of low-cost options can create financial burdens for scheme members.
- There are currently 22 open medical schemes in South Africa, with only two schemes constituting approximately 70% of the total open scheme market.

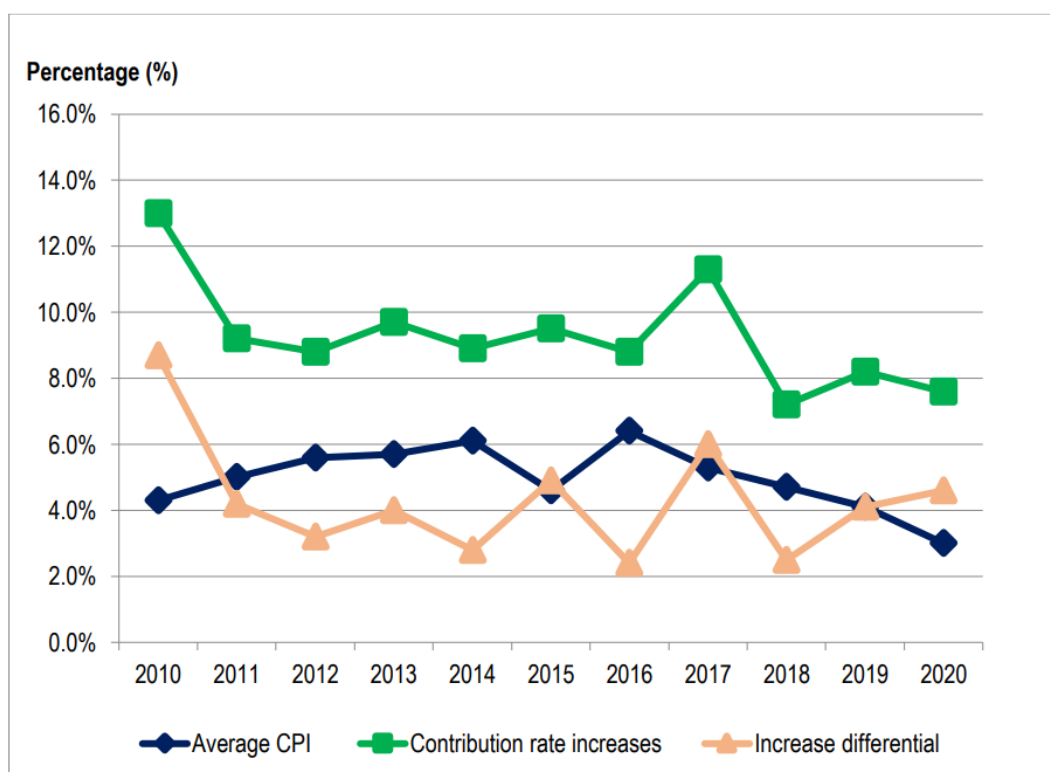
Private Health Insurance Sector and Mental Health in South Africa

Presently the most reliable source of healthcare financing for individuals is in the form of private health insurance and various hospital cash plans. There are currently 22 open medical schemes in South Africa, with only two schemes constituting approximately 70% of the total open scheme market (**Box 1**) (Gifford, 2018). Legislation and other tools have not yet gone far enough to regulate this sector.

Consequently, costs in the private healthcare sector have increased over time as a result of medical schemes freely hiking member contributions beyond CPI levels while dramatically lowering health-care benefits (Council for Medical Schemes, 2021). **Figure 3** depicts trends in the member contribution increase rate published in the 2019/2020 CMS Annual Report in relation to CPI.

The large difference between the rate of increase in medical scheme contributions and the CPI places an undue cost burden on existing medical scheme members and creates a barrier to entry for prospective new members. Correspondingly, Ataguba and Goudgen (2012) discovered that health insurance beneficiaries are not effectively shielded from rising healthcare costs and must often make substantial OOP payments.

Figure 3: Medical schemes contributions and inflation in South Africa (2010-2020)



Source: Council for Medical Schemes

Mental health patients with health insurance particularly endure larger amounts of OOP payments since a majority of medical plans for mental health illnesses put more stringent limits on the benefits than they do for physical health conditions with separate deductibles, higher co-payments or co-insurance and lower caps on covered treatments (Evans-Lacko et al., 2015; Institute of Medicine Committee on the Consequences of, 2002).

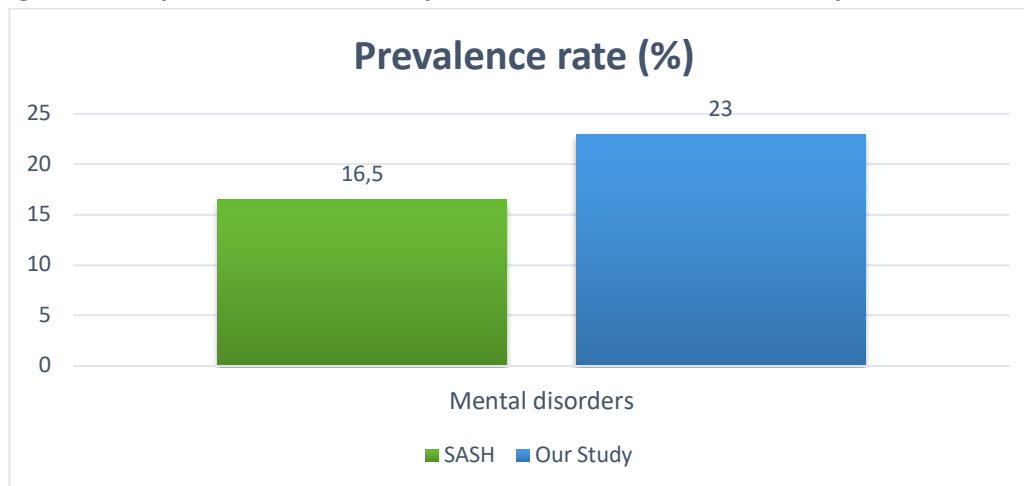
Formal, in-depth analyses of the implications of health insurance for those with mental health conditions in South Africa have not been conducted, and there has been minimal systematic research on the topic. Nonetheless, it is evident from the little research that medical schemes discriminate against mental conditions and there is need for regulation through government legislations such as the Mental Health Parity Act (Mulvaney-Day et al., 2019) that prohibits health plans from imposing annual or lifetime limits on mental health benefits that are less favourable than any such limits imposed on other medical benefits.

Research evidence

Our analysis on the prevalence of mental disorders among privately insured individuals showed that 23% of the study population had reported mental health issues over the last 12 months, with depression and anxiety disorders being the most prevalent. This prevalence rate is more than the 12-month national level rate of 16.5% reported by the SASH study in 2004 (**Figure 4**).

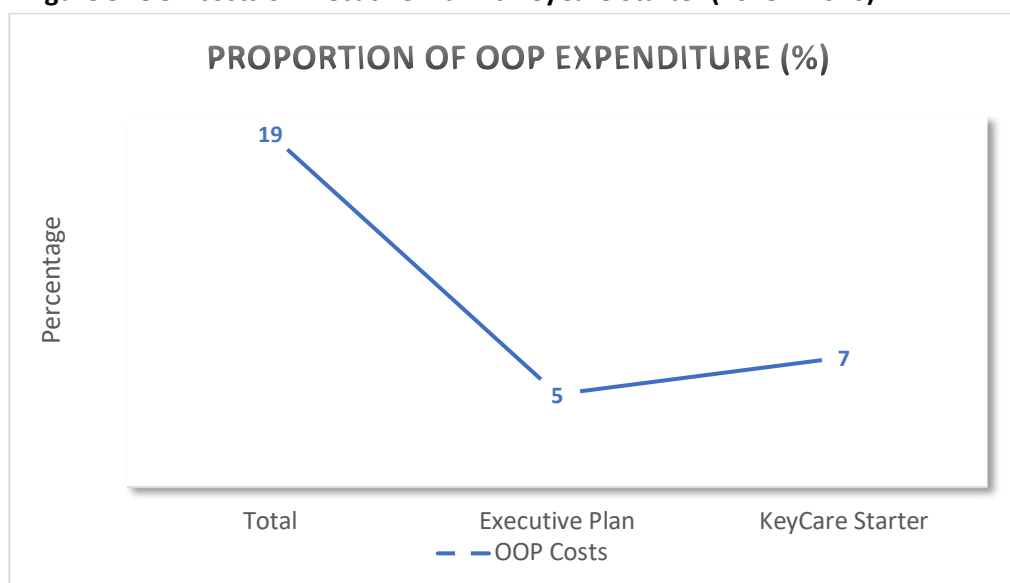
Comorbid diseases such as HIV, diabetes, hypertension, and TB were also examined among the study population, and the highest prevalence rate of mental health issues was reported in individuals with hypertension (3%). In both studies, however, anxiety and depression were shown to be among the most prevalent mental disorders.

Figure 4: Comparisons of 12-month prevalence rate between our study and SASH study



Further, our study examined the level of OOP expenditures among privately insured mental health patients and found the total OOP costs amounting to 19% of the total healthcare costs claimed, with the medical scheme only covering 81% of the total costs incurred. Beneficiaries on plans paying higher insurance premiums (Executive Plan) experienced slightly lower OOP costs (5%) compared to the 7% for those on lower insurance premium plans (KeyCare Starter) (**Figure 5**).

Figure 5: OOP costs of Executive Plan vs KeyCare Starter (2018 – 2020)



Moreover, results from our study also noted how 47% of the mental health sufferers with health insurance had access to specialized psychiatrist inpatient services, with about 22% utilising psychologist treatment care. For mental health patients accessing outpatient treatment care, the majority of them used pharmacy services (77%) with a small proportion utilizing specialist services such as psychologists.

Overall, such results show that indeed health insurance coverage increases the utilization of professional private health services, particularly for in-hospital treatments, but there still remains significant OOP payments for mental health patients with private health insurance.

This calls for a need to design South African health insurance in the form that not only ensures adequate and equitable utilisation of health services for all beneficiaries but also provides financial protection as reflected in the NHI proposal. In addition, evidence has shown that the majority of mental health issues are connected to one or more comorbid diseases, hence an integration of mental disorders with physical conditions is imperative.

Policy Recommendations

- Mental health requires an effective coordinated multisectoral approach from medical schemes, the government, and other health care providers to both develop policies such as NHI and deliver treatment services. More effective preventative interventions and pharmaceutical and psychosocial treatments are now available, but evidence on what it cost still needs to be facilitated into the policy-making process so as to make cost effective decisions which will alleviate the financial burden imposed on mental health sufferers, both insured and uninsured.

- For instance, public policies should also leverage the private mental health sector in South Africa with lucrative contracts from private providers. Funds to facilitate contracting with private providers should initially be covered by a conditional national grant for mental health. And once mechanisms are established for contracting with private providers, these costs can be transferred to the NHI fund in line with the long-term recommendation of including mental health in general resource development. This may be a means of reducing cost and improving coverage benefits of mental health services, particularly in underserved areas.
- Many implementation challenges exist. Policy development also needs to be accompanied by an implementation strategy and there should be engagement with other relevant government sectors. It is also important to recognize that policy cannot develop in a vacuum; having concrete examples of effective services can help facilitate system development. In countries like South Africa where budget is one of the major constraints, effective coordination between all agencies involved in both funding and delivering services is needed. NGOs can also play a role in helping to bridge the financial gap.
- Legislation should be passed by the government that prohibits medical plans from placing limits on mental health benefits that are less favourable than the limits imposed on other medical benefits (Mental Health Parity Act). These medical aid laws will undoubtedly contribute to lowering the enormous OOP costs that mental health patients currently bear.

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PART E: APPENDICES

APPENDIX 1: Author guidelines for journal article submission

Research article

Criteria

Research articles should report on original primary research, or present a new experimental or computational method, test or procedure. Manuscripts reporting results of a clinical trial must conform to CONSORT 2010 guidelines.

Authors of randomized controlled trials should submit a completed CONSORT checklist alongside their manuscript, available at www.consort-statement.org. Research articles may also report on systematic reviews of published research provided they adhere to the appropriate reporting guidelines which are detailed in our [editorial policies](#).

Please note that non-commissioned pooled analyses of selected published research will not be considered. Studies reporting descriptive results from a single institution or region will only be considered if analogous data have not been previously published in a peer reviewed journal and the conclusions provide distinct insights that are of relevance to a regional or international audience.

Please note that the journal does not consider research focused on:

- Clinical research
- The clinical knowledge, decision-making, and practice of healthcare professionals
- Increasing for-profit healthcare revenue. For example, monetizing healthcare or personal health data, or marketing for-profit healthcare, including health and insurance products

Data sharing

BMC Health Services Research strongly supports open research, including transparency and openness in reporting. Further details of our [Data availability policy](#) can be found on the journal's About page.

BMC Health Services Research strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their

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Preparing your manuscript

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

Title page

The title page should:

- present a title that includes, if appropriate, the study design e.g.:
 - "A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"
 - or for non-clinical or non-research studies a description of what the article reports
- list the full names and institutional addresses for all authors
 - if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the "Acknowledgements" section in accordance with the instructions below

- indicate the corresponding author

Abstract

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the [CONSORT](#) extension for abstracts. The abstract must include the following separate sections:

- **Background:** the context and purpose of the study
- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
- **Conclusions:** brief summary and potential implications
- **Trial registration:** If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be stated in this section. If it was not registered prospectively (before enrolment of the first participant), you should include the words 'retrospectively registered'. See our [editorial policies](#) for more information on trial registration

Keywords

Three to ten keywords representing the main content of the article.

Background

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

Methods

The methods section should include:

- the aim, design and setting of the study

- the characteristics of participants or description of materials
- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

Results

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

Discussion

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

Conclusions

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

List of abbreviations

If abbreviations are used in the text, they should be defined in the text at first use, and a list of abbreviations should be provided.

Declarations

All manuscripts must contain the following sections under the heading 'Declarations':

- Ethics approval and consent to participate
- Consent for publication
- Availability of data and materials
- Competing interests
- Funding
- Authors' contributions
- Acknowledgements
- Authors' information (optional)

Please see below for details on the information to be included in these sections.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

Ethics approval and consent to participate

Manuscripts reporting studies involving human participants, human data or human tissue must:

- include a statement on ethics approval and consent (even where the need for approval was waived)
- include the name of the ethics committee that approved the study and the committee's reference number if appropriate

Studies involving animals must include a statement on ethics approval and for experimental studies involving client-owned animals, authors must also include a statement on informed consent from the client or owner.

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If your manuscript does not report on or involve the use of any animal or human data or tissue, please state "Not applicable" in this section.

Consent for publication

If your manuscript contains any individual person's data in any form (including any individual details, images or videos), consent for publication must be obtained from that person, or in the case of children, their parent or legal guardian. All presentations of case reports must have consent for publication.

You can use your institutional consent form or our [consent form](#) if you prefer. You should not send the form to us on submission, but we may request to see a copy at any stage (including after publication).

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If your manuscript does not contain data from any individual person, please state “Not applicable” in this section.

Availability of data and materials

All manuscripts must include an ‘Availability of data and materials’ statement. Data availability statements should include information on where data supporting the results reported in the article can be found including, where applicable, hyperlinks to publicly archived datasets analysed or generated during the study. By data, we mean the minimal dataset that would be necessary to interpret, replicate and build upon the findings reported in the article.

We recognise it is not always possible to share research data publicly, for instance when individual privacy could be compromised, and in such instances data availability should still be stated in the manuscript along with any conditions for access.

Authors are also encouraged to preserve search strings on searchRxiv <https://searchrxiv.org/>, an archive to support researchers to report, store and share their searches consistently and to enable them to review and re-use existing searches. searchRxiv enables researchers to obtain a digital object identifier (DOI) for their search, allowing it to be cited.

Data availability statements can take one of the following forms (or a combination of more than one if required for multiple datasets):

- The datasets generated and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS]
- The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.
- All data generated or analysed during this study are included in this published article [and its supplementary information files].
- The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.
- Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

- The data that support the findings of this study are available from [third party name] but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of [third party name].
- Not applicable. If your manuscript does not contain any data, please state 'Not applicable' in this section.

More examples of template data availability statements, which include examples of openly available and restricted access datasets, are available [here](#).

BioMed Central also requires that authors cite any publicly available data on which the conclusions of the paper rely in the manuscript. Data citations should include a persistent identifier (such as a DOI) and should ideally be included in the reference list. Citations of datasets, when they appear in the reference list, should include the minimum information recommended by DataCite and follow journal style.

Dataset identifiers including DOIs should be expressed as full URLs. For example:
Hao Z, AghaKouchak A, Nakhjiri N, Farahmand A. Global integrated drought monitoring and prediction system (GIDMaPS) data sets. figshare.
2014. <http://dx.doi.org/10.6084/m9.figshare.853801>

With the corresponding text in the Availability of data and materials statement: The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS].^[Reference number]

If you wish to co-submit a data note describing your data to be published in [BMC Research Notes](#), you can do so by visiting our [submission portal](#). Data notes support [open data](#) and help authors to comply with funder policies on data sharing. Co-published data notes will be linked to the research article the data support ([example](#)).

Competing interests

All financial and non-financial competing interests must be declared in this section.

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If you do not have any competing interests, please state "The authors declare that they have no competing interests" in this section.

Funding

All sources of funding for the research reported should be declared. The role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript should be declared.

Authors' contributions

The individual contributions of authors to the manuscript should be specified in this section. Guidance and criteria for authorship can be found in our [editorial policies](#).

Please use initials to refer to each author's contribution in this section, for example: "FC analyzed and interpreted the patient data regarding the hematological disease and the transplant. RH performed the histological examination of the kidney and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."

Acknowledgements

Please acknowledge anyone who contributed towards the article who does not meet the criteria for authorship including anyone who provided professional writing services or materials.

Authors should obtain permission to acknowledge from all those mentioned in the Acknowledgements section. See our [editorial policies](#) for a full explanation of acknowledgements and authorship criteria. If you do not have anyone to acknowledge, please write "Not applicable" in this section.

Group authorship (for manuscripts involving a collaboration group): if you would like the names of the individual members of a collaboration Group to be searchable through their individual PubMed records, please ensure that the title of the collaboration Group is included on the title page and in the submission system and also include collaborating author names as the last paragraph of the "Acknowledgements" section. Please add authors in the format First Name, Middle initial(s) (optional), Last Name. You can add institution or

country information for each author if you wish, but this should be consistent across all authors.

Please note that individual names may not be present in the PubMed record at the time a published article is initially included in PubMed as it takes PubMed additional time to code this information.

Authors' information

This section is optional.

You may choose to use this section to include any relevant information about the author(s) that may aid the reader's interpretation of the article and understand the standpoint of the author(s). This may include details about the authors' qualifications, current positions they hold at institutions or societies, or any other relevant background information. Please refer to authors using their initials. Note this section should not be used to describe any competing interests.

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

References

Examples of the Vancouver reference style are shown below.

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Web links and URLs: All web links and URLs, including links to the authors' own websites, should be given a reference number and included in the reference list rather than within the

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Example reference style:

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Smith JJ. The world of science. Am J Sci. 1999;36:234-5.

Article within a journal (no page numbers)

Rohrmann S, Overvad K, Bueno-de-Mesquita HB, Jakobsen MU, Egeberg R, Tjønneland A, et al. Meat consumption and mortality - results from the European Prospective Investigation into Cancer and Nutrition. BMC Medicine. 2013;11:63.

Article within a journal by DOI

Slifka MK, Whitton JL. Clinical implications of dysregulated cytokine production. Dig J Mol Med. 2000; doi:10.1007/s801090000086.

Article within a journal supplement

Frumin AM, Nussbaum J, Esposito M. Functional asplenia: demonstration of splenic activity by bone marrow scan. Blood 1979;59 Suppl 1:26-32.

Book chapter, or an article within a book

Wyllie AH, Kerr JFR, Currie AR. Cell death: the significance of apoptosis. In: Bourne GH, Danielli JF, Jeon KW, editors. International review of cytology. London: Academic; 1980. p. 251-306.

OnlineFirst chapter in a series (without a volume designation but with a DOI)

Saito Y, Hyuga H. Rate equation approaches to amplification of enantiomeric excess and chiral symmetry breaking. Top Curr Chem. 2007. doi:10.1007/128_2006_108.

Complete book, authored

Blenkinsopp A, Paxton P. Symptoms in the pharmacy: a guide to the management of common illness. 3rd ed. Oxford: Blackwell Science; 1998.

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University site

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FTP site

Doe, J: Trivial HTTP, RFC2169. <ftp://ftp.isi.edu/in-notes/rfc2169.txt> (1999). Accessed 12 Nov 1999.

Organization site

ISSN International Centre: The ISSN register. <http://www.issn.org> (2006). Accessed 20 Feb 2007.

Dataset with persistent identifier

Zheng L-Y, Guo X-S, He B, Sun L-J, Peng Y, Dong S-S, et al. Genome data from sweet and grain sorghum (*Sorghum bicolor*). GigaScience Database. 2011. <http://dx.doi.org/10.5524/100012>.

Preparing figures

When preparing figures, please follow the formatting instructions below.

- Figures should be numbered in the order they are first mentioned in the text and uploaded in this order. Multi-panel figures (those with parts a, b, c, d etc.) should be submitted as a single composite file that contains all parts of the figure.
- Figures should be uploaded in the correct orientation.
- Figure titles (max 15 words) and legends (max 300 words) should be provided in the main manuscript, not in the graphic file.
- Figure keys should be incorporated into the graphic, not into the legend of the figure.
- Each figure should be closely cropped to minimize the amount of white space surrounding the illustration. Cropping figures improves accuracy when placing the figure in combination with other elements when the accepted manuscript is prepared for publication on our site. For more information on individual figure file formats, see our detailed instructions.
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- PowerPoint (suitable for diagrams and/or images, figures must be a single page)
- TIFF (suitable for images)
- JPEG (suitable for photographic images, less suitable for graphical images)
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- BMP (suitable for images)
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Figure size and resolution

Figures are resized during publication of the final full text and PDF versions to conform to the BioMed Central standard dimensions, which are detailed below.

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APPENDIX 2: Ethics Approval



UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee



Room 45 E-52-E-Floor- Old Main Building
Groote Schuur Hospital
Observatory 7925

Telephone [021] 406 6492

Email: hrec-submissions@uct.ac.za

Website: www.health.uct.ac.za/fhs/research/humanethics/forms

04 April 2022

HREC REF: 210/2022

Prof E Sinanovic

Health Economics Division

FHS

Email: Edina.sinanovic@uct.ac.za

Student: mnmaz001@myuct.ac.za

Dear Prof Sinanovic

PROJECT TITLE: THE PREVALENCE OF MENTAL DISORDERS AND ASSOCIATED OUT-OF-POCKET EXPENDITURE AMONG INSURED PATIENTS IN SOUTH AFRICA-(MASTERS CANDIDATE-MRS MAZVITA MATSA

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee (HREC) for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study, subject to Form A being supplied.

This approval is subject to strict adherence to the HREC recommendations regarding research involving human participants during COVID -19, our letter dated 02 February 2022 provides guidance found on our website:

<http://www.health.uct.ac.za/fhs/research/humanethics/forms>

Approval is granted for one year until the 30 April 2023.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.

(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

The HREC acknowledge that the student: Mrs Mazvita Matsa will also be involved in this study.

Please quote the HREC REF 210/2022 in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.