



RECORD REVIEW OF OCCURRENCE OF PHYSICAL ILLNESS IN PATIENTS AT A SPECIALIST PSYCHIATRY OUTPATIENT CLINIC

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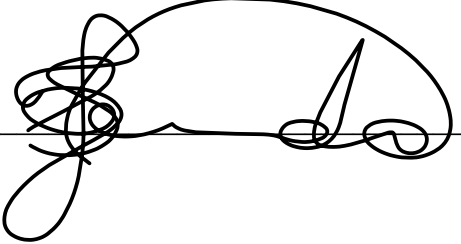
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DECLARATION

I, Tando Abner Sivile Melapi, declare that this research report is my own work. It is being submitted as partial fulfilment for the degree of Master of Medicine in the branch of Psychiatry, Faculty of Health Sciences, University of Witwatersrand, Johannesburg.

It has not been submitted for any degree or examination at this or any other university.

Signed: 

On this 13th day of May 2021

DEDICATION

I dedicate this to my family, my wife Nonkoliso and two daughters-Ululo and Tandile, who allowed me to miss part of their lives while I pursue this project and self-development. I am forever indebted to them for their love and support through the many years.

I would like to make a special mention of my mentors who have been supportive, encouraging, rebuking and correcting along this journey. Firstly, my brother, best man and mentor, Prof. Nkosipendule Ntsinjana; I thank him for allowing me no rest until I submitted this. Prof. Janse van Rensburg for his guidance, teaching, dedication to and enthusiasm about my research and career progression. He was a special inspiration role model and became a father figure to me as we walked this long journey together. I will forever miss, love and cherish every early morning email, long convoluted meetings and the rebukes; he loved me dearly. Dr Molokashe Molokomme- Boss Lady; her support and friendship has been of great help. Lastly, a dear friend Prof. Udo Schuklenk. Without him, this would have been a lot more painful. Ukwanda kwaliwa ngumthakathi. Nangamso.

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I would like to acknowledge Prof. Subramaney for assisting me in the completing of this research and degree. Her support and encouragement made it a success, when all was almost lost.

ABSTRACT

- (1) **Background:** Physical illnesses continue to be a major cause of morbidity and early, higher mortality among people with Severe Mental Illness (SMI). Physical and psychiatry illnesses interact in various ways. These include bidirectional causality, health system and healthcare worker-related factors. Currently, there is limited data regarding existence of physical illnesses in South African psychiatry patients. This study sought to investigate the extent to which physical illnesses, in people with SMI, are documented and reviewed at a psychiatric outpatient clinic. **Objectives:** This study aimed to describe demographic characteristics, clinical profile and documented physical illnesses in this study group and determine any possible associations between the group's demographic variables and their various documented comorbid medical illnesses. **Method:** This was a retrospective, descriptive record review of files of patients who attended the psychiatry outpatient department over a six-month period in 2012. **Results:** Forty-three percent (n=266) of the 608 patients who attended the clinic during the study period had a recorded physical illness. Of the 266, 24.1% had an Axis 1 diagnosis due to a general medical condition, while 75.9% had a primary Axis 1 diagnosis with a co-morbid general medical condition. Their average age was 48 years and 67% of them were female. Their marital status, highest level of education and employment status were mostly not documented (57%, 62% and 56.4% respectively). The most common five main Axis I diagnoses were dementia (13.16%), major depressive disorder (12.78%), psychosis due to GMC (11.28%), bipolar mood disorder (9.40%) and major depressive episode (9.02%). The five most commonly diagnosed co-morbid physical illnesses were hypertension (40.2%), epilepsy (18.4%), HIV/AIDS (15.4%), dyslipidaemia (11.2%) and diabetes mellitus (10.2%). There was

a statistically significant association noted between age and hypertension (p-value=0.00), diabetes mellitus (p-value=0.04), HIV (p-value=0.00) and epilepsy (p-value=0.01). **Conclusion:** This study helps clinicians gain some insight into which physical illnesses are present in psychiatric patients. The study also highlights how these physical illnesses may relate to the psychiatric diagnoses that the clinicians are treating. Future studies may focus on the relationship between psychiatric medication and physical illnesses and on policies in managing physical illnesses in people with mental illnesses.

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LIST OF ABBREVIATIONS/ACRONYMS

AED: Anti-epileptic drugs

AIDS Acquired immunodeficiency syndrome

APA American Psychiatric Association

BMI: Body mass index

CNS: Central nervous system

CT: Computed topography

CVA: cerebro-vascular accident

CVD Cardio-vascular disease

DSM IV TR Diagnostic and statistical manual of mental disorders-fourth edition (text revised)

FGA: First generation antipsychotics

GMC: General medical condition

HIV Human immunodeficiency virus

HJH: Helen Joseph hospital

HPT axis: Hypothalamus-pituitary-thyroid axis

IDF International diabetic federation

MDD Major depressive disorder

NOS: Not otherwise specified

SMI Severe mental illness

TRH: Thyroid releasing hormone

TSH: Thyroid stimulating hormone

T4: Thyroxine

PTB: Pulmonary tuberculosis

SGA: Second generation antipsychotics

SSRI: Selective serotonin re-uptake inhibitor

TB: Tuberculosis

TBM: Tuberculous meningitis

TIA: Transient ischaemic attack

TLE: Temporal lobe epilepsy

VMA: Vanillylmandelic acid

5-HT1A: 5-hydroxytryptamine (serotonin) 1A receptor

5-HT2: 5-hydroxytryptamine (serotonin) 2 receptor

CHAPTER 1 INTRODUCTION

Physical illnesses in psychiatry have been of a major academic interest for some time and are considered to be a major cause of morbidity and mortality among people with severe mental illnesses.^{1, 2, 3} Studies have been conducted in different cohorts of people with mental illness to study their morbidity and mortality. For example, it is estimated that patients suffering from schizophrenia have at least a 20-year shorter lifespan compared to the general population and that this mortality gap has been widening in recent decades.^{4,5} Approximately 60% of this excess mortality among people with severe mental illness is caused by physical illnesses.⁶ Patients with schizophrenia suffer from a spectrum of somatic disorders similar to the general population, while dying at a younger age. This results in the overall mortality rate of people with severe mental illness (SMI) to be two to three times higher than that of the general population.⁷

Similar research has also been undertaken in mood disorders showing a similar trend. In a 2009 report by Roshanaei-Moghaddam and Katon, literature between 1959 and 2007 was reviewed with a special focus on bipolar disorders and medical mortality.⁸ This study included more than 300 000 patients who were diagnosed with any of the disorders in the bipolar spectrum, including bipolar disorder, affective psychosis, affective disorders severe enough to require inpatient psychiatric care or treatment with lithium, as well as schizoaffective disorder. This study found that, compared with age and sex-matched control samples in the general population without mental illness, mortality ratios for death from natural causes and from specific general medical conditions (GMC), such as cardiovascular, respiratory, cerebrovascular, and endocrine disorders, were significantly higher among

patients with bipolar spectrum disorders in most studies. Cumulatively, cardiovascular disorders appeared to be the most consistent cause of excess mortality in larger studies.

As more information on physical illnesses in people with mental illnesses becomes available, a number of reasons for the higher morbidity and mortality are emerging. For example, the increased prevalence of general cardiovascular risk factors in this population, such as obesity, hyperglycaemia, hypertension, dyslipidaemia and smoking, have been identified as major drivers of morbidity and mortality.⁹ There are different reasons reported for this increase in cardiovascular risk factors - some of which are discussed in the paragraphs below. In addition, a review by Leucht et al., reported that people with schizophrenia have a higher prevalence of human immunodeficiency virus (HIV) infection and hepatitis, osteoporosis, altered pain sensitivity, sexual dysfunction, obstetric complications, cardiovascular diseases, overweight, diabetes, dental problems, and poly-dipsia, than the general population.¹⁰

The relationship between physical illnesses and psychiatry is multifaceted and may partly explain the higher morbidity and mortality in this population group. A number of medical conditions that can lead to psychiatric illnesses have also been incorporated into the revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR) at the time, as psychiatric conditions that are due to general medical conditions (GMC).¹¹ In addition, people who receive treatment for psychiatric illnesses may be given medication that leads to the development of physical illnesses. Other non-medical factors may also play a role, such as substandard screening, diagnosis and treatment of medical conditions in people with mental illness, unsatisfactory organization of health services, attitudes of medical doctors, as well as the professional and social stigma ascribed to people with severe mental illness, such as schizophrenia.¹⁰

1.1 OCCURRENCE OF COMMON CO-MORBID MEDICAL ILLNESSES IN MENTALLY ILL PATIENTS

Many physical illnesses are associated with mental illness.⁷ The relationship between physical and psychiatric illnesses is bi-directional. At times, the emergence of physical illnesses is through, or during, the management and treatment of psychiatric illness.⁹ Examples of how physical and psychiatric illness are related, include metabolic syndrome, diabetes mellitus, hypertension and thyroid disorders.

1.1.1 Metabolic syndrome

Metabolic syndrome is a group of conditions that indicate an increased risk for heart attacks and other cardiovascular conditions.¹² Several professional bodies and specialist associations in different parts of the world have drafted definitions of what metabolic syndrome entails, although using criteria that are slightly different. For example, considering the International Diabetic Foundation (IDF) definition, metabolic syndrome includes conditions/components such as diabetes or pre-diabetes, abdominal obesity, high cholesterol and high blood pressure.¹³ Metabolic syndrome is estimated by the IDF to affect around a quarter of the world's adult population and is considered to be the driving force of a "cardio-vascular disease (CVD) epidemic".¹³ According to the IDF, people with metabolic syndrome are twice as likely to die from a heart attack or stroke, compared to people without the syndrome.¹³

Chapman et al., noted that with prevailing higher risk of strokes and heart attacks, people with metabolic syndrome would subsequently be at higher risk of developing mental illness.¹⁴

There are different reasons for this higher risk of mental illness among people with metabolic syndrome. Firstly, metabolic syndrome is a syndrome of different chronic illnesses. These chronic illnesses characteristically have episodes that manifest with seriously disabling and often life-threatening symptoms.¹⁵ In addition, living with such a chronic illness can also lead to psychological stress, which can either predispose people with chronic physical illnesses to development of new symptoms of mental illness or relapse of already present psychiatric disorder or illness.¹⁵ Reagan identifies this as one of the mechanisms underlying the higher prevalence of depression in people with diabetes mellitus, while Kaidanovich-Beilin et al., noted that evidence suggests a common underlying pathogenesis and progression of several neuropsychiatric disorders, such as Alzheimer's disease.¹⁶

Reagan alludes to reports that metabolic syndrome has in particular been found to be prevalent in people with mental illness.¹⁵ This relationship seems to be bidirectional, where metabolic syndrome predisposes to the development of mental illness, while mental illness also predisposes the development of metabolic syndrome.¹⁵

1.1.2 Diabetes Mellitus

Although reasons may not be fully understood, evidence suggests that there are higher prevalence rates of depression in diabetic patients than the general population.^{17,18} There are two dominant hypotheses considered by Talbot and Nouwen regarding the initial occurrence or recurrence of clinically significant depression in individuals with diabetes.¹⁹ Firstly, the hypothesis is that depression is regarded to result from biochemical changes directly due to the diabetic illness or diabetic treatment.¹⁹ The second hypothesis is that depression results

from the psychosocial demands or psychological factors related to the illness or its treatment.¹⁹ These hypotheses are, however, not mutually exclusive.

The first hypothesis states that the essential feature of a mood disorder due to a general medical condition (GMC), as defined by the American Psychiatric Association (APA), is “a prominent and persistent disturbance in mood that is judged to be due to the direct physiological effects of a general medical condition.”^{11,19} The determination of the presence of a mood disorder caused by a medical condition is a complex issue, especially in the absence of specific markers for depression. The DSM IV-TR previously and the DSM-5 currently, which is widely used in the mental health field, offers guidelines in this regard.^{11,20} The DSM IV-TR guidelines included: 1) a temporal association between the onset, exacerbation, or remission of the general medical condition and the mood disorder; 2) features that are atypical of primary mood disorders (e.g. atypical age at onset or course, absence of family history, and equal sex distribution); and 3) evidence of a well-established or frequently found association between the general medical condition and the phenomenology of the mood disorder (e.g. the existence of a direct physiological mechanism or a lesion that relates the general medical condition and the mood disorder).¹¹ None of these considerations alone can prove an etiological relationship, but evidence in support of these postulates would increase the likelihood of such a relationship.

The second hypothesis as noted by Talbot and Nouwen, specifies that depression results from the stresses and strains associated with having a chronic medical condition and its debilitating consequences.¹⁹ Particularly, the role of diabetes-related cognitions, such as illness intrusiveness, coping, and social support, has been the topic of numerous studies on depression in diabetes.^{21,22,23} They comment though, that overall, analyses using the APA

guidelines, do not support the notion of a mood disorder caused by diabetes.¹⁹ Specifically, a temporal relationship between diabetes mellitus and mood disorders has not been clearly established. In addition, a well-established association between diabetes mellitus and mood disorders seems to be lacking. However, evidence for the effect of major depressive disorder (MDD) on diabetes is more persuasive, with longitudinal studies showing that MDD has been associated with an increased risk of developing type 2 diabetes and diabetic complications.¹⁹

The presence of mental illness can often lead to the development of diabetes mellitus.²⁴ In addition to a less active lifestyle that may be seen in people who are depressed (and subsequently less motivated) or with negative symptoms of schizophrenia, medication used to treat various mental illnesses often lead to a higher risk of one developing diabetes mellitus.^{4,24}

1.1.3 Hypertension

Hypertension is one of the clinical components of metabolic syndrome and has been defined by Seedat et al., as the persistent elevation of blood pressure at a level equal to, or above, 140/90mmHg.²⁵ It is estimated that 30.4% of South African population has hypertension.²⁰ Various studies have demonstrated an association between various psychiatric disorders and hypertension.^{26,27,28} In one study, prevalence of hypertension prevalence was 20% higher in people with bipolar compared to the general population.²⁹ In addition, anxiety disorders appear to be associated with early onset of hypertension.³⁰

There are no clear reasons why hypertension appears to be more prevalent among people with mental illness. One theory is that hypertension and bipolar may share a common

pathogenesis; hyperactive cellular calcium signalling and increased platelet intracellular calcium ion concentrations.^{31,32} Others have suggested that psychological symptoms develop as a response to the diagnosis of hypertension.³³ Additionally, there are indications that various mental illnesses, such as anxiety and mood disorders, are associated with changes in the peripheral and central neuro-endocrine systems, which can result in the development of hypertension.³⁴

1.1.4 Thyroid disorders

Although a link between hypothyroidism and mental retardation has been established for many years, thyroid hormone's influence on the adult brain was previously thought to be minimal or non-existent.³⁵ However, it is now widely accepted that thyroid hormone continues to play a critical role in the adult brain, influencing mood and cognition, although the details must still be elucidated.³⁶

For example, thyroid hormone receptors are prevalent in the limbic system structures and have been implicated in the pathogenesis of mood disorders.²⁷ According to Whybrow and Prange, interactions between the thyroid and neurotransmitter systems, primarily norepinephrine and serotonin - which are generally believed to play a major role in the regulation of mood and behaviour, may contribute to the mechanism of action in the developing and mature brain.³⁷

Interaction between dopamine brain function and thyroid, as well as role of thyroid in gene modulatory processes, has also been suggested, according to Taylor et al.²⁹ Increased dopamine activity in the meso-limbic and meso-cortical systems is thought to be involved in

production of positive and negative symptoms of schizophrenia.²⁷ Thus thyroid hormone disturbance may also affect development, progression and symptom control in schizophrenia, while other neuropsychiatric symptoms of thyroid disease include anxiety and cognitive impairment.²⁷ Another proposed mechanism for thyroid involvement in the aetiology of mood disorders includes disturbances or reactive hyperactivity in the hypothalamus-pituitary-thyroid (HPT) axis. This is supported by the observed blunted thyroid stimulating hormone (TSH) response to thyroid releasing hormone (TRH) found in some patients with depression.¹⁷

In addition, some medication used to treat psychiatry illnesses are known to induce hypothyroidism,³⁸ including lithium which is used to treat bipolar disorder. Lithium may induce hypothyroidism at any stage of treatment, while the hypothyroid state may improve and even resolve with discontinuation of lithium.²⁹ According to the Maudsley's guidelines, all patients on lithium must have their thyroid function monitored every six months.²⁹ In addition to lithium, valproate and carbamazepine have also been found to decrease thyroxine (T4) levels in patients treated long-term.³⁹

1.2 CONSEQUENCES OF CO-MORBID MEDICAL ILLNESSES AND DIFFICULTIES WITH DETECTION

Although reasons for the higher mortality and morbidity in patients with mental illness are not fully understood, there are multiple factors that have been identified as contributing towards this higher mortality and morbidity. These factors can be broadly categorised into patient-related, medication-related, health care provider-related factors and factors related to health services.^{1,9,10}

1.2.1 Patient-related factors

Patient-related factors refer to attributes of a person with psychiatric illness that contribute towards the same person having a higher mortality and morbidity from their physical illnesses than a person without a mental illness.^{1,8,10,40} These attributes may differ from one patient to another depending on various factors like level of education, type of mental illness, family circumstances, social support and financial capabilities of the person with psychiatric illness.⁹ Achmedani noted that people with severe mental illnesses tend to be in lower socioeconomic status in society,⁴¹ which contributes to having limited access to health care services. Lower income earners may, for example, tend to stay in areas that are further removed from health facilities,⁴² while people with mental illness are less likely to spontaneously report their physical symptoms, according to Thornicroft et al.²⁹

Other patient factors include reluctance to seek help by people if it may be considered that they may have a mental disorder, as well as low rates of mental illness literacy and patients' inability to adequately report their symptoms.⁴³ In some cases, this inability of people with mental illness to report their symptoms may be as a direct result of their mental illness symptoms, including cognitive impairment, psychosis or other.²⁹

1.2.2 Medication related factors

Medication used to treat mental illness has also been associated with the emergence of metabolic syndrome, with the individual components of metabolic syndrome, as well as the subsequent risk of cardiovascular diseases in people with SMI.^{7,9,12} A class of medication

mainly associated with this risk is antipsychotics, especially the second generation, or atypical, antipsychotics. Amongst these second generation antipsychotics, clozapine and olanzapine are in particular associated with the highest risk for patients to develop metabolic syndrome.^{27,44} As a result of this recognised association between metabolic syndrome and antipsychotics use, the American Diabetes Association, in collaboration with American Psychiatric Association and other interested organisations, have published guidelines for monitoring of metabolic syndrome for patients on second generation antipsychotics.⁴⁵

In addition to second generation antipsychotics, other psychiatric medications, such as mood stabilisers, are known to be associated with metabolic syndrome or components thereof and an increased risk of CVD. Sodium valproate, an anticonvulsant, is also known to cause, among other side effects, weight gain and insulin resistance.⁴⁶

While common, cardio-vascular and metabolic diseases are not the only physical illnesses that are associated with the use of psychiatric medication. As mentioned before, patients treated with lithium may develop hypothyroidism due to direct effect of Lithium on the release of thyroid hormone from the thyroid gland.⁴⁷ Antipsychotics, antiepileptic drugs (many of which are used as mood stabilisers), lithium and some antidepressants may also cause electrolyte, liver and/or renal abnormalities.^{48,49,50,51,52} Erectile dysfunction, together with other prolactin-related symptoms, has also been associated with antipsychotic and antidepressant use.^{53,54,55}

1.2.3 Health care worker-related factors

Health care worker-related factors, according to Farinelli et al., and Maj, include among others, “diagnostic overshadowing”, negative attitudes towards people with mental illness and poor access to physical health care by people with psychiatric illness.^{32,56} Diagnostic overshadowing, considered to be common in the general health care setting,³² is described by Shefer et al., as “the misattribution of physical illness signs and symptoms to concurrent mental disorders”,⁵⁷ resulting in the under-diagnosis and mistreatment of the co-morbid physical condition.

Lawrence et al., considered the reduced access to physical health care of persons with severe mental illness, compared to the general population.⁵⁸ They reported that people in Australia with mental illness had a significantly higher rate of mortality from ischaemic heart disease than the general population, despite having similar hospitalisation rates.⁴⁹ In addition, they also noted the significantly lower rates of revascularisation in people with mental illness (particularly with psychosis). Thus, according to them, raising questions of access to services and equity of service provision.⁴⁹ Mitchell et al., in a systematic review, sought to establish whether involvement of a primary medical practitioner (general practitioner) in the health care of people with mental illness would lead to an improvement in patients’ health outcomes.⁵⁹ They reported that the liaison between general practitioners and psychiatrists generally improves the functional outcomes of chronically ill psychiatric patients.⁵⁰ However, involvement of general practitioners in the care of people with mental illness does not seem to increase the favourable outcomes of physical illnesses (hypertension control, lower HBA1c etc) in this group.⁵⁰

Chwastiak et al., referred to patients in psychiatric services, who often do not get adequate or any counselling about chronic diseases associated with increased cardio-vascular risk.⁶⁰ He implied that concerted effort is needed to increase the awareness of health care providers about the presence of physical illnesses among psychiatric patients.⁶⁰ Furthermore, he highlighted that there is a need to screen and monitor such conditions judiciously.⁶⁰ This is particularly pertinent where patients are not able to communicate their symptoms clearly on their own.

1.2.4 Health system-related factors

Lastly, and more relevantly to South Africa, health care systems are facing an enormous task in dealing with health challenges of the population.⁶¹ South Africa, like the rest of sub-Saharan Africa, has an enormous disease burden especially from infectious diseases, while the sub-Saharan area has been described as “the hardest hit” region by the HIV epidemic worldwide.⁶² Financial and human resources health are often significantly limited in South African settings, with decreasing percentage of gross domestic product being spent in health over the last decade.⁶³ There also seems to be an ongoing exodus of health care professionals out of the Southern African region, including South Africa.⁶⁴ The emigration of health care professionals as well as their moving to work in the private sector, continues to challenge government’s efforts to realise the ideal of universal access to health care for all, according to Section 27 of the Constitution.⁶⁵ The South African adult mortality rate has, for example, increased from 268 per 1000 population in 1990 to 496 per 1000 population in 2009; an increase of 54 % in less than two decades.⁵² In addition, as reported by Motala et al., sub-Saharan Africa is experiencing a rising burden of diabetes mellitus and other non-

communicable diseases, largely thought to be due to rapid urbanisation.⁶⁶ Such reports imply that provision of health care in South Africa continues to be challenging.

In a study done in Pretoria, Khamker et al., investigating the causes of mortality amongst patients admitted at a psychiatry hospital, cardiac failure and cerebro-vascular accidents were identified as significant causes of death, along with malignancies like breast and cervical cancers.⁶⁷ Cardiac failure and cerebro-vascular accidents are, more often than not, a consequence of cardio-vascular risk factors that are either undiagnosed or untreated. Screening, early detection, treatment and continued monitoring of these cardiovascular risk factors, together with that of other physical illnesses like malignancies, can significantly diminish their burden on both morbidity and mortality in this psychiatry population.^{7,68}

Another Gauteng study done in Johannesburg by Marsay and Szabo, looked at the application of guidelines in monitoring metabolic syndrome parameters in patients on olanzapine.⁶⁹ Olanzapine is known to be more likely to contribute to the development of metabolic syndrome more than many other antipsychotics.²⁹ This study, by Marsay and Szabo, found that the ADA's guidelines on monitoring of patients on olanzapine were largely ignored by treating doctors.⁶⁹

1.3 HELEN JOSEPH HOSPITAL SPECIALIST PSYCHIATRIC OUT-PATIENTS

The specialist psychiatric outpatient clinic of the Helen Joseph Hospital (HJH) in Auckland Park offers psychiatric care services to hundreds of individuals who have been diagnosed with, or are referred for, investigation of various mental illnesses. These individuals are seen frequently by both nurses and doctors. The more stable patients would be seen by a doctor for

a minimum of one to two times per year. Although they have this level of access to health care, it remains generally unclear which physical illnesses these individuals have. In addition, it is also not clear whether individuals with a diagnosed physical illness are actually receiving the required treatment and/or monitoring. As mentioned above, these patients are at high risk of suffering more and/or dying earlier from these physical illnesses than non-psychiatric patients. In the interest of improving the health of South Africans and their quality of life, by means of reducing their disease burden and striving to provide them with services supportive of achieving health, it is of importance that a strategy should be developed to identify, treat, monitor and refer these patients for further treatment by relevant specialists where and when necessary. Not only will such an exercise help reduce the disease burden of the individual patients, but the cost of treating cardiovascular diseases can be reduced with screening, preventative interventions, early detection and prompt treatment of the risk factors.

1.4 PROBLEM STATEMENT

The general health status of mental health care users in a specialist psychiatric outpatient clinic is often not considered adequately in the routine assessment during consultation. Despite having access to health care services, the neglect to detect or treat medical co-morbid conditions early in these patients, may lead to multiple subsequent visits to different caregivers, resulting in additional cost in transport for the users, more time lost, more resources used by different health facilities, severe morbidity and mortality.

1.5 **HYPOTHESIS**

Physical illnesses, including common cardiovascular risk factors among psychiatric patients attending the Helen Joseph Hospital outpatient psychiatric clinic, were not adequately reviewed by attending doctors.

1.6 **AIMS AND OBJECTIVES**

The purpose of the study was to investigate the extent to which medical illnesses, including cardiovascular risk factors in psychiatric patients attending the specialist psychiatric clinic at Helen Joseph Hospital, have been reviewed and documented by attending doctors.

The objectives of this study were to:

- (2) describe the demographic characteristics of the study population
- (3) describe the clinical profile of the study population
- (4) describe the reported physical illnesses and cardiovascular risk factors in this group;
and
- (5) determine, if any, possible associations between the group's demographic variables and their various documented comorbid medical illnesses or risk factors.

CHAPTER 2 METHODS

This was a retrospective, descriptive record review of files of patients who attended the psychiatry outpatient department over a six-month period, starting from 1st of July 2012 and ending on the 31st of December 2012. This period was chosen as it was the most recent six-month period at the time of submitting the research protocol for this study. Six months were also considered to be the period required to identify all current, or active patients from the clinic register, as the period between follow-up visits to the doctor for a review and prescription renewal should not exceed six months.

2.1 Study sample and inclusion criteria

The clinical records of all patients above the age of 18 years who attended this adult specialist psychiatric outpatient clinic at HJH seen by a doctor during the six-month study period were included in this study. Files of patients with recorded physical illnesses were identified and included in the analysis. Those files with recorded physical illnesses were 266 in total. For purposes of this study, the analysis was focused only on the files of those with recorded physical illnesses.

2.2 Data sources and collection

Data from these clinical files were obtained regarding patients' demographic data, prescribed medication, diagnosed psychiatric illnesses and diagnosed physical illnesses. Files were also reviewed for patients' prescribed medication. A data collection sheet including the variables on patients' demographic and clinical profile that would be extracted is included as Appendix

1. Demographic variables that were extracted were age, gender, marital status, level of education and employment status. Clinical variables included psychiatric and medical diagnoses in terms of (DSM-IVTR) Axes I, II and III diagnoses, as well as psychiatric and medical treatment.

Five demographic variables were reviewed for analysis. These are age, gender, marital status, level of education and employment status. Patients were put in six age categories, starting with less than 25 and ending with more than 65 years. The categories in between were each a decade apart. Gender was divided between male and female categories. Marital status was divided between single, married, divorced and unknown.

With respect to level of education, six categories were identified. These were no formal education, unknown education status, special school education, primary, secondary and tertiary education levels. There was difficulty with how to categorise the level of education of patients who did not complete a certain level. For example, a person who completed Grade 8 but discontinued after one year of “secondary education”, did not complete secondary education. The same is true for a person who failed grade 12. Although they completed category of education is primary school, the latter would have spent a significant time in school after completing primary school than the former. This could result in differences in upward movement in economy and ability to access training centres and work opportunities. For the purposes of this study, patients who at least failed Grade 10, meaning they had attended a full year of Grade 10 but failed to achieve a pass mark, were included in the “secondary education” category. Anyone who passed grade 9, or lower, was included as having “primary education”. It is common clinical practice in this site that “tertiary education” is only reflected in file records of people who have completed a tertiary

qualification. Thus, all patients whose records reflected “tertiary education” without specifying the qualification were included in the category of those with tertiary education.

With respect to clinical profile, Patients psychiatric diagnoses (both axis I and axis II) and prescribed medication were captured for analysis. Many of the patients with co-occurring physical illnesses had more than one diagnosis listed on Axis I. It was not possible to deduce whether the second or third diagnosis listed was a differential or, in fact, a co-morbid diagnosis. For the purposes of this study, the first diagnoses of often several, were taken to be the “main” Axis I diagnosis.

Medical terminology was not always used clearly in the patients’ files, including for both psychiatric and medical diagnoses. Documents often contained vague terminology, not specifying if specific diagnostic criteria were actually met for clinical diagnoses according to the DSMIV-TR. For example, a patient diagnosed with “depression” or described as being “depressed” may, or may not, have met the criteria of having a diagnosis of major depressive disorder. At the same time, such symptoms of “depression” or “being depressed” could also have been caused by a comorbid medical condition. For the purposes of this study, these terms have not been changed and an effort was made to keep them as they were recorded in the files.

Prescribed medications were separated into psychiatric and medical treatment. This distinction was made only for ease of reporting. It is possible that medication like Sodium Valproate can be used for mood disorders (psychiatric condition) and epilepsy (medical condition). It was not necessary, for purposes of this study, to make that distinction. This study only sought to document and describe medication used by these patients as part of their

clinical profile. These medications were described in recognised medical class/categories of medication as described in the results section.

With respect to the third objective of the study, physical illnesses were documented as axis III diagnoses. As there is no prescribed manner/format of documenting these, clinicians use various approaches to document physical illnesses. For example, some may document in terms of functional systems while others may use pathology as a way of documenting illnesses. For the purposes of this study, a hybrid of both pathology and functional systems was used to create 18 categories of illnesses. Common physical illnesses were also recorded individually.

2.3 Data analysis

Descriptive statistics were applied using means and standard deviations for parametric variables, and medians and confidence intervals for non-parametric variables (Objectives 1, 2 and 3); Statistica 12 software was used for this analysis. Pearson Chi-square test was used to measure degree of association between variables (Objective 4). A p-value of less than 0.05 was interpreted as indicating significant association.

2.4 Ethics

Ethics clearance (reference number M130955) for this retrospective review of clinical records was obtained from the Human Research Ethics Committee of the University of the Witwatersrand, after permission to access patients' files was obtained from Helen Joseph

Hospital's CEO. The ethics clearance certificate is included in this report as Appendix 2. During the data collection, care was taken to anonymise the data included in the data spreadsheet and not to include any data that may identify patients and thus divulge their personal information without their consent.

CHAPTER 3 RESULTS

As mentioned earlier, 266 of 608 patients (43.75%) who attended at the study site during the study period had a documented physical illness in their records and were analysed. Of the 266, 64 (or 24.06%) had a psychiatric disorder due to a general medical condition documented as an Axis I diagnosis, while 202 (75.94%) had a primary psychiatric disorder on Axis I, with a co-morbid general medical condition documented on Axis III.

3.1 Description of the demographic profile

Five demographic variables were reviewed, including: age, gender, marital status, level of education and employment status.

(1) Age

The average age of the patients included in this study was 48 years and median 49 years, with a standard deviation of 14.7 and confidence interval of 0.05. The oldest patient was 87 years old and youngest 18 years. Only 15 (5.64 %) of these patients were under the age of 25 years, while 40 (15.04%) were 65 years and above. About two thirds (n=176; 66.17%) were between the ages of 35 and 65 years. Figure 1 shows the number of people in different age categories.

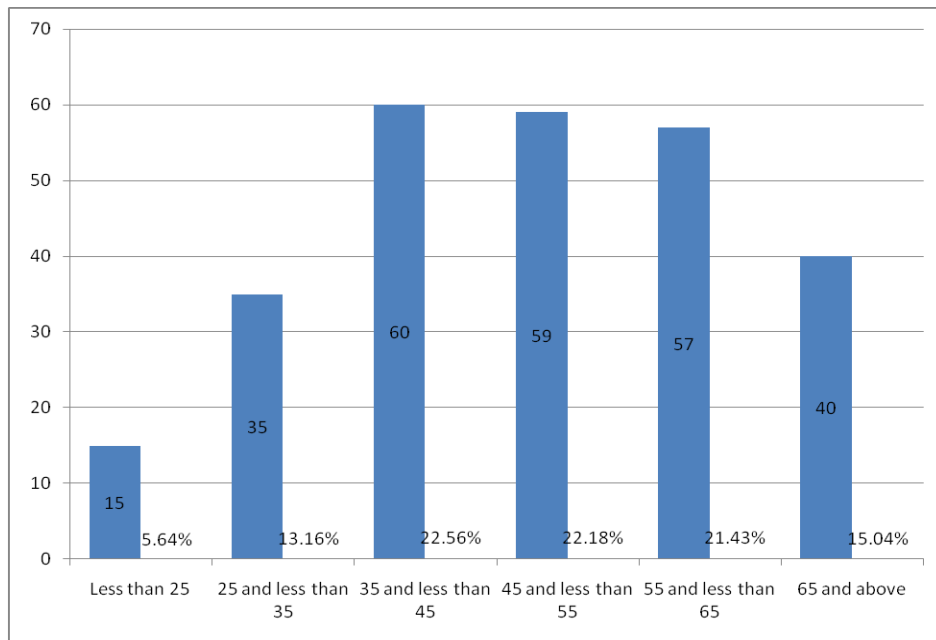


Figure 1. Age categories of patients with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

(2) Gender

Of the patients included, 178 (67%) were female and 86 (32%) male. Two of them (1%) had no gender specified in their files.

(3) Marital status

For more than half of the patients, marital status was not documented in their files (n=153; 57%). For those documented (n=113), 42 (16%) were single, 40 (15%) married, 24 (9%) divorced and 7 (3%) widowed (Figure 2).

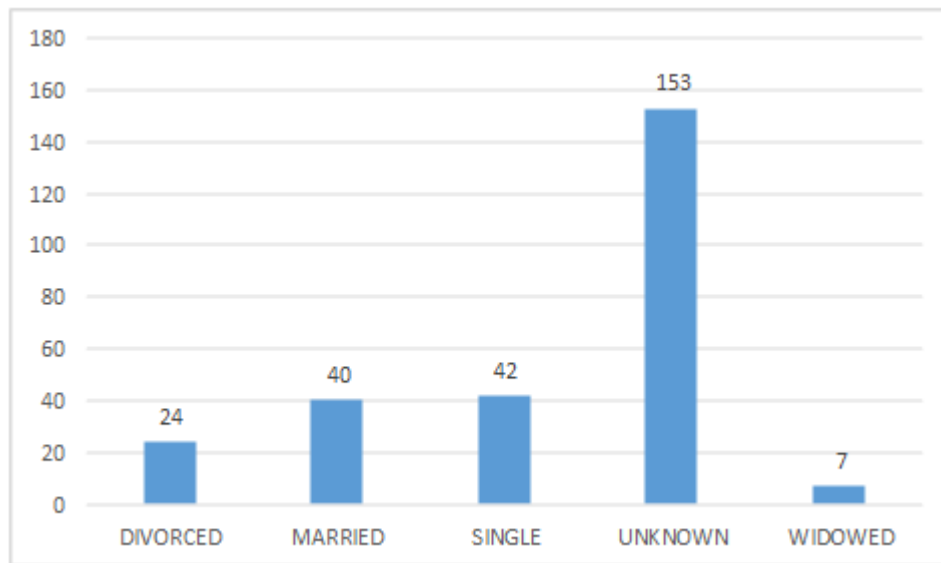


Figure 2. Marital status of patients with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

(4) **Level of education**

For most of the patients included in this study, their highest level of education was not documented (n=165; 62%). Of the rest (n=101), about 8.3% (n=22) had primary education, 20.3% (n=54) secondary education, and 6.8% (n=18) with tertiary education. Five patients (1.9%) attended special school and two (0.8%) had no formal education.

(5) **Employment status**

For the majority of the patients, employment status was also not documented (56.4%; n=150). Of the rest (n=116), almost 30% (n=77) were unemployed, while less than 10% were employed (n=20; 7.52%). Fifteen patients were recorded as pensioners, accounting for 5.6%.

Three were tertiary students (1.1%) while only one (0.4%) had sheltered employment. Figure 3 shows the employment status of all patients.

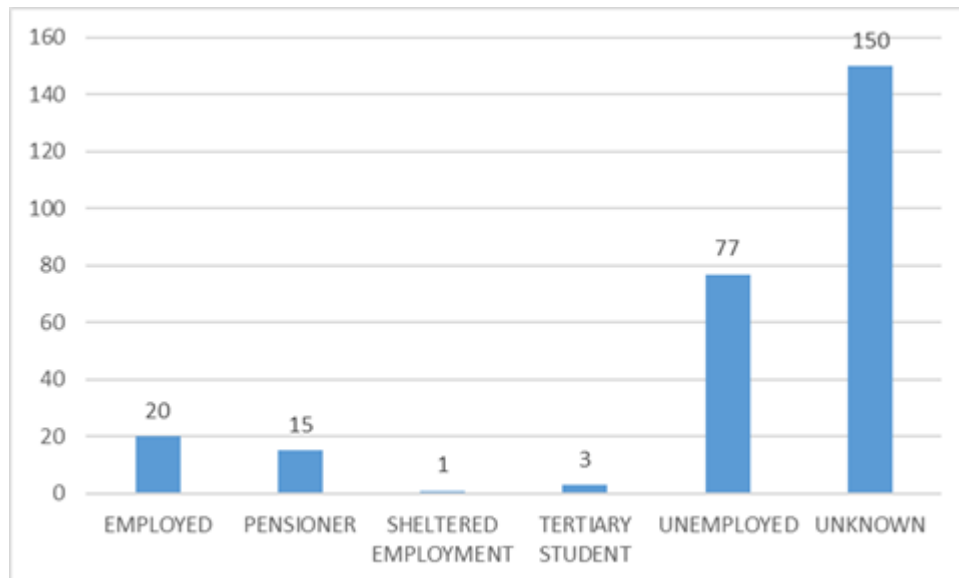


Figure 3. Employment status of patients with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

3.2 Description of the clinical profile – Psychiatric diagnoses and prescribed medication

Of the 266 patients, 64 (24%) had a psychiatric disorder due to a medical condition as an Axis I diagnosis, while 202 (76%) had a primary psychiatric disorder (not caused by a medical condition) documented on Axis I diagnosis, but with a co-morbid GMC on Axis III.

3.2.1 Psychiatric diagnoses

For psychiatric diagnoses, both Axis I and Axis II diagnosis are described in this section.

3.2.1.1 Axis I diagnoses

Table 1 below shows a list of all main Axis I diagnosis among the research participants, together with the number of patients diagnosed with each and the percentage that a particular diagnosis represents among the total number of patients (n=266). As discussed in section 2.2, main Axis I diagnoses were taken as the first listed in the files. Also, terminology used in files was preserved into this study and not changed to meet specific DSM terminology.

The three most common psychiatric diagnoses were “Dementia” (n=35; 13.2%), “Major Depressive Disorder” (n=34; 12.8%) and “Psychosis due to GMC” (n=30; 11.3%).

Table 1. Main Axis I diagnosis of patients with physical illness at psychiatry outpatient clinic, HJH, Jul-Dec 2012 (n=266)

Attention deficit hyperactivity disorder	4	1.50%
Adjustment disorder	5	1.88%
Alcohol abuse	2	0.75%
Anxiety disorder	11	4.14%
Benzodiazepine abuse	1	0.38%
Bipolar mood disorder	25	9.40%
Dementia	35	13.16%
Depressed	5	1.88%
Depression	1	0.38%
Dysthymia	9	3.38%
Generalised anxiety disorder	5	1.88%
Major depressive disorder	34	12.78%
Major depressive episode	24	9.02%
Mood disorder due to GMC	23	8.65%
Substance induced mood disorder	1	0.38%
None	14	5.26%
Psychosis due to GMC	30	11.28%
Psychosis due to head injury	2	0.75%
Psychosis NOS	1	0.38%
Schizoaffective disorder	6	2.26%
Schizophrenia	23	8.65%
Substance induced psychosis	2	0.75%
Substance abuse	2	0.75%
Substance dependence	1	0.38%

- In Figure 4, all the listed Axis I diagnoses, including all comorbid and/or differential diagnoses, were grouped together into diagnostic clusters, such as mood, psychotic and cognitive disorders.

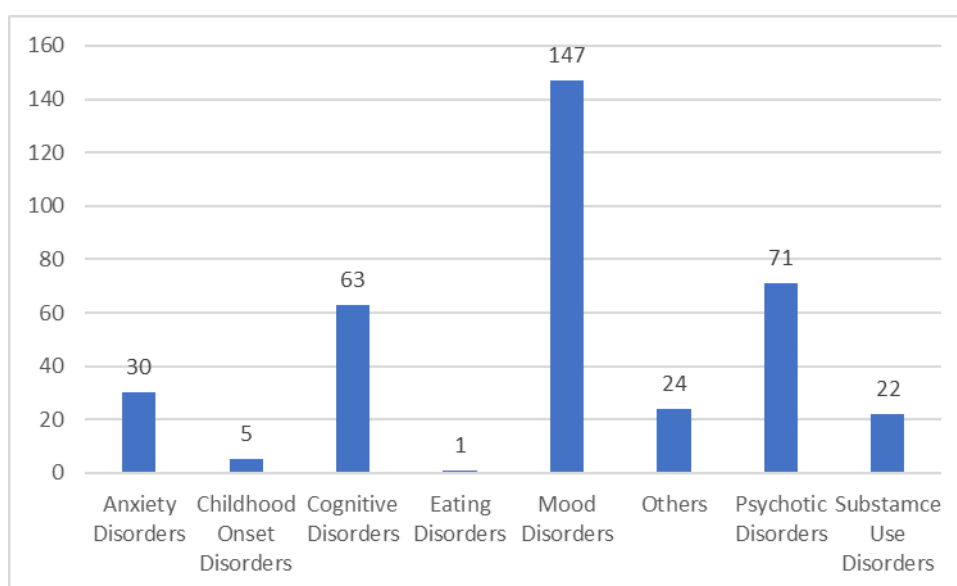


Figure 4. Categories of all Axis I diagnoses (main, co-morbid and differential) of patients with physical illness at the outpatient psychiatric clinic, HJH, Jul-Dec 2012 (n=266)

When clustered in this way, the most common diagnoses were: “Mood disorders” (n=147; 41%), “Psychotic disorder” (n=71; 20%) and “Cognitive Disorders” (n=63; 17%):

- **Mood disorders** – including bipolar disorder (type one and two); depression; “depressed”; dysthymia; major depressive disorder; major depressive disorder with psychotic features; major depressive episode; “mood”; mood disorder secondary to GMC and substance-induced mood disorder.
- **Psychotic disorders** – including “delusional”; alcohol-induced psychosis; psychosis secondary to GMC; psychosis secondary to head injury; psychosis not otherwise specified (NOS); schizoaffective disorder; schizophrenia and substance-induced psychosis. It is worth noting that although cannabis abuse and poly-substance abuse

were diagnosed in some patients, no patients were documented as having a diagnosis of “cannabis-induced psychotic disorder. Instead, the phrase “substance-induced psychotic disorder” was used.

- **Cognitive disorders** – including 35 with dementia as main diagnosis and another 28 as either a co-morbid or differential diagnosis.
- **Anxiety disorders** – including “anxiety”; generalised anxiety disorder; OCD; PTSD; and panic attacks (n=30; 8%).
- **Other** – including “unknown”, V-code, bereavement, somatoform disorder and adjustment disorder (n=24; 7%)
- **Substance use disorders** – including substance induced psychosis, substance abuse and substance dependence (n=22; 6%)

3.2.1.2 Axis II: Personality and developmental diagnoses

According to DSM-IV-TR, Axis II included Personality Disorders and Mental Retardation (DSM-IV TR terminology). There are 10 Personality Disorders that are recognised in DSM-IV TR. They are divided into three clusters, known as cluster A (Paranoid, Schizoid and Schizotypal Personality Disorders), cluster B (Antisocial, Narcissistic, Borderline and Histrionic Personality Disorders) and cluster C (Avoidant, Dependent and Obsessive-Compulsive Personality Disorders). There is also a category of Personality Disorder Not Otherwise Specified. Mental Retardation is also divided into Borderline Intelligence, Mild, Moderate, Severe and Profound Mental Retardation.

For 20.0% (n=52) of patients included in the study group, an Axis II diagnosis was documented. Of these 52, for 31 (11.7% of the study population) a personality disorder was diagnosed and for 8% (n=21; 7.9%), a diagnosis of “mental retardation” was documented on Axis II (Table 2.)

Table 2. Axis II diagnoses documented for patients also with a physical illness at psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=52)

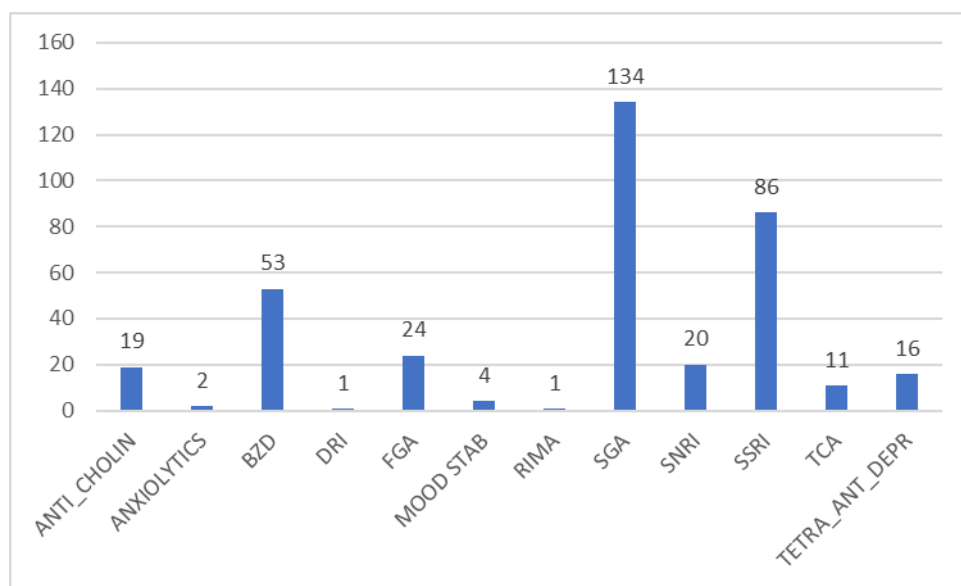
Axis II Diagnosis	Number	
Cluster A	1	
Cluster B	26	
	Borderline personality disorder	4
	Narcissistic personality disorder	1
	Antisocial personality disorder	3
	Suspected cluster B	2
	Cluster B traits	1
	Unspecified	15
Cluster C	3	
Cluster B and C	1	
Mental Retardation	21	
	Borderline IQ*	1
	Unspecified	17
	Severe	2
	Suspected	1
Total documented Axis II diagnoses	52	

*IQ=Intelligence quotient

3.2.2 Psychiatric and medical treatment

3.2.2.1 Psychiatric medication

Figure 5 shows different classes of psychiatric medications that are prescribed in this study group. Second Generation Antipsychotics (SGA) were the most commonly prescribed medication category (n=134), followed by SSRIs at 86. Benzodiazepines (n=53) were the third most used category with First Generation Antipsychotics (n=24) and serotonin noradrenaline reuptake inhibitor (n=20) being at number four and five respectively.



ANTI_CHOLIN= anticholinergics; BZD= benzodiazepines; DRI= dopamine reuptake intake; FGA= first generation antipsychotics; MOOD_STAB= mood stabiliser; RIMA= reversible inhibitor of monoamine oxidase A; SGA= second generation antipsychotics; SNRI= serotonin noradrenaline reuptake inhibitor; SSRI= selective serotonin reuptake inhibitor; TCA= tricyclic antidepressant; TETRA_ANT_DEPR=tetracycline antidepressants

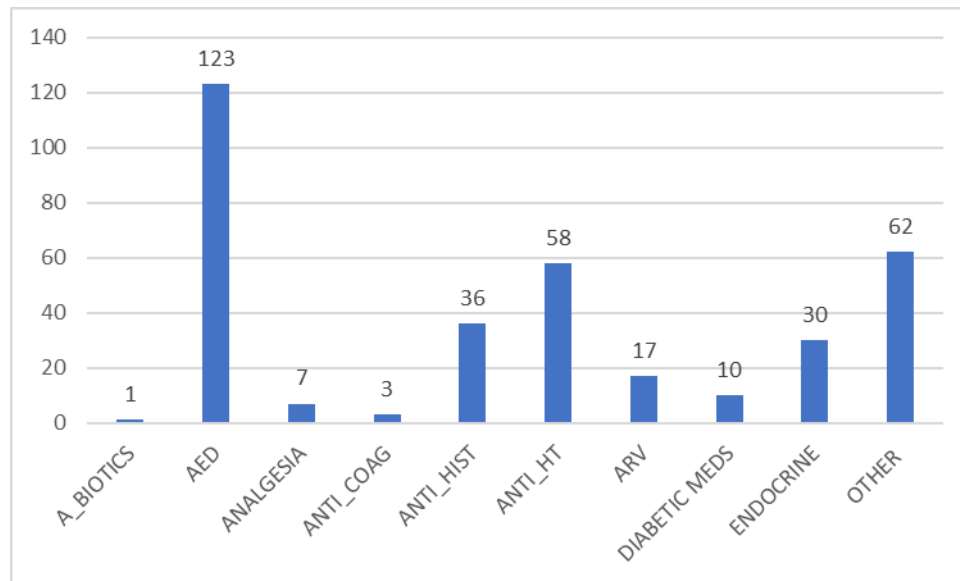
Figure 5. Psychiatric medication used in patients with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

3.2.2.2 Medical Treatment

Figure 6 describes categories of medical treatment used in this cohort. Anti-epileptic drugs (AED) were the most prescribed category, being prescribed 123 times. Medication included in this category were Carbamazepine, Epanutin, Lamotrigine, Topiramate and Sodium Valproate. No distinction was made regarding whether these medications were prescribed for Epilepsy, mood disorders or other conditions.

The second most commonly used category of medication was other (n=62). This category includes Fenoterol, iron tablets, Folate, Omeprazole, Propranolol, Methylphenidate, Potassium, Simvastatin, Thiamine, Vitamin C, Vitamin B Complex and Tamoxifen.

Anti-hypertensive medications were documented 58 times, making it the third most common type of medication used in the study group. Of the forty-one patients with that were diagnosed with HIV, 17 of them were on anti-retroviral medication.



ANTI_HT = antihypertensives; DIABETIC MEDS= diabetic medication; A_BIOTICS=antibiotics; AED=antiepileptic; ARV=antiretroviral; ANTI_COAG=anti-coagulant; ANTI_HIST=anti-histamine

Figure 6. Medical treatment used in patients with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

3.3 Axis III - Physical illnesses and cardiovascular risk factors

This section describes findings with regards to the third objective of the study. The Axis III dimension of the DSM IV-TR diagnostic formulation format was routinely reserved for documenting co-occurring physical illnesses.

3.3.1 Categories of physical illnesses.

Due to the wide spectrum of illnesses, all the medical illnesses or conditions (for some patients more than one) documented for the patients included in the study group, were organised in terms of 18 categories determined as described in methods (Figure 7). The most

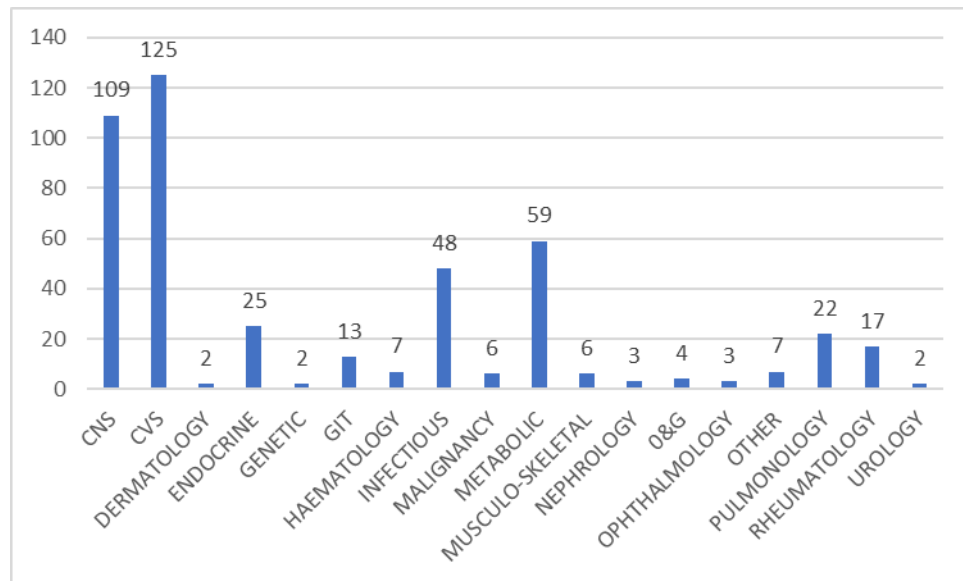
common categories were cardiovascular (n=125), central nervous system (n=109), metabolic (n=59), infectious (n=48) and endocrine (n=25).

(A) Cardiovascular system (CVS) – This category represents the most common documented physical illnesses (Figure 7), diagnosed 125 times in this group of patients. Conditions included were angioplasty, Barlow’s syndrome, coronary heart disease, hypertension, ischaemic heart disease, mitral valve prolapsed, mitral valve replacement, mitral valve (disease unspecified), varicose veins and vasculopathies. Hypertension was by far the most commonly diagnosed physical illness in this category and the most commonly diagnosed illness overall, documented in 107 patients (Figure 8).

- **Hypertension** - Of the 107 patients diagnosed with hypertension, 29 had no other co-morbid physical illness, while 32 had a second co-morbid physical illness. The most common second physical illness in these patients was diabetes mellitus (n=9), followed by epilepsy (n=4), dyslipidaemia (n=3) and hypothyroidism (n=2). The remaining 14 patients with hypertension and one other physical illness had (an) “infarct”, HIV/AIDS, head injury, Prader-Willi, pelvic fracture, mitral valve replacement, “reflux”, rheumatoid arthritis, ischaemic heart disease, cerebro-vascular accident (CVA), chronic obstructive pulmonary disease (COPD), gastric carcinoma and acne. All these conditions occurred once in combination with hypertension. Forty-six patients (43.0%) with hypertension had more than one diagnosed co-morbid physical illness.

(B) Central nervous system (CNS) - The second most commonly diagnosed category of diseases (Figure 7) – described 109 times and included abnormal computerised topography (CT) scans of the brain, cerebral palsy, lacunar infarct on CT scans, cerebro-vascular accidents (CVA; n=4), epilepsy (n=49), frontal lobe granuloma, headache, head injury (n=20), HIV encephalopathy, hydrocephalus, Lewy body, meningitis, movement disorders (not specified; n=1), multi-infarcts, narcolepsy, neuro-fibroma, neuropathic pain, neuro-syphilis, peripheral neuropathy, syncope, TB meningitis, transient ischaemic attack (TIA, n=1) and temporal lobe epilepsy (TLE). Epilepsy (n=49) and head injury (n=20) were the two most commonly diagnosed physical illnesses in the CNS category. Together they accounted for 63.30% of the 109 times that CNS illnesses were diagnosed in this study group.

- **Epilepsy** - Was diagnosed in 49 patients (Figure 8). Of the patients with epilepsy, 27 had no other co-morbid physical illness, while 16 had one more and 6 had two or more co-morbid physical illnesses.



CVS=cardio-vascular system; CNS=central nervous system; GIT=gastro-intestinal tract; O&G= obstetrics and gynaecology

Figure 7. Categories of all physical illnesses documented for patients attending the outpatient psychiatric clinic, HJH, Jul-Dec 2012 (n=266)

(C) Metabolic diseases - The third most commonly diagnosed category of diseases was metabolic diseases (Figure 7). This category included diabetes mellitus, dyslipidaemia, metabolic syndrome and increased Body Mass Index. Metabolic diseases were diagnosed 59 times in this cohort of patients. Dyslipidaemia was the most diagnosed metabolic disease (n=30), followed by diabetes mellitus (n=27). Increased BMI and metabolic syndrome were diagnosed once each. There was no indication of the components of metabolic syndrome that were present in the one patient diagnosed with metabolic syndrome. This may mean that the individual diseases that may be part of the metabolic syndrome (e.g., diabetes mellitus, hypertension, etc.) in this patient may be under-estimated in the study.

- **Diabetes Mellitus/Metabolic syndrome** - Of the five most documented medical diagnoses in the study (Figure 8), three are components of metabolic syndrome. Using the IDF criteria for metabolic syndrome, these are three out of parameters

of the syndrome that were measured in this study. The other two-pre-diabetes and abdominal obesity, were not measured. IDF criteria require that three out of the five criteria be present for the diagnosis of metabolic syndrome to be made. Measuring only three out of the five criteria will lead to under-estimation of the occurrence of the syndrome in this cohort. However, the three measured parameters can begin to highlight the presence of the syndrome. One hundred and sixty-four patients were diagnosed with at least one of the three components of metabolic syndrome (i.e. they had hypertension, diabetes mellitus or dyslipidaemia). This equates to 61.7% of all patients with physical illness.

- **Dyslipidaemia** - Diagnosed in 30 patients (Figure 8), equating to 11.3% of the 266 patients with physical illness. Out of the 30 patients, only 5 had no other co-diagnosed physical illness, 6 had one other and 19 (63.3% of the 30 patients) had two or more other diagnosed physical illnesses in addition to dyslipidaemia. This indicates that dyslipidaemia often existed with another axis III diagnosis than on its own. The most common condition that was diagnosed in addition to dyslipidaemia was hypertension, with 70 percent (n=21) of the 30 having hypertension. Five patients (16.7%) with dyslipidaemia also had diabetes mellitus.

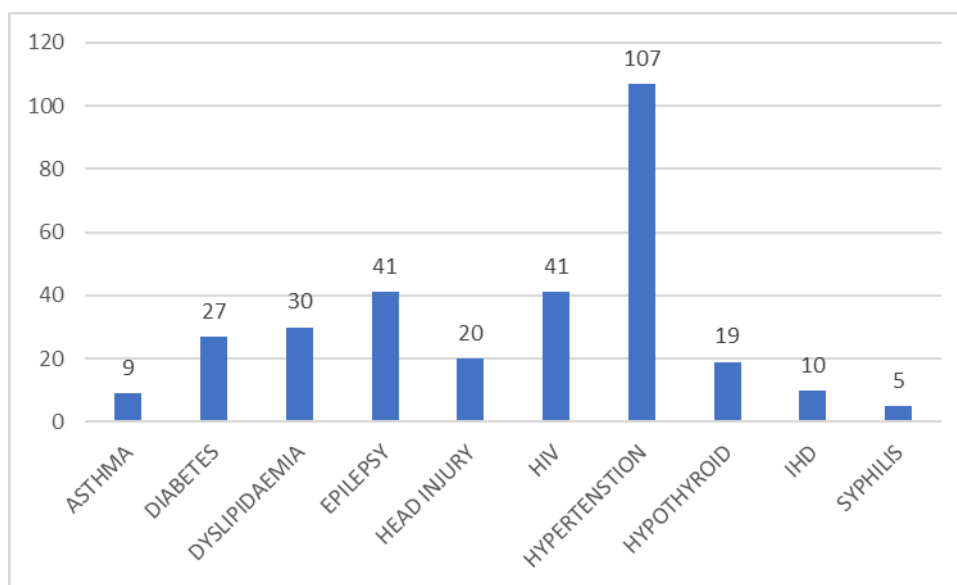
(D) Infectious disease - The fourth mostly diagnosed disease category (Figure 7), physical illnesses in this category being diagnosed 48 times. Included in this category were HIV, cysticercosis, syphilis and “HIV test”. All the patients who were noted as “HIV test” were also on ARVs. Therefore, they were included and analysed as HIV positive. HIV was the most commonly diagnosed infectious disease in this category, being diagnosed 41 times. It is worth noting that there were other

infectious diseases that were diagnosed in this cohort but categorised in different categories. Two examples are pulmonary TB that was included in “pulmonary” category and TB meningitis that in in “CNS” category. Two patients had a diagnosis of pulmonary tuberculosis.

- **HIV/AIDS** - Was diagnosed in 41 patients (Figure 8). This indicates 15.4% of the 266 patients with physical illnesses. Of the 41 patients, 26 had no other co-morbid physical illness, 9 had one more while 6 had two or more other co-morbid physical illness. One person with the second highest number of diagnosed co-morbid physical illness was in this category, with 6 illnesses including HIV/AIDS, TB-meningitis (TBM), pulmonary TB (PTB), hydrocephalus, hypertension and epilepsy. Four patients with HIV also had epilepsy and four had hypertension. Pulmonary TB was co-diagnosed in two patients, with one of them also having TBM. Dyslipidaemia was co-diagnosed in two patients.

(E) **Endocrine disorders** - The fifth most-diagnosed physical illnesses, described 25 times (Figure 7). Disorders included in this category were Vinillylmandelic Acid (VMA), galactorrhoea, hyperprolactinaemia, hyperthyroidism, hypothyroidism, lithium-induced hypocalcaemia and thyroid mass. Hypothyroidism was the most commonly diagnosed disorder in this category, being diagnosed 19 times.

Just over half (55.6%; n=148) of the patients had one documented co-morbid physical illness, about a quarter (n=65; 24.4%) had two documented physical illnesses, while for the remaining 51 (19.2%) more than two physical illnesses were documented – for one patient six and another seven conditions.



HIV= Human immunodeficiency virus; IHD = Ischaemic head disease

Figure 8. Ten Most commonly described physical illnesses for patients in the outpatient psychiatric clinic, HJH, Jul-Dec 2012

Although two patients were diagnosed with GMC-related Axis I or psychiatric illness, no medical condition was listed on Axis III– as could have been expected. One was a sixty-seven-year-old male with psychosis secondary to a GMC and/or dementia. The other was a forty-four-year-old male with major depressive episode and a note of “GMC” with no specification. No reasons could be found in files to explain why the GMCs in these cases were not stated. Review of notes in the file could also not reveal any physical illness, suspected or diagnosed, in these patients.

3.4 Comparing variables: associations between the group's demographic variables and their various documented comorbid medical illnesses or risk factors

The final objective of this study was to establish whether there were any associations between the group's demographic and clinical variables and their various documented comorbid medical illnesses or risk factors

Two of the five demographic variables - age and gender, were selected for the comparative analysis. The other variables (employment status, level of education and marital status) did not have enough data that was documented. Of the diagnosed physical illnesses, the most commonly documented diagnoses were hypertension (n=107), epilepsy (n=49), HIV (n=41), dyslipidaemia (n=30) and diabetes mellitus (n=27; 10.15%). All other physical illnesses occurred in twenty (7.5% of 266) patients or less.

3.4.1 Age

Patients were separated into seven categories depending on their age. The categories are shown in Table 3 below.

- (1) **Hypertension** - Of the 107 patients diagnosed with hypertension, 87 (81.31%) of all patients with hypertension were above the age of 45 years, with more than half (n=58, or 54%) were above the age of 55 years. Only one person below the age of 25 years was diagnosed with hypertension.

- A significant association between increasing age and diagnosis of hypertension was observed, with a p-value of less than 0.00.

(2) **Epilepsy** - Of the 49 patients diagnosed with epilepsy, 63.27% (n=31) were 45 years old or younger. Sixteen patients were between the ages of 45 and 65 years and only two above 65 years; no patients above the age of 75 was diagnosed with epilepsy.

- A significant association was found between age and diagnosis of epilepsy, with the diagnosis being more common in the younger age group (p= 0.01)

Table 3. Comparison of commonly occurring physical illness by age in people with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

Age Category (years)	Hypertension		Diabetes Mellitus		HIV		Dyslipidaemia		Epilepsy	
	Number	%	Number	%	number	%	number	%	number	%
<25	1	0.93	0	0.00	1	2.44	0	0.00	7	14.29
26-25	8	7.48	2	7.41	15	36.59	4	13.33	11	22.45
36-45	11	10.28	2	7.41	14	34.15	3	10.00	13	26.53
46-55	29	27.10	7	25.93	9	21.95	10	33.33	8	16.33
56-65	30	28.04	11	40.74	2	2.88	10	33.33	8	16.33
66-75	28	26.17	5	18.52	0	0.00	3	10.00	2	4.08
>75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
TOTAL	107		27		41		30		49	
P values	0.00*		0.04*		0.00*		0.15		0.01*	

- (3) **HIV** - The third most commonly diagnosed physical illness; it was diagnosed in 41 patients. Of these, about three quarters (n=30, or 73.17%) were aged 45 and below; nine were between the ages 46 and 55 and only two between 56 and 65. No one above the ages 65 years was diagnosed with HIV. Only one patient, of 2.44%, who was diagnosed with HIV was below the age of 25 years.
- A significant association (p-value less than 0.00) was also observed between HIV diagnosis and age, with the majority of patients being between the ages of 36 and 45 years.
- (4) **Dyslipidaemia** - Thirty patients were diagnosed with dyslipidaemia, making it the fourth most commonly diagnosed physical illness. Of the thirty patients diagnosed with dyslipidaemia, seven were 45 years old or younger and three above the age of 65 years. Two thirds (n=10) were between the ages of 46 and 65 years.
- No significant association was noted between age and dyslipidaemia, with a p-value of 0.15.
- (5) **Diabetes mellitus** - Twenty-three (85.19%) out of 27 patients diagnosed with diabetes mellitus were above the age of 45. No patient below the age of 25 had a diagnosis of diabetes mellitus.
- Increasing age was also observed to be significantly associated with the likelihood of a diagnosis of diabetes mellitus, with a p-value of 0.04.

3.4.2 Gender

(1) **Hypertension** - Of the 107 patients diagnosed with hypertension (Table 4), 74 (69.16%) were female.

- No significant association was noted between gender and diagnosis of hypertension (p=0.45)

Table 4. Comparison of commonly occurring physical illness by gender in patients with physical illness at the psychiatric outpatient clinic, HJH, Jul-Dec 2012 (n=266)

	MALE	%	FEMALE	%	UNKNOWN	%	p-value
Hypertension	33	30.84	74	69.16	0	0.00	0.45
Diabetes Mellitus	8	29.63	19	70.37	0	0.00	0.84
HIV	10	24.39	30	73.17	1	2.43	0.22
Dyslipidaemia	11	36.67	19	63.33	0	0.00	0.77
Epilepsy	23	46.94	26	53.06	0	0.00	0.05

(2) **Epilepsy** - Diagnosed in 26 (53.1%) females and 23 (46.9%) males.

- No significant association was found between epilepsy and gender

(3) **HIV** - Diagnosed in 41 patients. More than 73 % (73.17; n=30) of these patients were female, 10 were male and one had no gender recorded in their file.

- No significant association was found between gender and HIV diagnosis (p=0.05)

- (4) **Dyslipidaemia** - Diagnosed in 19 females (63.33%) and 11 males.
- No statistically significant association found between gender and dyslipidaemia
- (5) **Diabetes mellitus** - Just over seventy percent (70.37%; n=19) of the 27 patients diagnosed with diabetes mellitus were female.
- No significant association was found between gender and diabetes

CHAPTER 4 DISCUSSION

The study set out to achieve four objectives, to describe the demographic characteristics, the clinical profile (psychiatric diagnoses; psychotropics used in the treatment of the mental illness; medication used in the treatment of the medical illness), the reported physical illnesses and cardiovascular risk factors in this study group as well as determine possible associations between the group's demographic variables and various documented comorbid medical illnesses or risk factors.

4.1 Demographic profile

With respect to demographic profile, the majority of patients in this study population were female and in the 45-54-year age group. The average age of this cohort. 48 years, is about 10 years less than the average life expectancy in South Africa in 2011.⁷⁰ Although the national life expectancy increased from another census 8 years before this study there is no data to compare how life expectancy among people with mental illness in South Africa. Further studies in this regard may answer the question of whether people with mental illness die younger in South Africa compared to the general population or not.

Although the employment status of most of the patients in the study group was not documented, unemployment among people with mental illness has generally been reported as higher than in the general population.^{27,28} A recently published study by Luciano and Meara showed association between levels of unemployment severity of mental illness in United States of America (USA).⁷¹

4.2 Clinical profile

With regards to psychiatric diagnoses, the results reveal that in three quarters of patients, medical conditions were diagnosed in the context of primary psychiatric diagnosis. While it is not known, from this study, what percentage of these patients had the medical diagnosis at the time of psychiatric diagnosis, the study does highlight the importance of screening for, diagnosing and managing physical illnesses in all patients, including those who are already diagnosed with a psychiatric illness.

Mood, psychotic and cognitive disorders were the three most diagnosed categories of psychiatric illnesses in this study population. Dementia, Major Depressive Disorder and Psychosis due to GMC were leading single diagnosed main axis I diagnosis. The method of determining main axis I diagnosis in this study (main axis I vs co-morbid axis II, as described under methods section) is a major limiting factor in drawing any conclusive and generalisable results from this finding. Notwithstanding the limitations, the results suggest a possible relationship between GMC and psychosis in this cohort. This is because psychosis is one disorder that was most commonly diagnosed as due to another medical condition. To clarify the medical conditions that are likely to lead to psychosis, a different analysis of the data and new study design are likely to give better results.

The results also suggest a high occurrence of medical conditions in both psychotic and mood disorders reported in previous studies.^{6,8} In addition, multiple factors can lead patients to develop dementia. It is likely that medical conditions could have led to patients developing vascular dementia. The role of medication in indirectly causing dementia, by leading to emergence of hypertension, diabetes mellitus or dyslipidaemia, cannot be neglected. Head

injuries could also cause dementia. Future studies may focus on and explain the relationship between medical conditions, psychiatric medication and psychiatric illnesses more clearly.

With regards to psychiatric medication, the finding of SGAs and SSRIs being the most commonly used medication categories is in keeping with the commonly diagnosed psychiatric illnesses in this cohort; that is, mood disorders and psychosis. Also, SGAs are commonly used in people with dementia for symptom control. On the other hand, these medication categories can lead to development of medical illnesses. They are strongly associated with weight gain and, in the case of SGAs, metabolic syndrome.¹⁵ A more focused, future study can explore relationship between psychiatric medication and physical illnesses in this cohort.

Second generation antipsychotics are indicated for treatment of psychotic disorders (such as schizophrenia) and mood disorders (such as bipolar mood disorder). Although they are favourable, in comparison to FGAs, with respect to extrapyramidal side effect profile, SGAs are associated with higher metabolic side effects (e.g., weight gain and higher risk of hypertension, diabetes and dyslipidaemia). These metabolic side effects carry an increased risk of cardiovascular diseases and thus possibly contributing towards higher mortality and morbidity among psychiatric patients. Association between SGAs and physical illnesses is outside the scope of this study and may be focus of future studies.

The second most commonly used category of psychiatric medication in this group was SSRIs (n=86), Figure 7. SSRIs are used to treat depressive disorders and anxiety disorders. They are also used commonly in treatment of bipolar depression, in combination with a mood stabiliser and in people with negative symptoms of schizophrenia, especially when these are treatment

resistant. Known long term side effect of SSRIs include weight gain and its associated risk of hypertension, dyslipidaemia and diabetes mellitus.

Interestingly, the two most commonly used categories of psychiatric medication are associated with higher probability of patients developing metabolic syndrome and/or individual cardio-vascular risk factors. This study has not explored this association. Further studies could explore the link between the use of specific psychiatric medication and medical co-morbidity and even mortality in psychiatric population in South African setting.

Benzodiazepines. Benzodiazepines were the third most used category of psychiatric medication. This is a category of medication that is used for various indications in psychiatry, almost always as adjuvant to another medication. Benzodiazepine sedating property is the most desired property when they are prescribed. They are commonly used for insomnia, aggression, anxiolysis and alcohol withdrawal, among other psychiatric indications. Although their long-term use is not recommended in these conditions, psychiatric patients are often on benzodiazepines chronically. Continuous, chronic use at adequate doses can lead to chemical addiction to benzodiazepines, memory impairment and depression, among others.⁷² Relationship between Benzodiazepine use and diagnosis of physical illnesses can be explored in future studies.

With respect to medical treatment, AEDs were the most commonly used medication category by far. This is in keeping with their use in both epilepsy and psychiatric conditions, mostly as mood stabilising agents in bipolar mood disorders. In fact, only 41 patients were diagnosed with epilepsy, in contrast to 123 times that AEDs were prescribed. This indicates that AEDs were mostly prescribed for other diagnoses, likely psychiatric diagnoses, rather than epilepsy.

Most AEDs are associated with development of metabolic syndrome.⁷³ The relationship between use of AED and metabolic syndrome has not been explored in this study.

It could be expected that anti-hypertensive medication would be one of the most commonly used type of medication as hypertension is the most common medical condition among these patients. However, 107 patients in this group were diagnosed with hypertension; considering that some of the patients who are diagnosed with hypertension may be on more than one anti-hypertension medication, this suggests that about half of the patients who are diagnosed with hypertension are not on anti-hypertension medication. It is difficult to say this with certainty though. It is possible that some patients were noted in their files to have hypertension but receiving antihypertensive medication elsewhere. The same discrepancy is also noted between occurrence of diabetes (n=27) and number of people on anti-diabetic medication (10).

4.3 Recorded physical illnesses

4.3.1 Hypertension

With regard to medical diagnoses, hypertension was the most common physical illness documented in this study population, with more than 40% of these patients diagnosed with hypertension. This percentage refers to the occurrence of hypertension in this group of psychiatric patients with medical conditions. As a percentage of patients attending at this clinic, the percentage would be much lower, at 17.60% (107 patients with diagnosed hypertension out of 608 patients who attended the clinic during the study period). This

percentage is lower than rates shown in recent community-based studies in South Africa that estimate hypertension prevalence between 40% and 50%.^{74,75}

The finding that diagnosed hypertension in this study group was significantly lower than that of the general population was unexpected. This especially in view of cardiovascular illnesses, including hypertension as a major risk factor, being responsible for significant morbidity and mortality in people with psychiatric illnesses. One possible explanation is that many of these patients have undocumented hypertension. Some of these undocumented patients may be undiagnosed and hence untreated. Others, however, may be on treatment for hypertension at other facilities, but the doctors at this study site did not document the hypertension. Future studies could focus on measuring the occurrence of undiagnosed hypertension (and indeed other components of metabolic syndrome) in the psychiatric outpatient population.

Hypertension was found in three times as many females as males, but there was no statistically significant difference found between hypertension diagnosis and gender. This can be explained by similar differences in the demographics of the study population. Females represented 67% of these 266 patients.

4.3.2 Metabolic syndrome and diabetes mellitus

Although dyslipidaemia was one of the five most-commonly diagnosed medical conditions in this cohort, the lack of statistical association with both gender and age was peculiar. Dyslipidaemia is associated with both increasing age and being female in the general population.^{76,77} One possible explanation, for the lack of significant statistical association between advancing age and dyslipidaemia, may be the higher occurrence of dyslipidaemia in

younger psychiatric patients compared to the general population. This view may be supported by the finding that about a quarter (Seven out of 30; 23.3%) of patients with dyslipidaemia in this study were 45 years and younger. This relative higher occurrence of dyslipidaemia in younger psychiatric patients could be due to use of medication known to be associated with emergence of dyslipidaemia or metabolic syndrome. Such medication may be SGAs like olanzapine or AEDs.^{7,9,12,72} A sedentary lifestyle and poor diet, both often seen more commonly in psychiatric patients, could also contribute to the development of dyslipidaemia at an earlier age compared to the general population.⁷⁸

There is another possible explanation for the lack of association between advancing age and occurrence of dyslipidaemia in this study population. As psychiatric patients with dyslipidaemia are at risk of cardiovascular diseases,⁹ they could be dying at younger age. This could then significantly lower occurrence of dyslipidaemia in older patients. In this study, only three patients (10.0%) diagnosed with dyslipidaemia were above the age of 65.

The last and most possible explanation for the lack of significant statistical association between occurrence of dyslipidaemia and advancing age is the sample size. Dyslipidaemia was diagnosed in only 30 patients in this study. Larger studies could possibly clarify this association (or lack thereof) better.

It is worth noting that while the IDF's definition of metabolic syndrome singles out high cholesterol as one of the criteria, this study only looked at "dyslipidaemia".¹³ "Dyslipidaemia" is a group of lipid abnormalities that may include high triglycerides in the presence of normal cholesterol. In addition, other components of metabolic syndrome, or example waist circumference, were not measured in this study. It is therefore not possible to

reliably comment about the occurrence of metabolic syndrome in this study population. Suffice to note the frequency with which metabolic syndrome's measured components occur in this study. Future studies will need to be done that can be designed to study metabolic syndrome more specifically and thoroughly.

The statistically significant association between occurrence of diabetes mellitus and increasing age is in keeping with established literature.^{79,80} However, the absence of this statistical association with gender is in contrast to available literature.⁷⁸ This could possibly be due to small sample size (27 patients with diabetes mellitus). It is therefore difficult to draw any conclusions or theories about this result. Further, larger studies are needed in order to better describe and understand occurrence of diabetes mellitus in this (or similar) patient population.

4.3.3 Epilepsy

Epilepsy was the second most diagnosed illness among these patients, with 49 (18.4%) people diagnosed with epilepsy. Epilepsy has been reported to occur in psychiatric population with more frequency than in the general population.^{81,82} Further studies would be needed to look at psychiatric disorders associated with epilepsy. Another study can explore side effects of anti-epileptic medication in psychiatric patients. The contribution of these side effects to mortality and morbidity may also be explored further.

4.3.4 HIV/AIDS

Another commonly diagnosed physical illness in this study group was HIV. There were 41, or 15.4% of, participants diagnosed with HIV. This figure is lower than the national adult HIV prevalence rate of 19.2%.⁸³ As mental illness often predisposes people to a higher risk of HIV and mental illness is generally more common among those diagnosed with HIV, this lower rate was unexpected. This further raises the possibility that there are many with either undiagnosed HIV infection. Alternatively, other patients may be diagnosed and treated elsewhere for HIV, without this being documented, or known, by clinicians at the research site.

Furthermore, a previous study conducted in Kwazulu-Natal showed a rate of 29.1% among inpatients in a psychiatric ward.⁸⁴ Methodological differences between the Kwazulu-Natal and current studies may explain this finding of a lower occurrence of HIV diagnosis in this study. The Kwazulu-Natal study tested patients who were being admitted into a psychiatric ward with severe mental illness. The current study was a record review of already diagnosed HIV infections. It is possible, therefore, that there may be patients at this research site who were not tested for, but infected with, HIV. In addition, due to the nature of this study being a retrospective review of records, other patients may have been diagnosed with HIV infection elsewhere, but this diagnosis not recorded in the files at research site.

There was a significant association ($p\text{-value} = 0.00$) noted between HIV infection and age, with a majority of patients diagnosed with HIV between the age of 36 and 45. According to South African national survey in 2012, the peak age group of HIV infection in the general population was 15-49.⁸⁵ The results of this study are in keeping with the national trends.

In this study, there was no statistically significant association found between rates of HIV infection and gender. This is in contrast with national trends.⁶⁴ The South African national survey in 2012 revealed that females had a significantly higher HIV prevalence than males, with HIV prevalence in females being 14.4%, while that of males was 9.9%.⁶⁴ A bigger sample size may be needed in order to clarify whether such differences in peak rates existed for males and females.

Of the 41 patients with a diagnosis of HIV, only 17 of them were on ARVs; this translates to 41, 46% of participants with diagnosed HIV were documented to be on ARVs. At the time of this study, ARV treatment was initiated in patients with CD4 count below or equal to 350 cells per micro-litre.⁸⁶ It should be noted, therefore, that this percentage coverage does not indicate how many patients were eligible for ARVs (i.e., with CD4 count below or equal to 350 cells per micro-litre) but not receiving ARVs.

Moreover, there is also a need to recognise that the HIV positive patients who were participants in this study have psychiatric illnesses. The neuropsychiatry and psychological effects of HIV diagnosis and infection can negatively affect the outcome of these research participants' mental health. Inversely, these patients' psychiatric illnesses can negatively impact compliance with ARV therapy and, therefore, treatment outcomes.

CHAPTER 5 CONCLUSIONS

5.1 KEY FINDINGS

What this study shows is that many patients who attended at the study site had various aspects of their medical records either undocumented or poorly documented. Most of the undocumented aspects were demographics, including employment, level of education and marital status. These aspects of patients' records are very important in enhancing multi-disciplinary, holistic management of people with various psychiatric illnesses. Most of the poorly documented aspects were both psychiatric and physical illnesses. Standardised medical terminology was not always used in records. This lack of standardised terminology contributed negatively to the quality of this retrospective study.

There are some aspects of physical illnesses in psychiatric patients that this study highlights. Firstly, it documents common physical illnesses in psychiatric patients at the study site. It also highlights that for some of these illnesses, it is possible that they are less documented or diagnosed than they actually occur. This is true for both hypertension and HIV, for example. Secondly, this study also documents common medication categories that are used in this cohort. These commonly used medications likely contribute to the emergence of physical illnesses. The relationship between medications used and diagnosed physical illnesses remains unknown and was not explored by this study. Thirdly, it highlights the relationship between patients' demographics and physical illnesses. Fourth and lastly, the study highlights, as per my hypothesis, that doctors are not adequately considering medical conditions when they are reviewing their psychiatric patients. This is very concerning as it should be done routinely in a tertiary academic hospital like HJH where this study took place.

The results of this study would be difficult to generalise to other populations. This is due to the nature of the study and its methodology. This study was focused on studying occurrence of documented physical illnesses in this population. The actual occurrence of physical illnesses is likely to be very different from the documented occurrence, even in this same population. Also, better record keeping could have potentially changed the outlook of these results.

5.2 LIMITATIONS

Despite the findings made, this study had some limitations. The study was a retrospective, record review of hospital records, with the known risk of yielding incomplete and unclear information. By design, it depended on quality, accessibility and availability of the hospital records. In many respects, attending clinicians did not capture some data that the investigator would have preferred in this study, in terms of variables included in this review, such as employment status, highest level of education etc. The way demographics were categories, specifically the level of education, is not standard and may limit the reproducibility and generalisation of this study.

It is also possible that some patients are being treated for physical illnesses elsewhere, including in other parts of the same healthcare facility as the study site, but that these were not recorded in the files that were reviewed during this study. The implication of this is that this study under-estimates occurrence of physical illnesses in this populations and, therefore, makes or fails to make accurate determination of association between study group's demographics and physical illnesses/risk factors. In addition, it raises concerns concerning

adequacy of incorporating physical illnesses in the management of these psychiatric patients at the research site. This remains a disappointing outcome, as it could reasonably be expected that attending doctors would record the known physical illnesses of the patients they review, even if they were not primarily treating such illnesses themselves.

Another limitation in this context is the study period of only six months. Although the most stable patients in a psychiatric OPD are expected to still be reviewed every six months and would therefore be covered in this study period, this assumption does not consider non- or partially- adherent patients. Also, there may be patient who were seen at this clinic and transferred to local clinics just before the study period. Thus, a longer study period would have had a better chance to capture and include more patients, giving more gravitas to the results.

It may also be of value to make some specific comments on the difficulty experienced to deduct how to interpret the description of symptoms, as well as the documentation of diagnoses. One difficulty was determining whether a second or third diagnosis listed in a file was a differential or co-morbid diagnosis. While this was obvious in some cases, there were times when one could not tell. For example, it was difficult to ascertain with certainty whether a patient with a diagnosis of substance abuse, had a co-morbid cannabis-induced psychotic disorder, or schizophrenia, when both cannabis-induced psychosis and schizophrenia were listed as Axis I conditions for the same patient. This difficulty may have led to over-estimating some diagnoses.

In addition, in some cases, second and/or third diagnoses were listed with a question mark. This was interpreted as a diagnosis that was still not confirmed at the time of documenting. In

some files, it was also noted that over time such previously unconfirmed diagnosis eventually got incorporated as an apparent subsequently confirmed diagnosis.

Another difficulty was deciding what patients' main Axis I diagnoses were. If, for example, a patient had schizophrenia and a documented "V-code" of non-compliance documented as Axis I disorders, schizophrenia was regarded as the main Axis I diagnosis. However, it was more difficult to decide when both major depressive disorder and cannabis induced psychotic disorder, or major depressive disorder and obsessive-compulsive disorder, were documented as co-morbid or as alternative diagnoses. Ascertaining the primary, main, co-morbid and/or differential axis I diagnosis of the research participants was beyond the scope and purpose of this study and not possible with the data available.

There was also a methodological limitation in this study that is worth mentioning. This is with respect to the categories of illnesses that were used. This refers to both psychiatric and physical illnesses. This method of categorising illnesses was necessitated by the way the illnesses were recorded, which is an inherent limitation of retrospective studies. However, it makes it difficult for the study to be reproducible.

5.3 RECOMMENDATIONS

From this study, few recommendations can be made, both for clinical management and future research. With respect to clinical management, it is recommended that record keeping of all aspects of patients' records be improved. Not only for research purposes, but so that quality of patients' healthcare may be improved.

With respect to future research, this study has highlighted various aspects that can be explored in future, more focused studies. These include relationship between medication use and medical co-morbidities in people with psychiatric illnesses; relationship between psychiatric illnesses and medical conditions; and quality of management of diagnosed medical co-morbidities in psychiatric patients. In addition, another study could seek to determine the extent to which diagnosed physical illnesses are treated. This need is highlighted by discrepancies between diagnosis (e.g. hypertension and HIV) and treatment (antihypertensives and ARVs) frequencies).

As metabolic syndrome and cardiovascular diseases have been highlighted as significant contributors to morbidity and mortality in psychiatric patients, it is recommended that future studies also explore policies around, management of co-morbid medical illnesses in psychiatric patients. Such policy considerations should include considerations around routine measurements of patients' weight, BMI and waist circumference.

Replication of this study, with improved study method, will benefit the research and clinical bodies in our country, in order to better understand and manage physical illnesses in psychiatric patients.

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