A descriptive study of the characteristics and discharge outcomes of acute psychiatric admissions at district and regional hospitals in the Cape Town Metropole region of South Africa

By

Dr Robin Scheepers

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Faculty of Health Sciences

University of Cape Town

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Supervisor: Dr Peter Milligan

Co-supervisor: Professor Crick Lund

University of Cape Town

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Declaration

I, Robin Scheepers, hereby declare that the work on which this dissertation is based is my original work (unless otherwise acknowledged), and that neither the whole nor any part of the work has, is being or is to be submitted for another degree to any other university.

The work has not been reported or published prior to registration for the Master of Medicine in Psychiatry degree. I authorise the university to reproduce for the purpose of research either the whole or any portion of the contents.

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Competing interests

The authors declare that they have no financial or personal relationships which may have inappropriately influenced them in writing this article.

Abstract

Background

Mental disorders are the third most important contributor to the burden of disease in South Africa. In a resource-limited setting such as South Africa, rational mental health service planning requires assessment of the characteristics and outcomes of mental health services.

Aim

This study aimed to detail the characteristics and discharge outcomes of acute psychiatric admissions at district and regional hospitals in the Cape Town Metropolitan region of South Africa which serves an estimated population of 1.5 million people.

Methods and Setting

A retrospective descriptive cohort study was conducted, examining all acute psychiatric admissions from 1 April 2012 to 31 March 2013. Admission data were gathered from four hospitals in the catchment area of Valkenberg Hospital, a psychiatric hospital serving the Cape Town metro region.

Results

Psychotic and Mood disorders were the most common diagnostic categories. Male and older patients (>60 years), and those with substance-related disorders had significantly longer admissions. Transfer to psychiatric hospitals and internal transfers significantly increased the duration of admission. Admission to Groote Schuur Hospital was associated with a significantly longer length of stay. Patients were more likely to be readmitted within 30 days following discharge from district or regional hospitals than Valkenberg Hospital.

Conclusion

Several areas of focus to be addressed were identified, namely substance use interventions, access to specialized care at primary and secondary level and the need for additional specialist inpatient psychiatric resources. Further analysis of retention in care following discharge from district and regional hospitals is recommended to unpack factors that are associated with readmission.

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Abbreviations

AIDS…… Acquired Immune Deficiency Syndrome

DoH……. Department of Health

EC…… Emergency Centre

FBH……. False Bay Hospital

GFJ…….. G.F. Jooste Hospital

GMC…… General Medical Condition

GSH……. Groote Schuur Hospital

HIV……. Human Immunodeficiency Virus

ICD-10…. International Classification of Diseases 10th Edition

KZN…… Kwazulu Natal

LOS……. Length of Stay

MHCA… Mental Health Care Act

MHCU… Mental Health Care User

NSH…… New Somerset Hospital

SMI……. Serious Mental Illness

SRD…… Substance-Related Disorder

VBH…… Valkenberg Hospital

VHW….. Victoria Hospital Wynberg

WC……. Western Cape

WHO…. World Health Organization

Chapter 1 Introduction and Literature review

Introduction

South Africa is classified as an Upper Middle Income Country by the World Bank, and as such resources available for managing the population's health are limited. Mental illness ranks behind only HIV/AIDS and infectious diseases as a top contributor to the burden of disease in South Africa, and is on the rise.[1,2] In order to most efficiently allocate and utilize existing resources to address the increasing burden of mental illness, a rational point of departure is an assessment of the current utilization of services. This is referred to as demand, and includes aspects of service utilization such as outpatient numbers and attendance, admission rates, bed occupancy rates, demographics of Mental Health Care Users (MHCU), characteristics of admissions, length of stay and readmission rates among others.

Deinstitutionalization, the shift in focus of care for people living with a mental illness from hospitals to the community, has characterized the landscape of psychiatry in the latter half of the 20th century.[3] In South Africa this process was embraced by the Department of Health when it emphasized the development of well-structured community-based mental health services in 1997.[4] The Mental Health Care Act No. 17 of 2002 (MHCA) in accordance with the principles of deinstitutionalization sought to provide for, promote and uphold the rights of people living with a mental illness to least restrictive care.[5] The MHCA allows for MHCUs to be admitted as voluntary, assisted or involuntary users with each admission to hospital. Voluntary users present themselves to the health care facilities for care, treatment and rehabilitation. Assisted and involuntary MHCUs lack capacity to make informed decisions about their needs for treatment, the main difference between the two being that the former gives consent to admission and the latter does not consent to admission. The MHCA makes provision for involuntary mental health care users to undergo an initial 72 hour assessment at an accredited general (district or regional) hospital. MHCUs usually enter the service at their local community health centre (primary care). Should they require inpatient psychiatric services they are then transferred to the local district or regional hospital (secondary care). During the 72 hour assessment period the MHCA makes provision for a medical practitioner and a mental health care practitioner to assess the MHCU. A mental health care practitioner is defined in the MHCA as 'a psychiatrist or registered medical practitioner or a nurse, occupational therapist, psychologist or social worker who has been trained to provide prescribed mental health care, treatment and rehabilitation services.'[5] Should the assessment be that the MHCU requires ongoing inpatient care, transfer to the tertiary psychiatric hospital serving the suburb where the MHCU resides then occurs. Following assessment of the implementation of the MHCA, the National Mental Health Policy Framework and Strategic Plan 2013-2020, which provides a comprehensive blueprint of action to address mental health, was adopted. This policy came about through extensive engagement with all relevant stakeholders and sought to address mental health challenges through transformation in the socioeconomic, political and health sectors.

Literature Review

Objectives

1. To determine what data exists on characteristics of acute psychiatric admissions in South Africa and abroad.
2. To determine what data exists on factors influencing length of stay of acute psychiatric admissions.

Literature search strategy

The PubMed database as well as Google Scholar was searched for relevant publications. Pertinent references listed in key articles were also accessed. The original search was conducted in December 2014 and updated in March 2018.

The following search terms and subject headings were used:

1. Psychiatric admissions
2. Acute
3. 1 AND 2
4. Characteristics
5. 3 AND 4
6. Clinical audit
7. 5 AND 6
8. South Africa
9. 7 AND 8
10. Psychiatry AND readmissions

Inclusion criteria

1. English language literature or literature translated into English
2. Original or review articles
3. Literature dated from 1995 to include the period around the promulgation of the new MHCA

Exclusion criteria

1. Foreign language literature

Quality criteria

Due to the scarcity of recent and local literature on acute psychiatric admissions, all manner of evidence quality was searched for including meta-analyses, systemic reviews, cohort studies, observational studies and even expert opinion pieces.

Summary of the literature

Global burden of mental illness

The importance of mental health has been receiving increasing recognition in the 21st century as data on the burden of mental illness becomes available. In 2010 a study on the global burden of disease found that mental illness accounted for 7.4% of disability adjusted life years (DALYs), with the latest research showing a 9.7% increase in DALYs for mental and substance use disorders between 2005 and 2013.[2,6] The World Health Organization (WHO) has shown that 450 million people are believed to be suffering from neuropsychiatric disorders including 'unipolar depressive disorders, bipolar affective disorder, schizophrenia, epilepsy, alcohol and selected drug use disorders, Alzheimer's and other dementias, posttraumatic stress disorder, obsessive and compulsive disorder, panic disorder, and primary insomnia.'[7]

The significant economic impact of mental illness may be partially quantifiable. For example, the USA spends an estimated US$148 billion on direct treatment of mental disorders, yet the indirect economic costs such as income lost due to days out of work and social costs such as emotional burden on the caregivers far outweigh this.[8] In South Africa, data gathered from the SASH study in 2002-2004 analysed the economic burden of patients suffering from severe depression and anxiety disorders.[9] The study estimated that the direct annual cost of mental illness was US$59 million for adults alone and that the indirect annual cost of patients with severe depression and anxiety disorders was an estimated US$3.6 billion.

The South African context

In South Africa, mental disorders are the 3rd most important contributor to the burden of disease after HIV/AIDS and infectious disease.[1] The SASH study, an epidemiological survey done as part of the WHO World Mental Health Survey, aimed to determine the true prevalence of mental illness in South Africa.[10] From this study it emerged that the 12-month period prevalence of mental illness in South Africa was 16.5% in the period 2002-2004. This translates to an estimated 8 542 142 individuals living with mental illness, calculated using South African population data from the 2011 population census.[11] The Western Cape emerged as the province with the highest burden of lifetime prevalence of psychiatric illness with a prevalence of 42%.[12] The SASH study found that anxiety and substance use disorders ranked as the two largest contributors to the burden of mental illness in South Africa. Although this study shed light on the subject, a major limitation was that data on psychotic and bipolar disorders was not gathered as the study concentrated on anxiety, mood, impulse control and substance use disorders only. It is therefore certain that the overall prevalence of mental illness as found in this study is an underestimate of the true burden of mental illness in South Africa.

In South Africa there has been a substantial decrease in inpatient psychiatry beds in the last 15-20 years, from 48 inpatient psychiatry beds per 100 000 population in 1997 to 28 beds per 100 000 population in 2005.[13] In the Western Cape specifically, there was a 36% reduction from 61 beds per 100 000 population in 1995 to 39 beds per 100 000 population in 2005. A 2007 study of 152 mental health care users in the Western Cape province in South Africa showed that 62% were seen at primary care level prior to admission to a psychiatric hospital, and that only 26% of the total

received treatment at this level.[14] Thus it is evident that although mental health care users are able to access primary care level facilities, the care received at this level is inadequate.

In under-resourced settings such as South Africa, efficient use of limited resources requires an accurate mapping of service utilization.[13] Demand for mental health services is defined as the current utilization of services.[15] The assessment of demand for mental health services is one of 7 key components of the WHO report of steps suggested in performing a situational analysis.[16] A necessary prerequisite for this assessment is access to reliable clinical data. A recent study looking at mental health systems in South Africa found that across all 9 provinces there is poor use of information systems to capture data, and that even where basic data such as age, gender and diagnoses are recorded they are not used to inform service planning.[13] Within the Cape Town Metropole, mental health care user data from referring hospitals are captured in a fragmented and inconsistent manner. The databases used are not standardised and they have not been assimilated to inform service development. To date there is no published literature on the analysis of this data. Studies reflecting demand for services within the Western Cape are limited. A Stikland Hospital study focussed on substance use disorders amongst inpatients and found a prevalence of co-morbid substance use of 51% and a prevalence of substance induced mood and psychotic disorders of 1% and 7% respectively.[17] A study of violence and illicit substance use in acute psychiatric admissions at Lentegeur Hospital showed similar results with 49% of admissions having used illicit substances, with men both more likely to be violent and violence more likely to occur in men who use illicit substances.[18]

Descriptive studies detailing characteristics of acute psychiatric inpatient admissions at primary and secondary level in South Africa are limited. A retrospective audit of psychiatric admissions for the year 2011 was completed at Helderberg Hospital in Somerset West, Western Cape.[19] Psychotic disorders were the commonest diagnoses (59%) with 38% of admissions diagnosed with a Substance Use Disorder. Almost half (47%) of admissions had a co-morbid or secondary diagnosis and the majority (76%) were discharged home.

In the acute psychiatric inpatient setting, length of stay (or length of admission) has been identified as a mutable variable that has significant impact on cost. Length of stay has been used as a health process indicator to inform planning and service delivery as well as resource allocation in the inpatient setting.[20] In a robustly conducted study in Australia in 2011, factors influencing the length of inpatient stay at a psychiatric unit were investigated.[21] This comprehensive descriptive study included 226 randomly selected admissions where over 200 variables were analysed. Median lengths of stay were utilized and the authors concluded that the following three factors predicted a longer stay: seclusion during the index admission, accommodation problems, and residing in an area where community services were lacking. Post discharge accommodation problems have also been shown in other studies to delay discharge from hospital.[22] In South Africa, the average length of stay for psychiatric inpatients at district and general hospitals is 7 days and 11 days respectively.[20] Local studies analysing length of stay are limited, and the results are varied. Factors that predict a longer length of stay are a diagnosis of mood disorders and transfer to another facility, in particular transfer to a psychiatric facility as described in a recent local study at Helderberg Hospital in the Western Cape.[19,23] Conversely, factors associated with a reduced length of stay were the presence of co-morbid substance abuse, the absence of concurrent medical illness and readmission to a psychiatric hospital.[24]

Readmissions

Severe mental illnesses generally have a remitting and relapsing course. Together with the move towards deinstitutionalization and a decrease in the number of inpatient beds, this has resulted in patients being discharged prematurely in order to make space for patients who are more severely ill.[25] Patients discharged prematurely tend to relapse earlier, which contributes to higher readmission rates. Readmission rates may also reflect the status of the quality of community-based care. For the above reasons, readmissions in psychiatry have been the focus of much debate and research. International and local studies have shown that the risk of readmission is highest in the period immediately after discharge, that is, within the first 1 – 3 months post discharge.[19,23,26-28] Readmission rates need to be viewed in the broader context of mental health policy, the population served by the facility and the level of care provided by the facility. For these reasons local studies have yielded varied readmission rates of between 8 – 15.5% over a 1 year period, comparable with readmission rates of 13% in developed countries.[19,29-31] Factors reliably reproduced in predicting risk of readmission include past psychiatric history and number of previous admissions, as well being a young male with a psychotic illness. [21,26,27,32-34] Several other factors have been suggested to contribute to risk of readmission, although these were not uniformly reproducible in all studies. These factors are adverse social circumstances, financial difficulties, accessibility of public health facilities, language barriers, availability of medication and obstacles to transportation.[25]

The MHCA states that mental health care providers are obliged to provide a service 'that facilitates community care of mental health care users.'[5] However, in many cases, resources have not been made available to support the objectives of the Act. For example, a study done in Kwazulu Natal (KZN) shed light on the difficulties general hospitals experienced in implementing the MHCA.[35] This study reported that several general hospitals in KZN did not have adequate seclusion facilities to cope with violent and disturbed patients, contributing to an overall impression of lack of adequate resources to deal with a high clinical demand. The emphasis on provision of community mental health services has not been accompanied by a reciprocal increase in community-based resources in response to the decrease in inpatient beds. Several South African studies have highlighted the lack of provision of resources in implementing the decentralized care enshrined by the MHCA.[35-38] The revolving-door phenomenon, whereby patients with serious mental illness are repeatedly admitted to hospital as mental health care users following discharge from a tertiary psychiatric hospital, has been well described in psychiatry.[25] In the only South African study shedding light on this phenomenon, admissions of patients with previous diagnoses of Schizophrenia and Schizoaffective Disorder to the three tertiary psychiatric hospitals in the Western Cape over an 8 month period in 2008 and 2009 were analysed.[2] Of the 146 participants, 65% satisfied the criteria for high-frequency users, defined as three or more admissions in an eighteen month period, or two or more admissions in a twelve month period if on clozapine, or two or more admissions in a twelve month period with total hospital stay of more than or equal to one hundred and twenty days. Although the reasons for this are manifold, reduction in inpatient bed numbers and inadequate mental health service provision at primary care level contribute to this phenomenon in the South African context. The National Mental Health Policy Framework and Strategic Plan 2013-2020 sought to address these and other mental health challenges through transformation in the socioeconomic, political and health sectors.[40]

Rationale for the dissertation

The process of rational mental health service planning as stated by the WHO requires that both unmet need and the current demand (current utilization of services) for services be identified, the latter being one of 7 steps suggested in conducting a situational analysis.[15] Need for services is defined as the mental health services required by a population identified by using epidemiological measures.[16] Demand includes aspects of service utilization such as admission rates, demographics of MHCUs, characteristics of admissions, length of stay and readmission rates. The first step in the process of rational mental health service planning in the Western Cape is an analysis of the current demand for mental health services. This study serves to fill in the gap of assessing the demand for adult inpatient mental health services in the Cape Town Metropole, and thereby provide reliable information which could be of use for clinicians, and for future service development and planning both locally and nationally. The nature of this study, being a retrospective audit describing all acute psychiatric admissions in the Cape Town Metropole over a 12 month period, is aligned with the focus on the priority of research as identified at the National Mental Health Summit in 2012.[38]

Aims and objectives

The aim of this study was to describe the characteristics and discharge outcomes of acute psychiatric admissions at district and regional level hospitals in a portion of the Cape Town Metropole region of South Africa. Specific objectives were to (a) describe demographics and principal psychiatric diagnoses, (b) determine the length of stay (LOS) and discharge outcomes, (c) identify factors associated with LOS and (d) calculate readmission rates to district and regional hospitals after discharge from these hospitals as well as readmission to district and regional hospitals after discharge from Valkenberg Hospital (VBH).

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Chapter 2 Publication-Ready Manuscript

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Cover Letter

Characteristics and discharge outcomes of acute psychiatric admissions in the Cape Town Metropole region of South Africa

Authors:

Dr Robin Scheepers, MBChB (UCT), FC Psych (SA); affiliated with UCT

Dr Peter Milligan, MBChB (UCT), FC Psych (SA); affiliated with UCT

Professor Crick Lund, BA (Hons), MA, MSocSci (Clinical Psychology), PhD; affiliated with UCT and King's College London

All authors contributed towards data analysis, drafting and critically revising the article.

Correspondence:

Dr R Scheepers, Department of Psychiatry and Mental Health, UCT, Valkenberg Hospital, Liesbeek Avenue, Observatory, Cape Town, 7925, South Africa

Telephone: (w) +27 21 440 3111

(c) +27 73 688 2550

Email: robin.scheepers@gmail.com

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Abstract

Background

Mental disorders are the third most important contributor to the burden of disease in South Africa. In a resource-limited setting such as South Africa, rational mental health service planning requires assessment of the characteristics and outcomes of mental health services.

Aim

This study aimed to detail the characteristics and discharge outcomes of acute psychiatric admissions at district and regional hospitals in the Cape Town Metropolitan region of South Africa which serves an estimated population of 1.5 million people.

Methods

A retrospective descriptive cohort study was conducted, examining all acute psychiatric admissions from 1 April 2012 to 31 March 2013. Admission data were gathered from four hospitals in the catchment area of Valkenberg Hospital, a psychiatric hospital serving the Cape Town metro region.

Results

Psychotic and Mood disorders were the most common diagnostic categories. Male and older patients (>60 years), and those with substance-related disorders had significantly longer admissions. Transfer to psychiatric hospitals and internal transfers significantly increased the duration of admission. Admission to Groote Schuur Hospital was associated with a significantly longer length of stay. Patients were more likely to be readmitted within 30 days following discharge from district or regional hospitals than Valkenberg Hospital.

Conclusion

Several areas of focus to be addressed were identified, namely substance use interventions, access to specialized care at primary and secondary level and the need for additional specialist inpatient psychiatric resources. Further analysis of retention in care following discharge from district and regional hospitals is recommended to unpack factors that are associated with readmission.

Introduction

The economic and health burden of mental illness is staggering. Mental disorders are the 3rd largest contributor to the burden of disease after HIV/AIDS and infectious diseases in South Africa, with a 12-month period prevalence for common mental disorders of 16.5%.[1,2] The Western Cape has the highest burden of lifetime prevalence of psychiatric illness with a prevalence of 42%.[3] In South Africa, the economic burden of patients suffering from severe depression and anxiety disorders was estimated to amount to a direct annual cost of US$ 59 million for adults alone with an indirect annual cost of US$ 3.6 billion.[4]

Deinstitutionalization, the shift in focus of care for people living with a mental illness from hospitals to the community, was embraced by The Mental Health Care Act No. 17 of 2002 (MHCA) which sought to promote and uphold the rights of people living with a mental illness to least restrictive care.[5,6] The MHCA makes provision for mental health care users (MHCUs) to be admitted as voluntary, assisted or involuntary users with each admission to hospital. Involuntary MHCUs undergo an initial 72-hour assessment at an accredited general (district or regional) hospital. MHCUs usually enter the service at their local community health centre (primary care). Should they require inpatient psychiatric services they are then transferred to the local district or regional hospital (secondary care). During the 72-hour assessment a determination of the requirement for ongoing inpatient care is made. The MHCU is then transferred to the tertiary psychiatric hospital serving the suburb where he/she resides.

Several studies have highlighted the inadequate provision of resources for implementing the care enshrined by the MHCA.[7-11] Inadequate seclusion facilities to cope with violent and disturbed patients, reduction in inpatient bed numbers, inadequate staffing and poor information systems have been shown to be contributing factors. In South Africa the average length of stay (LOS) for psychiatric inpatients at district and regional hospitals is 7 and 11 days respectively.[12] Factors that predict a longer LOS are a diagnosis of mood disorders and transfer to another facility, in particular transfer to a psychiatric facility.[13,14] Readmission rates are important to monitor because serious mental illnesses (SMI) often have a relapsing and remitting course which, coupled with a reduction in the number of inpatient beds, places additional demand on existing inpatient beds resulting in patients being discharged prematurely.[11] This leads to a revolving door pattern of care characterized by frequent relapses, admissions and high service utilization. Readmission rates

may also reflect the status of the quality of community-based care. Readmission rates need to be viewed in the broader context of mental health policy, the population served by the facility and the level of care provided by the facility. Local studies have yielded readmission rates of between 8 – 15.5% over a 1-year period.[14-16] The lack of adequate implementation of the MHCA was addressed in the National Mental Health Policy Framework and Strategic Plan 2013-2020, a policy which sought to transform the socioeconomic, political and health sectors to uphold mental health.[17]

The process of rational mental health service planning as stated by the WHO requires that need as well as the current demand for services be identified.[18] Demand includes aspects of service utilization such as admission rates, demographics of MHCUs, characteristics of admissions, LOS and readmission rates. This information can be used to direct clinicians and policy-makers to areas or populations where resources and/or interventions are needed.

This study aimed to describe the characteristics and discharge outcomes of acute psychiatric admissions at district and regional level hospitals in a portion of the Cape Town Metropole region of South Africa. Specific objectives were to (a) describe demographics and principal psychiatric diagnoses, (b) determine the length of stay (LOS) and discharge outcomes, (c) identify factors associated with LOS and (d) calculate readmission rates to district and regional hospitals after discharge from these hospitals as well as readmission to district and regional hospitals after discharge from Valkenberg Hospital (VBH).

Methods

Study design, setting and population

A retrospective descriptive cohort study was used. VBH is a 370-bed public sector psychiatric hospital situated in the suburb of Observatory in Cape Town. The hospital serves an area with a population of approximately 1.5 million, and has an admission rate of approximately 1400 patients per year which translates into 93 admissions per 100 000 population. The catchment area includes the Western, Southern and Klipfontein sub-districts of the Cape Town metropolitan area (see appendix 1). The public sector general hospitals serving the above areas are False Bay Hospital (FBH), G.F. Jooste Hospital (GFJ), Groote Schuur Hospital (GSH), New Somerset Hospital (NSH)

and Victoria Hospital (VHW). See appendix 2 for comparisons between these hospitals. Where patients are not admitted into a designated psychiatric bed, they are accommodated in the emergency centre (EC) or in a general bed. All patients presenting to these hospitals for acute psychiatric admission in the period 01 April 2012 to 31 March 2013 were included in the study. After patients have concluded their 72-hour assessments at the general hospitals they are referred to VBH should they require continued admission. All patients discharged from VBH during the same period were also tracked to analyse this cohort's readmission to general hospitals and VBH following discharge from VBH. The Western Cape Department of Health (WC DoH) policy at the time of this study was that all patients discharged from VBH in the preceding 3 months were regarded as 'failed discharges' and could be transferred to VBH immediately without undergoing the 72-hour assessment review at a general hospital. In addition, VBH also provided admissions to VBH outpatients directly from the outpatients' department, patients referred by the courts, or female patients who presented to GFJ for acute psychiatric admission.

Data collection and management

All facilities in the study used either admission diaries or electronic databases to capture demographic data (age, gender), date of admission, principal diagnosis, outcome and date of outcome. Patients are discharged when they are no longer certifiable as involuntary MHCUs under the MHCA, when they have stabilized, or when they have recovered sufficiently should there be a directive to vacate inpatient beds for pending admissions. Principal diagnosis was arrived at using the Diagnostic and statistical manual version 4-text revision.[18] Co-morbid and secondary diagnoses were not routinely captured and hence were not included in the data. LOS was calculated from the admission and discharge outcome dates. Where diagnoses differed between the referring and accepting hospitals, the discharge diagnosis was used. Diagnoses were clustered into syndromic groupings as follows: psychotic disorders; mood disorders; mental disorders due to a general medical condition (GMC); substance related disorders(SRDs); anxiety disorders; childhood and adolescent disorders; cognitive disorders; eating disorders; personality disorders; unspecified psychiatric disorders; and others. The raw data were captured into a structured excel spreadsheet before being checked and validated by the principal investigator. Due to the pathway of care of GFJ patients, GFJ males were merged with the GSH C22 cohort and

GFJ females with the VBH cohort. Admissions with incalculable lengths of stay, GFJ admissions with missing sex data and duplicated admission entries were excluded. The population at risk of readmission was defined as all patients discharged from acute psychiatric services in the period of study, and excluded patients who had died or who had been transferred to another unit or facility. Readmissions occurring greater than 90 days post discharge were not determined as these results could not be consistently calculated due to the sample not being followed up for a sufficient duration of time.

Data analysis

Data were analysed using SPSS version 25.0. LOS was coded as a numerical variable and all other variables as categorical. Numerical variables were graphically represented using histograms, and box-and-whisker plots. Their distributions were confirmed using the Shapiro-Wilk test. Categorical variables were classified in frequency distribution tables and represented graphically by stacked bar or chart pie charts. The associations between categorical variables and LOS were represented graphically using comparative box-and-whisker plots. Average LOS between male and female patients was compared using the Mann-Whitney *U* test, while average LOS between age categories, hospital, and outcome category was compared using the Kruskal-Wallis test and further explored using post-hoc comparisons. Categories across contingency tables were compared using chi-squared tests of contingency. Significance was set at $\alpha = 0.05$.

Ethical considerations

The study was approved by the Human Research Ethics Committee of the University of Cape Town (reference no. 174/2014) and conducted in accordance with the Declaration of Helsinki.[19] Following validation of the raw data, identifying information was removed and each participant allocated a unique identification number to maintain anonymity. Permission to collect clinical data was obtained from the Department of Health of the Provincial Government of the Western Cape. A waiver of consent was requested in light of the study being a retrospective record review.

Results

Demographic data

One patient was excluded due to an extreme LOS (252 days; 32 s.d. above the average LOS). A total number of 3328 psychiatric admissions at general hospitals were captured for the 12 months under review. VHW had the biggest case load (n = 1138, 34.2%), followed by GSH C22 (n = 791, 23.8%), NSH (n = 728, 21.9%), GSH C23 (n = 540, 16.2%) and FBH (n = 131, 4.6%). Almost two-thirds of admissions were male (n = 2152, 64.7%), who were significantly younger than female patients (34 ± 13 years vs 37 ± 15 years respectively, $p < 0.001$) (Figure 1). A total of 465 admissions had missing age data.

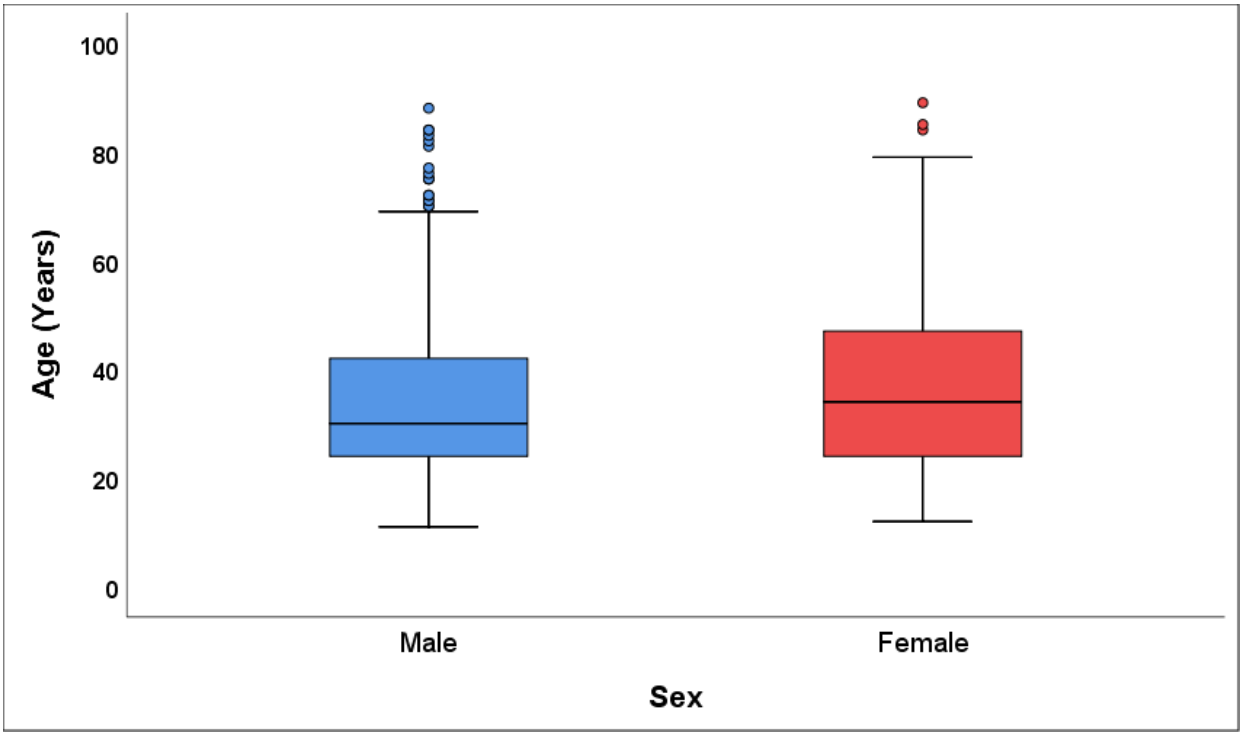

FIGURE 1: Box-and-whisker plot of age distribution for all male and female patients admitted to acute psychiatric facilities in the Cape Town Metropole, 2012/2013.

Clinical data

Psychotic Disorders (n = 1359, 45.3%) were most frequently diagnosed, followed by Mood Disorders (n = 957, 31.9%) and Substance Related Disorders (n = 501, 16.7%). The remaining 10 diagnostic categories accounted for less than 2% of the data each. 10.2% of admissions had no diagnosis captured (n = 329). Figure 2 shows the proportion of substance-related admissions in the study. GSH C22 had the highest proportion of MHCUs admitted with SRDs at 22.12%, followed by NSH at 19.0% and VHW at 12.1%.

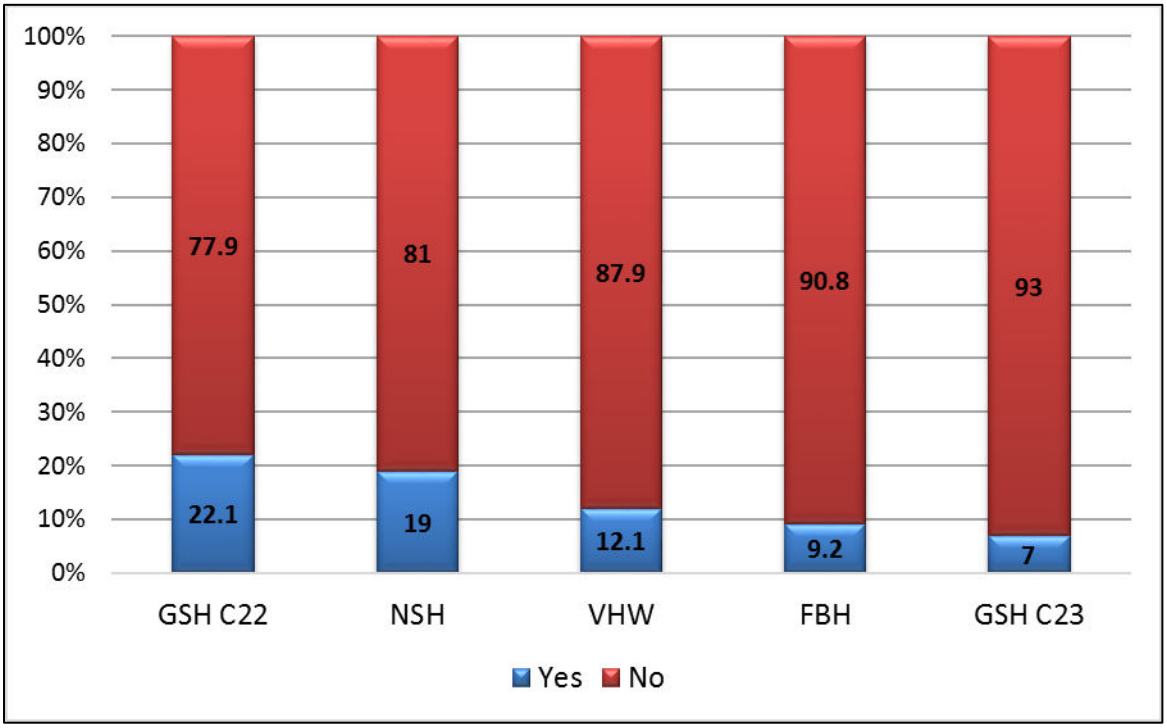

FIGURE 2: Substance-related disorders resulting in acute psychiatric admissions by hospital in the Cape Town Metropole, 2012/2013.

Most participants were either discharged home (*n* = 1759, 53.8%) or transferred to a psychiatric hospital (*n*= 1262, 38.6%). Internal transfers to other units or disciplines accounted for 4.2% (*n* = 137) of outcomes recorded and transfers to other general or non-psychiatric hospitals made up 3.1% (*n* = 100) of outcomes (Table 1).

TABLE 1: Outcome of acute psychiatric admissions by sex

	Female[a]		Male[b]		
Outcome Category	*n*	%	*n*	%	*p*
Abscond	0	0	5	0.2	0.344
Death	1	0.1	1	<0.1	0.657
Discharge Home	650	56.7	1108	52.1	0.012*
Internal Transfer	34	3	103	4.8	0.010*
Transfer to other General Hospital	41	3.6	59	2.8	0.204
Transfer Psychiatric Hospital	415	36.2	847	39.9	0.041*
Other	5	0.4	2	0.1	0.043*

[a], n = 1146, data missing for 29 patients.
[b], n = 2125, data missing for 27 patients.
* , $p < 0.05$.

The median LOS was 6 days (range: 0 – 66 days), and the mean LOS was 7.28 ± 6.22 days (see Figure 3 for distribution of LOS).

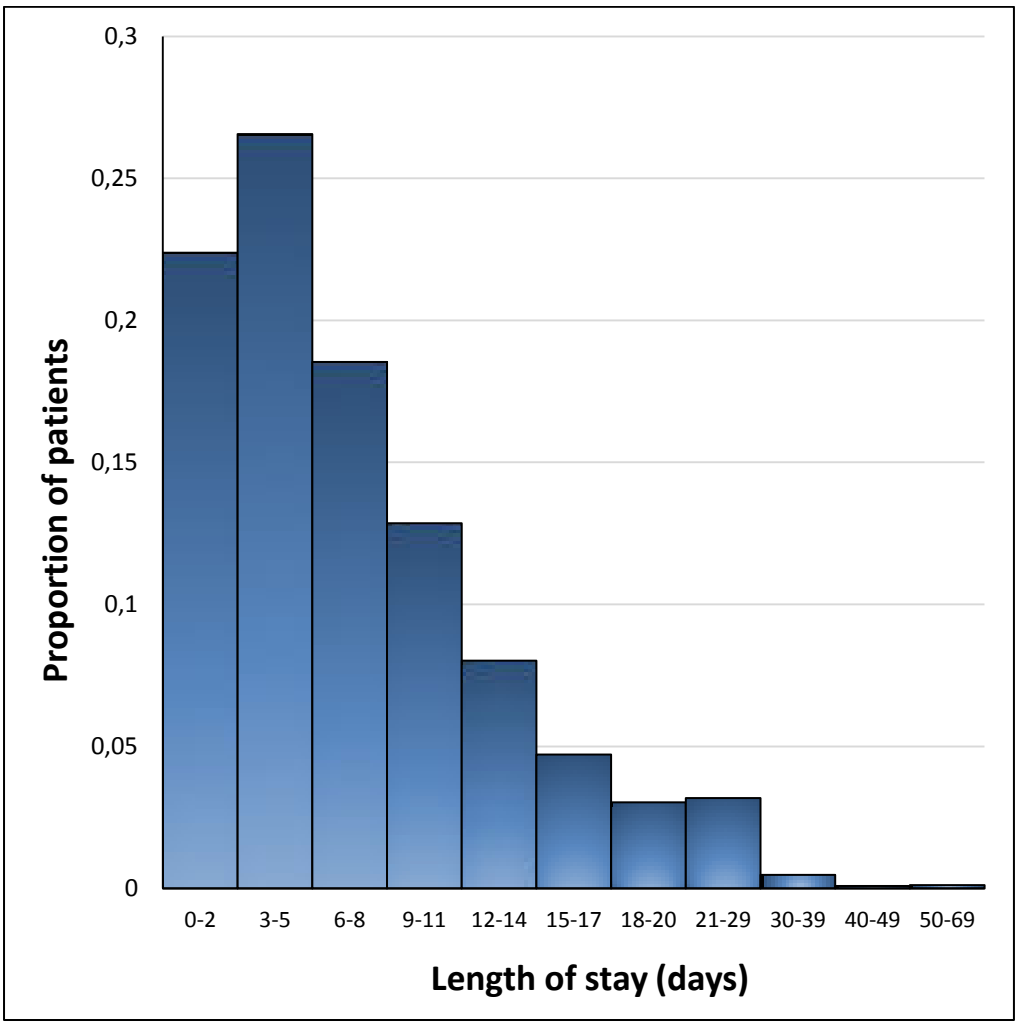

FIGURE 3: Distribution of length of stay for patients admitted to acute psychiatric facilities in the Cape Town Metropole, 2012/2013

Length of stay as a function of sex, age, hospital, outcome and diagnosis

LOS as a function of sex, age, hospital, outcome and diagnosis is presented in Figure 4 and Table 2. The average LOS was significantly longer for men compared to women ($p < 0.001$), and differed significantly between age groups, with patients over 60 years staying significantly longer compared to those aged 18-59 years and under 18 years (both ps < 0.001). A statistically significant difference was found between the average LOS among the various hospitals ($p < 0.001$). The average LOS also differed significantly between outcome categories. One quarter of all patients were discharged home before the completion of the 72-hour assessment (n= 859, 25.8%). Patients diagnosed with cognitive, psychotic and SRDs stayed significantly longer than patients diagnosed with anxiety, mood, personality and other disorders (all ps < 0.038).

TABLE 2: Summary statistics of length of stay by sex, age, hospital, outcome and diagnostic category

	Length of Stay				
	Mean ± s.d.	Range	Median	IQR	*p*
Sex					< 0.001
Female	5.36 ± 5.26	0–57	4	2–7	
Male	8.32 ± 6.45	1–66	7	3–12	
Age Category					< 0.001
<18	7.12 ± 7.99	0–57	4	2–10	
18 – 59	6.58 ± 5.68	1–66	5	2–9	
≥60	9.82 ± 8.53	1–49	8	4–13.25	
Hospital					< 0.001
FBH	5.50 ± 4.64	1–28	4	3–7	
GSH C22	11.34 ± 6.77	1–66	10	7–15	
GSH C23	7.04 ± 6.92	0–57	5	3–9	
NSH	5.93 ± 4.83	1–37	5	3–8	
VHW	5.64 ± 5.06	1–36	4	2–8	
Outcome Category					< 0.001
Abscond	2.40 ± 2.07	1–6	2	1–4	
Death	8.50 ± 2.12	1–10	8.5	7–10	
Discharge Home	5.19 ± 5.08	1–57	4	2–7	
Internal Transfer	6.65 ± 5.80	1–24	4	2–10	
Transfer Psychiatric Hospital	10.41 ± 6.49	1–66	9	6–14	
Transfer General Hospital	7.38 ± 6.04	0–41	6	3–10	
Other	4.71 ± 4.39	1–14	4	2–5	
Diagnostic Category					< 0.001*
Anxiety Disorder	2.64 ± 2.02	1–8	2.5	1–3.25	
Childhood Disorder	5.04 ± 4.68	1–19	4	2–5.75	
Cognitive Disorder	9.31 ± 8.11	1–36	7	4–12	
Eating Disorder	4.67 ± 5.51	1–11	2	1–11	
Impulse Control Disorder	3 ± 0	-	3	3–3	
Mental Disorder due to GMC	7.04 ± 5.55	1–22	6	3–11	
Mood Disorder	5.21 ± 5.45	0–66	4	2–7	
Personality Disorder	3.34 ± 2.91	1–12	3	1–4	
Psychotic Disorder	8.21 ± 6.02	1–44	7	4–11	
Somatoform Disorder	5.67 ± 3.01	2–9	6.5	2–8.25	
Substance Related Disorder	8.16 ± 6.56	1–55	7	3–11	
Other	1.30 ± 0.95	1–4	1	1–1	
Unspecified Psychiatric Disorder	7.09 ± 6.28	1–25	4	1–11	

IQR, interquartile range (25^{th} to 75^{th} percentile).

* , *p*-value from one-way ANOVA, ie, all diagnostic categories compared to each other

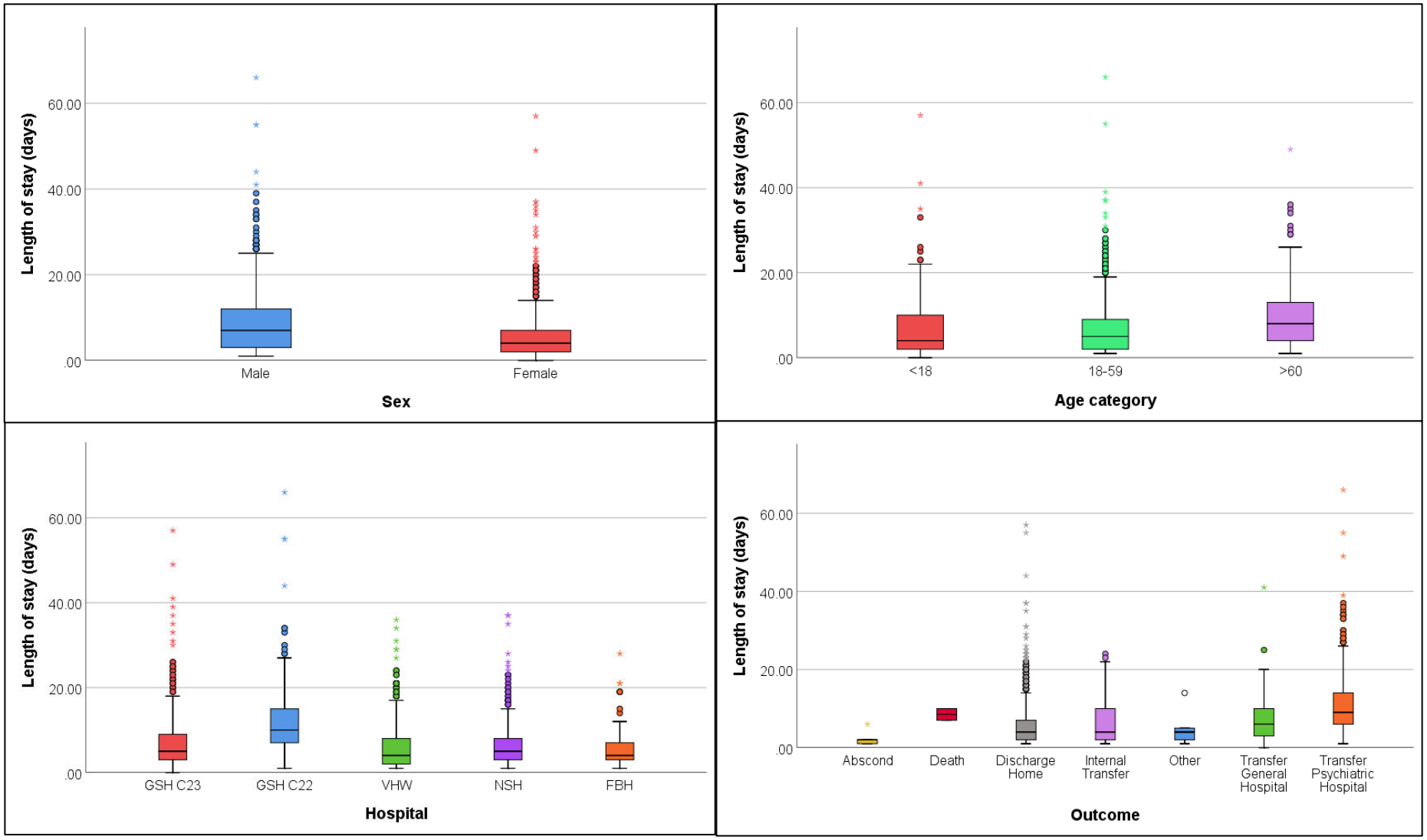

FIGURE 4: Distribution of length of stay of acute psychiatric admissions in the Cape Town Metropole, 2012/2013 by sex, age, hospital and outcome.

Readmissions

A total of 2242 patients were discharged from acute psychiatric services in the VBH catchment area during the period under review. Of these, 402 (17.9%) patients were readmitted during the study period. The 90-day cumulative readmission rate was significantly higher for district and regional hospitals (n = 263, 19.2%) than VBH (n = 139, 15.9%) (p = 0.04). Of these readmissions, 246 (61.2%) occurred within the first 30 days of discharge. There was a significant increase in readmission rate at district and regional hospital (n = 172, 12.6%) compared to VBH (n = 74, 8.5%) (p = 0.002) in the first 30 days post-discharge. There was no statistically significant difference between readmission rates at regional/district hospitals and VBH in the second (p = 0.56) and third months (p = 0.71) post discharge. Overall, there was a mean of 29 days to readmission, with patients significantly more likely to be readmitted earlier to district/regional hospitals (27 days) than VBH (33 days) (p = 0.02). A higher readmission rate for males (n = 255, 19.8%) than females (n = 147, 15.5%) (p = 0.008) was found overall and at district/regional hospitals (p < 0.0001). There was no significant difference in readmission rates between males (n = 65, 14.3%) and females (n = 74, 17.8%) (p = 0.16) at VBH for the period under review. 74.4% of readmissions was to the same hospital, with patients significantly more likely to be readmitted to district and regional hospitals (n = 224, 85.2%) than VBH (n = 75, 12.6%) (p < 0.001). Discharges home (n = 147, 55.9%) and transfers to a psychiatric hospital (n = 101, 38.4%) were the most common outcomes at district and regional hospitals. Of those patients readmitted to district and regional hospitals following discharge from VBH, 65.6% (n = 42) were transferred to a psychiatric hospital and 34.4% (n = 22) were discharged home.

Discussion

Demographic data showed that more males than females were admitted. Males were also more likely to be younger than their female counterparts. Psychotic and Mood Disorders were the most common diagnostic categories, which is consistent with findings detailed in the local literature.[14,21] In South Africa substance use problems are highly prevalent with 13.3% of the population having a lifetime diagnosis of a SRD and up to 51% of acute psychiatric inpatients having a substance-related or

comorbid substance use diagnosis.[4,25,26] Our study found that approximately one in six admissions were due to substance use, which suggests high levels of substance use in the catchment area. Possible explanations for the lower prevalence of SRDs when compared with other local studies are that this study did not include co-morbid substance use, and that discharge diagnosis was not captured where disparate from initial diagnosis.[14,21]

As expected, most patients admitted to general hospitals were discharged home at the end of their acute admission (53.8%). However, the large proportion (38.6%) requiring transfer to a psychiatric hospital appears to be at odds with the intention of the MHCA. Potential factors contributing to this discrepancy are: a high burden of SMI requiring longer admissions and specialist care; patients with SMI being more sick and further down the course of their illness at the time of admission due to a lack of adequate community services and resources; and inadequate dedicated psychiatric facilities, resources and staff with the necessary expertise at general hospitals. One out of fourteen admissions was referred to other disciplines or general non-psychiatric hospitals for further care, suggesting that the 72-hour assessment as a tool in excluding medical causes for psychiatric presentations had been utilized appropriately.

The median LOS was 6 days (range: 0 – 66 days), with males staying an average of 3 days longer than females. Reasons for this may include a higher degree of comorbid disorders in particular SRDs and traumatic brain injury, longer waiting periods for transfer to VBH due to longer waiting lists than their female counterparts and potentially more violent behaviour while ill. Adults 60 years and over were also more likely to have longer admissions. This can be ascribed to the limited number of tertiary psychiatry beds for geriatric patients in the Cape Town metropolitan, resulting in a longer waiting period to access these few beds. The overall average LOS for district hospitals in the study equalled the national average of 7 days for district hospitals.[14] Patients admitted to GSH, and in particular ward C22 were more likely to have longer admissions. This may be due to C22 being the only exclusively male ward in the study. The GSH C23 patient population included adolescents, geriatrics and those with significant medical comorbidities requiring active management which may explain the longer stay in the unit. Notably, the average length of stay of 6 days for NSH, the only regional hospital in the study, was lower than the national regional hospital average of 11 days.[12]

In keeping with other local studies admissions transferred to a psychiatric hospital had the longest stay at the referral hospital with a median of 9 days (range: 1-66 days).[14] This long waiting time for transfer could be attributed to a shortage of beds at the psychiatric hospitals, reflective of the 36% reduction in beds at psychiatric hospitals in the Western Cape between 1995 and 2005.[11] Admissions transferred both internally and externally were significantly more likely to be longer. Factors impacting transfer of patients need to be analysed and the mutable factors addressed to improve efficacy of patient flow through the system. Admissions due to SRDs were longer (mean LOS of 8.16 days; $p<0.001$*) which provides further impetus for the provision of adequate community services targeting substance use in order to reduce the burden on costly inpatient resources. The cohort of absconded patients had the shortest median LOS of 2 days (range: 1-6 days), that is, within the 72-hour assessment. This speaks to adequacy of facilities for 72-hour assessments, staff with the necessary and required expertise, and monitoring procedures and/or protocols that may need to be interrogated. The author noted that due to a lack of dedicated 72-hour observation areas and shortage of acute psychiatric beds, it was commonplace for patients to undergo their 72-hour assessment or part thereof in the EC of the admitting hospitals.

Readmissions

In the twelve months under review 17.9% of admissions to both general hospitals and VBH were readmissions of patients discharged within the preceding three months. International and local data show that risk of readmission is highest early after discharge, a finding replicated in this study.[13,14,27,29] Three out of five readmissions occurred within the first 30 days after discharge, with readmissions significantly more likely to occur to general hospitals than VBH. Patients were readmitted earlier to district and regional hospitals than VBH. This may be a direct consequence of premature discharge of patients at district and regional hospitals in response to pressure to avail beds for new admissions. Bed occupancy rates for the study period, which may explain this finding, were not obtained. Readmissions were overall more likely to occur to regional and district hospitals than VBH. Further data on retention in care after discharge from general hospitals is needed to explain this observation. There was a significantly higher readmission rate for males than females at district and regional

hospitals. This finding corroborates the international literature, however this difference was not found to be significant in the VBH readmission cohort.[22-24]

Readmitted patients mostly presented to the same hospital from whence they had been discharged (74.4%). However, approximately half (54.0%) of readmissions to VBH re-presented to VBH for admission, which suggests that a sizable portion of patients discharged from VBH who relapsed were identified and managed by their local health care facilities, at least initially. Readmission outcomes at general hospitals mirrored those of the non-readmission cohort with the majority discharged home or transferred to a psychiatric hospital. However, readmissions presenting to general hospitals following discharge from VBH were more likely to be transferred to a psychiatric hospital than discharged home, as encouraged by the policy of the WC DoH.

Strengths and limitations

Strengths of the study were that an almost complete set of data for all the hospitals was used, only existing data was captured, and multiple outcomes were analysed. Limitations of this study were that diagnoses were made by a variety of clinicians, missing data was encountered, determination of the start of an admission varied between facilities, analysis was limited by the lack of more detailed data and that co-morbid diagnoses were not captured. The generalizability of the findings may be limited due to the unique demographic and socioeconomic profile of the Cape Town metropole.

Recommendations

In relation to *Clinical practice*, we recommend capturing both primary and co-morbid diagnoses; capturing initial diagnosis and discharge diagnosis where divergent; reducing the time to follow-up post discharge from all facilities, particularly within the first month; and improving retention in care in the community, including reviewing the role of the mental health nurses, community care workers and other district health service personnel. In relation to *Planning services*, we recommend a single cross-platform electronic database be used to capture all admission details; enhanced community services, for example Assertive Community Treatment Teams, for high frequency MHCUs; more inpatient beds at psychiatric hospitals and geriatric psychiatric units; improving the throughput at

psychiatric hospitals; developing more community-based residential services; and community-based interventions to target substance use. For *Future research* we recommend analysis of retention in care following discharge from district and regional hospitals.

Conclusion

The demographics of acute psychiatric admissions were similar to those described in comparable local studies. Substance related admissions continue to feature prominently and place a significant burden on existing limited inpatient services. All hospitals in the study had average LOS that exceeded the three-day observation period prescribed by the MHCA.

Factors that increased the length of admissions were as follows: male; age above 60 years; diagnosis of a SRD; admission to a general hospital; and transfer (both internal and external) particularly disposal to a psychiatric facility. Almost one in five acute psychiatric admissions were readmissions, with the highest rate of readmission in the first month after discharge. The following factors were associated with an increased readmission rate: male; and having been discharged from a district or regional hospital, which also conferred an increased probability of being readmitted earlier than if discharge had occurred from VBH.

The study exposed an increased need for inpatient mental health care resources, particularly at psychiatric hospital level. An increase in beds at both psychiatric hospital level and specialist services such as geriatric psychiatric units may reduce inpatient stays at district and regional hospitals, at least temporarily. More lasting strategies to reduce inpatient pressure will involve strengthening of community-based services such as improving transitional care, residential placement and access to specialized services. Further research into retention in care after discharge from district and regional level hospitals is recommended.

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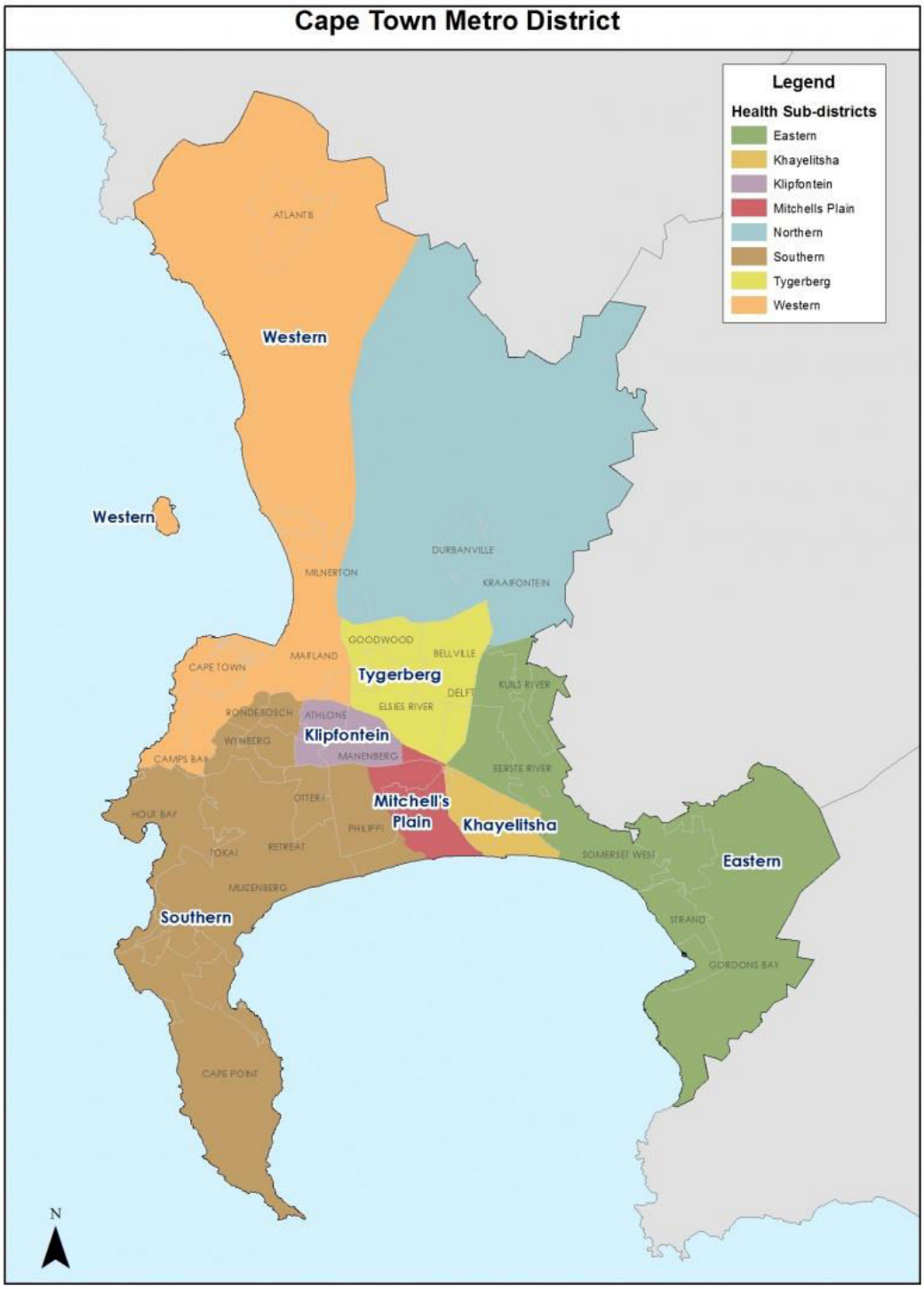
Appendices

Appendix I

Map of Cape Town Metro



Appendix II

Comparison of acute psychiatric services at general hospitals in the Western Cape Metropole

Hospital	Hospital Category	Psychiatry/ general ward	Number of designated psychiatric beds	Admission criteria and procedure	Data collected	Transferred to
False Bay Hospital	District	General	None	All adult psychiatry patients	Name Gender Folder number Age Principal diagnosis MHCA status Date of admission Duration of admission Date of outcome Specific outcome	Valkenberg Hospital
G.F. Jooste Hospital	District	None	15 (off-site at Groote Schuur Hospital Ward C22)	All adult male psychiatry patients are transferred to Groote Schuur Ward C22. All adult female psychiatry patients are transferred to Valkenberg Hospital	Name Folder number Date of Birth Principal Diagnosis Date of admission Date of outcome Specific outcome	Valkenberg Hospital
Groote Schuur Hospital Ward C22	District	Psychiatry	9 (plus 15 beds reserved for G.F. Jooste patients)	All adult male psychiatry patients	Name Folder number Date of Birth Principal Diagnosis Date of admission Date of outcome Specific outcome	Valkenberg Hospital
Groote Schuur Hospital Ward C23	District	Psychiatry	16	All adult female psychiatry patients, all psychiatry patients under 18 years and over 60 years, and all acute psychiatry patients requiring concurrent medical /surgical treatment in a general hospital	Name Age Principal diagnosis Referring unit Date of admission	Valkenberg Hospital (adults) Tygerberg Hospital or Lentegeur Hospital (adolescents) Stikland Hospital (geriatrics)
Victoria Hospital Wynberg	District	Psychiatry	15	All adult psychiatry admissions	Name Folder number Age Gender Principal diagnosis MHCA status Length of stay Specific outcome	Valkenberg Hospital
New Somerset Hospital	Regional	psychiatry	12	All adult psychiatry admissions	Name Folder number Age Gender Date of admission Principal diagnosis ICD-10 code Date of outcome Specific outcome	Valkenberg Hospital

Note: adult is defined as all individuals between 18 and 60 years of age; outcome refers to discharge outcome

Appendix III

Faculty Research Ethics Committee Approval Letters

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

Room E52-24 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6338 • **Facsimile** [021] 406 6411
Email: shuretta.thomas@uct.ac.za
Website: www.health.uct.ac.za/research/humanethics/forms

17 April 2014

HREC REF: 174/2014

Dr P Milligan
Psychiatry
Valkenberg Hospital
Education Building

Dear Dr Milligan

PROJECT TITLE: A DESCRIPTIVE STUDY OF THE CHARACTERISTICS AND OUTCOMES OF ACUTE PSYCHIATRIC ADMISSIONS AT DISTRICT AND REGIONAL LEVEL HOSPITALS IN THE WESTERN CAPE METROPOLE REGION OF SOUTH AFRICA

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

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30th April 2015.

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/research/humanethics/forms)

We acknowledge that the MMed student Robin Scheepers will also be involved in this study.

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

Please quote the HREC reference no in all your correspondence.

Yours sincerely

pp T Burgess

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN ETHICS
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

HREC 191/2014

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

HUMAN RESEARCH ETHICS COMMITTEE
11 SEP 2015
HEALTH SCIENCES FACULTY
UNIVERSITY OF CAPE TOWN

FHS017: Annual Progress Report / Renewal

Record Reviews/Audits/Collection of Biological Specimens/Repositories/Databases/Registries

HREC office use only (FWA00001637; IRB00001938)			
This serves as notification of annual approval, including any documentation described below.			
☑ Approved	Annual progress report	Approved until/next renewal date	30.4.2016
☐ Not approved	See attached comments		
Signature Chairperson of the HREC		Date Signed	11/9/15

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	09/09/2015		
HREC REF Number	174/2014	Current Ethics Approval was granted until	30/04/2015
Protocol title	DESCRIPTIVE STUDY OF THE CHARACTERISTICS AND OUTCOMES OF ACUTE PSYCHIATRIC ADMISSIONS AT DISTRICT AND REGIONAL HOSPITALS IN THE WESTERN CAPE METROPOLE		
Principal Investigator	DR P MILLIGAN		
Department / Office Internal Mail Address	VALKENBERG HOSPITAL, EDUCATION CENTRE LIESBEECK AVENUE OBSERVATORY		
1.1 Does this protocol receive US Federal funding?		☐ Yes	☒ No

2. Protocol status (tick ✓)

☐	Research-related activities are ongoing
☑	Data collection is complete, data analysis only
Please indicate (in the block below) the titles and HREC reference numbers of any projects currently making use of the Database/registry/repository	
N/A	

3. Protocol summary

Total number of records or specimens collected, reviewed or stored since the original approval		5802
Total number of records or specimens collected, reviewed or stored since last progress report		—
Have any research-related outputs (e.g. publications, abstracts, conference presentations) resulted from this research? If yes, please list and attach with this report.	☐ Yes	☑ No

4. Signature

Signature of PI		Date	09.09.2015

Appendix IV

Western Cape Health Research Committee Approval Letters

Western Cape Government
Health

GROOTE SCHUUR HOSPITAL
Enquiries: Dr Bernadette Eick
E-mail : *Bernadette.Schmitz@westerncape.gov.za*

Dr P Milligan
Education Building
Valkenberg Hospital
Liesbeeck Avenue
Observatory

E-mail: Peter.Milligan@westerncape.gov.za

Dear Dr Milligan

RESEARCH PROJECT: A descriptive study of the characteristics and outcomes of acute psychiatric admissions at district and regional level hospitals in the Western Cape Metropole region of South Africa

Your recent letter to the hospital refers.

You are hereby granted permission to proceed with your research.

Please note the following:

a) Your research may not interfere with normal patient care
b) Hospital staff may not be asked to assist with the research.
c) No hospital consumables and stationary may be used.
d) **No patient folders may be removed from the premises or be inaccessible.**
e) Please introduce yourself to the person in charge of an area before commencing.
f) Please discuss the study with the Head of Psychiatry, Prof Stein before commencing.
g) Please provide the research assistant/field worker with a copy of this letter as verification of approval.
h) Confidentiality must be maintained at all times.

I would like to wish you every success with the project.

Yours sincerely

DR BERNADETTE EICK
CHIEF EXECUTIVE OFFICER
Date: 10 July 2014

C.C. Prof Dan Stein
Dr W Vorster

G46 Management Suite, Old Main Building,
Observatory 7925

Tel: +27 21 404 6288 fax: +27 21 404 6125

Private Bag X,
Observatory, 7935

www.capegateway.go.v.za

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
Tel: +27 21 483 6857: fax: +27 21 483 9895
5th Floor, Norton Rose House, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: RP 081RP2014
ENQUIRIES: Ms Charlene Roderick

Valkenberg Hospital
Liesbeeck Avenue
Observatory
7925

For attention: **Peter Milligan, Robin Scheepers and Crick Lund**

Re: A descriptive study of the characteristics and outcomes of acute psychiatric admissions at district and regional level hospitals in the Western Cape Metropole region of South Africa

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact the following people to assist you with any further enquiries in accessing the following sites:

False Bay Hospital	**W Warrington**	**Contact No. 021 782 1182**
Victoria Hospital	**A Nitzsche**	**Contact No. 021 799 1234**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

We look forward to hearing from you.

Yours sincerely

DR J EVANS
ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE: 26/06/14
CC **K GRAMMER** **DIRECTOR: SOUTHERN/WESTERN DISTRICT**

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857; fax: +27 21 483 9895
5th Floor, Norton Rose House,, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: 2014RP081
ENQUIRIES: Ms Charlene Roderick

Valkenberg Hospital
Liesbeeck Avenue
Observatory
7925

For attention: **Peter Milligan, Robin Scheepers and Crick Lund**

Re: A DESCRIPTIVE STUDY OF THE CHARACTERISTICS AND OUTCOMES OF ACUTE PSYCHIATRIC ADMISSIONS AT DISTRICT AND REGIONAL LEVEL HOSPITALS IN THE WESTERN CAPE METROPOLE REGION OF SOUTH AFRICA

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.
Please contact the following people to assist you with any further enquiries in accessing the following sites:

Valkenberg Hospital	**E Malgas**	**Contact No. 021 440 3260**
New Somerset Hospital	**D Stokes**	**Contact No. 021 402 6408**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

Yours sincerely

DR J EVANS
ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE: 09/01/15.

Appendix V

South African Journal of Psychiatry Author Guidelines

South African Journal of Psychiatry | ISSN: 1608-9685 (PRINT) | ISSN: 2078-6786 (ONLINE)

Overview

Introduction

Authors are encouraged to submit original manuscripts online, which are not presently under consideration at another journal, in a format defined by the author guidelines. Submitted manuscripts are pre-screened by plagiarism detection software both before and after blind peer review, prior to acceptance. The journal allows the author to track and participate in all activities related to the processing of the manuscript, such as the review process, copy editing, layout editing and proofing of manuscripts, which are all managed online.

Publication procedure

Upon acceptance of a manuscript for publication by the Editor-in-Chief, the editorial staff will work towards preparing the manuscript for online publication. The first stage involves language editing, after which the manuscript is returned to the corresponding author for review. This is the author's final opportunity to make text changes to the manuscript and submit a revised version. At a final stage the editorial staff will send the author one set of galley proofs, and the author will have two working days to mark any typographical errors. It may not be possible to incorporate author corrections in the printed version of the manuscript if the author fails to respond to proofreading requests. Authors should visit their personalised homepage frequently to assess the location or stage of the manuscript.
The manuscripts are uploaded and processed online, so you need to register and login into the journal website. Start the 5-step submission process by either:

1. In your **My User Home**, select **New Submission** next to Author.
2. In your **My User Home**, select **Author**, and underneath the heading **Start a New Submission** select **CLICK HERE**.

Make sure you have your cover letter and manuscript body in one document and any supplementary information (e.g. illustrations, legal documents, etc.) in separate documents saved on your computer, ready for upload. Refer to the **Submissions Guidelines** for more details.

How to submit a new submission

Each step is on a separate page. The submission process can be interrupted at any time; when you return to the site you can continue from where you left off. You can scroll down and click on the **Next** button to save your work and advance to the next page:

- **STEP 1**: Select the journal section, complete the submission checklist and agree to our **copyright and licensing policy**. Save and continue.
- **STEP 2**: Upload the submission file. Click on the **Choose file** button and locate the file on your computer. When you have selected the file you wish to upload, click the **Upload** button. Save and continue.
- **STEP 3**: Insert the manuscript metadata, author(s) details, manuscript title, manuscript abstract and keywords as it is in the manuscript. Save and continue.
- **STEP 4**: Upload supplementary files e.g. legal documents and any supplementary information such as large tables and photographs. You can only upload one supplementary file at a time and have a limit of 15MB per single file. Click on the **Choose file** button and locate the file on your computer. When you have selected the file that you wish to upload, click the **Upload** button. Repeat the process until all supplementary files have been uploaded. Save and continue.

- **STEP 5**: Confirm the files for submission. Select the **Finish Submission** button. After completing the manuscript submission you will receive a submission confirmation via email. You can also log into the journal website at any time to check the status of your manuscript.

Author Guidelines

The author guidelines include information about the types of articles received for publication and preparing a manuscript for submission. Other relevant information about the journal's policies and the reviewing process can be found under the about section. The **compulsory cover letter** form part of a submission and is on the first page of the manuscript. It should always be presented in English. **See full structure of cover letter below.** After the cover letter the manuscript body starts.

Original Research Article

An original article provides an overview of innovative research in a particular field within or related to the focus and scope of the journal, presented according to a clear and well-structured format. Systematic reviews should follow the same basic structure as other original research articles. The aim and objectives should focus on a clinical question that will be addressed in the review. The methods section should describe in detail the search strategy, criteria used to select or reject articles, attempts made to obtain all important and relevant studies and deal with publication bias (including grey and unpublished literature), how the quality of included studies was appraised, the methodology used to extract and/or analyse data. Results should describe the homogeneity of the different findings, clearly present the overall results and any meta-analysis.

Word limit	3000-4000 words (excluding the structured abstract and references)
Structured abstract	250 words to include a Background, Aim, Setting, Methods, Results and Conclusion
References	60 or less
Tables/Figures	no more than 7 Tables/Figure
Ethical statement	should be included in the manuscript
Compulsory supplementary file	ethical clearance letter/certificate

Review Article

Review articles provide a comprehensive summary of research on a certain topic, and a perspective on the state of the field and where it is heading. These articles are often meta-analyses comparing and combining findings of previously published studies. **See full structure of review articles below.**

Word limit	2500-4000 words (excluding the abstract and references)
References	15 or less
Structured abstract	250 words to include a Background, Aim, Setting, Methods, Results and Conclusion
Tables/Figures	data in the text should not be repeated extensively in tables or figures

Scientific Letter

Original research that is limited in scope can be submitted as a scientific letter rather than a full original research article.

Word limit	1500 words
References	6 or less
Tables/Figures	no more than 1 Table/Figure

Letters to the editor

They may be subjected to the peer review process and their eventual placement is at the discretion of the editorial team. Kindly include include a correspondence address.

Word limit	400 words
Tables/Figures	no more than 1 Table/Figure

Obituaries

is a news article that reports the recent passing of a person, typically along with an account of the person's work achievement and life.

Word limit	400 words
Photo	a photograph of the deceased

Editorials

Editorials are by invitation only and are intended to provide expert comment on relevant topics within the focus and scope of the journal.

Word limit	800 words
References	10 or less

Cover Letter

The format of the compulsory cover letter forms part of your submission. It is located on the first page of your manuscript and should always be presented in English. You should provide the following elements:

- Full title: Specific, descriptive, concise, and comprehensible to readers outside the field, max 95 characters (including spaces).
- Tweet for the journal Twitter profile: This will be used on the journal Twitter profile to promote your published article. Max 101 characters (including spaces). If you have a Twitter profile, please provide us your Twitter @ name. We will tag you to the Tweet
- Full author details: The title(s), full name(s), position(s), affiliation(s) and contact details (postal address, email, telephone, highest academic degree, Open Researcher and Contributor Identification (ORCID) and cell phone number) of each author.
- Corresponding author: Identify to whom all correspondence should be addressed.
- Authors' contributions: Briefly summarise the nature of the contribution made by each of the authors listed.
- Disclaimer: A statement that the views expressed in the submitted article are his or her own and not an official position of the institution or funder.
- Source(s) of support: These include grants, equipment, drugs, and/or other support that facilitated conduct of the work described in the article or the writing of the article itself.
- Summary: Lastly, a list containing the number of words, pages, tables, figures and/or other supplementary material should accompany the submission.

Anyone that has made a significant contribution to the research and the paper must be listed as an author in your cover letter. Contributions that fall short of meeting the criteria as stipulated in our policy should rather be mentioned in the 'Acknowledgements' section of the manuscript. Read our **authorship** guidelines and **author contribution** statement policies.

Original Research Article full structure

Title: The article's full title should contain a maximum of 95 characters (including spaces).

Abstract: The abstract, written in English, should be no longer than 250 words and must be written in the past tense. The abstract should give a succinct account of the objectives, methods, results and significance of the matter. The structured abstract for an Original Research article should consist of six paragraphs labelled Background, Aim, Setting, Methods, Results and Conclusion.

- Background: Summarise the social value (importance, relevance) and scientific value (knowledge gap) that your study addresses.
- Aim: State the overall aim of the study.
- Setting: State the setting for the study.
- Methods: Clearly express the basic design of the study, and name or briefly describe the methods used without going into excessive detail.
- Results: State the main findings.
- Conclusion: State your conclusion and any key implications or recommendations.
  Do not cite references and do not use abbreviations excessively in the abstract.

Introduction: The introduction must contain your argument for the social and scientific value of the study, as well as the aim and objectives:

- Social value: The first part of the introduction should make a clear and logical argument for the importance or relevance of the study. Your argument should be supported by use of evidence from the literature.
- Scientific value: The second part of the introduction should make a clear and logical argument for the originality of the study. This should include a summary of what is already known about the research question or specific topic, and should clarify the knowledge gap that this study will address. Your argument should be supported by use of evidence from the literature.
- Conceptual framework: In some research articles it will also be important to describe the underlying theoretical basis for the research and how these theories are linked together in a conceptual framework. The theoretical evidence used to construct the conceptual framework should be referenced from the literature.
- Aim and objectives: The introduction should conclude with a clear summary of the aim and objectives of this study.
  Research methods and design: This must address the following:
- Study design: An outline of the type of study design.
- Setting: A description of the setting for the study; for example, the type of community from which the participants came or the nature of the health system and services in which the study is conducted.
- Study population and sampling strategy: Describe the study population and any inclusion or exclusion criteria. Describe the intended sample size and your sample size calculation or justification. Describe the sampling strategy used. Describe in practical terms how this was implemented.
- Intervention (if appropriate): If there were intervention and comparison groups, describe the intervention in detail and what happened to the comparison groups.
- Data collection: Define the data collection tools that were used and their validity. Describe in practical terms how data were collected and any key issues involved, e.g. language barriers.
- Data analysis: Describe how data were captured, checked and cleaned. Describe the analysis process, for example, the statistical tests used orsteps followed in qualitative data analysis.
- Ethical considerations: Approval must have been obtained for all studies from the author's institution or other relevant ethics committee and the institution’s name and permit numbers should be stated here.
  Results: Present the results of your study in a logical sequence that addresses the aim and objectives of your study. Use tables and figures as required to present your findings. Use quotations as required to establish your interpretation of qualitative data. All units should conform to the **SI convention** and be abbreviated accordingly. Metric units and their international symbols are used throughout, as is the decimal point (not the decimal comma).

Discussion: The discussion section should address the following four elements:

- Key findings: Summarise the key findings without reiterating details of the results.
- Discussion of key findings: Explain how the key findings relate to previous research or to existing knowledge, practice or policy.
- Strengths and limitations: Describe the strengths and limitations of your methods and what the reader should take into account when interpreting your results.
- Implications or recommendations: State the implications of your study or recommendations for future research (questions that remain unanswered), policy or practice. Make sure that the recommendations flow directly from your findings.

Conclusion: Provide a brief conclusion that summarises the results and their meaning or significance in relation to each objective of the study.

Acknowledgements: Those who contributed to the work but do not meet our authorship criteria should be listed in the Acknowledgments with a description of the contribution. Authors are responsible for ensuring that anyone named in the Acknowledgments agrees to be named.
Also provide the following, each under their own heading:

- Competing interests: This section should list specific competing interests associated with any of the authors. If authors declare that no competing interests exist, the article will include a statement to this effect: *The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.* Read our **policy on competing interests**.
- Author contributions: All authors must meet the criteria for authorship as outlined in the **authorship** policy and **author contribution** statement policies.
- Funding: Provide information on funding if relevant
- Disclaimer: A statement that the views expressed in the submitted article are his or her own and not an official position of the institution or funder.

References: Authors should provide direct references to original research sources whenever possible. References should not be used by authors, editors, or peer reviewers to promote self-interests. Refer to the journal referencing style downloadable on our *Formatting Requirements* page.

Review Article full structure

Title: The article's full title should contain a maximum of 95 characters (including spaces).

Abstract: The abstract should be no longer than 250 words and must be written in the past tense. The abstract should give a concise account of the objectives, methods, results and significance of the matter. The abstract can be structured and should consist of five paragraphs labelled Background, Aim, Method, Results and Conclusion.

- Background: Why is the topic important to us? State the context of the review
- Aim: What is the purpose of your review ? Describe the aim or purpose of your review.
- Method: How did you go about performing the review? Describe the methods used for searching, selecting and appraising your evidence.
- Results: What are the findings? What are the main findings of your literature review.
- Conclusion: What are the implications of your answer? Briefly summarise any potential implications.

Introduction: Present an argument for the social and scientific value of your review that is itself supported by the literature. Present the aim and objectives of your literature review.

Methods: Although this is not a systematic review (see instructions on original research for this type of article) it is still necessary to outline how you searched for, selected and appraised the literature that you used. Discuss any methodological limitations.

Review findings: Present your review of the literature and make use of appropriate sub-headings. Your review should be a critical synthesis of the literature.

Implications and recommendations: Discuss the findings of your review in terms of the implications for policy makers and clinicians or recommendations for future research.

Conclusion: This should clearly state the main conclusions of the review in terms of addressing the original aim and objectives.

Acknowledgements: Those who contributed to the work but do not meet our authorship criteria should be listed in the Acknowledgments with a description of the contribution. Authors are responsible for ensuring that anyone named in the Acknowledgments agrees to be named.
Also provide the following, each under their own heading:

- Competing interests: This section should list specific competing interests associated with any of the authors. If authors declare that no competing interests exist, the article will include a statement to this effect: *The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.* Read our **policy on competing interests**.

- Author contributions: All authors must meet the criteria for authorship as outlined in the **authorship** policy and **author contribution** statement policies.
- Funding: Provide information on funding if relevant
- Disclaimer: a statement that the views expressed in the submitted article are his or her own and not an official position of the institution or funder.

References: Authors should provide direct references to original research sources whenever possible. References should not be used by authors, editors, or peer reviewers to promote self-interests. Refer to the journal referencing style downloadable on our *Formatting Requirements* page

Formatting Requirements

File format

The document uploaded during Step 2 of the submission process:

- **Microsoft Word (.doc/.docx)**: We can accept Word 2003 DOC files and Word 2007 DOCX files.
- **Rich Text Format (RTF)**: Users of other word processing packages should save or convert their files to RTF before uploading. Many free tools are available that will make this process easier.

The AOSIS house style

The manuscript must adhere to the **AOSIS house style guide**.

Referencing style guide

The manuscript must adhere to the **Vancouver referencing style**.

Language

Manuscripts must be written in British English, according to the Oxford English Dictionary [avoid Americanisms (e.g. use 's' and not 'z' spellings), set your version of Microsoft Word to UK English]. Refer to the AOSIS house style guide for more information.

Page and line numbers

Include page numbers and line numbers in the manuscript file.

Font type

Use a standard font size in any standard font family.

Special characters

Refer to our AOSIS house style guide on math and Unicode font guidelines.

Line spacing

1.5

Headings

Ensure that formatting for headings is consistent in the manuscript. Limit manuscript sections and sub-sections to four heading levels. Make sure heading levels are clearly indicated in the manuscript text. Do not number headings.

Checklist

Please review the checklist below to prepare your manuscript. This will help to make sure your submission is complete and gets handled as quickly as possible.

- **CHECK 1:** Make sure your manuscript is the right fit for the journal by reviewing the **journal information**.
- **CHECK 2:** Read the **publication fees**.
- **CHECK 3:** Review if the journal publishes the type of article that you wish to submit. Read the **types of articles published**.
- **CHECK 4:** You must be comfortable with publishing in an open access journal. Read our **copyrights and licensing policy.**
- **CHECK 5:** The entire manuscript must be neatly prepared, spell-checked, and adhere to the **formatting requirements** stipulated in our submission guidelines.
- **CHECK 6:** Prepare the cover letter and licensing forms as required on the **submissions guidelines**.
- **CHECK 7:** Read our **publication policies**, **privacy policy** and **terms of use**.
- **CHECK 8:** We recommend authors to have ORCID iDs, which can only be assigned by the **ORCID Registry**. ORCID (Open Researcher and Contributor ID) is a nonproprietary alphanumeric code to uniquely identify scientific and other academic authors and contributors. You must conform to their standards for expressing ORCID iDs, and will have the opportunity to include the full URL (e.g. **https://orcid.org/0000-0002-1825-0097**) during the submission process, that will link to your name when the manuscript is published.