

# **PROFILE OF MENTAL HEALTH CARE USERS ADMITTED AT THABAMOPO HOSPITAL**

A Research Report Submitted  
by

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in Partial Fulfilment of a Masters in Public Health Degree

in the

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## DECLARATION

I, Mmatlou Elias Chokoe, hereby declare that this dissertation and the work presented in it are my own and have been generated by me as the result of my own original research. Where other sources of information have been used, they have been acknowledged. I confirm that none of this work has been published before this submission, neither has it been submitted anywhere for any degree.

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## **DEDICATION**

I dedicate this study to my late son, Lekgau, whose love for education and constant knowledge-seeking was always an encouragement to the family. The dedication also goes to Lord Milner School and Settlers Agricultural High School where Lekgau was instilled with the passion for learning. May his soul 'rest' in peace.

## **ACKNOWLEDGEMENTS**

This study could not have taken off the ground had it not been the contribution of the many intelligent and interested people I surround myself with. Firstly, I thank my family for the encouragement they gave me to stay at Thabamoopo Hospital when my position as CEO was hanging in the balance. During this time, hospital management together with the majority of the staff members rallied behind me and again I really appreciate their undivided and unconditional support.

My sincere thanks go to Professor Y. Moosa who contributed immensely to the drafting of the research proposal and writing of the report. When the university was struggling to find a supervisor for my research, Dr Natarajan Barathan accepted the appointment. His contribution, despite his busy schedule, is highly thanked and appreciated. The study could not have been completed, had the Thabamoopo Hospital staff not assisted with retrieval of the mental health care users' files and records. May the good Lord see them through in their caring for MHCUs at Thabamoopo Hospital. I also thank the statistician, Mrs Olwagen, who showed a lot of kindness when analyzing the data collected from the files and records of MHCUs. A special thank you to Dr Basu who constantly applied pressure that assisted many students to continue with research.

Lastly, I would like to thank the National and Provincial Departments of Health for initiating this program.

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## **LIST OF DEFINITIONS**

|                          |                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Family availability      | : patient's record indicating any a family member(s)                                                                                                    |
| Forensic history         | : history of having offended or caused crime                                                                                                            |
| Long stay                | : a period of more than 12 months spent by the mental health care users without discharge and those with 3 and more admissions within 12 months         |
| Mental Health Care Users | : psychiatric patients                                                                                                                                  |
| Patient threat level     | : how dangerous the patient is on a scale of 0 to 5; 5 representing 'most dangerous'.                                                                   |
| Short stay               | : a period of less than 12 months spend by the mental health care users at the hospital and admission of less than three times in a period of 12 months |
| Substance abuse          | : overuse of substances such as alcohol and any use of dagga, cocaine, etc                                                                              |

## **LIST OF ABBREVIATIONS**

|                 |                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------|
| ICD10           | : The International Statistical Classification of Diseases and<br>Related Health Problems – 10th Revision |
| MHCU            | : mental health care user                                                                                 |
| Neurotic Soma   | : Neurotic, stress-related and somatoform disorders                                                       |
| Organic MD      | : Organic, including symptomatic, mental disorder                                                         |
| Psych Substance | : Mental and behavioural disorders due to psychoactive<br>substance use                                   |
| RDP             | : Reconstruction and Development Programme                                                                |

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## **ABSTRACT**

Post 1994, one of the goals of the democratic South African government was to integrate mental health into the mainstream of health services; and to replace institutionalization of mental health care users with de-institutionalized care. This has necessitated reduction of long stay (exceeding 12 months) mental health care users admitted into hospitals; as well as prevention of continuous readmission of these patients following discharge. This study was aimed at describing characteristics of long stay mental health care users, as long stay has the potential of culminating in institutionalization. The purpose of this study was to audit the long stay mental health care users admitted to Thabamopo Hospital, Limpopo Province, from 2007 to 2009. This was achieved by conducting a descriptive cross-sectional study, in which the geographic, demographic and clinical characteristic of 1060 Thabamopo Hospital patients were reviewed. It was found that the length of stay of mental health care users admitted at Thabamopo Hospital during the study period was related to the specific diagnosis of the individual, the district in which he resides, family availability, substance abuse, forensic history and degree of violence of the patient. Readmissions were mostly consequences of substance abuse and initial diagnosis of the mental health care user. Schizophrenia and homelessness were the two major reasons for admission exceeding 12 months as well as frequent admission of patients to Thabamopo Hospital between 2007 and 2009. The long stay of patients affects all the districts that are served by Thabamopo Hospital and is also attributed to lack of or poor mental health services in these districts. It is thus recommended that the country prioritize reduction of long stay patients by assisting in locating families of unidentified mental health care users and building community centers where mental health care users can be adequately taken care of outside hospitals.

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background**

Thabamopo Hospital is a specialized psychiatric institution situated in the Lepelle-Nkumpi district municipality in Limpopo province; and its establishment is in accordance with section 5 (1) of the Mental Health Act (Mental Health Act, Act No 17 of 2002). The hospital caters for short, medium and long term mental health care users (MHCUs) from the Sekhukhune, Capricorn and Waterberg districts. Twenty four (24) hospitals from these 3 districts in the province refer their MCHUs to Thabamopo hospital. The bed capacity is 786 with a bed occupancy averaging 95% (baseline norm = 83%).

Post 1994, the new democratic government introduced the Reconstruction and Development Programme (RDP). One of the components of this programme was to transform the public service to meet the needs of the entire population, and health services were not an exception to this revolution. Development of the white paper for the transformation of the health care system in South Africa in 1997 bears testimony to the programmes. One of the health department's mandates was to reduce institutionalization of MHCUs in mental health care facilities, and to promote rehabilitation and re-integration of MHCUs into society (Lund and Flisher, 2003). The Mental Health Act also prescribes that mental health illness be treated like any other condition or illness. One of the objectives of this Act is to ensure that there is integration of mental health care services into the general health services environment (Mental Health Act, Act No 17 of 2002).

In the transformation of mental health services was the "right sizing" strategy of the health institutions. Initially, the Limpopo Provincial office, Department of Health and Social Development had shrunk the number of beds at Thabamopo

Hospital from an alarming 1240 to 786. Currently, the number of active beds stands at 500, and the plan is to further reduce it to 400 beds during the process of revitalization planning. (Northern Province Department of Health and Welfare 2001; Hospital Health Brief, 2005). This reduction is to be realized over a period of some years, from the year 2006 to 2010.

## **1.2 Problem Statement**

Thabamoopo Hospital is currently undergoing structural changes and the proposed physical structure has been redesigned to accommodate only 400 MHCUs while the number of patients at the time of the study was approximately 500 (Hospital patient statistics). The health care services of the hospital should ensure that all patients currently residing in the hospital are accommodated in the new envisaged physical structure. Therefore, various programmes targeting reduction of the number of MHCUs have been put in place, and one such activity involves social workers focusing on transferring MHCUs back to their respective districts in Limpopo and other provinces. Moreover, the hospital's clinical manager is ensuring that the down referral system retains its functionality.

The challenge faced by the hospital is to ensure that in achieving this objective, it targets the reduction of long stay (exceeding 12 months) MHCUs and those who will be easily re-integrated and maintained in community based services; as well as preventing continuous readmission of these patients back into the hospital.

## **1.3 Motivation for this Study**

Thabamoopo is a referral hospital and MHCUs discharged by Thabamoopo Hospital go back home via their respective feeder hospitals. They are then further managed as outpatients, collecting their medication from community clinics, community health care centres or district hospitals. This strategy poses a question of compliance given the shortage of resources and the distances between residential areas and health facilities. Miner *et al.* (1997) conducted a study in Chicago on readmission and he says, "Most patients with concurrent

schizophrenia and psychoactive use disorders may be adequately treated as outpatients. However, many do not comply with outpatient referrals and are therefore at heightened risk for re-hospitalization.” The reasons for noncompliance have not been mentioned in the study.

There are many international studies that serve to guide the process of discharge of long stay patients from institutions (Leff *et al.* 2000; Zahid *et al.* 2001; Walker *et al.* 2002; Patrick *et al.* 2006; Oshima *et al.* 2007; Taiwo *et al.* 2008). There is, however, a paucity of studies done in South Africa (Niehaus *et al.* 2008; Botha *et al.* 2010; Kruger *et al.* 2011). This study based on Thabamopo Hospital patients will therefore attempt to provide insight into the geographic, demographic and clinical characteristics of long stay MHCUs in the hospital over the past few years. It will also possibly guide the future discharge of current long stay MHCUs to appropriate community-based facilities in a manner that will ensure that these MHCUs are successfully re-integrated into society. Nevertheless, the study does not attempt to bring solutions to the factors leading to MHCUs’ frequent readmissions or prolonged stay. Further investigation is required to assess the causes of delayed discharges; integration between the hospital and community health services and whether or not this integration is supported by social development; the high average length of stay in acute and sub-acute wards; management of mental health care services in referring hospitals and primary health care facilities; and most important the interaction of MHCUs with their relatives once discharged.

The study may also test the justification bed capacity reduction at Thabamopo Hospital. Lund and Flisher (2003) conducted a study in South Africa on Community/Hospital indicators in South African Public Sector Mental Health Services. Their study challenged the move by the country to reduce hospital beds before community-based health services are developed. They argue that “Hospital beds cannot simply be reduced as a panacea for an appropriate balance in mental health care when there is significant unmet need for services

in the community” (Lund and Flisher, 2003). There is thus a dire need to understand the characteristics of MHCUs that rationalize institutionalization.

#### **1.4 Study Objectives**

This study was aimed at describing the characteristics of all MHCUs residing at Thabamooopo Hospital during the period from 01 January 2007 to 31 December 2009, and to determine if there is an association between the characteristics of long stay (12 months or more) mental health care users and recurrent (three or more) readmissions. Thus, the primary objectives were:

- To describe the demographic, geographic and clinical profile of the study population,
- To compare characteristics of long-stay MHCUs (exceeding 12 months) to those with short stay, and
- To determine association between specific characteristics of long stay MHCUs and recurrent readmissions.

The secondary objective was to make recommendations regarding the deinstitutionalization process of long stay MHCUs still residing in the hospital.

## CHAPTER 2

### LITERATURE REVIEW

Recurrent admission and long stay of mental health care users is a concern in many hospitals as not only does it increase the number of MHCUs, but it also overstretches the limited resources of hospitals. Furthermore, it slows down the Health Department's battle against the widespread mental illness stigma. For the past fifty years, there has been a steady transition from long stay public hospitals to acute care provided by private companies and community based institutions (Sharfstein *et al.*, 2009). This shift decreases the quantity of psychiatric beds in hospitals; correspondingly providing better care for MHCUs in hospitals and the community through specialization of the two institutions. Bridge *et al.* (2004) argues that readmission implications are a concern to policy makers, administrators and health workers. This may attributed to the cost burden arising from high frequency users (those that are not dischargeable) of psychiatric services.

The shortening of the period spent by MHCUs in mental health care facilities is attempted worldwide, implying that it is becoming easier to discharge and de-institutionalize MHCUs. In developed countries, old mental institutions (asylums) have been replaced with community-based psychiatric services and general hospital psychiatric units. The length of stay used to be measured in months and years (long stay) in these asylums while it is currently only measured in days (Rocca *et al.*, 2009; Zhang *et al.* 2011). De-institutionalization is a well established policy in mental health services of twenty-first century first-world countries. However, the practice of reducing psychiatric beds in hospitals has resulted in "the revolving door phenomenon" in psychiatry (Botha *et al.*, 2010). The intention for de-institutionalization is good, yet lack of community-based psychiatric care results in increased pressure on the very beds that are reduced. This pressure then culminates in premature discharge of MHCUs into communities that are not

well-structured to receive such individuals. In support of this argument Ravelli (2006) quotes Becker and Vasquez-Barquero as follows: "Psychiatric reform is not just about abolishing the old-fashioned psychiatric institutions but also concerns a number of issues such as: legislation, attitudes of society towards psychiatry, the choice of the scale of the catchments area for alternative facilities, the realization of new facilities, the roles of other care suppliers such as the general practitioners, the welfare sector, the general health care services, the balance and financing of the care, the fate of the patients coming from the old-fashioned institutions, the way to cope with the ever-increasing demand for psychiatric help and finally the actual quality of psychiatric help."

Despite the lack of developed community-based mental health care services in many parts of the country, the South African government has taken a decision to obliterate MHCU institutionalization (Lund and Flisher, 2003). Placing MHCUs in community-based services comes with numerous challenges. The Hospital-to-Community transition necessitates great support for relatives, especially for mothers who are caring for children with mental illness (Cameron *et al.*, 2007; Gutierrez-Maldonado, 2005; Priebe and Turner, 2003). Furthermore, in-depth continuous training for staff in the community needs to be prioritized for sustainability of the de-institutionalization policy. However, when carefully planned and adequately resourced, community care is beneficial to both the recipients of the service and the society (Trieman and Leff, 1999; Carr *et al.*, 1998). Individuals with mental illness accommodated in boarding houses and hostels are usually satisfied and their quality of life improves tremendously. (Horan *et al.*, 2001)

There are numerous factors that cause readmissions and long stay of MHCUs in hospitals, such as gender, marital status, age and involuntary first admission; clinical factors such as psychiatric diagnoses, global functioning, the degree and type of symptoms, co-morbid psychiatric disorders such as substance abuse disorders; history of past psychiatric hospitalization, the number of previous

admissions; and poor discharge prognosis (Bridge *et al.*, 2004; Madi *et al.*, 2007; Tulloch *et al.*, 2008; McInerney *et al.*, 2009). Patrick *et al.* (2006) also attribute the long stay to ambivalence or resistance to discharge that MHCUs develop during their stay at psychiatric hospitals. Institutionalization impacts negatively on the efforts to integrate the MHCUs into the community. "For many people, hospital life becomes comfortable, while the skills, aptitudes and expectations necessary for life outside the hospital begin to atrophy" (Patrick *et al.*, 2006). Long stay of MHCUs is associated with factors such as schizophrenia, race and ethnicity, admissions not due to suicidal tendencies, violence, severe illness, substance abuse and the need for housing (Tulloch *et al.*, 2008; Madi *et al.*, 2007).

Various studies have been conducted in other countries regarding the relationship between homelessness and mental illness. Some MHCUs become homeless at discharge (Lauber *et al.*, 2006). Still, this can be prevented if clinicians pay particular attention to MHCUs that do not have permanent accommodation at admission and those with substance use disorder, as this group is at high risk to become homeless at discharge. The probability of institutionalization is higher with homeless MHCUs and it was shown that the interval between discharge and re-admission was shorter for homeless patients compared to those with homes to return to (Lauber *et al.*, 2006). The majority of homeless people with mental illness lack access to supportive services, such as housing programs and counseling centers (Burns and Steinberg, 2006). Provision of housing and housing stability, appropriate psychiatric treatment and increased income can improve the quality of life of people living with mental illness (Herrman, 2008).

Previous studies have shown that socio-economic factors also contribute to readmission of MHCUs. In the United States of America it was revealed that even where hospital and community-based services are integrated and supported by excellent welfare; problems of readmission still persist due to

dissatisfaction with finances (Owen *et al.*, 1997). According to this study, poorly funded institutions result in an unsuccessful partnership and consequential readmissions of MHCUs. The Limpopo Province is said to be one of the poorest provinces in South Africa (South African Government Declaration). Some of its districts, e.g. Sekhukhune, have been declared the country's presidential nodal points.

Between 40 and 50% of discharged MHCUs are readmitted within one year of their discharge from the hospital (Vasudeva *et al.*, 2009). The adherence to referral conditions which are supported by the MHCU relatives and the health and social development sectors of the government reduces this readmission rate (Bridge *et al.*, 2004; Miner *et al.*, 1997). The use of new or new combinations of drugs also assists MHCUs in surviving for longer periods in their communities, without readmission into hospitals (Rabinowitz *et al.*, 2001). There are many variables that identify people with mental illness who are at risk of readmission. One of the variables noted by Bernardo *et al.*, (2001) is the history of admission. It is argued that an MHCU who frequently seeks psychiatric services presents with multiple problems that make him or her vulnerable to further crises and hospitalization. High frequency users of psychiatric services are characterized, among other factors, by the under-utilisation of depot antipsychotics (Botha *et al.*, 2010).

As already mentioned, the predictors of readmission and long stay of MHCUs are multi-factorial (Preti *et al.*, 2009), and clinicians must remain vigilant to these factors. When concentrating on the improvement of the clinical outcomes on one side, the improvement of the relative-MHCU relationship on the other side should not be forgotten. In light of the literature the problems encountered in other countries seem not to be uncommon to South Africa's problems.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Study Design**

This study was a descriptive cross-sectional study involving a retrospective review of the records of all MHCUs resident in Thabamoopo Hospital from the year 2007 to 2009.

#### **3.2 Study Setting**

The study took place at Thabamoopo Hospital, situated approximately 55km south of the city of Polokwane in the Capricorn district of Limpopo Province, South Africa. The hospital chiefly serves three districts of the province namely; Capricorn, Sekhukhune and Waterberg. The service is, however, not limited to the abovementioned districts and MHCUs from other parts of Limpopo, and South Africa as whole, are often admitted at this hospital.

#### **3.3 Study Population**

File records of resident MHCUs from 2007 to 2009 constituted the study population. Hospital admission numbers were obtained from the registry and the files were sourced from the records storage areas. During the study period, the hospital housed 1 060 MHCUs.

#### **3.4 Data Collection Tools and Measurements**

A data collection sheet was developed for collection of data from the records and file entries of MHCUs that resided in the hospital from 2007 to 2009 (Annexure A). All data was collected by the author. The following variables were measured:

- geographic and demographic characteristics: age, gender, district of residence and family abode, eligibility for disability grant, availability of

family and relationship to MHCUs, possession of Identification Document; and

- clinical characteristics: recurrent admission and reasons for readmission, diagnosis (ICD10 coding), length of stay in the hospital, incidence(s) of substance abuse, forensic history, level of threat to self and others.

### **3.5 Data Processing and Analysis**

Permission to use MHCUs records for this study was obtained from The Department of Health and Social Development. The study population was divided into districts and the collected data was stored in a Microsoft Excel Spreadsheet. Outliers and strange data were identified before analysis with the SPSS program (Predictive Analysis Software). Descriptive statistics was used to describe the characteristics of the study population. The Chi-square statistical test was used to provide categorical variables and summary statistics for both categorical and numerical proportions. The results are presented as tables, graphs and charts.

### **3.6 Limitations of the Study**

Manual retrieval of MHCUs records delayed data collection. Furthermore, due to poor record-keeping this mode of information retrieval did not assist with analysis of the frequency of patient re-admission as some MHCUs had the following entry appearing in their files: "old MHCUs who was once admitted," implying re-admission, which was often not the case. Another setback was the use of an unpiloted tool-collecting sheet. The family residence could therefore not be assessed. This study should assist in improving MHCUs record-keeping.

For ethical reasons, it was not possible to conduct interviews with MHCUs. It is therefore highly likely that the information used for the study is not completely correct as patient details could not be verified. Some MHCUs are brought to hospitals by police or ordinary members of the public who are not family members. The information entered into the files of such patients is thus often incomplete or incorrect. Moreover, the readmission data also does not paint an

accurate picture of “the need for readmission”. There could be patients requiring readmission but who are not presented to the hospital for various reasons such as admission at other mental health care institutions, the use of other methods (e.g. traditional healers) to deal with their conditions, or even death.

### **3.7 Ethics**

The Department of Health and Social Development granted permission for conduction of this study (Annexure B and C) and the proposal was approved by the University of the Witwatersrand research ethics committee (Annexure D) before commencement of data collection. MHCU records were used to obtain data for the study and patient names were omitted on all data-collecting sheets. The Constitution of South Africa, the Public Access to Information Act, the Mental Health Care Act and other statutes that govern disclosure of information were taken into account. Moreover, computerized data pertaining to the research was accessed solely by the author to maintain confidentiality.

## **CHAPTER 4**

### **RESULTS**

#### **4.1 Geographic Profile**

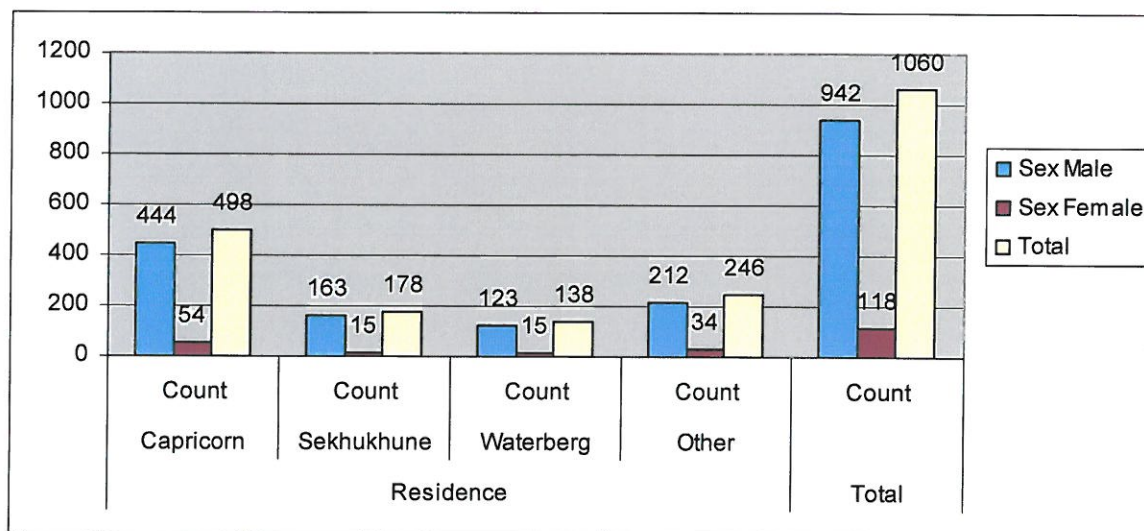
##### **4.1.1 Gender and Admission Distribution**

In 2001, Capricorn, Sekhukhune and Waterberg districts in Limpopo Province had a total population size of 2 889 806 (Census 2001). According to this census the aforementioned districts had populations of 1 218 217, 106 575 and 655 014, respectively. Females comprised 51.9% of this total population (Census 2001).

A total of 1060 MHCUs resided in the hospital at the time of the study, 942 males and 118 females. MHCUs from the Capricorn district, contributed 47% of the total MHCU load. For every 100 000 people in each district, Capricorn, Sekhukhune and Waterberg had 41, 18 and 21 MHCUs admitted at Thabamooopo Hospital respectively during the study period. The second highest contributors were other districts (not Capricorn, Sekhukhune and Waterberg), accounting for 23.2% of the patient population. An astonishing 88.9% of the patient population was male, while females only made up 11.1% of the MHCU population.

**Table 4.1:** Admission distribution of Thabamooopo Hospital MHCUs from 2007 up to and including 2009, in relation to the total population of the Capricorn, Sekhukhune and Waterberg districts.

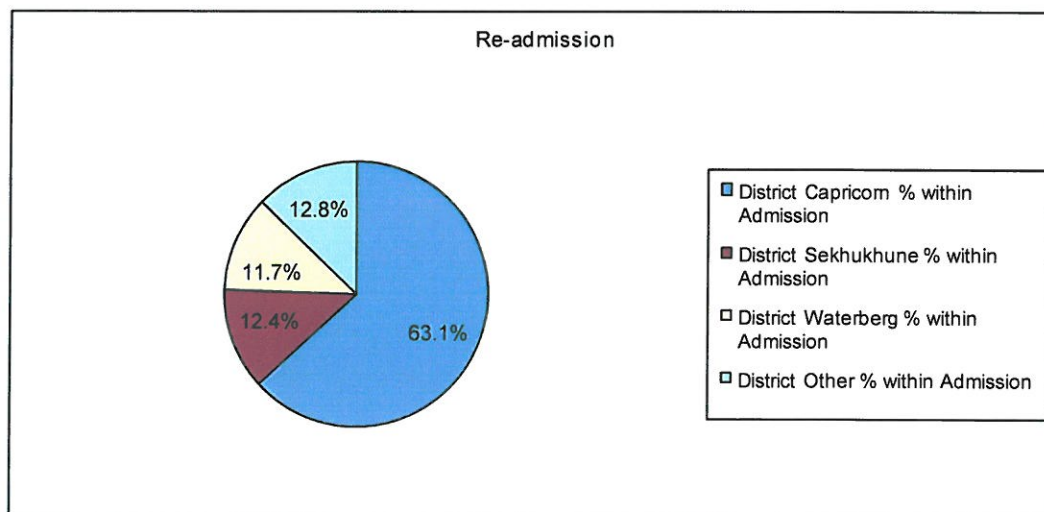
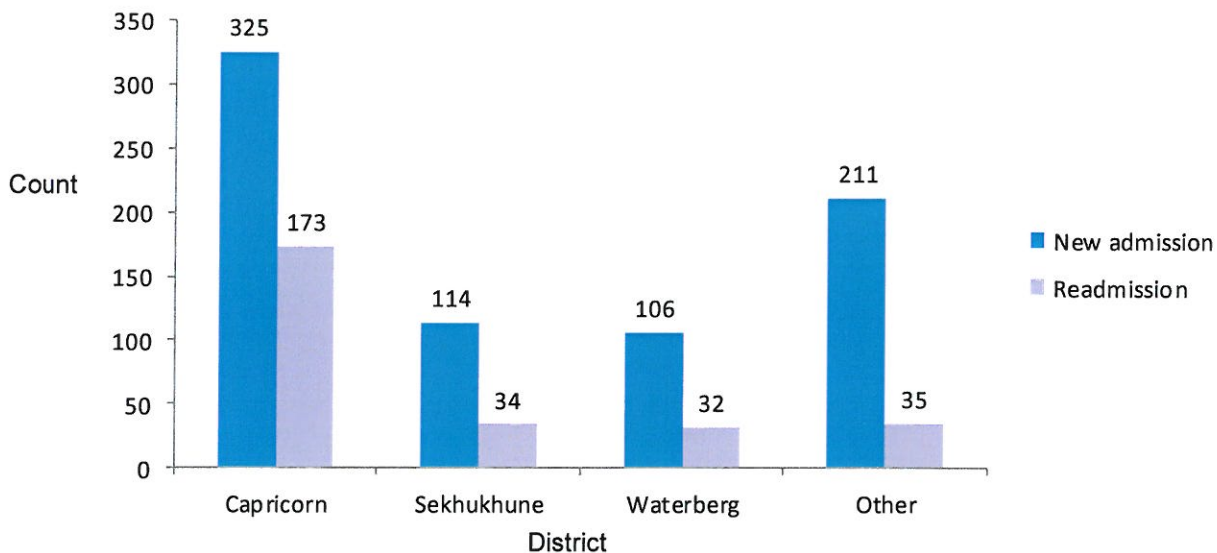
|        | Total Population |       | Total Admission |       | Capricorn |       | Sekhukhune |       | Waterberg |       |
|--------|------------------|-------|-----------------|-------|-----------|-------|------------|-------|-----------|-------|
|        | n                | %     | n               | %     | n         | %     | n          | %     | n         | %     |
| Male   | 1402283          | 48.0% | 730             | 89.7% | 444       | 89.2% | 163        | 91.6% | 123       | 89.1% |
| Female | 1521268          | 52%   | 84              | 10.3% | 54        | 10.8% | 15         | 8.4%  | 15        | 10.9% |
| Total  | 2923542          | 100%  | 814             | 100%  | 498       | 100%  | 178        | 100%  | 138       | 100%  |



**Figure 4.1:** Gender distribution of resident MHCUs at Thabamooopo Hospital between 2007 and 2009. Other: Districts within Limpopo Province excluding Capricorn, Sekhukhune and Waterberg.

#### 4.1.2 Readmission Distribution

Approximately three quarters (74.8%) of the total MHCUs forming the study population were new admissions, while the other quarter was readmissions. Capricorn district had the highest occurrence of readmissions, with 63.1% of the MHCUs from this district being readmitted after discharge (Fig. 4.2B).



**Figure 4.2:** Admission distribution of MHCUs residing at Thabamopo Hospital between 2007 and 2009. A: Total admissions per district. B: Readmission distribution per district during the study period. Other: Districts within Limpopo Province excluding Capricorn, Sekhukhune and Waterberg.

### 4.1.3 Disability Grant Distribution

At the time of this study only a small proportion of the MHCUs at Thabamopo Hospital received disability grants (28.4%), with patients from the Capricorn district accounting for 57.1% of these grant-holders (Table 4.1). The second highest contributing district was Sekhukhune with 16.6%. A chi-square test of independence was performed to examine the relation between districts and recipients of disability grants. The association between these variables was significant,  $\chi^2 (3, N = 1060) = 25.9435, p < 0.005$ . Receiving of a disability grant by MHCUs at Thabamopo Hospital was dependent on the district of residence of the individuals.

**Table 4.2:** Disability grant distribution table of MHCUs residing at Thabamopo Hospital between 2007 and 2009. Other: Districts within Limpopo Province excluding Capricorn, Sekhukhune and Waterberg.

|          |                           |                           | Disability Grant |        | Total  |
|----------|---------------------------|---------------------------|------------------|--------|--------|
|          |                           |                           | No               | Yes    |        |
| District | Capricorn                 | Count                     | 326              | 172    | 498    |
|          |                           | % within District         | 65.5%            | 34.5%  | 100.0% |
|          |                           | % within Disability Grant | 43.0%            | 57.1%  | 47.0%  |
|          | Sekhukhune                | Count                     | 128              | 50     | 178    |
|          |                           | % within District         | 71.9%            | 28.1%  | 100.0% |
|          |                           | % within Disability Grant | 16.9%            | 16.6%  | 16.8%  |
|          | Waterberg                 | Count                     | 100              | 38     | 138    |
|          |                           | % within District         | 72.5%            | 27.5%  | 100.0% |
|          |                           | % within Disability Grant | 13.2%            | 12.6%  | 13.0%  |
|          | Other                     | Count                     | 205              | 41     | 246    |
|          |                           | % within District         | 83.3%            | 16.7%  | 100.0% |
|          |                           | % within Disability Grant | 27.0%            | 13.6%  | 23.2%  |
| Total    | Count                     | 759                       | 301              | 1060   |        |
|          | % within District         | 71.6%                     | 28.4%            | 100.0% |        |
|          | % within Disability Grant | 100.0%                    | 100.0%           | 100.0% |        |

#### 4.1.4 Substance Abuse Distribution

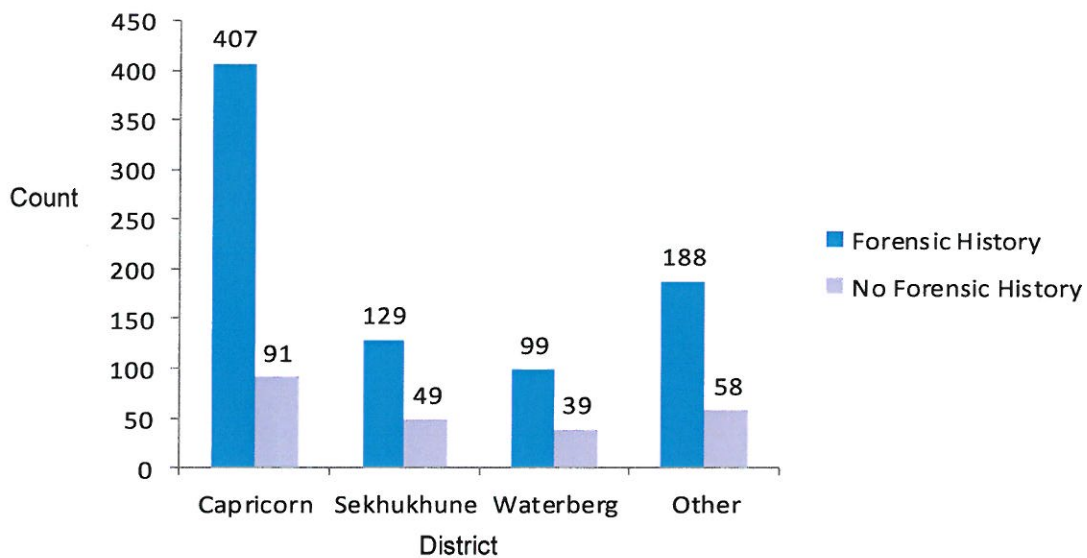
It is evident from Table 4.1.4 that 44.2% of the MHCUs abused various substances, although this was not necessarily the reason for admission to Thabamopo Hospital. The Capricorn district was the biggest contributor of substance abusers with 52% of the total, followed by Sekhukhune and Other with 18.6% and 16.0% respectively.

**Table 4.3:** Substance abuse distribution table of MHCUs residing at Thabamopo Hospital between 2007 and 2009. Other: Districts within Limpopo province excluding Capricorn, Sekhukhune and Waterberg.

|          |                          |                          | Substance abuse |        | Total  |
|----------|--------------------------|--------------------------|-----------------|--------|--------|
|          |                          |                          | No              | Yes    |        |
| District | Capricorn                | Count                    | 254             | 244    | 498    |
|          |                          | % within District        | 51.0%           | 49.0%  | 100.0% |
|          |                          | % within Substance abuse | 43.0%           | 52.0%  | 47.0%  |
|          | Sekhukhune               | Count                    | 91              | 87     | 178    |
|          |                          | % within District        | 51.1%           | 48.9%  | 100.0% |
|          |                          | % within Substance abuse | 15.4%           | 18.6%  | 16.8%  |
|          | Waterberg                | Count                    | 75              | 63     | 138    |
|          |                          | % within District        | 54.3%           | 45.7%  | 100.0% |
|          |                          | % within Substance abuse | 12.7%           | 13.4%  | 13.0%  |
|          | Other                    | Count                    | 171             | 75     | 246    |
|          |                          | % within District        | 69.5%           | 30.5%  | 100.0% |
|          |                          | % within Substance abuse | 28.9%           | 16.0%  | 23.2%  |
| Total    | Count                    | 591                      | 469             | 1060   |        |
|          | % within District        | 55.8%                    | 44.2%           | 100.0% |        |
|          | % within Substance abuse | 100.0%                   | 100.0%          | 100.0% |        |

#### 4.1.5 Forensic History Distribution

During the period from 2007 to 2009, just below a quarter of the total MHCU population (22.4%) had an element of forensic history. Sekhukhune and Waterberg were the most affected districts with 27.5% and 28.3% patients having criminal records respectively.



**Figure 4.3:** Forensic history distribution of the MHCUs residing at Thabamooopo Hospital between 2007 and 2009. Other: Districts within Limpopo Province excluding Capricorn, Sekhukhune and Waterberg.

#### 4.1.6 Patient Threat-Level Distribution

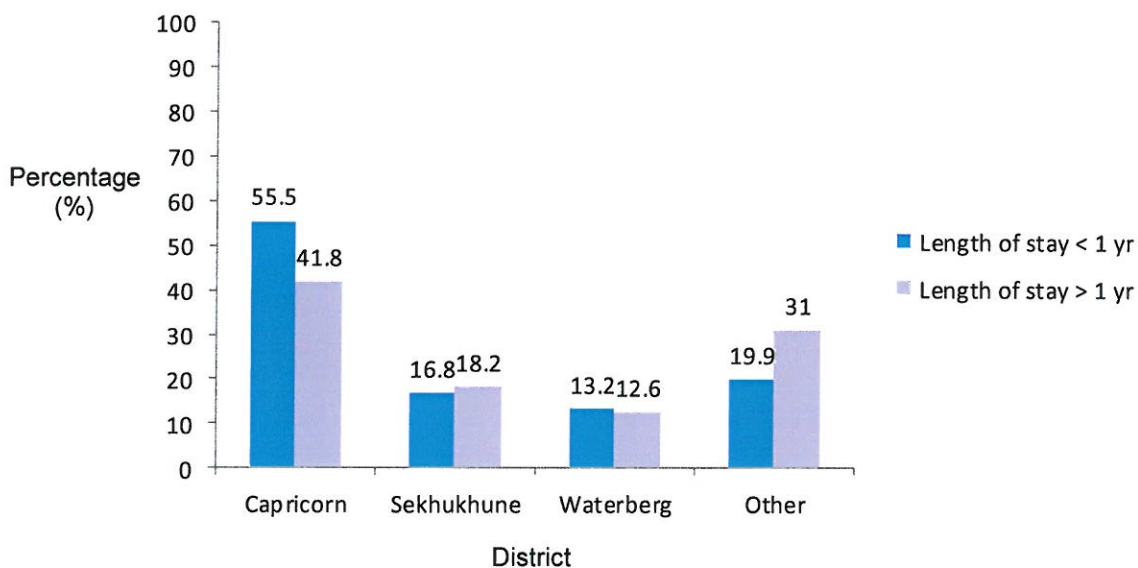
The MHCUs were scored on a scale of 0-5 with 0 as the patients that posed the least threat to themselves and others, and 5 as very dangerous MHCUs. According to Figure 4.1.6, 40.7% of the most dangerous MHCUs at the hospital during the study period were from the Capricorn district. On a scale of 0-5 (0 being least dangerous, and 5 being very dangerous) the total patient distribution was 15.3%, 27.8%, 19.8%, 19.3%, 7.1% and 10.7% respectively.

**Table 4.4:** Threat level distribution of MHCUs residing at Thabamoo Hospital between 2007 and 2009. Other: Districts within Limpopo Province excluding Capricorn, Sekhukhune and Waterberg.

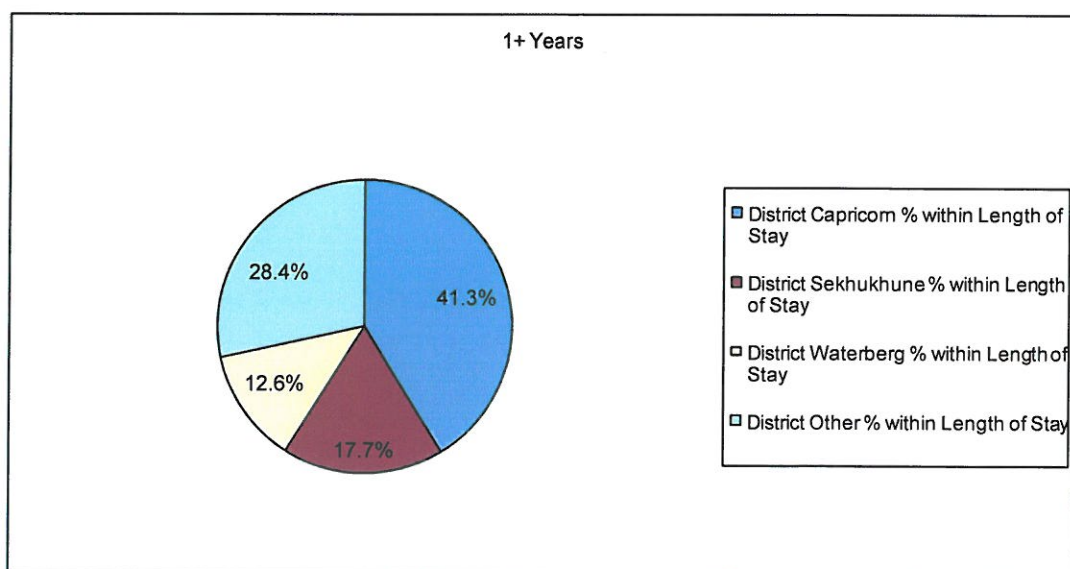
| District   |                   | Threat Level |        |        |        |        |        | Total  |
|------------|-------------------|--------------|--------|--------|--------|--------|--------|--------|
|            |                   | 0            | 1      | 2      | 3      | 4      | 5      |        |
| Capricorn  | Count             | 55           | 143    | 113    | 108    | 33     | 46     | 498    |
|            | % within District | 11.0%        | 28.7%  | 22.7%  | 21.7%  | 6.6%   | 9.2%   | 100.0% |
|            | % within Threat   | 34.0%        | 48.5%  | 53.8%  | 52.7%  | 44.0%  | 40.7%  | 47.0%  |
| Sekhukhune | Count             | 26           | 42     | 42     | 30     | 13     | 25     | 178    |
|            | % within District | 14.6%        | 23.6%  | 23.6%  | 16.9%  | 7.3%   | 14.0%  | 100.0% |
|            | % within Threat   | 16.0%        | 14.2%  | 20.0%  | 14.6%  | 17.3%  | 22.1%  | 16.8%  |
| Waterberg  | Count             | 22           | 35     | 17     | 36     | 8      | 20     | 138    |
|            | % within District | 15.9%        | 25.4%  | 12.3%  | 26.1%  | 5.8%   | 14.5%  | 100.0% |
|            | % within Threat   | 13.6%        | 11.9%  | 8.1%   | 17.6%  | 10.7%  | 17.7%  | 13.0%  |
| Other      | Count             | 59           | 75     | 38     | 31     | 21     | 22     | 246    |
|            | % within District | 24.0%        | 30.5%  | 15.4%  | 12.6%  | 8.5%   | 8.9%   | 100.0% |
|            | % within Threat   | 36.4%        | 25.4%  | 18.1%  | 15.1%  | 28.0%  | 19.5%  | 23.2%  |
| Total      | Count             | 162          | 295    | 210    | 205    | 75     | 113    | 1060   |
|            | % within District | 15.3%        | 27.8%  | 19.8%  | 19.3%  | 7.1%   | 10.7%  | 100.0% |
|            | % within Threat   | 100.0%       | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

#### 4.1.7 Length of Stay Distribution

During the period under study a total of 475 MHCUs (44.8%) had a length of stay of one year or more. The district, "Other" was mostly affected with a percentage of 54.9% of its total count.



A



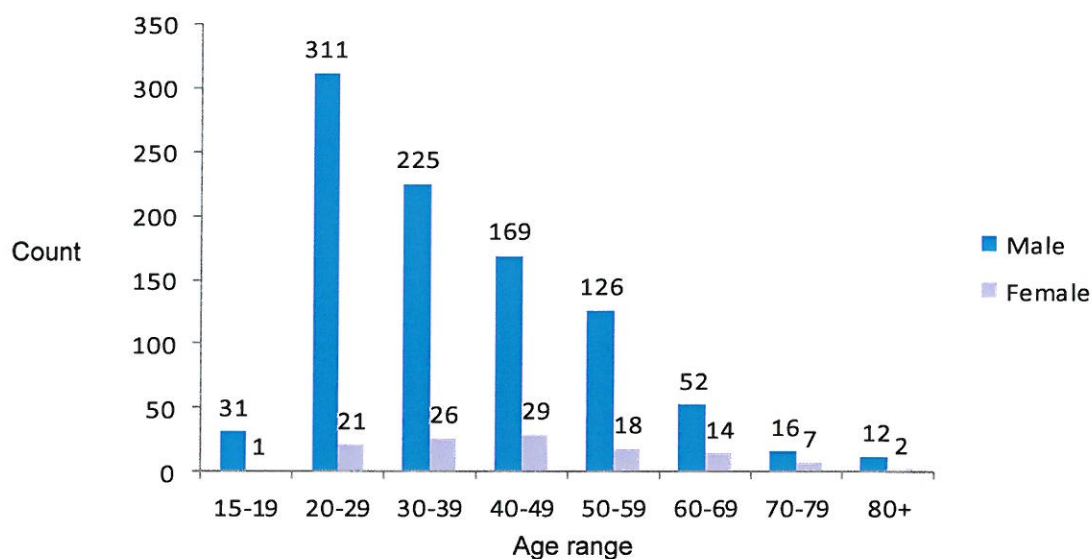
B

**Figure 4.4:** Length of Stay distribution of MHCUs residing at Thabamoo Hospital between 2007 and 2009. A: Long and short stay distributions of patients per district. B: Distribution of long stay patients per district during the study period. Other: Districts within Limpopo Province excluding Capricorn, Sekhukhune and Waterberg.

## 4.2 Demographic Profile

### 4.2.1 Age and Gender Distribution

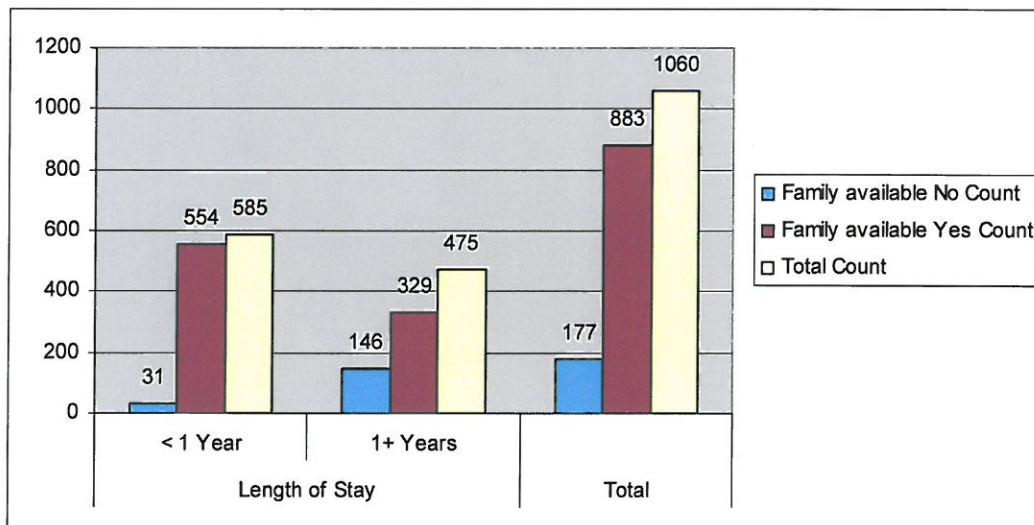
Figure 4.2.1 indicates that out of a total of 942 male MHCUs that were admitted to the hospital during the study period, 33% (311) were aged between 20 and 29 years. On the other hand, the female age group with the most admissions was that between 40 and 49 years, making up 24.6% of the total female patient population. The group that contributed the least was above 80 years of age. The age distributions in the genders differed significantly (Mann–Whitney  $U = 4.309$ ,  $p < 0.005$ ).



**Figure 4.5:** Age and gender distribution of all the MHCUs residing at Thabamooopo Hospital between 2007 and 2009.

#### 4.2.2 Family Availability and Length of Stay Distribution

The study indicated that 16.7% of the admitted MHCUs did not have any available record of family. Of this total 17.5%, had hospital a stay of less than a year and 82.5% stayed for a year or more. It is also found that 83.3% had families. From the group that had families 62.7 had a hospital stay of less than a year and 37.3% stayed for a year or more. A chi-square test of independence was performed to determine if an association exists between family availability and length of stay of MHCUs. A significant relation between these variables was observed,  $\chi^2 (1, N = 1060) = 112.5176, p < 0.005$ . Patients with families did, indeed, spend less than one year in the hospital.



**Figure 4.6:** Relationship between family availability and the length of stay of MHCUs residing at Thabamoopo Hospital between 2007 and 2009.

<1 Year: short stay MHCUs.

1+ Years: long stay MHCUs.

### 4.2.3 Family Availability and Substance Abuse Distribution

Of the MHCUs found to be substance abusers, 5.5% did not have families while 94.5% were reported to have some form of family availability and/ or relationship. A total of 74.5% of patients with no history of substance abuse were found to have families (Fig. 4.2.3).

**Table 4.5:** Family relationship and substance abuse distribution of MHCUs residing at Thabampoopo Hospital between 2007 and 2009.

|                        |                                 |                                 | Substance abuse |        | Total  |
|------------------------|---------------------------------|---------------------------------|-----------------|--------|--------|
|                        |                                 |                                 | No              | Yes    |        |
| Relationship available | No                              | Count                           | 151             | 26     | 177    |
|                        |                                 | % within Relationship available | 85.3%           | 14.7%  | 100.0% |
|                        |                                 | % within Substance abuse        | 25.5%           | 5.5%   | 16.7%  |
|                        | Yes                             | Count                           | 440             | 443    | 883    |
|                        |                                 | % within Relationship available | 49.8%           | 50.2%  | 100.0% |
|                        |                                 | % within Substance abuse        | 74.5%           | 94.5%  | 83.3%  |
| Total                  | Count                           | 591                             | 469             | 1060   |        |
|                        | % within Relationship available | 55.8%                           | 44.2%           | 100.0% |        |
|                        | % within Substance abuse        | 100.0%                          | 100.0%          | 100.0% |        |

**Table 4.6:** Table depicting the relationship between family availability and substance abuse by MHCUs residing at Thabampoopo Hospital between 2007 and 2009.

|                  |                           |                           | Substance abuse |        | Total  |
|------------------|---------------------------|---------------------------|-----------------|--------|--------|
|                  |                           |                           | No              | Yes    |        |
| Family available | No                        | Count                     | 150             | 27     | 177    |
|                  |                           | % within Family available | 84.7%           | 15.3%  | 100.0% |
|                  |                           | % within Substance abuse  | 25.4%           | 5.8%   | 16.7%  |
|                  | Yes                       | Count                     | 441             | 442    | 883    |
|                  |                           | % within Family available | 49.9%           | 50.1%  | 100.0% |
|                  |                           | % within Substance abuse  | 74.6%           | 94.2%  | 83.3%  |
| Total            | Count                     | 591                       | 469             | 1060   |        |
|                  | % within Family available | 55.8%                     | 44.2%           | 100.0% |        |
|                  | % within Substance abuse  | 100.0%                    | 100.0%          | 100.0% |        |

### **4.3 Clinical Profile**

#### **4.3.1 Diagnosis and Admission Distribution**

Table 4.3.1 indicates that during the period under study 48.3% of the MCHUs at Thabamopo hospital were diagnosed with schizophrenia, which accounted for 48.9% and 46.7% of the total new admissions and readmissions respectively. The table also indicates that in every hundred of the admitted MHCUs with schizophrenia seventy five and twenty five would be new admission and readmission respectively. The association of diagnosis and admission was shown to be statistically significant in the chi-squared test, with a p-value less than 0.005.

Substance abuse is also found to be the second highest contributor to the total admissions and readmissions with 20.9% and 29.2% respectively accounting for 23%. Of the 23%, the MHCUs that were newly admitted and readmitted formed 67.2% and 32.8% respectively.

The third highest condition is mental retardation with 10.1%. It was found that out of 10.1%, the MHCUs that were admitted as new were 94.4%.

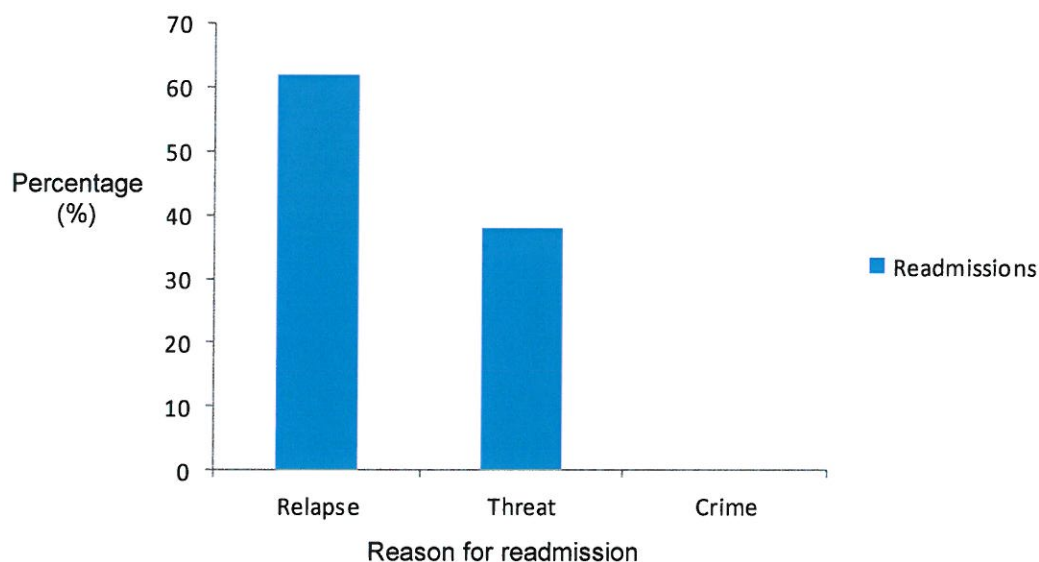
Following mental retardation is mood disorder with 82% and 11.7% of the total admissions and readmissions respectively.

**Table 4.7:** Diagnosis and admission distribution of MHCUs residing at Thabamooopo Hospital between 2007 and 2009.

| Diagnosis Code            |                         | New Admission | Re-admission | Total       |
|---------------------------|-------------------------|---------------|--------------|-------------|
| Organic MD                | Count                   | 18            | 10           | 28          |
|                           | % within Diagnosis Code | 64.3%         | 35.7%        | 100.0%      |
|                           | % within Admission      | 2.3%          | 3.6%         | 2.6%        |
| Psych Substance           | Count                   | 164           | 80           | 244         |
|                           | % within Diagnosis Code | 67.2%         | 32.8%        | 100.0%      |
|                           | % within Admission      | 20.9%         | 29.2%        | 23.0%       |
| Schizophrenia             | Count                   | 384           | 128          | 512         |
|                           | % within Diagnosis Code | 75.0%         | 25.0%        | 100.0%      |
|                           | % within Admission      | 48.9%         | 46.7%        | 48.3%       |
| Mood Disorders            | Count                   | 50            | 32           | 82          |
|                           | % within Diagnosis Code | 61.0%         | 39.0%        | 100.0%      |
|                           | % within Admission      | 6.4%          | 11.7%        | 7.7%        |
| Neurotic Soma             | Count                   | 36            | 6            | 42          |
|                           | % within Diagnosis Code | 85.7%         | 14.3%        | 100.0%      |
|                           | % within Admission      | 4.6%          | 2.2%         | 4.0%        |
| Physiological             | Count                   | 5             | 0            | 5           |
|                           | % within Diagnosis Code | 100.0%        | 0%           | 100.0%      |
|                           | % within Admission      | 0.6%          | 0%           | 0.5%        |
| Adult Personality         | Count                   | 1             | 2            | 3           |
|                           | % within Diagnosis Code | 33.3%         | 66.7%        | 100.0%      |
|                           | % within Admission      | 0.1%          | 0.7%         | 0.3%        |
| Mental Retardation        | Count                   | 101           | 6            | 107         |
|                           | % within Diagnosis Code | 94.4%         | 5.6%         | 100.0%      |
|                           | % within Admission      | 12.8%         | 2.2%         | 10.1%       |
| Psychological Development | Count                   | 2             | 0            | 2           |
|                           | % within Diagnosis Code | 100.0%        | 0%           | 100.0%      |
|                           | % within Admission      | 0.3%          | 0%           | 0.2%        |
| Childhood/Adolescent      | Count                   | 4             | 0            | 4           |
|                           | % within Diagnosis Code | 100.0%        | 0%           | 100.0%      |
|                           | % within Admission      | 0.5%          | 0%           | 0.4%        |
| Unspecified               | Count                   | 21            | 10           | 31          |
|                           | % within Diagnosis Code | 67.7%         | 32.3%        | 100.0%      |
|                           | % within Admission      | 2.7%          | 3.6%         | 2.9%        |
| <b>Total</b>              | Count                   | <b>786</b>    | <b>274</b>   | <b>1060</b> |
|                           | % within Diagnosis Code | 74.2%         | 25.8%        | 100.0%      |
|                           | % within Admission      | 100.0%        | 100.0%       | 100.0%      |

#### 4.3.2 Reason for Readmission

A total of 274 MHCUs of the 1060 patients admitted at Thabamooopo Hospital during this study were recorded as re-admissions. Figure 4.7 shows that of this total, 62% of these readmissions were due to relapse and 38% were readmitted because they were viewed as threats to their communities. These values were statistically significant, with  $p < 0.005$  in the chi-squared test.



**Figure 4.7:** Graph representing the reasons leading to readmission of discharged patients admitted to Thabamooopo Hospital between 2007 and 2009.

#### **4.3.3 Diagnosis and Length of Stay Distribution**

Out of a total of 475 of MHCUs that had a length of stay of a year and more, schizophrenia, mental retardation and substance-induced psychosis accounted for a statistically significant 86.3% distributed as 56%, 21.7% and 8.6% respectively, with a  $p < 0.005$  in the chi-squared test. The other conditions combined represented only 13.7% of the long stay MHCUs (Table 4.8).

**Table 4.8:** Diagnosis and long-stay distribution of MHCUs residing at Thabamoo Hospital between 2007 and 2009.

| Diagnosis Code            | Number and percentage of Long Stay MHCUs |        |
|---------------------------|------------------------------------------|--------|
| Organic MD                | Count                                    | 11     |
|                           | % within Diagnosis Code                  | 39.3%  |
|                           | % within Length of Stay                  | 2.3%   |
| Psych Substance           | Count                                    | 41     |
|                           | % within Diagnosis Code                  | 16.8%  |
|                           | % within Length of Stay                  | 8.6%   |
| Schizophrenia             | Count                                    | 266    |
|                           | % within Diagnosis Code                  | 52.0%  |
|                           | % within Length of Stay                  | 56.0%  |
| Mood Disorders            | Count                                    | 15     |
|                           | % within Diagnosis Code                  | 18.3%  |
|                           | % within Length of Stay                  | 3.2%   |
| Neurotic Soma             | Count                                    | 30     |
|                           | % within Diagnosis Code                  | 71.4%  |
|                           | % within Length of Stay                  | 6.3%   |
| Physiological             | Count                                    | 3      |
|                           | % within Diagnosis Code                  | 60.0%  |
|                           | % within Length of Stay                  | 0.6%   |
| Adult Personality         | Count                                    | 1      |
|                           | % within Diagnosis Code                  | 33.3%  |
|                           | % within Length of Stay                  | 0.2%   |
| Mental Retardation        | Count                                    | 103    |
|                           | % within Diagnosis Code                  | 96.3%  |
|                           | % within Length of Stay                  | 21.7%  |
| Psychological Development | Count                                    | 1      |
|                           | % within Diagnosis Code                  | 50.0%  |
|                           | % within Length of Stay                  | .2%    |
| Childhood/Adolescent      | Count                                    | 0      |
|                           | % within Diagnosis Code                  | 0%     |
|                           | % within Length of Stay                  | 0%     |
| Unspecified               | Count                                    | 4      |
|                           | % within Diagnosis Code                  | 12.9%  |
|                           | % within Length of Stay                  | 0.8%   |
| <b>Total</b>              | Count                                    | 475    |
|                           | % within Diagnosis Code                  | 44.8%  |
|                           | % within Length of Stay                  | 100.0% |

#### 4.3.4 Diagnosis and Forensic History Distribution

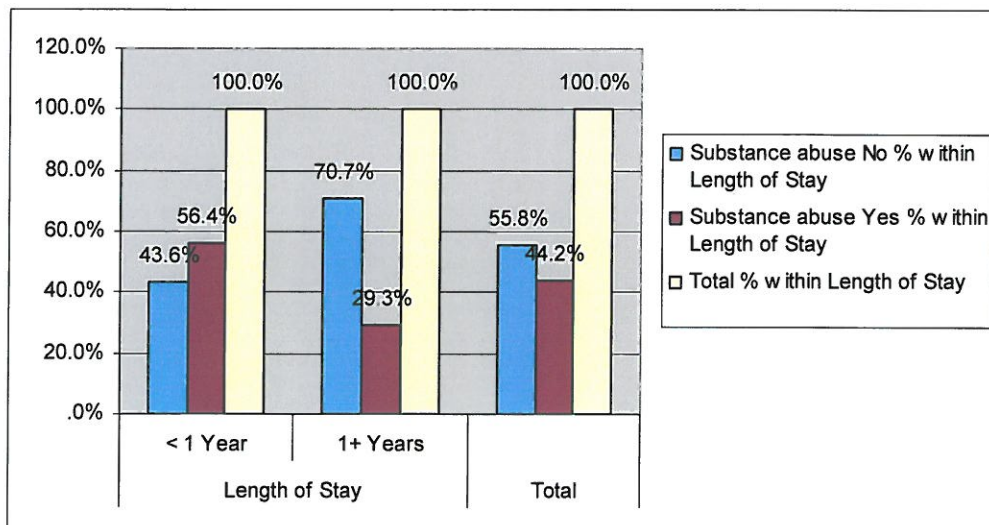
During the study period 24% of the MHCUs were diagnosed with an element of forensic history. Table 4.9 indicates that the three main contributing diagnoses were schizophrenia (53.2%), substance-induced psychosis (28.3%) and mood disorder (5.9%). With  $p < 0.005$  in the chi-squared test, the likelihood of MHCUs to commit crime was shown to depend on the type of diagnosis.

**Table 4.9:** Diagnosis and forensic history distribution of MHCUs residing at Thabamopo Hospital between 2007 and 2009.

| Diagnosis Code             |                           | Forensic.history |        | Total  |
|----------------------------|---------------------------|------------------|--------|--------|
|                            |                           | No               | Yes    |        |
| Organic MD                 | Count                     | 17               | 11     | 28     |
|                            | % within Forensic.history | 2.1%             | 4.6%   | 2.6%   |
| Psych Substance            | Count                     | 177              | 67     | 244    |
|                            | % within Forensic.history | 21.5%            | 28.3%  | 23.0%  |
| Schizophrenia              | Count                     | 386              | 126    | 512    |
|                            | % within Forensic.history | 46.9%            | 53.2%  | 48.3%  |
| Mood Disorders             | Count                     | 68               | 14     | 82     |
|                            | % within Forensic.history | 8.3%             | 5.9%   | 7.7%   |
| Neurotic Soma              | Count                     | 37               | 5      | 42     |
|                            | % within Forensic.history | 4.5%             | 2.1%   | 4.0%   |
| Physiological              | Count                     | 4                | 1      | 5      |
|                            | % within Forensic.history | 0.5%             | 0.4%   | 0.5%   |
| Adult Personality          | Count                     | 3                | 0      | 3      |
|                            | % within Forensic.history | 0.4%             | 0%     | 0.3%   |
| Mental Retardation         | Count                     | 104              | 3      | 107    |
|                            | % within Forensic.history | 12.6%            | 1.3%   | 10.1%  |
| Psychological Development. | Count                     | 1                | 1      | 2      |
|                            | % within Forensic.history | 0.1%             | 0.4%   | 0.2%   |
| Childhood/Adolescent       | Count                     | 3                | 1      | 4      |
|                            | % within Forensic.history | 0.4%             | 0.4%   | 0.4%   |
| Unspecified                | Count                     | 23               | 8      | 31     |
|                            | % within Forensic.history | 2.8%             | 3.4%   | 2.9%   |
| <b>Total</b>               | Count                     | 823              | 237    | 1060   |
|                            | % within Forensic.history | 100.0%           | 100.0% | 100.0% |

#### 4.3.5 Substance Abuse and Length of Stay Distribution

During study period, only 29.3% of long stay MHCUs in the hospital was found to be abusing various substances, illustrated below in Fig. 4.8. Most of the MHCUs that were substance-abusers had been residing in the hospital for less than a year, accounting for 56.4% of the short stay MHCUs. A chi-square test of independence was performed to determine if an association exists between substance abuse and length of stay of MHCUs. A significant relation between these variables was observed, with  $p < 0.005$ . Substance abuse and length of stay are not independent of each other.



**Figure 4.8:** Substance abuse and length of stay distribution of MHCUs residing at Thabamooop Hospital between 2007 and 2009.

#### 4.3.6 Forensic History and Substance Abuse Distribution

Table 4.10 indicates that during the study period, 22.4% of the MHCUs from a total of 1060 were found to be having an element of forensic history; and 44.2% of MHCUs had a problem of substance abuse. Of these patients with forensic histories, 63.7% also had history of substance abuse. Mental Health Care Users with an element of forensic history accounted for 32.2% on the total of MHCUs that abuse various substances. A chi-square test of independence was performed to evaluate the relationship between substance abuse and forensic history of MHCUs. Substance abuse and forensic history were shown not to be independent of each other, with  $p < 0.005$ .

**Table 4.10:** Forensic history and substance abuse distribution of MHCUs residing at Thabamoo Hospital between 2007 and 2009.

|                  |                           |                           | Substance abuse |        | Total  |
|------------------|---------------------------|---------------------------|-----------------|--------|--------|
|                  |                           |                           | No              | Yes    |        |
| Forensic.history | No                        | Count                     | 505             | 318    | 823    |
|                  |                           | % within Forensic.history | 61.4%           | 38.6%  | 100.0% |
|                  |                           | % within Substance abuse  | 85.4%           | 67.8%  | 77.6%  |
|                  | Yes                       | Count                     | 86              | 151    | 237    |
|                  |                           | % within Forensic.history | 36.3%           | 63.7%  | 100.0% |
|                  |                           | % within Substance abuse  | 14.6%           | 32.2%  | 22.4%  |
| Total            | Count                     | 591                       | 469             | 1060   |        |
|                  | % within Forensic.history | 55.8%                     | 44.2%           | 100.0% |        |
|                  | % within Substance abuse  | 100.0%                    | 100.0%          | 100.0% |        |

#### 4.3.7 Forensic History and Length of Stay

From the table below it is indicated that 22.4% of the MHCUs had an element of forensic history. From this percentage 65% had a hospital stay of less than a year and 35% stayed for more than a year. Mental Health Care Users with an element of forensic history accounted for 17.5% to the total count of the MHCUs that had a year and more of stay at the hospital; and 26.3% to the total count of the MHCUs that had a stay of less than a year. From the chi-square test, no correlation was shown to exist between forensic history and length of stay of MHCUs at Thabamoopo Hospital during the study period,  $p = 0.049$ .

**Table 4.11:** Forensic history and length of stay distribution of MHCUs residing at Thabamoopo Hospital between 2007 and 2009.

|                  |                           |                           | Length of Stay |          | Total  |
|------------------|---------------------------|---------------------------|----------------|----------|--------|
|                  |                           |                           | < 1 Year       | 1+ Years |        |
| Forensic.history | No                        | Count                     | 431            | 392      | 823    |
|                  |                           | % within Forensic.history | 52.4%          | 47.6%    | 100.0% |
|                  |                           | % within Length of Stay   | 73.7%          | 82.5%    | 77.6%  |
|                  | Yes                       | Count                     | 154            | 83       | 237    |
|                  |                           | % within Forensic.history | 65.0%          | 35.0%    | 100.0% |
|                  |                           | % within Length of Stay   | 26.3%          | 17.5%    | 22.4%  |
| Total            | Count                     |                           | 585            | 475      | 1060   |
|                  | % within Forensic.history |                           | 55.2%          | 44.8%    | 100.0% |
|                  | % within Length of Stay   |                           | 100.0%         | 100.0%   | 100.0% |

## CHAPTER 5

### DISCUSSION AND CONCLUSION

#### 5.1 Geographic Profile and Mental Health Care Users

Thabamooopo Hospital is within reach of most of the Capricorn sub-districts and Fig. 4.1 and Fig. 4.2 highlighted that, indeed, a large proportion of the patient population of this hospital comes from the Capricorn district. This finding implies that the Capricorn district communities are aware of the existence of the hospital and the service it offers. It may be concluded that there is ownership of the hospital by the Capricorn District residents.

According to Table 4.2 more than 50% of the MHCUs that received disability grants were shown to be residents of the Capricorn district. The study did not establish the reason behind this, however, it may be attributed to the fact that it is easier for patients from the Capricorn district to apply for and obtain disability grants as the Department of Health and Social Development Head Office is based in Polokwane, a city situated in the Capricorn district.

It is interesting to note that the ratio of substance-abusing MHCUs to those who did not use any substances was almost 1:1 within patients admitted from Capricorn, Sekhukhune as well as the Waterberg districts (Table 4.3). However, 52% of the substance-abusing MHCUs in the hospital were residents of the Capricorn district. This is because Capricorn District alone accounted for 50% of the total MHCU count (Table 4.1). Considering that the Capricorn district is more urban than Sekhukhune and Waterberg districts, this outcome agrees with the finding by Lauber *et al.* (2006) that the number of homeless people is higher in urban areas. Their study further indicated that the homeless are more prone to illegal substance abuse (Lauber *et al.*, 2006). In addition, Minister Theuns Botha stated that 51% of psychiatry admissions at New Somerset in the Western Cape,

one of the most urbanized parts of South Africa, are substance abuse related (Anonymous, 2011). Both these studies rationalize the observation that half of the substance-abusing patients within the Thabamoopo Hospital population are from an urbanized part of Limpopo province.

A previous study that examined the incidence and characteristics of readmission of patients to the State Hospital showed the rate of readmission was 22.3% (Duncan *et al.*, 2002). This revelation concurs with the results of similar studies by other researchers. In this study, all the districts were found to be affected by readmission, scoring a total of 25.85%. It is, however, necessary to highlight that 63% of these readmissions were from the Capricorn district alone (Fig. 4.2). Lauber *et al.* (2006) found that homeless drifters and substance abuse are both concentrated in urban areas. Therefore it may be concluded that urbanization contributed to the high rate of readmission.

Figure 4.3 indicates that all districts had MHCUs with forensic history. Notwithstanding the high percentages in both Sekhukhune and Waterberg districts, being implicated in unlawful acts is independent of the geographical area an MHCU comes from. Similarly the element of MHCU being a danger to oneself or others is independent of the geographical area. Particular behaviours of note (violence, fire-setting or self harm) cannot be pinned to any specific district (Table 4.4).

In all the districts except Capricorn, the percentage of MHCUs that stayed at the hospital for more than a year was no less than 40%, illustrated by Fig. 4.4. The absence of psychiatric hospitals and/or psychiatric wards in general hospitals in the Sekhukhune and Waterberg districts is a probable reason for patients from these two districts remaining in the hospital for periods exceeding one year. The effectiveness of the Departmental referral Policy was not examined in this study.

Given the discussion above, it may be concluded that geography does play a role considering the fact that the districts that are served by Thabamooopo Hospital differ in their degrees of rurality and the proximity to certain services.

## **5.2 Demographic Profile and Mental Health Care Users**

The results of this study demonstrate that between 2007 and 2009, the male MHCUs admitted at Thabamooopo Hospital dominated the females by a large margin (Figs. 4.1 and 4.5). It is also evident that the middle aged MHCUs (20-49 years) and those between 50 and 59 years used the hospital more than the other age groups. In a study titled "Hospital Readmission for Patients with Mental Illness in Canada", Madi et al (2007) indicated that age group 25-44 and 45-64 accounted for 37.5% and 38.8% readmission rates respectively over a period of one year. This finding corresponds with the finding from Thabamooopo Hospital. The study did not establish the reason behind the high rate of use of the psychiatric services by these particular age groups. It may, however, be presumed that it is at these ages where one experiences many of life's challenges that can lead to mental instability. At 20 years, many individuals exit tertiary institutions and enter the world of employment. For some, this may cause anxiety, depression, or increased excitement leading to involvement in activities that may result in disturbances of the psyche. Contrastingly, one may be unable to obtain employment which could also culminate in a depressed state of being. Then as an individual reaches 30, marriage and family life may take a toll on him/her, as there is a great degree of responsibility one has to shoulder once they begin having children. Pressure on the work front compounded to that at home could be a major driving force behind the high rate of admission and readmission of individuals between 20 and 60 years observed at Thabamooopo Hospital. Unfortunately, this could not be verified as patients were not interviewed for this study for ethical reasons.

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Figure 4.6 revealed that out of a total of 177 MHCUs that were without families, 82.5% had a hospital stay of a year and more. Of the 1060 MHCUs, 883 had

families and only 37.3% thereof had a length of stay of a year and above. According to this study, the availability of family and the length of a patient's stay at the hospital are not independent of one another. It is therefore correct to state that homeless MHCUs stay for longer periods at the hospital compared to patients with families.

Substance abuse, or drug/ alcohol misuse as referred to by some of the researchers, is one of the predictors of increased readmission and prolonged stay of MHCUs at psychiatric hospitals (Bernardo *et al.*, 2001; Madi *et al.*, 2007; Tulloch, *et al.*, 2008; Valevski, *et al.*, 2007). In this study it was found that the homeless (no family) and those with no reported family relationships were the least affected by substance abuse (Tables 4.5 and 4.6). Of a total 177 MHCUs that were found to have no families, 15.3% was recorded as abusing some form of intoxicating substance. It is important to note that many of the homeless MHCUs were not dischargeable because they had no place to go to. For that reason, these individuals did not have access to intoxicating substances. Interestingly, Table 4.5 shows that the percentage of substance-abusing MHCUs with families is virtually the same as those MHCUs that are not affected by substance abuse. This study suggests that there is no relationship between family availability and substance abuse.

### **5.3 Clinical Profile and Mental Health Care Users**

From this study, schizophrenia was found to be the leading admission diagnostic category. It contributed more than the other conditions to MHCU load, readmission as well as to the long stay of patients in the hospital (Table 4.7). This finding is no different from findings by other researchers (Bernardo, *et al.*, 2001; Grinshpoon *et al.*, 2003; Madi *et al.*, 2007; Tulloch *et al.*, 2008; Valevski *et al.*, 2007; Patrick *et al.*, 2006;). Madi *et al* (2007) argues that variations in the probability of readmission were evident not only across age and length of stay, but also across diagnosis categories. In his study it was found that readmission

probability was highest among patients diagnosed with schizophrenia and personality disorder.

The second highest contributor to the hospital patient load was substance abuse, accounting for 23% of the total admissions. This revelation agrees with the studies by researchers such as Bernardo, *et al.*, 2001; Madi *et al.*, 2007; Tulloch *et al.*, 2008 and Valevski *et al.*, 2007. For every 100 MHCUs readmitted to the hospital, roughly 30 of them were found to be abusing intoxicating substances. It can be concluded that substance abuse is also a factor towards readmission.

Mental retardation, also termed intellectual disability, was found to be the third major diagnosis contributing to admission of MHCUs. The 2.2% readmission rate suggests that a very small number of mentally retarded individuals are dischargeable after their initial admission. It further suggests that the majority of MHCUs suffering from intellectual disability have long stay that could lead to institutionalization.

Mood disorder accounted for 82% and 11.7% of the total admissions and readmissions respectively, corresponding with findings by Madi *et al.*, (2007). This investigation argues that people with personality and/ or mood disorder are amongst the high frequency users of psychiatric services. In a similar study by Bernardo *et al.*, (2001) it was found that mood disorder was the fourth highest cause of readmission in mental health care institutions. It can be concluded therefore that mood disorder as a condition, among others, contributing significantly to the readmission of MHCUs.

The revolving door phenomenon which relates very well with high frequency use of psychiatric services and readmission is viewed in the context of the increased burden of care on families and/ or relatives of MHCUs (Botha *et al.*, 2010). The readmission of MHCUs is a consequence of numerous factors, but is mostly attributed to relapse, threat of the patient to society/community and violent or

criminal acts by the MHCUs leading to arrest. Figure 4.7 shows that the leading cause for readmissions at Thabamopo Hospital between 2007 and 2009 was relapse, followed by fear of MHCUs by the communities with which they interact. On the other hand, a previous study by Duncan *et al.* (2002) indicates that violence was the most common reason for readmission of patients in that particular study. It is common knowledge that a relapse often aggravates the violent behaviour of a MHCUs. As a sequel of that the MHCUs will be feared by the public. The disparity between this study and the one conducted by Duncan *et al.*, (2002) suggests that the MHCUs readmitted to Thabamopo Hospital are brought in before their deteriorating conditions result in violent conduct. Furthermore, this also portrays the probability that some of the readmitted MHCUs come from solid families, where it is possible that their relapse is noticed by a family member in advance. However, the relationship between family availability and relapse was not investigated in this study and further evaluation should be undertaken to assess the dependence of these variables on each other.

This study found that the length of stay, substance abuse, forensic history and violent behaviour are dependent of one another. Substance abuse is one of the predictors of increased readmission and long stay of MHCUs. The findings in this study contradict those found by Tulloch *et al.*, (2008). The low count of substance abusers admitted to Thabamopo for periods exceeding 12 months is due to non-availability of these particular substances during the period of admission and the control measures taken by the hospital to ensure that no substance enters the gate of the hospital (hospital responsibility and accountability).

#### **5.4 RECOMMENDATIONS**

These recommendations are based on the findings of this study as well as the experience of other countries. It is a fact that mental health care is undergoing a revolution in other countries and continents (Leff, 2002; Priebe *et al.*, 2003), and South Africa will not be an exception (Lund and Flisher, 2003).

In order to effectively abandon the “dustbin” approach as referred to by Leff (2002) and Bilchik (2005) where MHCUs are just dumped and forgotten in mental health care institutions, authorities have to adopt the psychiatric revolution (care in the community).

The South African government is moving towards complete de-institutionalization of MHCUs. Long stay patients will definitely fail this initiative. As a long term solution to address the problem of long stay MHCUs and high frequency users of the psychiatric services there is a need for the Limpopo Province's Department of Health to develop community centers where MHCUs can be adequately taken care of. This initiative will alleviate the burden of the cost as well trained community care givers other than health professionals will be responsible for looking after MHCUs. The relocation of the MHCUs from a hospital to a community centre as indicated by Leff (2002) is never easy. The most efficient way of implementing a relocation strategy would be to begin with the healthiest candidates, as they have a better chance of surviving in their communities without constant relapse.

While the Department of Health may be exploring long-term solutions, there is a desperate need to address the issue of long stay and high frequency users of the mental health services (recurrent admissions). From this study it is evident that there is an association amongst variables such as substance abuse, homelessness, length of stay, forensic history, urbanization, diagnosis, relapse and re-admission of MHCUs. It is thus recommended that the Department of Health in collaboration with its sister departments (Education, Home Affairs, Social Development, South African Police Services, Human Settlement and Correctional Services) and the community prioritize mental health. Through the Department of Education learners can be made aware of the dangers of substance abuse; while the Departments of Home Affairs, Social Development and Correctional Services can increase their efforts at tracing and locating

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relatives of unidentified MHCUs. The Department of Human Settlement should also make providing housing a serious priority.

Involvement of the community at large and other stake holders such as home-base care givers, non-governmental organizations and the media is imperative. This will strengthen home treatment of MHCUs, and early intervention if a patients relapses. The use of depot medicine, as recommended by some researchers, may also be of assistance regarding patient compliance with medication.

Thabamoopo Hospital does not have an electronic patient filing system, hence it was time consuming and also difficult to find MHCUs' information. The chances of a MHCU to have more than one file are high. It is therefore recommended that an electronic filing system being installed as matter of urgency.

ANNEXURE A

DATA COLLECTION TEMPLATE

## 8.2. Data collection sheet

Annexure A

Audit of long stay mental health care users at Thabamopo Psychiatric Hospital during a three year period, 2007 to 2009.

Key: Y= Yes, N= No, UN= Unspecified

MHCU NO .....

1. Age (Actual)  2. Gender  Male =1/Female=2
3. District  Capricorn=1/Sekhukhune=2/Waterberg=3/Other or Unknown=4
4. Family Abode  Y=1/N=2 5. Receiving Disability Grant  Y=1/N=2
6. ID Availability  Y=1/N=2 7. Family Availability  Y=1/N=2/UN=3
8. Relationship to MHCU  Biological=1/Distant=2
9. Recurrent Admission  Less than 3=1/ 3 and more 3=2
10. Reason for Admission  Social=1/Medical=2/Other=3
11. Length of Stay  Less than 365=1/ 365 and more days=2



12. Diagnosis (ICD10 coding) as

organic, including symptomatic, mental disorder (F00-F09) =1/mental and behavioral disorders due to psychoactive substance use (F10- F19) =2/schizophrenia, schizotypal and delusional disorders (F20-29) =3/mood (affective) disorders (F30-39) =4/neurotic, stress-related and somatoform disorders (F40-49) =5/behavioural syndromes associated with physiological disturbances and physical factors (F50-F59) =6/disorders of adult personality and behaviour (F60-F69) =7/mental retardation (F70-F79) =8/disorders of psychological development (F80-F89) =9/behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98) =10/unspecified mental disorders (F99) =11

13. Presence of Substance Abuse

☐

Y=1/N=2

14. Forensic History

☐

Y=1/N=2

15. Danger to self and/others

☐

Y=1/N=2

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## ANNEXURE B

### AUTHORISATION BY HOSPITAL



PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

Tel: (015) 632 9000  
(015) 632 5469  
(015) 632 4652  
Fax: (015) 632 5205

TO: **HUMAN RESEARCH ETHICS COMMITTEE: (MEDICAL)**

FROM: CLINICAL MANAGER

DATE: 28/07/2010

RE: RESEARCH BY THE CEO, MR. CHOKOE M.E

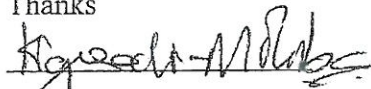
The study to be conducted by the CEO of our hospital will assist the hospital and the Department as a whole to understand among other issues the challenge with regard to the high hospital bed occupancy and high readmission rate. This is informed by the variables that appear on the data collection sheet. The study will benefit the community that uses the hospital if the recommendations of the study are implemented.

All the patients that were resident of the hospital from the 1<sup>st</sup> Jan 2007 to 31<sup>st</sup> Dec 2009 will form the study population. The patients' files and register will be examined and the variables to be measured are:

- Demographic characteristics: age, sex, district of residence and family abode, receiving disability grant, availability of family and relationship to MHCU, in possession of Identification Document.
- Clinical characteristics: recurrent admission and reasons for readmission, diagnosis (ICD10 coding), length of stay, presence of substance abuse, forensic history, level of dangerousness to self and others.

It is on the basis of the above that the clinical staff supports the study in its totality. The University is hereby thanked in advance for assisting in this study.

Thanks

  
CLINICAL MANAGER

DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT  
THABAMOOPO HOSPITAL

The heartland of southern Africa - Development is about people!

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STUDENT NO. 0719145J

## ANNEXTURE C

AUTHORISATION BY THE DEPARTMENT OF HEALTH: LIMPOPO PROVINCE



# LIMPOPO

PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

## DEPARTMENT OF HEALTH & SOCIAL DEVELOPMENT

Enquiries: Selamolela Donald

Ref: 4/2/2

07 February 2011  
Chokoe M  
Thabamooopo Hospital  
Chuenespoort  
0745

Dear Sir

**Re: Permission to conduct the study titled: Audit of long stay mental health care users at Thabamooopo hospital during a three year period 2007-2009**

1. The above matter refers.
2. The permission to conduct the above mentioned study is hereby granted.
3. Kindly be informed that:-
  - Further arrangement should be made with the targeted institutions.
  - In the course of your study there should not be any action that will disrupt the services
  - After completion of the study, a copy should be submitted to the Department to serve as a resource
  - The researcher should be prepared to assist in the interpretation and implementation of study recommendation where possible

Your cooperation will be highly appreciated

A handwritten signature in black ink, appearing to read 'S. Selamolela', written over a horizontal line.

Head of Department  
Health and Social Development  
Limpopo Province

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STUDENT NO. 0719145J

ANNEXURE D  
CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG  
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)  
R14/49 Mr Mmatlou E Chokoe

CLEARANCE CERTIFICATE

M10837

PROJECT

Audit of Long Stay Mental Health Care Users  
at Thabamopo Hospital During a Three Year  
Period, 2007 to 2009

INVESTIGATORS

Mr Mmatlou E Chokoe.

DEPARTMENT

School of Public Health

DATE CONSIDERED

27/08/2010

DECISION OF THE COMMITTEE\*

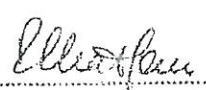
Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE

27/08/2010

CHAIRPERSON

  
(Professor PE Cleaton-Jones)

\*Guidelines for written 'informed consent' attached where applicable  
cc: Supervisor : Dr B Natarajan

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.  
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES...

## 6 REFERENCES

Anonymous. Western Cape Minister Botha. 2011. 51% of psychiatric admissions at New Somerset are substance abuse related. South Africa. MENA Report. London.

Bernardo, A.C., and Forchuk, C. 2001. Factors associated with re-admission to a Psychiatric Facility. *Psychiatric Services*, 52(8):1100-1102.

Bilchik, G.S. 2005. Give psych a home. *Hospital and Health Networks*, 79(2):24-25.

Botha, U.A, Koen, L., Josk,a J.A, Parker, J.S., Horn, N., Hering, L.M. and Oosthuizen, P.P. 2010. The revolving door phenomenon in psychiatry: comparing low-frequency and high-frequency users of psychiatric inpatient services in a developing coutry. *Society of Psychiatric Epidemeology*, 45:461-468.

Bridge, J.A. & Barbe, R.P. 2004. Current evidence: Reducing hospital readmission in depression and schizophrenia. In: *Current Opinion in Psychiatry*. Philadelphia, 17:505.

Burns, N., and Steinberg, J. 2006. A place to call home, a place to recover. *Behavioural Healthcare*, 26(3):30-32.

Cameron, C.L., Birnie, K., Dhama-Wardene, M.W., Raivio, E., and Marriot, B. 2007. Hospital-to-Community Transition: A bridge Program for Adolescent Mental Health Patients. *Journal of Psychosocial Nursing and Mental Health Services*, 45(10):24-30.

CHOKOE M.E  
STUDENT NO. 0719145J

Carr, S., and Murray, R. 1998. Discharged residents' satisfaction with transitional housing for the homeless. *Journal of Psychosocial Nursing and Mental Health Services*, 36(7):27-33.

Duncan, J.M., Short, A., Lewis, J.S. and Barret, P.T. 2002. Re-admissions to the state Hospital at Carstairs, 1992-1997. *Health Bulletin*, 60(1):70-82.

Grinshpoon, A., Shershevsky, Y., Levinson, D. and Ponizovsky, A. Should patients with chronic psychiatric disorders remain in hospital?: Results From a Service Inquiry. *The Israel Journal of Psychiatry and Related Science*, 40(4):268-273.

Gutierrez-Maldonado, J., Caqueo-Urizar, A. and Kavanagh, D.J. 2005. Burden of care and general health in families of patients with schizophrenia. *Society of Psychiatric Epidemiology*, 40:899-904.

Herrman, H. 2008. Mental Disorders among Homeless People in Western Countries. *PLos Med*, 5(12).

Horan, M.E., Muller, J.J., Winocur, S. and Braling, N. 2001. Quality of life in boarding houses and hostels: A resident' perspective. *Community Mental Health Journal*, 37(4):323-334.

Kruger, C. and Lewis, C. 2011. Patient and social work factors related to successful placement of long-term psychiatric inpatients from a specialist psychiatric hospital in South Africa. *African Journal Psychiatry*, 14:120-129.

Leff, J. and Trieman, N. 2000. Long stay patients discharged from psychiatric hospitals: Social and clinical outcomes after five years. *The British Journal of Psychiatry*, 176:217-223.

Leff, J. 2002. The psychiatric revolution: care in the community. *Science and Society*, 3:821-824.

Lauber, C., Lay, B. and Rossler, W. 2006. Homeless people at disadvantage in mental health services. *European Archives of Psychiatry and Clinical Neuroscience*, 256:138-145.

Lund, C and Flisher, A. 2003. Community/hospital indicators in South African public sector mental health services. *The Journal of Mental Health Policy and Economics*, 6:181-187.

Madi, N., Zhao, H. and Fang-Li, J. 2007. Hospital readmissions for patients with mental illness in Canada. *Healthcare Quarterly*, 10(2):30-32.

McInerney, J.S., Finnerty, S., Avalos, G. and Walsh, E. 2010. Better off in the community? A 5-year follow up study of long-term psychiatric patients discharged into the community. *Society of the Psychiatric Epidemiology*, 45:469-473.

Miner, C.R., Rosenthal, R.N., Hellerstein, D.J. and Muenz, L.R. 1997. Prediction of compliance with outpatient referral in patients with schizophrenia and psychoactive substance use disorders. *Archives of General Psychiatry*. 54(8):706-713.

Niehaus, D.J.H., Koen, L., Galal, U., Dhansay, K., Oosthuizen, P.P., Emsley, R.A. and Jordaan, E. 2008. Crisis discharges and readmission risk in acute psychiatric male inpatients. *BioMed Central Psychiatry*, 8(44).

Oshima, I. 2003. Institutionalisation and schizophrenia in Japan: social environment and negative symptoms. *The British Journal of Psychiatry*, 183:50-56.

CHOKOE M.E  
STUDENT NO. 0719145J

Oshima, I. and Mino, Y. 2007. How many long stay schizophrenic patients can be discharged in Japan, *Psychiatry Clinical Neuroscience*, 61(1):71-77.

Owen, C., Rutherford, V., Jones, M., Tennant, C. and Smallman, A. 1997. International update: Psychiatric rehospitalization following hospital discharge. *Community Mental Health Journal*, 33(1)13-25.

Patrick, V., Smith, R.C., Schleifer, S.J., Morris, M.E. and McLennon, K. 2006. Facilitating discharge in state psychiatric institutions: A group intervention strategy. *Psychiatric Rehabilitation Journal*, 29(3):183-186.

Preti, A., Rucci, P., Gigantesco, A., Santone, G., Picardi, A., Miglio, R. and de Girolamo, G. 2009. Patterns of care in patients discharged from acute psychiatric inpatient facility, a national survey in Italy. *Social Psychiatry and Psychiatric Epidemiology*, 44(9):767-776.

Priebe, S. and Turner, T. 2003. Reinstitutionalisation in mental health care. *British Medical Journal*, 326:175-176.

Rabinowitz, J., Lichtenberg, P., Kaplan, Z., Mark, M., Nahon, D. and Davidson, M. 2001. Rehospitalization rates of chronically ill schizophrenic patients discharged on a regimen of risperidone, olanzapine, or conventional antipsychotics. *The American Journal of Psychiatry*, 158(2):266-269.

Ravelli, D.P. 2006. Deinstitutionalisation of mental health care in the Netherlands: towards an integrative approach. *International Journal of Integrated Care*, 6(4).

CHOKOE M.E  
STUDENT NO. 0719145J

Rocca, P., Mingrone, C., Mongini, T., Montemagni, C., Pulvirenti, L., Rocca, G. and Bogetto, F. 2010. Outcome and length of stay in psychiatric hospitalization, the experience of the University Clinic of Turin. *Social Psychiatry and Psychiatric Epidemiology* 45(6):603-610.

Sharfstein, S.S. and Dickerson, F.B. 2009. Hospital psychiatry for the twenty-first century. *Chevy Chase*, 28(3):685-688.

South Africa. Department of Health and Welfare. 1997. White paper for the transformation of health system in South Africa. Pretoria Government Gazette 1997.

South Africa. Department of Health and Welfare. 2001. National Planning Initiative: Strategic Position Statement of the Department of the Health, Northern Province.

South Africa. 2002. Act to consolidate and amend the laws relating to management of people living with mental disability. Pretoria. Government printers. (Act no. 17 of 2002, Mental Health Act, 2002).

South Africa. Department of Health and Social Development. 2005. Project Initiation: Thabamooopo Hospital Health Brief, Limpopo Province.

Taiwo, H., Ladapo, O., Aina, O.F., Lawal, R.A., Adebisi, O.P., Olomu, S.O. and Aina, R.B. 2008. Long stay patients in psychiatric hospital in Lagos, Nigeria. *African Journal of Psychiatry*, 11(2):128-132.

Trieman, N. and Leff, J. 1999. Outcome of long stay psychiatric patients resettled in the community: prospective cohort study. *British Medical Journal*, 319:13-16.

CHOKOE M.E  
STUDENT NO. 0719145J

Tulloch, A.D., Fearon, P. and David, A. S. 2008. The determinants and outcomes of long-stay psychiatric admissions. *Social Psychiatry and Psychiatric Epidemiology*, 43(7):569-575.

Valevski, A., Olfson, M., Wezman, A. and Shiloh, R. 2007. Risk of readmission in compulsorily voluntarily admitted patients. *Social Psychiatry and Psychiatric Epidemiology*, 42(11):916-922.

Vasudeva, S., Kumar., M.N. and Sekhar, K. Duration of first admission and its relation to the readmission rate in a psychiatric hospital. *Indian Journal of Psychiatry*, 51(4):280-284.

Walker, S.A. and Eagles, J. 2002. Discharging psychiatric patients from hospitals. *The Psychiatrist*, 26:241-242.

Zahid, M.A., Abdul-Razik, A. and Alifido, A. 2001. Long stay psychiatric patients in Kuwait: Assessment of their need. *The Kuwait Medical Journal*, 33(1):33-37.

Zhang, J., Harvey, C. and Andrew, C. 2011. Factors associated with length of stay and the risk of readmission in an acute psychiatric inpatient facility: a retrospective study. *Australian and New Zealand Journal of Psychiatry*, 45(7):578-585.