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LENGTH OF STAY AND THE INFLUENCE OF SPECIFIC FACTORS AT TARA - THE H MOROSS CENTRE

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, in partial fulfillment of the requirements for the degree of Master of Public Health in the field of Hospital Management

Johannesburg, 2010

DECLARATION

I, Florence Awino Otieno, declare that this research report is my own work. It is being submitted for the degree of Master of Public Health in the field of Hospital Management at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or for any examination at this or any other University.

……

May 2011

DEDICATION

To my loving parents who laid the foundation for what I am today.

To my long term friend and husband Fred –“Faith makes all things possible, Love makes all things worthwhile” Unknown author.

To my children Grace, Sheila and Kevin – “As important as your past is, it is not as important as the way you see your future”, John C. Maxwell.

ABSTRACT

Background: General public hospitals in South Africa are currently overloaded with psychiatric patients who cannot be transferred to specialised psychiatric hospitals because of lack of beds. Identification of factors influencing bed occupancy could be used to model ideal referral systems for psychiatric patients. There has been no known study conducted in the specialised psychiatric hospitals in South Africa to assess patient profiles since the implementation of the Mental Health Care Act of 2002. This study was planned to determine the length of stay in a psychiatric hospital in Gauteng Province and to identify factors that could influence the length of stay in that hospital.

Aims: To determine the length of stay in specialty units and the influence of specific factors on length of stay at the Tara - the H Moross Centre, during a one-year period.

Methodology: This was a cross sectional study which involved the analysis of retrospective data for a one-year period. This data is routinely collected by the Hospital. Variables included age, gender, ethnicity, marital status, employment status, medical aid utilisation, education level, hospital classification, unit of admission, access to hospital, source of referral, season, frequency of admissions, medico-legal status, and length of stay. Descriptive statistics was used to analyse the data. Permission was obtained from the Gauteng Department of Health and Social Development, and the University of the Witwatersrand Ethics and Postgraduate Committees.

Results: The findings indicate that most patients stay in Tara for 49 (29-78) days, which is in keeping with the expectation of this hospital, which is an acute to medium term psychiatric hospital. Significant differences in gender, ethnicity, marital status, employment status, medical AID status and hospital classification

among different wards was established. The clinical profile was predominantly biochemical related disorders from public tertiary and public secondary hospitals reflecting the under privileged groups in the population. Social demographic factors and clinical profiles were found to significantly influence the LOS. Gender, ethnicity, employment status, and source of referral were more influential.

Conclusion: A follow up study could look at the readmission rates of these patients who stay in the hospital for this short period to determine if the rehabilitation programmes are indeed effective or the patients are being discharged prematurely only to be readmitted.

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GLOSSARY OF TERMS

Bed Occupancy rate: Bed occupancy rate will be calculated as the proportion between the number of patients to the number of beds in a ward on a daily basis.

Length of stay: Length of stay is calculated in days as the difference between dates of admission and discharge.

Mental illnesses: A term is used to refer to severe mental health problems in adults.

Mental health care practitioner: A psychiatrist, registered medical practitioner, nurse, occupational therapist, psychologist or social worker who has been trained to provide prescribed mental health care treatment and rehabilitation services.

Mental health care provider: a person providing mental health care services to mental health care users, including mental health care practitioners.

Mental illness: a positive diagnosis of a mental health related illness in terms of accepted diagnostic criteria made by mental health care practitioners authorized to make such a diagnosis.

Psychiatric hospital: a health establishment that provides care, treatment and rehabilitation services for patients with mental illness.

Psychiatrist: a person registered as such in terms of the Health Professions Act.

LIST OF ABBREVIATIONS

ALOS	average length of stay
DHIS	District Health Information System
Tara	Tara - the H Moross Centre
WHO	World Health Organization
BOR	Bed Occupancy rate
PMED	Private medical aid

CHAPTER 1
INTRODUCTION

The purpose of this study was to determine the length of stay in specialist units and the influence of specific factors on length of stay at the Tara - the H Moross Centre (Tara), during a one-year period. This introductory chapter will cover the background to the study, statement of the problem, its aims and objectives and an outline of subsequent chapters.

1.1. INTRODUCTION

Current literature on bed utilisation and factors affecting it in specialised psychiatric hospitals is limited. This study focuses on Tara which is a 141 bed specialised psychiatric hospital situated in the northern suburbs of Johannesburg in Gauteng Province. Tara Hospital provides specialised psychiatric treatment and academic training linked to the University of the Witwatersrand. The services provided are divided into secondary, tertiary and quaternary levels of care with limited outreach services to the surrounding communities and level two regional hospitals. The study seeks to identify and describe factors affecting bed utilisation in Tara Hospital.

1.2. STATEMENT OF THE PROBLEM

There are widespread perceptions in the Gauteng health sector that beds, especially those in subspecialty units, are under-utilised (Unpublished data). This raises questions of the viability of these units and the cost effectiveness of offering these expensive services to a small number of patients amid a shortage of hospital beds in general public sector hospitals. Despite this perceived under-utilisation, admission into specialised psychiatric hospitals remains difficult with patients waiting up to four weeks to be allocated a bed. However, the situation is

not uniform across all the units in Tara Hospital. For example, monthly reviews of the hospital information system indicate that the eating-disorder and psychotherapy units of Tara hospital have been performing poorly in terms of hospital indicators. For example, bed occupancy rate is 48% in both units, compared to the hospital average of 75%. Brief analysis of routinely collected hospital data by Tara hospital's CEO indicates multiple factors contributing to the variations in bed utilisation, such as length of stay, diagnosis and social circumstances.

1.3. JUSTIFICATION FOR THE STUDY

General public hospitals are currently overloaded with psychiatric patients who cannot be transferred to specialised psychiatric hospitals because of lack of beds. Identification of factors affecting bed utilisation could be used to model ideal referral systems for psychiatric patients. There has been no known study conducted in specialised psychiatric hospitals in South Africa to assess patient profiles since the implementation of the Mental Health Care Act of 2002, which promotes treatment of psychiatric patients in the least restrictive environment (South Africa, 2002).

The study is feasible in terms of the study period and its focus is on the challenge of efficient utilisation of beds in public psychiatric hospitals. It will produce some baseline performance indicators for specialised psychiatric hospitals and in addition, it will provide policy makers with important information to assist them in planning resource needs in specialised psychiatric hospitals.

1.4. RESEARCH QUESTION

1) What is the average length of stay at Tara during the study period?
2) What is the influence of some specific factors on the length of stay?

1.5. STUDY OBJECTIVES

1.5.1 BROAD OBJECTIVE

To determine the average length of stay in specialist units and the influence of specific factors on length of stay at Tara - the H Moross Centre, during a one-year period.

1.5.2 SPECIFIC OBJECTIVES

1. To determine the average length of stay among in-patients admitted from January to December 2009
2. To describe the socio-demographic profile of patients admitted to specialist units at Tara during this period.
3. To describe the clinical profiles of all patients admitted to specialist units during this period
4. To describe the influence of specific factors (demographic and clinical profiles of patients) on length of stay.

1.6. SUBSEQUENT CHAPTERS

So far, the background to the research has been discussed. Then, research question and objectives were defined in this first chapter. Brief outline of following chapters are described below.

Chapter Two Literature Review: The purpose of the literature review is to review pertinent literature and to discuss concepts related to the Current literature on bed utilisation and factors affecting it in specialised psychiatric hospitals in South Africa and elsewhere.

Chapter Three Research Methodology: The chapter describes the research methodology, study design, setting and scope and data management techniques used in this study.

Chapter Four: Presentation of Results: This chapter deals with an analysis of the data collected for this study relating to its aims and objectives.

Chapter Five: Discussion: The findings from the review of the literature are incorporated in this chapter with the results obtained from the analysis in order to address the aims and objectives of the study.

Chapter Six: Conclusions and Recommendations: This constitutes the last chapter of the report and derives conclusions from the research related to the objectives of this study, makes recommendations and advocates areas for future research in the field of bed utilisation and factors affecting it in specialised psychiatric hospitals.

CHAPTER 2
LITERATURE REVIEW

In this chapter relevant reports into mental health services with particular reference to bed utilization are discussed. In addition to published literature, information from various unpublished sources is also reviewed.

2.1 GLOBAL TRENDS IN HOSPITAL BED UTILISATION

Hospital beds are an important and costly resource for all health systems. Attempts to contain health expenditure for the past two to three decades have focused strongly on reducing bed numbers and utilisation by reducing length of stay, improving admission gate-keeping processes, and providing alternative community-based services. This has resulted in a progressive reduction in bed availability and utilisation in almost all health systems (Malcolm, 2007).

There is a global trend of increasing admission rates and decreasing bed numbers in acute hospitals leading to a general concern about the increasing cost of health care and efficient use of available resources, thus putting pressure on hospital managers to effectively and efficiently manage scarce resources, including hospital beds (Malcolm, 2007).

Variations in hospital utilisation have been demonstrated in many places, among different countries as well as among different provinces within a country. This might be due to various factors, such as burdens of disease and changing social structures (Almog, Curtis, Copeland, et al., 2004). Although some aggregate data on hospital utilisation are available from developed countries, cross-national comparisons of key indicators from developing countries remain scarce due to limitations of data, lack of international consensus on concepts, definitions, and

methods of calculations for the compilation of health statistics (Hensher, Edwards and Stokes, 1999).

2.2 TRENDS IN HOSPITAL BED UTILISATION IN DEVELOPED AND DEVELOPING COUNTRIES

Admissions of new patients to psychiatric hospitals have been reduced as the numbers of in-patient beds have fallen drastically over the last few decades in developed countries (Barbato, 1998; Thompson, Shaw, Harrison, et al., 2004). This has led to a shift of psychiatric care to community services, including general hospital psychiatric units, with a corresponding reduction in admissions to psychiatric hospitals (Thomson, et al., 2004). However, residential facilities are inadequate and community services are unevenly distributed. Outcome of community care in areas where the full range of community services is available has been rated as satisfactory (Thomson, et al., 2004). On the other hand, few negative effects of changing patterns of care have been reported (Barbato, 1998)l though lack of community-based data limits the validity of such a conclusion.

The situation is different in developing countries. On one hand, there is a massive burden of mental illness, which has never been quantified. On the other hand, management of these patients has been neglected due to the burden of acute infectious diseases. Stigma associated with these diseases also plays a role in poor disease management. In most countries, particularly low- and middle-income countries, mental health services are severely short of human and financial resources (WHO, 2009). Although there is a general trend of increasing allocation of resources to mental health programmes (such as increase in numbers of mental health beds), rapid population growth has resulted in a reduction in the bed: population ratio (Hensher et. al, 1999).

2.3 TRENDS IN HOSPITAL BED UTILISATION IN SOUTH AFRICA

Mental health in South Africa is not given the priority it deserves. The burden of diseases report found that neuro-psychiatric disorders contributed a significant proportion of the burden of diseases in South Africa, making this an important public health problem (Bradshaw, 2003). Lack of priority in mental health is reflected in inconsistent and inadequate budget allocations to service provision at provincial level. (Jacob, Sharan, Mirza, et al., 2007).

South African studies indicate that mental health services continue to be marked by patterns of long-term custodial care (Lund, 2008). Psychiatric hospitals in Gauteng, the Northern Province (Limpopo Province) and the Northern Cape report average lengths of stay of more than one and a half years (Lund and Flisher, 2001; Lund, and Flisher, 2003). This contrasts to the average length of stay (ALOS) in developed countries after the introduction of de-institutionalisation, which decreased dramatically as bed numbers fell as a result of downscaling of psychiatric institutions and the provision of community- based mental health services (Geller, 2000).

There have been significant changes in public sector hospital beds in South Africa in the post-apartheid era. The number of beds has been reduced in most provinces, particularly in the Western Cape and Gauteng. According to the South African Mental Health Report of 2008, the number of mental hospital beds has decreased by 7.7% in the last five years. (SA Mental Health report 2008). However, wide variability exists between provinces, with some showing a slight increase. Nevertheless, no systematic study has been done to document the number of admissions, length of stay and bed occupancy rates in psychiatric hospitals in South Africa.

2.4 PATIENT AND DISEASE PROFILE WITH MENTAL HEALTH SERVICE UTILISATION

Hospital utilisation, including that of mental health services, is affected by many factors, such as, disease profiles of patients and health systems factors (Abas and Broadhead, 1997; Zere, McIntyre and Addison, 2001; Araya, Lewis, Rojas, et al., 2003; Morgan, Burns, Fitzpatrick, et al., 2007). Institutional factors have a considerable impact on public hospital efficiency in South Africa (Zere et al, 2001). Improving the planning and management of discharge, patient review and assessment, to maximise the utilisation of existing beds, is therefore very important.

There is emerging evidence from low- and middle-income countries that mental ill-health and utilisation of mental health services are strongly associated with poverty and many aspects of social deprivation associated with poverty (Coid, 1998; Flisher, et al., 2007), unemployment (Abas and Broadhead, 1997), low levels of education (Araya et al., 2003) and social fragmentation (Morgan et al., 2007). These factors are associated with an increase in the prevalence of mental disorders and a corresponding increase in hospital admissions, resulting in high bed utilisation. Geographical proximity to psychiatric hospitals, minority groups (such as African American in USA) and household status (persons living alone) (Almog et al, 2004) and age (elderly population) (Fitzpatrick, et al., 2003) are also associated with relatively high admission levels. The influence of gender on psychiatric hospital admissions is conflicting (Fitzpatrick et al., 2003; Thompson et al., (2004). Fitzpatrick et al. (2003) found that, in inner London, the majority of admitted patients were old and female, but young, predominantly males patients, had longer hospital stays. In England, Thompson et al., (2004) found a predominance of men among inpatients.

Until now, there has been no formal study in South Africa of the profile of admitted patients in psychiatric hospitals and the influence of the above-mentioned factors on admissions.

CHAPTER 3
METHODOLOGY

The methodology for this study was selected on the basis of its aims. The study design is presented first followed by setting and scope of the study, and data collection methods, research tools and data analysis. Finally issues surrounding ethics are discussed.

3.1 STUDY DESIGN

This was a descriptive, cross-sectional study (retrospective record review).

3.2 STUDY SETTING AND SCOPE

The study was conducted in all the inpatient specialty wards at Tara, comprising three biochemical wards and four subspecialty units.

The study was based on routinely collected data. No primary data was collected and patients' records with more than 10% missing data were excluded. The study was a descriptive study, although the study attempted to establish association between some specific factors and length of stay. It was not possible to establish a causal link between these factors and the length of stay.

3.3 STUDY PERIOD

One-year data from 1 January to 31 December 2009 was reviewed.

3.4 STUDY POPULATION

On average, about 400 to 600 patients are admitted to Tara each year. There are sub-specialty units, which make up around 40% of the in-patient beds. The remaining 60% are more general psychiatric units.

3.5 SAMPLING

No sampling was done. The first recorded admission in the patient administration system (PAAB) in the year of study was the starting point. All the records of patients admitted to the hospital in the study period were analysed. All patients admitted to specialty units in Tara during the study period were included.

3.6 MEASUREMENT AND DATA SOURCES

3.6.1 STUDY INSTRUMENT

Measurement tools for data collection were developed to extract data from the clinical records of all admitted patients during the study period (Appendix B). The source of the data was the admission ward registers and the relevant patient records.

3.6.2 STUDY VARIABLES

The variables in this study are listed in Table 3.1.

Table 3.1 Study variables, related to specific objectives

Objective	Variables	
1	Length of stay	Date of admission/ date of discharge
2	Socio-demographic profile	Age (in years), Gender, Marital status, Ethnicity, Employment status, Medical aid/insurance status, Hospital classification, Source of referral (Primary health care clinic/ community health centre/ hospital (district/regional/tertiary/ private psychiatrist/ other), address (residential and employment),
3	Clinical profile	Referral diagnosis, Admission unit (Children/adolescent/ eating disorder/ psychotherapy/ biochemical)
4	Length of stay and profiles of Patient (socio-demographic and clinical)	All above

Length of stay is calculated in days as the difference between dates of admission and discharge.

3.6.3 DATA COLLECTION

The data used for this study is routinely collected for all patients admitted to Tara. The researcher captured the data using the data extraction tools designed using MS Excel (Appendix B).

3.6.4 DATA MANAGEMENT

Data was captured using the MS Excel-based tool and was analysed using Epi info version 3.4.1. Accuracy of data captured was achieved through double entry by the researcher. For variables in the study, refer to table 3.1.

3.6.5 DATA ANALYSIS

Descriptive statistics was used. Numbers and proportions summarised results for all categorical variables, e.g. gender, marital status, employment status and medical aid status. Means and standard deviations were calculated for the continuous variables, e.g. age, and length of stay. Aggregate data was presented for all the units. Statistical tests were done to determine associations between length of stay and specific factors. The significance level used was 0.05.

3.7 PILOT STUDY

A pilot study was carried out in Tara Hospital to ensure accuracy, appropriateness and understanding of the data extraction tools.

3.8 ETHICAL CONSIDERATIONS

Permission to review the patient and hospital records was requested in a letter to the Head of the Gauteng Department of Health and Social Development. Each patient's record was assigned a unique study number. Only the researcher had the knowledge of the link between study number and identity of patients. The data collection sheet only contained the study number mentioned above. No information regarding patients' identity (such as name or ID number) was included in their data collection sheet and subsequent reports. This ensured confidentiality and privacy of the patients. The study protocol was approved by the Human Research Ethics Committee (Medical) of the University of Witwatersrand (Appendix A). .

CHAPTER 4
RESULTS

The results obtained from the analysis of data were described in this chapter.

4.1 SOCIO-DEMOGRAPHIC FACTORS

4.1.1 AGE

The age of the subjects is described in Table 4.1. The age of the subjects is not normally distributed (Table 4.1). The median age is 30 (IQR 20-41). The minimum age is 8 years in the children's ward, while the maximum age is 82 years in the biochemical ward.

Table 4.1 Age distribution of subjects (n= 501)

Age	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
Median (IQR)	30 (20-41)	34 (26-46)	31 (26-39)	18 (16-19)	12 (10-12)
Range	8 – 82	18 – 82	19 – 61	12 – 56	8 – 14

4.1.2 GENDER

The gender distribution of the subjects is described in Table 4.2. Female admissions constitute more than 50% of admissions to the hospital. More females than males are admitted in the psychotherapy and eating disorder/adolescent wards. In the children's ward, male admissions are significantly more than female admissions. Slightly more males than females are

admitted in the biochemical ward. There were significant differences in gender distribution in different wards (Chi-square test, p <0.001)

Table 4.2 Gender distribution of subjects

Gender	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
Female	267 (53.5%)	151 (46.3%)	57 (81.4%)	54 (60%)	5 (38.5%)
Male	232 (46.5%)	175 (53.7%)	13 (18.6%)	36 (40%)	8 (61.5%)
Total	499 (100%)	326 (100%)	70 (100%)	90 (100%)	13 (100%)

4.1.3 ETHNICITY

The distribution of ethnicity of the subjects is described in Table 4.3. The white population constitutes close to 50% of the admissions in the hospital. In all the wards except the biochemical wards, whites are admitted more often than any other race group. The Africans form 51% of admissions to the biochemical wards.

There were significant differences in ethnicity in different wards (Chi-square test, p <0.001)

Table 4.3 Ethnicity distribution

Ethnicity	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
African	223 (44.9%)	166 (51.2%)	22 (31.4%)	31 (34.4%)	4 (30.8%)
Coloured	31 (6.2%)	23 (7.1%)	1 (1.4%)	5 (5.6%)	2 (15.4%)
Indian	3 (0.9%)	3 (0.9%)	0	0	0
White	240 (48.3%)	132 (40.7%)	47 (67.1%)	54 (60%)	7 (53.8%)
Total	497 (100%)	324 (100%)	70 (100%)	90 (100%)	13 (100%)

4.1.4 MARITAL STATUS

The marital status of the subjects is described in Table 4.4. More than 85% of admitted psychiatric patients are single either through never been married, widowed or divorced. The trend is similar in all wards. There were significant differences in marital status in different wards (Chi-square test, $p < 0.001$)

Table 4.4 Marital status distribution

Marital status	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
DIVORCED	32 (6.4%)	21 (6.4%)	9 (12.9%)	2 (2.2%)	0
MARRIED	66 (13.2%)	42 (123.9%)	20 (28.6%)	4 (4.4%)	0
SINGLE	398 (79.6%)	260 (79.8%)	40 (57.1%)	85 (93.4%)	13 (100%)
WIDOW	4 (0.8%)	3 (0.9%)	1 (1.4%)	0	0
Total	500 (100%)	326 (100%)	70 (100%)	91 (100%)	1 (100%)

4.1.5 EMPLOYMENT STATUS

The employment status of the subjects is described in Table 4.5. More than 90% of admitted psychiatric patients are unemployed. Patients in the biochemical wards are worse off at 96.9% than in the psychotherapy (74.3%) and eating disorder/adolescent (82.4%) wards.

There were significant differences in employment status in different wards (Chi-square test, p <0.001)

Table 4.5 Employment status distribution

Employment status	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
EMPLOYED	45 (9%)	10 (3.1%)	17 (24.3%)	16 (17.6%)	2 (15.4%)
SELF EMPLOYED	1 (0.2%)	00(0)	1 (1.4%)	0	0
UNEMPLOYED	455 (90.8%)	317 (96.9%)	52 (74.3%)	75 (82.4%)	11 (84.6%)
TOTAL	501 (100%)	327 (100%)	70 (100%)	91 (100%)	13 (100%)

4.1.6 MEDICAL AID

The medical aid status of the subjects is described in Table 4.6. Only 10% of admitted psychiatric patients are on medical aid. Those on medical aid tend to be the younger age group in the eating disorder/adolescent wards. There were significant differences in medical aid status in different wards (Chi-square test, p <0.001)

Table 4.6 Medical aid distribution

Medical Aid	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
NO	450 (89.8%)	315 (96.3%)	62 (88.6%)	64 (70.3%)	9 (69.2%)
YES	51 (10.2%)	12 (3.7%)	8 (11.4%)	27 (29.7%)	4 (30.8%)
Total	501 (100%)	327 (100%)	70 (100%)	91 (100%)	13 (100%)

4.1.7 HOSPITAL CLASSIFICATION

The Hospital classification of the subjects is described in Table 4.7. Over 84% of all patients admitted are non-paying patients classified as either H1 or H0. Only 10.6% of admitted patients are on medical aid or paying privately and classified as PMED, referring to private medical aid. The remaining about 5% are low paying patients classified as H2 or HG. There were significant differences in hospital classification in different wards (Chi-square test, $p < 0.001$).

Table 4.7 Hospital classification distribution

Hospital classification	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
H0	67 (13.4%)	55 (16.8%)	0	6 (6.6%)	6 (46.2%)
H1	354 (70.7%)	247 (75.5%)	53 (75.7%)	52 (57.1%)	2 (15.4%)
H2	15 (3%)	4 (1.2%)	8 (11.4%)	2 (2.2%)	1 (7.7%)
HG	12 (2.4%)	9 (2.8%)	1 (1.4%)	2 (2.2%)	0
PMED	53 (10.6%)	12 (3.7%)	8 (11.4%)	29 (31.9%)	4 (30.8%)
Total	501 (100%)	327 (100%)	70 (100%)	91 (100%)	13 (100%)

4.1.8 SOURCE OF REFERRALS

The gender distribution of the subjects is described in Table 4.8. More than 50% (62%) of all admissions come from the general hospitals with tertiary level services in psychiatry. Private psychiatrists refer over 50% of patients admitted into the psychotherapy, eating disorder/adolescents and children's wards. There were significant differences in referral source in different wards (Chi-square test, $p < 0.001$)

Table 4.8 Source of referral distribution

Source of referral	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
Public tertiary	311 (62.2%)	241 (73.7%)	32 (46.4%)	34 (37%)	4 (33.3%)
Public secondary	69 (13.8%)	56 (17.1%)	2 (2.9%)	10 (10.9%)	1 (8.3%)
Private Psychiatrist	120 (24%)	30 (9.2%)	35 (50.7%)	48 (52.2%)	7 (58.3%)
Total	500 (100%)	327 (100%)	69 (100%)	92 (100%)	12 (100%)

4.1.9 GEOGRAPHICAL PROXIMITY

The geographical proximity of the subjects is described in Table 4.9. There were significant associations between proximity and admission wards (One way analysis of variance, $p < 0.0001$). Patients admitted in eating disorder/adolescent ward (Median 12) came from areas which are closer to the Hospital.

Table 4.9 Geographical proximity (n=500)

	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
Median (IQR)	17.9 (9.9- 41.7)	16.2 (9- 41.7)	26.6 (12 -41.5)	12 (11.6 -43.8)	81 (37-93)
Range	1.4 to 1296	1.4 to 336	1.7 to 167	1.7 to 1246	9 to 266
RANGE					
0-10 km	125 (26.3%)	93 (28.9%)	6 (8.6%)	24 (26.1%)	2 (18.2%)
11-50 km	343 (69.3%)	218 (67.7%)	56 (80%)	60 (65.2%)	9 (81.8%)
51- 100 km	17 (3.4%)	8 (2.5%)	7 (10%)	2 (2.2%)	0
More than 100 km	10 (2%)	3 (2.5%)	1 (1.4%)	6 (6.5%)	0\ (0%)

4.2 REFERRAL DIAGNOSIS

The referral diagnosis of the subjects is described in Table 4.10. The majority of the subjects (89.2%) of the admissions either have schizophrenia (44.6%), bipolar mood disorder (22%), personality disorder (10.4%), eating disorder (8%), or anxiety disorder (4.2%). There were significant differences in referral diagnosis in different wards (Chi-square test, $p < 0.001$)

Table 4.10 Distribution of referral diagnosis

Referral diagnosis	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
ADHD	8 (1.6%)	3 (9.0%)	0	5 (5.4%)	0
Adjustment disorder	4 (0.8%)	0)	0	3 (3.3%)	1 (8.3%)
Anxiety disorder	21 (4.2%)	6 (1.8%)	6 (8.7%)	6 (6.5%)	3 (25%)
Bipolar Mood disorder	110 (22.0%)	75 (22.9%)	15 (21.7%)	20 (21.7%)	0
Depression	16 (3.2%)	12 (3.7%)	2 (2.9%)	1 (1.1%)	1 (8.3%)
Eating disorder	39 (8.0%)	0	0	39 (43.5%)	0
OCD	1 (0.2%)	0	1 (1.4%)	0	0
Panic disorder	2 (0.4%)	1 (0.3%)	0	1 (1.1%)	0
Personality disorder	52 (10.4%)	11 (3.4%)	36 (52.2%)	3 (3.3%)	2 (16.7%)
Psychosis	11 (2.2%)	8 (2.4%)	0	2 (2.2%)	1 (8.3%)
Schizophrenia	223 (44.6%)	202 (61.8%)	7 (10.1%)	10 (10.9%)	4 (33.3%)
Substance abuse	12 (2.4%)	9 (2.8%)	2 (2.9%)	1 (1.1%)	0
Total	499 (100%)	327 (100%)	69 (100%)	91 (100%)	12 (100%)

4.3 LENGTH OF STAY

The length of stay is described in Table 4.11. There were significant differences in between the wards in terms of Length of stay (One Way ANOVA, $p < 0.001$). the patients admitted in the 'Eating Disorder/Adolescents' ward is staying significantly shorter than other wards.

Table 4.11 Length of stay of admitted patients

LOS(Days)	Total	Biochemical Ward	Psychotherapy Ward	Eating Disorder/ Adolescents	Children's Ward
Median (IQR)	49 (29-78)	50 (29-91)	52 (32-57)	43 (23-59)	81 (37-93)
Range	0 – 307	0 – 307	2 – 120	3 – 204	13 – 184

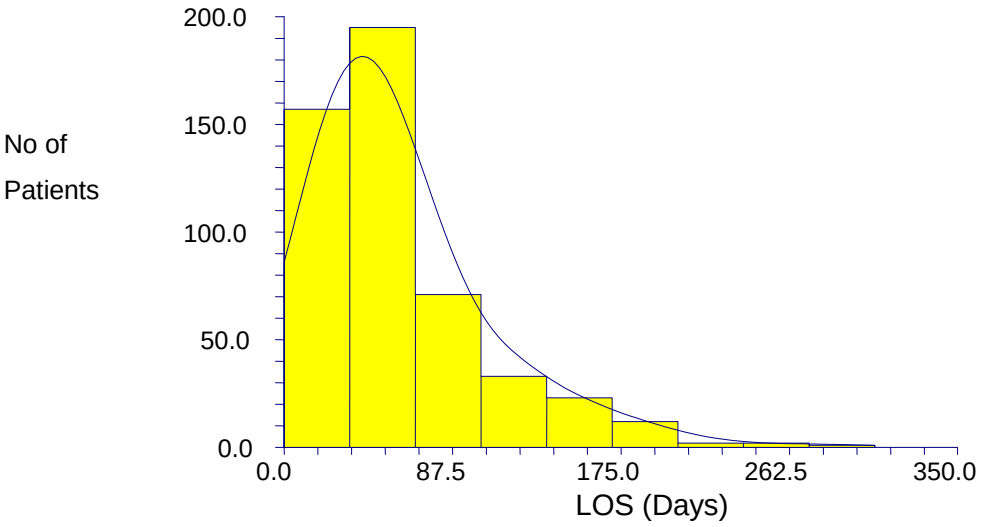


Figure 4.1: Length of stay

4.3.1 AGE

There is no association between age and length of stay (Spearman's correlation, ρ =0.04; p=0.3).

4.3.2 GENDER

There is a significant association between gender and length of stay (Mann Whitney's U test, $p < 0.03$). The female patients (Median 46) were staying significantly shorter period than males (Median = 51) (Figure 4.2).

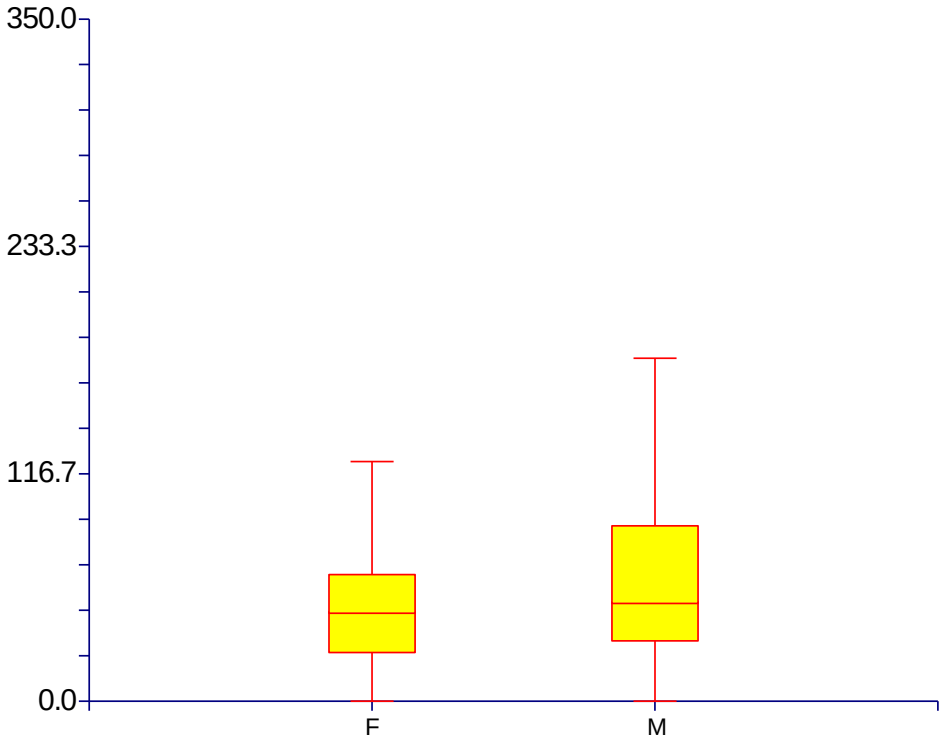


Figure 4.2 Gender and length of stay

F = Female; Male = Male

4.3.3 ETHNICITY

There is a significant association between ethnicity and length of stay (One way analysis of variance, $p < 0.001$). The black patients (Median 53) were staying significantly longer than patients from other ethnic groups (Figure 4.3). .

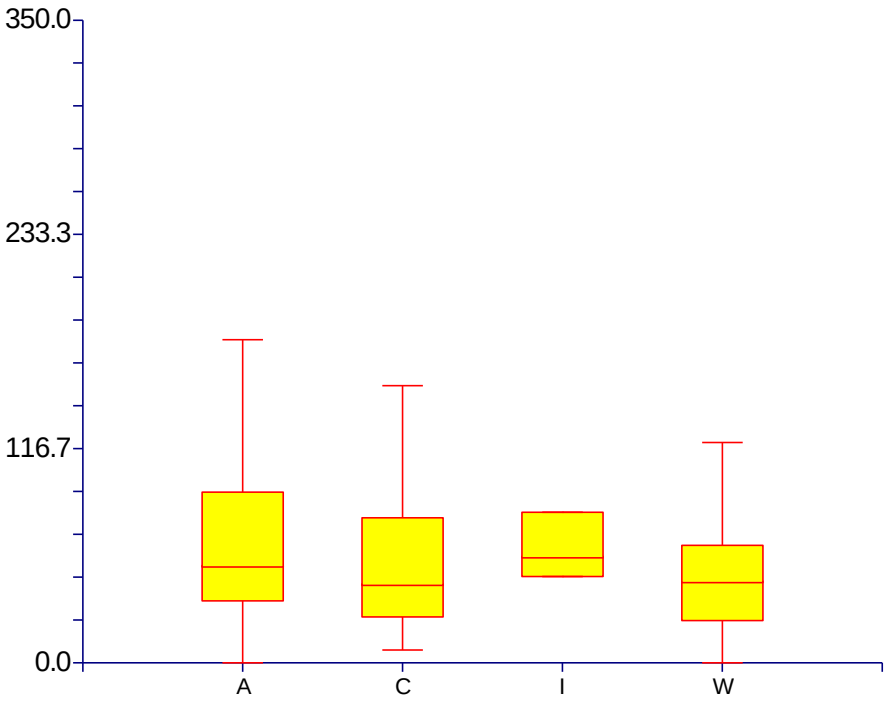


Figure 4.3 Ethnicity and length of stay

A= Black; C = Coloured; I = Indians; W = White;

4.3.4 MARITAL STATUS

There is no significant association between marital status and length of stay (One way analysis of variance, p = 0.78).

4.3.5 EMPLOYMENT STATUS

There is a significant association between employment status and length of stay (One way analysis of variance, p < 0.02). The employed patients (Median 44) were staying significantly less number of days than other groups of patients (Figure 4.3).

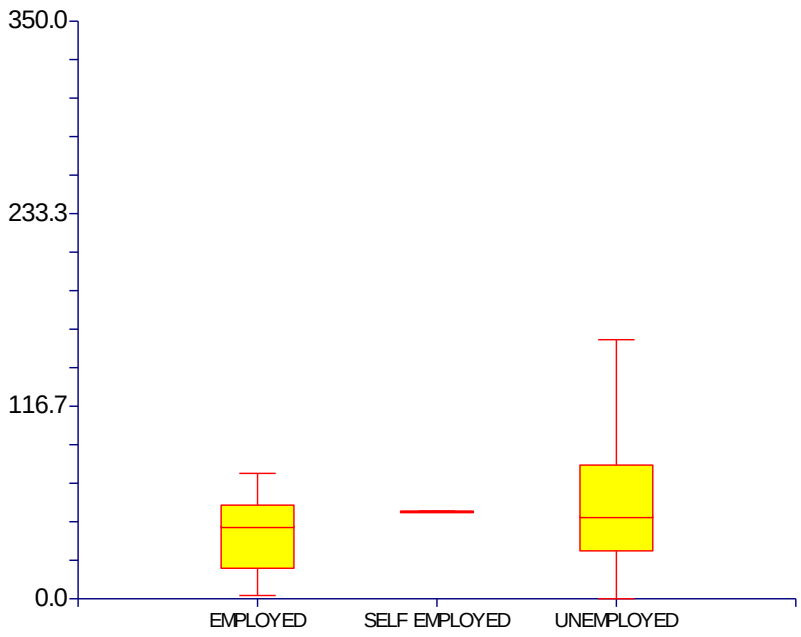


Figure 4.4 Employment status and length of stay

4.3.6 MEDICAL AID

There is no significant association between medical aid status and length of stay (Mann Whitney's U test, p = 0.43).

4.3.7 HOSPITAL CLASSIFICATION

There is no significant association between Hospital classification and length of stay (One way analysis of variance, p = 0.8).

4.3.8 SOURCE OF REFERRALS

There is a significant association between source of referral and length of stay (One way analysis of variance, p < 0.001). The patients referred from public

tertiary institutions (Median 51) stayed significantly longer than the other groups of patients.

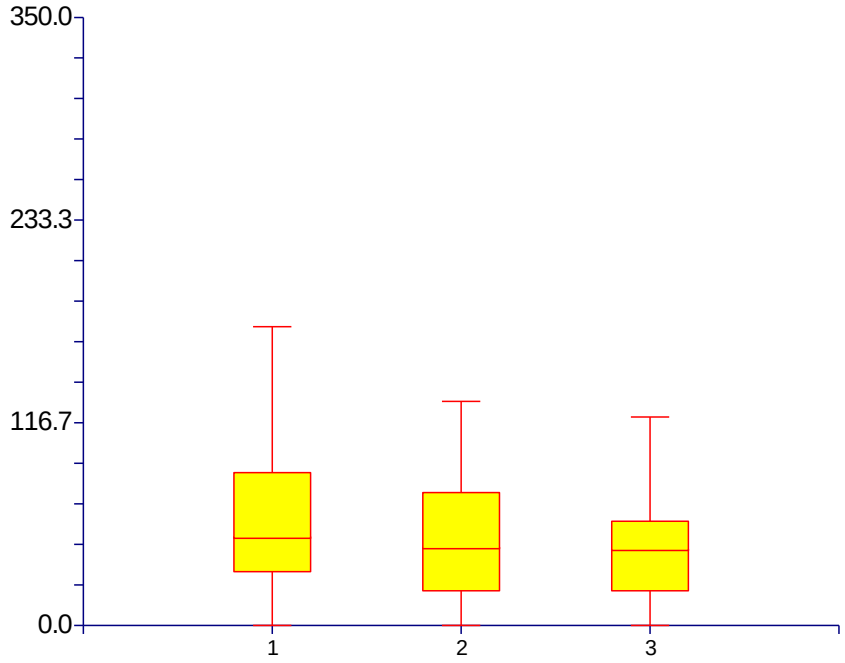


Figure 4.5 Source of referral and length of stay

1= Public tertiary; 2= Public secondary; 3= private psychiatrists

4.3.9 REFERRAL DIAGNOSIS

There was a significant relationship between length of stay and referral diagnosis (One way ANOVA, $p < 0.01$) (Table 4.12). There were significant differences in between the diagnosis. The patients admitted for adjustment disorder, eating disorder, and psychosis stayed for a shorter duration than those admitted for other conditions.

Table 4.12 Length of stay and referral diagnosis

Referral diagnosis	Median (IQR)	Range
ADHD	43 (16-58)	8 to 117
Adjustment disorder	32 (28 - 81)	24 to 81
Anxiety disorder	45 (25 - 60)	4 to 120
Bipolar Mood disorder	50 (30 - 183)	0 to 183
Depression	45 (29 - 65)	0 to 163
Eating disorder	39 (21 - 74)	6 to 170
OCD	53	
Panic disorder	59	
Personality disorder	42 (21- 57)	2 to 157
Psychosis	39 (32- 81)	9 to 149
Schizophrenia	53 (30 – 94)	0 – 307
Substance abuse	46 (32- 56)	12- 203
Total	499 (100%)	

There was no significant association between length of stay and geographical proximity ($\rho = 0.02$, $p = 0.57$)

CHAPTER 5
DISCUSSION

In this chapter, the results obtained from the analysis of the data were discussed and compared with those from other published studies.

5.1 PROFILE OF PATIENTS

The utilisation of psychiatric services is affected by many factors among which are sociodemographic, clinical profile of patients and health systems factors (Abas and Broadhead, 1997; Zere, McIntyre and Addison, 2001; Araya, Lewis, Rojas, et al., 2003; Morgan, Burns, Fitzpatrick, et al., 2007). Several of these factors have been studied and analysed in this study.

According to Fitzpatrick et al. (2003), the older age group are associated with higher admission levels. In this study, although the age range is 8 to 82 years, the median age of admission was 30 years. This means that the majority of admissions at Tara are relatively the younger population. This could be due to the fact that the younger patients especially males present more often with the biochemical related psychiatric disorders. The biochemical beds comprise at least 60% of the hospital beds in Tara, hence more admissions.

The influence of gender on psychiatric hospital admissions is conflicting (Fitzpatrick et al., 2003; Thompson et al., (2004). Some researchers have found that the majority of admitted patients are older females. Others have found a predominance of young males among the inpatients. These findings are probably both correct as can be seen by the results obtained in this study. Female admissions exceeded 50% of all admissions at Tara over a twelve month period from January to December 2009. A significant finding is that the males stayed longer (51days) compared to females (46 days), (Mann Whitney's U test,

p<0.03). One is therefore more likely to find male patients in the ward as opposed to females. There were significant differences in gender in different wards (Chi-square test, p<0.001).

Almog et al, (2004) found that minority groups such as African Americans in the USA were associated with a relatively high admission levels. Although ethnicity was found to be significant among different wards (Chi-square test, p<0.001), minority groups in this study being coloureds and Indians did not comprise majority of the admissions. Both white and black patients were equally likely to be admitted at Tara during the study period. Ethnicity was particularly reflected in the clinical diagnosis which in turn determines the ward in which the patient is admitted.

Marital status of psychiatric patients found in this study demonstrates the difficulties encountered by these patients in maintaining normal relationships. More than 85% of admitted patients were single either through divorce (6.4%), being widowed (0.8%) or having never married (79.6%). The trend was similar in all the wards and was found to be significant (Chi-square test, p<0.001). Household status as in persons living alone is associated with relatively high admission levels (Almog et al, 2004).

Evidence from low and middle-income countries shows that mental ill-health and utilisation of mental health services are strongly associated with poverty and many aspects of social deprivation associated with poverty (Coid, 1998; Flisher, et al., 2007), among these are unemployment (Abas and Broadhead, 1997). 90% of the admitted psychiatric patients during the study period were unemployed which is in keeping with the studies cited above. Self employment was non-existent in all categories of patients reflecting the level of functional disability among psychiatric patients. There was a significant difference in employment status among different wards (Chi-square test, p<0.001).

Medical aid trends follow a similar pattern to unemployment. Only those who are employed are on medical aid (10%), hence it reflects the social deprivation status of the study population which is associated with increased mental services utilisation and hence high admission levels. There was a significant difference in medical aid status among different wards (Chi-square test, $p<0.001$. Hospital classification is another measure of social deprivation status as it is informed by a means test that classifies patients according to the income levels. The study reveals that more than 84% of the admitted patients are non-paying patients classified as either H1 or H0, further supporting the association of poverty and mental illness in relation to utilisation of mental health services.

5.2 REFERRAL DIAGNOSIS

The source of referrals gives an indication of the complexity of the referred cases. Public tertiary in this case represents psychiatric services offered at level three hospitals, public secondary includes all regional hospitals with no multidisciplinary teams and community health centres offering psychiatric services. The findings indicate that 62% of the admissions come from public tertiary and 13.8% from public secondary hospitals hence one can say that they are complex psychiatric problems from the less advantaged population. These patients are also more likely to be admitted into the biochemical wards where more than 50% are unemployed blacks on no medical aid and classified as either H1 or H0. These findings are in support of the literature where mental ill-health and utilisation of mental health services are strongly associated with poverty and many aspects of social deprivation associated with poverty (Coid, 1998; Flisher, et al., 2007). There was a significant difference in referral sources among different wards (Chi-square test, $p<0.001$).

The most likely referral diagnoses are biochemical related disorders of either schizophrenia (44.6%) and bipolar mood disorder (22%). As discussed above,

these tend to occur more often among the socially deprived groups which support the association of utilisation of mental health services with social deprivation. There was a significant difference in referral diagnosis among different wards (Chi-square test, $p<0.001$).

Mental health services use and hospitalisation in South African studies continue to show patterns of long term custodial care (Lund, 2008), although there is a wide variation from province to province. This contrasts to the developed countries after the introduction of de-institutionalisation. Tara hospital is considered as an acute to medium term psychiatric hospital where length of stay should not exceed three months. In this study, the median length of stay was 49 days, although LOS ranged from 0 to 307 days.

5.3 LENGTH OF STAY

Significant association was found between gender and length of stay (Mann Whitney's U test, $p<0.03$), where female patients (median 46 days) were staying significantly shorter period than males (median 51 days). Females are more likely to be admitted to the psychotherapy and eating disorder wards where there are very strict structured rehabilitation programmes that could explain the limitation in the LOS.

There is a significant association between ethnicity and length of stay (one way analysis of variance, $p<0.001$). The black patients (median 53 days) were staying significantly longer than patients from other ethnic groups. This reflects the effect of social deprivation in utilisation of mental health services. This association is also supported by the significant association found between employment status and length of stay (one way analysis of variance, $p<0.02$). The employed patients were staying significantly less number of days than other groups of patients. The findings are in keeping with the literature review.

There is a significant association between source of referral and length of stay (One way analysis of variance, $p < 0.001$). The patients from public tertiary institutions (Median 51 days) were staying significantly more number of days than other groups of patients. Patients from the public tertiary institutions are complex and have more resistant mental health conditions hence the likelihood of longer stay. Social deprivation related factors also contribute to the long stay as most of these patients cannot be discharged back to society as planned.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

In this chapter, the results obtained from this study were assessed in relation to the aims and objectives of the study, so that appropriate conclusions can be drawn. The limitations of the study were listed. Based on the findings of the study, appropriate recommendations and suggestions for future research were included.

6.1 CONCLUSIONS RELATED TO THE AIMS OF THE STUDY

This was a cross-sectional study that looked at broad issues pertaining to the length of stay in specialty units and the influence of specific factors on length of stay at a specialised Psychiatric hospital during a one-year period.

6.1.1 LENGTH OF STAY AMONG IN-PATIENTS

The findings indicate that most patients stay in Tara for 49 (29-78) days, which is in keeping with the expectation of this hospital which is an acute to medium term psychiatric hospital.

6.1.2 SOCIO-DEMOGRAPHIC PROFILE OF PATIENTS

Significant differences in gender, ethnicity, marital status, employment status, medical AID status and hospital classification among different wards was established.

6.1.3 THE CLINICAL PROFILES OF ALL PATIENTS

The clinical profile was predominantly biochemical related disorders from public tertiary and public secondary hospitals reflecting the under privileged groups in the population.

6.1.4 THE INFLUENCE OF SPECIFIC FACTORS ON LENGTH OF STAY

Social demographic factors and clinical profiles were found to significantly influence the LOS. Gender, ethnicity, employment status, and source of referral were more influential.

6.2 POSSIBLE LIMITATIONS OF THE STUDY

Incomplete data limits the use of all records of patients in a study of retrospective record review.

6.3 RECOMMENDATIONS

The recommendations made below were based on the findings from this study. The analysis of the data also revealed some areas that need to be evaluated and recommendations were made based on the results of this study. Recommendations for further or more in depth research were also highlighted.

6.3.1 FOLLOW UP

A follow up study could look at the readmission rates of these patients who stay in the hospital for this short period to determine if the rehabilitation programmes are indeed effective or the patients are being discharged prematurely only to be readmitted.

6.3.2 FUTURE RESEARCH

The researcher proposed following research based on the findings of the study to determine if social intervention to address unemployment could impact on admissions of the African patients.

6.4 SUMMARY AND CONCLUSIONS

A cross sectional study looking at specific factors that could influence the length of stay in speciality wards at Tara hospital during a one year period was carried out with a sample size of about five hundred admissions during the study period. The care of psychiatric patients at Tara has moved away from the traditional custodial care of long term incarceration as reported in some studies in South Africa. The median length of stay is about 50 days. Socio-demographic factors especially those associated with social deprivation and clinical profile influence length of stay of admitted psychiatric patients at Tara. The factors with more influence on length of stay are gender, ethnicity, employment status and source of referral.

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APPENDICES

APPENDIX A: ETHICS CLEARANCE CERTIFICATE
LETTER FROM POSTGRADUATE COMMITTEE

APPENDIX B: DATA COLLECTION SHEET