



A PSYCHIATRIC ADOLESCENT INPATIENT UNIT IN GAUTENG: CLINICAL PROFILE AND LENGTH OF ADMISSION

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A research report submitted in a submissible format to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Medicine in the branch of Psychiatry

Johannesburg, 2025

DECLARATION

I, **LERATO GALESITOE**, declare that this research report is my own work. It is being submitted in partial fulfilment of the requirements for the degree of Master of Medicine in the branch of Psychiatry. It has not been submitted before for any degree or examination at this or any other University.



28/07/2025

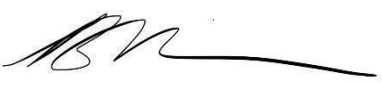
AUTHORS' CONTRIBUTIONS

Declaration: Student's contribution to article(s) and agreement of co-author(s)

I, **LERATO GALESITOE**, student number 297844, declare that this Thesis/Dissertation/Research Report is my own work and that I contributed adequately towards research findings published in the article(s) stated below which are included in my Thesis/Dissertation/Research Report.

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Article 1:

A psychiatric adolescent inpatient unit in Gauteng: clinical profile and length of admission

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DEDICATION

I dedicate this dissertation to myself, to all adolescents navigating the challenges of mental health disorders, and to everyone who supported me throughout this research journey.

PRESENTATIONS AND PUBLICATIONS

[TO BE SUBMITTED] Galesitoe L, Marais B. **A psychiatric adolescent inpatient unit in Gauteng: clinical profile and length of admission.** SAJP: South African Journal of Psychiatry.

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Original Research Article

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

Submission status	open
Word limit	3000-4000 words (<u>excluding</u> the abstract, tables, figures, graphs, and references)
Abstract	maximum: 250 words requires structural headings: Background, Aim, Setting, Methods, Results, Conclusion and Contribution
Main text	requires structural headings, refer to the full structure 'Ethical considerations' is a sub-section in the manuscript and must include: • Name of the ethical review committee • Study approval number • Manner of consent (written, oral) for human participants • Description of measures taken to maintain the confidentiality of data • If the study was not human or animal research or the study was determined to be non-human subjects research or exempt, the authors must provide a statement with those details in this section.
References	60 or less, adhere to the Vancouver referencing style
Tables, figures and graphs	7 or less, adhere to the Illustrations requirements found in the AOSIS House style guide
Formatting requirements	apply the guidelines located on the Formatting requirements page and the AOSIS house style guide
Compulsory supplementary file(s)	the Authorship, disclosure statements, copyright, and license agreement form, Ethical Clearance/Waiver Documentation and any other relevant form applicable to your submission
Ethical clearance/waiver documentation	evidence of ethical clearance for the study, such as the study approval letter or certificate from the Institutional Review Board (IRB), a waiver from the IRB et cetera

¹Author Submission Guidelines

¹ <https://sajp.org.za/index.php/sajp/pages/view/submission-guidelines>

ABSTRACT

Background: Mood, anxiety, behavioral, and substance use disorders are common among adolescents, contributing to 15% of the global disease burden.

Aim: To determine the sociodemographic and clinical profiles, treatment interventions, and length of stay (LOS) of adolescents admitted to Tara Hospital's Adolescent Inpatient Unit (AIU), and to explore associations between these variables and LOS.

Setting: Tara Hospital is a tertiary psychiatric facility in Johannesburg, South Africa, providing specialised inpatient and outpatient mental health services.

Methods: A retrospective review of adolescent (ages 13-18) admissions to the AIU between 2012–2014. Data were analysed using descriptive and inferential statistics

Results: Most adolescents were male (65%), in high school (83%), enrolled in mainstream schooling (76.7%) and referred from the public healthcare system (76.7%). Mood disorders were the most common diagnoses (60%), with major depressive disorder accounting for 33.3%, followed by anxiety disorders (26.7%). Academic difficulties (78.3%) and parent-child conflict (70%) were the most common stressors. Mean LOS was 61.1 days (SD=43.4, range 8-276). Significant associations with LOS ($p<0.05$) were found for conduct disorder, substance use disorder, parental conflict and parental separation/divorce. All patients received pharmacological treatment, mainly antidepressants, as well as psychosocial interventions from multidisciplinary team.

Conclusion: Mood disorders predominated in this sample, with high rates of psychiatric comorbidities and psychological stressors.

Contribution: The study identified clinical variables influencing LOS. Further South African research is recommended to examine how these factors relate to outcomes and clinical improvement.

Keywords: adolescent mental illness, adolescent inpatient unit, length of stay, mood disorders, conduct disorder

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Last but not least, I wish to acknowledge the invaluable contribution of our institutional research statistician, whose exceptional data analysis work played a pivotal role in the success of this research study.

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LIST OF ABBREVIATIONS

AIU	: Adolescent Inpatient Unit
HIV/AIDS	: Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
CAMHS	: Child and Adolescent Mental Health Services
LOS	: Length of Stay
MDT	: Multidisciplinary Team
PTSD	: Post-Traumatic Stress Disorder
SA	: South Africa
SD	: Standard Deviation
SPSS	: Statistical Package for Social Sciences
UK	: United Kingdom
USA	: United States of America
WHO	: World Health Organisation

SUBMISSIBLE PAPER

A psychiatric adolescent inpatient unit in Gauteng: clinical profile and length of admission

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ABSTRACT

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INTRODUCTION

Adolescence is defined as a period between 9 to 19 years, marked with emotional, structural and behavioural changes.¹⁻³ Together with social experiences and stressors, this increases vulnerability to the mental disorders during this period.^{1,4,5} Adolescence is thus a critical transition period of development between childhood to puberty and puberty into adulthood.⁶ Adolescents are exposed to peer pressure, sexual exploration and risky behaviour, placing them at high risk of physical and/or mental health problems.^{1,7,8} Most adult psychiatric disorders begin in childhood and adolescence, and remain the biggest problem among young adults.^{6,9}

According to the World Health Organization (WHO), 1 in 7 adolescents has a mental health disorder.¹⁰ Common adolescent mental health disorders include mood, anxiety and behavioural disorders, as well as substance use disorders.^{2,6,10-13} A comorbidity survey conducted in the United States of America (USA) found that approximately 40% of adolescents had more than one mental health disorder, and in 22% it was associated with severe distress and/or impairment.¹² Furthermore, mental illness rates among adolescents in the USA is reportedly on the rise.¹³ In sub-Saharan Africa, higher prevalence rates than those from developed countries have been reported: emotional and behavioural problems in 40.8%, anxiety disorders in 29.8%, depression in 26.9%, post-traumatic stress disorder (PTSD) in 21.5%, and suicidal ideation among 20.8% of adolescents.¹¹ In SA, factors ranging from HIV/AIDS, exposure to interpersonal violence, maltreatment, childhood adversity, substance use, and poor socioeconomic circumstances, have been identified as risk factors for adolescent mental health problems.^{2,11,14-17} Family and peer relationship difficulties, peer pressure, identity exploration, gender norms and media influence are other risk factors.¹⁸ Parental mental illness also contributes to an increased risk of mental illness.^{15,19-27}

Adolescent mental health issues may manifest through a variety of signs, including anhedonia, social isolation, sleeping and eating disturbances, self-harming and behavioural problems.^{10,28} Adolescents may manifest with 'internalising' (for example, mood symptoms) and/or 'externalising' problems (for example, acts of violence), with 'internalising' problems more prevalent among adolescent girls.²⁹ This

can lead to issues with self-esteem, school performance, social impairment, and risky behaviour such as substance use, unsafe sexual practices, teenage pregnancy, and a risk for suicide.^{2,26,30,31} Poor adolescent mental health can therefore have long-lasting physical and social consequences, further perpetuating social isolation, exclusion and stigma.³¹⁻³⁴ Resultant long-term socioeconomic consequences may further limit educational and employment opportunities, creating a broader societal burden. Moreover, untreated mental health conditions can escalate into more severe mental health disorders, such as chronic depression, anxiety, eating disorders, or psychosis, requiring intensive treatment.^{10,31} Early intervention for adolescents with mental health issues is therefore crucial.

However, adolescent mental disorders are frequently underdiagnosed and untreated.^{3,13} Less than half, with some reports of as few as 13%, being referred to adolescent mental health services.^{6,7,35} This large unmet service need is both worldwide, as well as specifically in SA.^{2,6,16,36,37} Early identification and adequate treatment are two essential measures for mitigating the risks associated with poor adolescent mental health.^{2,38,39} Referrals to child and adolescent mental health services (CAMHS) provides an opportunity to address the mental health and psychosocial needs of these young individuals. Psychiatric hospitalisation may be required in some instances. Worldwide increasing hospital admissions during the teenage years have been reported.⁴⁰ Psychiatric hospitalisation for adolescents has been found to be beneficial, particularly with specialised treatment programs and aftercare services.^{5,41,42}

Adolescent inpatient units (AIUs) were developed to provide age-appropriate medical and psychosocial support for adolescents requiring admission.¹⁶ Though AIUs may differ in size and services offered, at a minimum they should offer acute, emergency response treatment of mental disorders, provide comprehensive diagnostic evaluations and brief interventions.^{16,43} The South African Mental Health Policy Guidelines provide for the development of safe and age-appropriate services for mental disorders, substance abuse and the consequences of trauma and violence for children and adolescents.³⁷ However, CAMHS constitute a mere 1.4% of SA's mental health outpatient services, 3.8% of mental health beds in general hospitals and 1% of specialist mental health hospital beds.³⁶

Research studies have described sociodemographic characteristics, parental psychiatric history, and the relationship between these factors and various outcome measures among adolescents admitted to AIUs.^{5,7,19,44,45} These measures include treatment outcomes, length of stay (LOS), readmission rates and the rates of psychiatric disorders. Some sociodemographic factors have been found to be predictors of adolescent outcomes in terms of depressive symptom improvement.⁴⁴ Kennedy et al. found that non-compliance with treatment and deteriorating peer relationships were significantly associated with poor treatment outcomes.^{45,46} Further, they found that a longer LOS significantly contributed to improved treatment outcomes, reporting a median LOS of 118 days for males and 196 days for females.⁴⁶

There has been limited South African research regarding CAMHS in Gauteng, including regarding the profile of adolescent inpatients and their LOS, with most studies having come predominantly from the Western Cape and KwaZulu-Natal.³⁶ Furthermore, the potentially severe social, economic, and behavioral consequences associated with adolescent mental health issues, combined with limited access to mental health services, underscore the need for further research to assist with effective financial planning and structuring of adolescent mental health systems.

AIM AND OBJECTIVES

This study aimed to determine the sociodemographic and clinical profiles, including treatment interventions, and LOS of adolescent patients admitted to Tara Hospital's AIU and to explore the relationship between sociodemographic and clinical factors and LOS.

The study objectives were to:

1. Describe the sociodemographic and clinical profile of adolescent patients admitted to Tara Hospital's AIU during the 3-year study period of 1 January 2012 to 31 December 2014.
2. Describe the pharmacological and psychosocial interventions of adolescent patients admitted to the AIU during the study period.
3. Determine the length of inpatient stay of adolescent patients admitted to the AIU during the study period, and explore the relationship between sociodemographic and clinical variables, and LOS.

METHOD

Study design and setting

This retrospective record review was conducted at Tara Hospital, a specialised public psychiatric facility in Johannesburg. The hospital renders inpatient and outpatient services to children and adults with serious mental illness. Tara AIU has 10 usable beds and provides medium-term inpatient care for both male and female adolescent patients between 13-18 years of age. Patients receive comprehensive evaluation and treatment from a multidisciplinary team (MDT) composed of psychiatrists, psychologists, occupational therapists, registered nurses, social workers, and special education teachers. A family-orientated approach is a key part of care.

Study population

Participants were adolescents (13-18 years old) admitted to the AIU between 1 January 2012 and 31 December 2014.

Data collection

Admissions data were sourced from hospital records. Clinical notes and discharge summaries were reviewed to gather information on demographics, diagnoses, treatments (medication and psychosocial), length of stay, and discharge outcomes. Outcomes were classified as “good” (clinical improvement) or “poor” (refusal of admission, early discharge, or lack of progress). Files that were missing or incomplete were excluded.

Data analysis

Descriptive statistics (mean, standard deviation (SD), counts, percentages) were used for all variables. LOS was categorized into four groups: <30 days; 31-55 days; and >78 days. Relationships between variables were examined using Chi-square tests; Fischer’s exact and logistic regression were used to assess factors affecting outcomes. Significance was set at $p < 0.05$, with SPSS v13 used for analysis.

ETHICAL CONSIDERATIONS

Ethical approval was obtained from the University of the Witwatersrand Human Research Ethics Committee (Medical), clearance no: M160620, and institutional consent from Tara Hospital. Patient confidentiality was strictly maintained.

RESULTS

Participants

The study population consisted of 60 adolescent patients (Figure 1).



Figure 1: Flow diagram of adolescent patients included in the study

Sociodemographic and clinical profile

The mean age of adolescents included in the study was 15.5 years (SD 1.5). Sociodemographic characteristics of the adolescents are shown in Table 1, and clinical characteristics, including psychiatric and medical diagnoses and psychological stressors, are shown in Table 2.

Table 1: Sociodemographic characteristics of adolescent patients admitted to Tara Hospital's AIU from 1 January 2012 to 31 December 2014

Sociodemographic variables	n (%)
Gender	
Male	39 (65.0)
Female	21 (35.0)
Schools	
Mainstream	46 (76.7)
Remedial	7 (11.7)
Special education	4 (6.7)
Not in school	3 (5.0)
Educational level	
High school	50 (83.0)
- Grade 12	6 (10.0)
- Grade 10 – 11	18 (30.0)
- Grade 8 – 9	26 (43.3)
Primary school	10 (16.7)
- Grade 7	6 (10.0)
- Grade 5 – 6	3 (5.0)
- Grade 0 – 4	1 (1.7)
Primary caregiver	
Mother	37 (61.7)
Father	1 (1.7)
Both parents	9 (15.0)
Grandparents	12 (20.0)
Fostered	1 (1.7)
Parental relationship status	
Married	22 (36.7)
Single	15 (25.0)
Divorced	10 (16.7)
Remarried	7 (11.7)
One parent deceased	5 (8.3)
Separated	1 (1.7)
Parental employment status	
One parent employed	31 (51.7)
Both parents employed	15 (25.0)
Both parents unemployed	14 (23.3)
Source of referral to the AIU	
Public	46 (76.7)
Private	12 (20.0)
Other	2 (3.3)

Most patients were male (65.0%), enrolled in mainstream (76.7%) and in high school (83.0%). The majority (61.7%) were cared for by their mothers, with only 15.0% having both parents as primary caregivers. While 36.7% of parents were married, most adolescents had at least one employed parent (51.7% one; 25% both). Public health institutions referred the majority of patients (76.7%) to Tara Hospital's AIU.

Table 2. Clinical characteristics of adolescent patients admitted to Tara Hospital's AIU from 1 January 2012 to 31 December 2014

Clinical variables:	n (%)
Previous psychiatric treatment	
Public hospital	38 (63.3)
Community clinic	1 (1.67)
Private	14 (23.3)
Unknown	5 (8.33)
Nil	2 (3.33)
Family psychiatric history	
Yes	20 (33.3)
No	31 (51.7)
Unknown	9 (15.0)
Perinatal complications	
Yes	4 (6.7)
No	37 (61.7)
Unknown	19 (31.7)
Developmental milestones	
Normal	42 (70.0)
Delayed	13 (21.7)
Unknown	5 (8.3)
Psychiatric diagnosis	
Mood disorder	36 (60.0)
- Major depressive disorder	20 (33.3)
- Bipolar disorder	9 (15.0)
- Mood disorder due to another medical condition	7 (11.7)
Anxiety disorder	
- Generalised anxiety disorder	16 (26.7)
Psychotic disorder	15 (25.0)
- Schizophrenia	1 (1.7)
- Psychotic disorder due to another medical condition	14 (23.3)

Disruptive, impulse-control & conduct disorder	14 (23.3)
- Conduct disorder	8 (13.3)
- Oppositional defiant disorder	6 (10.0)
Substance use disorder	14 (23.3)
Trauma- & stressor-related disorder	11 (18.3)
- Reactive attachment disorder	9 (15.0)
- Post-traumatic stress disorder	2 (3.3)
Intellectual disability	10 (16.7)
Emerging personality disorder	
- Emerging borderline personality disorder	10 (16.7)
Attention deficit hyperactivity disorder	3 (5.0)
Other	5 (8.3)
Comorbid medical diagnosis	
Yes	16 (26.7)
- Epilepsy	7 (11.7)
- HIV	1 (1.7)
- Other	8 (13.3)
No	44 (73.3)
Psychological stressors	
Academic difficulties	47 (78.3)
Parent-child conflict	42 (70.0)
Maltreatment (neglect, emotional, physical or sexual)	21 (35.0)
Parental separation or divorce	21 (35.0)
Parental conflicts	20 (33.3)
Peer relationships	19 (31.7)
Early parental loss	14 (26.7)
Parental psychopathology	16 (26.7)
* Regarding psychiatric diagnoses and psychological stressors, totals add up to more than n=60 (100%) as some adolescents had more than one psychiatric diagnosis and more than one psychological stressor.	

Most adolescent patients had prior psychiatric contact, with 63.3% previously treated at public hospitals, and 33.3% reporting a positive family psychiatric history. Early developmental histories were largely unremarkable, with 61.7% reporting no perinatal complications and 70.0% achieving normal developmental milestones. Mood disorders were the most common diagnoses (60.0%), including 33.3% with

major depressive disorder, followed by anxiety (26.7%), psychotic (25%), disruptive, impulse-control and conduct (23.3%), and substance use (23.3%) disorders. Trauma and stressor-related disorders (18.3%), intellectual disability (16.7%), and emerging borderline personality disorder (16.7%) were also noted. Comorbid medical conditions affected 26.7% of patients, with epilepsy being the most prevalent (11.7%). Academic difficulties (78.3%) and parent-child conflict (70.0%) were the most frequent psychological stressors. High psychiatric and psychosocial comorbidity was evident, with 134 diagnoses and 200 stressors among the 60 adolescents

Pharmacological and psychosocial interventions

All adolescents were prescribed pharmacological treatment during admission. Antidepressants were most common, with citalopram prescribed to 56.7% during admission and 48.3% on discharge. This was followed by antipsychotics, primarily risperidone (51.7% admission, 36.7% discharge); mood stabilizers, including sodium valproate (23.3% admission, 16.7% discharge) or lamotrigine (20.0% admission and discharge); and ADHD medication (13.3% admission, 10.0% discharge). Details of pharmacological and psychosocial interventions are provided in Table 3 and 4, respectively.

Table 3: Pharmacological interventions for adolescent patients admitted to Tara Hospital's AIU from 1 January 2012 to 31 December 2014

Pharmacological interventions	During admission n (%)	On discharge n (%)
Antipsychotics		
- Risperidone	31 (51.7)	22 (36.7)
- Olanzapine	15 (25.0)	6 (10.0)
- Quetiapine	4 (6.7)	7 (11.7)
- Clozapine	4 (6.7)	4 (6.7)
- Amisulpiride	3 (5.0)	1 (1.7)
- Aripiprazole	1 (1.7)	0 (0.0)
- Flupenthixol decanoate	1 (1.7)	1 (1.7)
Antidepressants		
- Citalopram	34 (56.7)	29 (48.3)
- Fluoxetine	8 (13.3)	8 (13.3)
Mood stabilisers		
- Sodium valproate	14 (23.3)	10 (16.7)
- Lamotrigine	22 (20.0)	12 (20.0)

ADHD medication - Methylphenidate	8 (13.3)	6 (10.0)
Sedatives - Benzodiazepines	9 (15.0)	1 (3.3)
Anticholinergic agents - Biperidin	2 (3.3)	2 (3.3)
Other	4 (6.7)	4 (6.7)
No medication prescribed	0 (0.0)	1 (1.7)
<i>* Totals add up to more than n=60 (100%) as some patients were prescribed more than one medication.</i>		

Table 4: Non-pharmacological psychosocial interventions for adolescent patients admitted to Tara Hospital's AIU from 1 January 2012 to 31 December 2014

Non-pharmacological psychosocial interventions	During admission n (%)	On discharge n (%)
Psychiatric intervention - Psychiatric follow-up	60 (100.0)	59 (98.3)
Psychological intervention - Interpersonal group therapy - Individual psychotherapy - Dialectical behaviour therapy groups - Parental counselling & family therapy	54 (90.0) 46 (76.6) 43 (71.7) 51 (85.0)	0 (0.0) 34 (56.7) 0 (0.0) 15 (25.0)
Occupational therapy interventions - OT groups	54 (90.0)	0 (0.0)
Educational interventions - Tara school / ongoing formal education - Referred to department of education	50 (83.3) 0 (0.0)	50 (83.3) 10 (16.7)
Social work interventions - Social worker groups - Referred to dept. of social development	57 (95.0) 0 (0.0)	0 (0.0) 15 (25.0)
Substance use interventions - Referral for substance rehabilitation	0 (0.0)	10 (16.7)
<i>* Totals add up to more than n=60 (100%) as some patients were referred for more than one psychosocial intervention.</i>		

As shown in Table 4, adolescents received non-pharmacological interventions from various MDT members during admission. All patients (100%) were seen by a psychiatric doctor, with 98.3% referred post-discharge for psychiatric follow-up. Psychological therapies included interpersonal and dialectical behavior therapy groups, individual psychotherapy, parental counselling, and family therapy, with

25%-56.7% referred for continued care. Most participated in occupational (90%) and social work (95%) groups. Additionally, 83.3% attended the Tara School for formal education during admission.

Length of stay

The mean LOS of adolescents admitted to Tara Hospital's AIU during the study period was 61.1 days, SD = 43.4 (range 8 - 276 days).

Relationship between sociodemographic and clinical variables and LOS

Clinical factors, namely psychiatric diagnoses and psychological stressors were significantly associated with LOS. Adolescents with conduct disorder had shorter admissions ($\chi^2 = 12.73$, $df = 3$, $p = 0.01$). As shown in Figure 2, the majority (75.0%) with conduct disorder were discharged within 30 days, and none had prolonged admissions of more than 78 days, whereas those without conduct disorder had longer admissions (17% with LOS < 30 days, 25% with LOS of 31-55 days, 27% with LOS of 56-77 days, and 31% with LOS > 78 days.) In contrast, all adolescents with substance use disorder experienced prolonged stays of over 78 days LOS ($\chi^2 = 11.79$, $df = 3$, $p = 0.01$). (Figure 2.) Psychological stressors, particularly parental conflict ($\chi^2 = 16.37$, $df = 3$, $p < 0.01$) and parental separation or divorce ($\chi^2 = 8.52$, $df = 3$, $p = 0.04$), were found to be significantly associated with LOS, specifically shorter hospital admissions. The LOS for adolescents with parental conflicts was < 30 days in 50% of patients, as compared to 12% in those with no parental conflict. For those with parental separation or divorce, LOS was < 30 days in 43%, as compared to 15% in those with no parental separation or divorce. (Figure 3.)

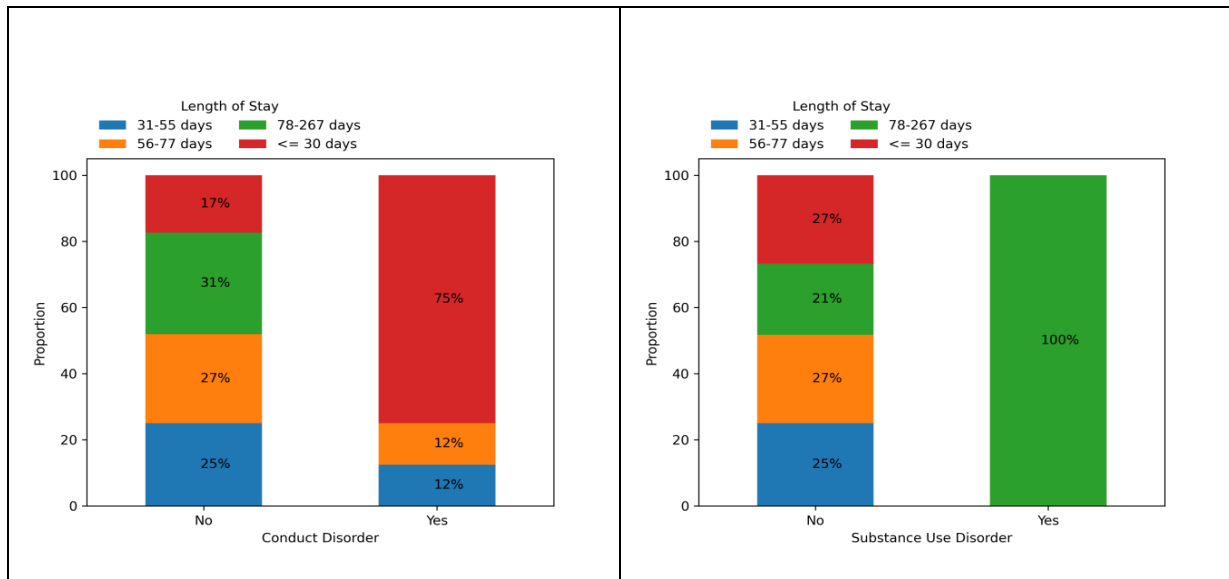


Figure 2: Distribution of patients by conduct disorder and LOS, and substance use disorders and LOS

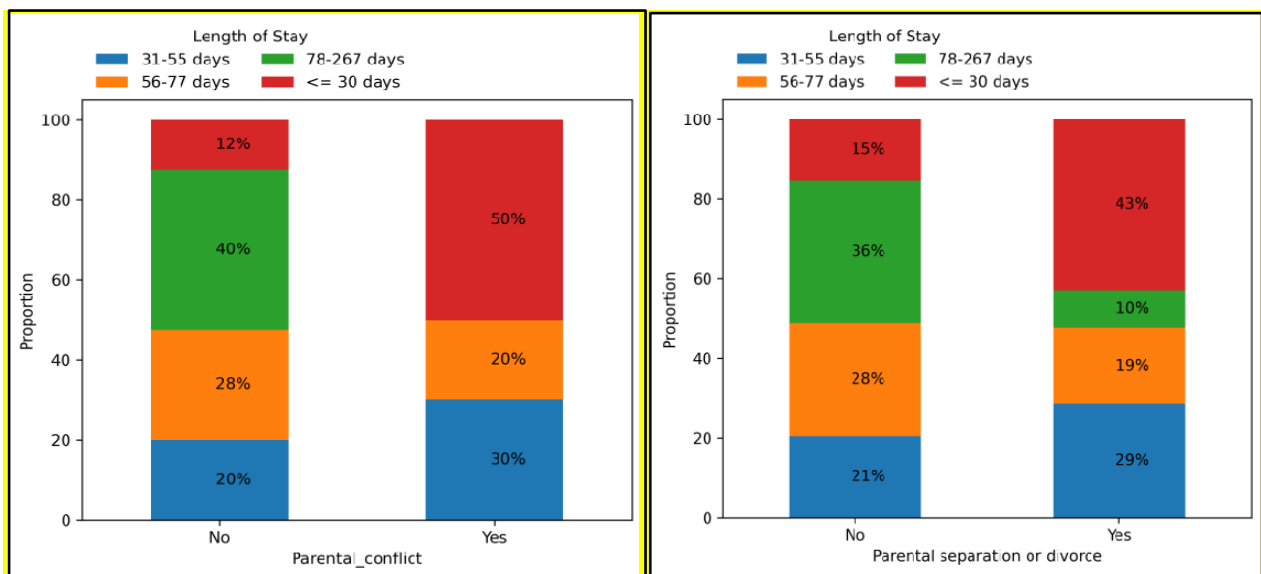


Figure 3: Distribution of patients by parental conflicts and LOS, and parental separation or divorce and LOS

DISCUSSION

Sociodemographic profile

The majority (65%) of adolescents included in the study were male, in keeping with the findings from an Italian retrospective study of adolescent admissions where over half (55%) were male.⁴⁷ However, the literature has more frequently reported a female predominance. For example, in a retrospective review of adolescent psychiatric inpatients from a hospital in London, UK between 2009 to 2018, 71% were female.⁴⁶ Similarly, in an Irish study of adolescent admission referrals over a six-month period, the majority were female.²⁷ The reason for the high number of male adolescent inpatients in this study could not be determined. Whether environmental factors and societal expectations regarding male behaviour in this setting may have played a role, or the high affinity for males to experiment with illicit substances and more disruptive presentation, leading to an inpatient hospital admission, can only be speculated.

The mean age of 15.5 years reported in this study of adolescent inpatients aligns with findings from other studies.^{27,46,47} Kennedy et al. in a study conducted in an adolescent psychiatric unit in London, UK reported 16 years as the mean age of admission.⁴⁶

The majority of adolescents in the current study were attending mainstream school (76.7%) and in high school (83%), similar to the reported 80% of adolescents in high (secondary) school in the Italian study.⁴⁷ In terms of special education, although only a minority (6.7%) in the current study were attending a special school, this was higher than the 0.9% reported amongst learners and students in the SA general population.⁴⁸

The primary caregiver was most frequently the mother (61.7%), followed by grandparents (20%) aligns with the national trends by Stats SA.⁵⁰ Although about a third of the adolescents reported their parents being married, only a minority (15%) of adolescents had both parents as their primary caregiver, which less than the 39% reported in the Italian study.⁴⁷ This discrepancy in the proportion of adolescents with both parents may be attributed to differences in life expectancy between SA and Italy. According to Worldometer, the average life expectancy is 66.31 years in SA and 83.87 years in Italy. Moreover, the gap between male and female life expectancy is wider in SA than in Italy, combined with different cultural and socioeconomic

factors increase the likelihood that children and adolescents in SA grow up with only one parent compared to their Italian counterparts.⁴⁹

Regarding parental employment status, the majority (76.7%) had at least one working parent, aligning with the 2014 SA statistics for Gauteng province, where 75% of households reported salary or wages as their primary source of income.⁵⁰

The referral source to Tara Hospital's AIU was mostly public institutions (76.7%), an expected finding as Tara Hospital is a tertiary public hospital, but with the 20% that were referred from private institutions possibly indicating an unmet need with regards to inpatient adolescent services in the private sector. The finding that most referrals came from public hospitals contrasts with Hansen et al.'s study from Denmark, which found that general practitioners were the primary source of referrals to outpatient CAMHS.⁵¹

Clinical profile

The majority (88.3%) of adolescents in the current study had a history of previous psychiatric treatment, with most having been treated in the public sector and about a quarter (23.3%) having been treated in private, corresponding with the findings above regarding source of referral to the AIU. A positive family psychiatric history was found in a third of the adolescents, which agrees with the previously reported 30% lifetime prevalence of any psychiatric disorder among South African adults.⁵² The close alignment of these findings may be attributed to the similarity in geographical settings, as both studies were conducted in SA.

The most common diagnostic category found in this study was mood disorders (60%), with major depressive disorder being the most frequent diagnosis (33.3%). This aligns with findings from the literature on adolescent inpatient populations.^{27,43} Anxiety disorders were the second most common diagnostic category in the current study (26.7%), aligning with depression in being highly prevalent among the general adolescent population.^{11-13,19} Psychotic disorders were diagnosed in 25% of the adolescents admitted to Tara Hospital during the study period. Of these, the majority were assessed as being due to another medical condition, as opposed to being a primary psychotic disorder, which is in contrast to other SA studies where diagnosis of schizophreniform disorder and schizophrenia predominated amongst adolescents with psychosis.⁵³

While adolescent psychiatric admissions in developed countries are most often for depression, suicidality and behaviour disorders rather than psychosis, there is limited local literature regarding the rates of psychotic disorders amongst adolescent inpatient populations.^{27,43,47} However, a review of psychosis in adolescents in Africa reported rates of up to 45% of psychotic-like experiences in the general adolescent population.⁵³

In the current study, disruptive, impulse-control and conduct disorders were present in 23.3% of the adolescents, which is in keeping with a 5-year retrospective review of Italian adolescent admissions, where conduct disorder was a common reason for admission, particularly among male adolescents.⁴⁷ Rates of substance use disorders in the current study (23.3%) were more than double the rates reported in the general adolescent population (11.4%).¹² A study regarding correlates of substance use disorder among adolescent inpatients found greater rates of conduct disorder and personality disorder, specifically borderline disorder as compared to inpatient adolescents without a substance use disorder.⁸ This was also in keeping with the results from the current study where high rates of psychiatric comorbidity were found.

High rates of stressful life events have been reported in the literature amongst adolescent inpatients.⁴⁷ Psychological stressors such as maltreatment and loss of a primary caregiver, have been found to be associated with a higher likelihood of a substance use disorder amongst adolescent inpatients.⁸ Despite, the multiple psychological stressors found in the adolescents in the current study, trauma- and stressor-related disorders were diagnosed in less than a fifth (18.3%) of the patients, with the majority of these diagnoses being reactive attachment disorder. Furthermore, PTSD was diagnosed in only a minority (3.3%) of patients, which is out of keeping with the 21.5% median point prevalence reported in a systematic review of mental health problems in sub-Saharan adolescents.¹¹ Medical comorbidity was found in just over a quarter of the adolescents in the current study, with the most common diagnosis being epilepsy in 11.7%, which was slightly higher than the prevalence of epilepsy reported elsewhere in Africa amongst the general adolescent population.⁵⁴

Pharmacological interventions

All adolescents admitted to Tara Hospital's AIU were prescribed medication during their admission, and all but one was discharged on medication. This aligns with the literature regarding the frequency of pharmacological interventions.⁴ Regarding the prescription of antidepressant medications, selective serotonin reuptake inhibitors were the only class of medication used, in keeping with this being the first-line pharmacological option for adolescents with depression, as well as anxiety disorders. In the current study however, citalopram was prescribed more frequently than fluoxetine, whereas in the literature fluoxetine is usually preferred.⁵⁶ This could be due to citalopram's better tolerability profile and lower risk of drug interactions which made it the most preferred choice for adolescent patients admitted at Tara Hospital.

Antipsychotic medication was prescribed during admission for over half of the adolescents in this study, and over a third of the adolescents were discharged on an antipsychotic. Registered indications for antipsychotics use in adolescents include psychotic and bipolar disorders, with reported off-label uses including conduct disorder, ADHD, anxiety and depressive disorders.⁵⁶ Atypical antipsychotics were favoured, with risperidone, followed by olanzapine and quetiapine, in keeping with trends in psychotropic medication use in children and adolescents reported in the literature.⁵⁶

In addition to atypical antipsychotics, sodium valproate and lamotrigine were the other mood stabilisers which were prescribed to adolescents admitted to Tara Hospital's AIU. Both these medications are also anticonvulsants and thus may have been prescribed for their mood stabilising effects and/or for seizure control in patients diagnosed with epilepsy. The percentage of patients prescribed methylphenidate was double the percentage of adolescents who were diagnosed with ADHD in the current study. In view of the high reported rates of academic difficulties, some of the adolescents may have been trialed on methylphenidate during their admission. Although sedative medication was used in some patients during their admission, in most cases this was not continued following discharge.

Non-pharmacological psychosocial interventions

All adolescents admitted to Tara Hospital during the study period were treated by a psychiatrist during their admission and, except for the one patient whose medication was subsequently discontinued, all were referred for continued psychiatric follow-up post-discharge. Non-pharmacological psychosocial interventions were also provided by nursing, psychology, social work and occupational therapy staff members, and a school teacher. MDT interventions for adolescent psychiatric inpatients described in the literature include ward milieu therapy, occupational therapy, individual therapy, cognitive behavioural therapy, dialectical behavioural therapy, family therapy, group therapy (such as supportive groups), education and job training, as well as interventions such as schema-based therapy, psychomotor therapy, art therapy, aggression regulation training, dialectical mindfulness, physiotherapy, music therapy, story-telling workshops, emotion-centred workshops, recreation and sporting activities.^{55,56}

In the current study some interventions provided, such as parental counselling and family therapy, were delivered by various categories of MDT members. Group interventions, such as interpersonal group therapy, dialectical behaviour therapy groups, occupational therapy groups, and social worker groups were provided to most of the adolescents during their admission. However most adolescents were not referred for continued group therapy interventions post-discharge, with resource constraints and lack of availability of these services in the community being the most likely explanation for this.¹⁶

Insufficient post-discharge child and adolescent services has been highlighted elsewhere in the literature as being linked to poor long-term outcomes.^{38,57} Interventions which were recommended to continue post-discharge in the current study included individual psychotherapy in over half of the patients, and parental counselling and family therapy in a quarter, with this likely being influenced by whether or not patients were able to continue post-discharge follow-up at Tara Hospital's child and adolescent clinic, or if they required down-referral to community clinic closer to their home.

Regarding educational interventions, most of adolescents were able to continue at the Tara school during their admission and were advised to continue with formal education post-discharge. In some cases, referrals were also made upon discharge to the department of education, the department of social development, and to

substance rehabilitation facilities.

Length of inpatient stay, and the relationship between LOS and clinical variables

The mean LOS (61.1 days) of adolescents admitted to Tara Hospital's AIU was shorter than that reported in Kennedy et al.'s 10-year review of adolescent inpatients' admissions in the UK, which was a median LOS of 118 days for males and 196 days for females.⁴⁶ In contrast, another study done in Norway found the median LOS for adolescents was 8.5 days, with majority of admissions being less than one month. However, the adolescent psychiatric units included in this study were specifically for psychiatric emergencies only.⁴³

The findings reflect a significant range in adolescent LOS, consistent with international trends. While the mean LOS at Tara Hospital's AIU was notably shorter than reported in the UK, it fell within the global spectrum of 7.5 to 603 days.⁵⁵ The current study also revealed a wide range in terms of LOS, with the longest LOS being 276 days. Clinical variables, in terms of psychiatric diagnoses and psychological stressors, were found to be significantly associated with LOS. Specifically, substance use disorder was associated with a longer LOS, whereas conduct disorder, parental conflict and parental separation or divorce were associated with shorter hospital admissions. The current study did not explore admission outcomes in terms of clinical improvement, however it was found by Kennedy et al. that clinical outcomes were better amongst those adolescents who had longer admissions.⁴

Although the original data is from a decade ago, current situational analyses suggest that adolescent psychiatric units like Tara Hospital have experienced minimal improvement in infrastructure or personnel. This likely perpetuates similar admission patterns, with clinical diagnoses and psychosocial stressors remaining to be key drivers of LOS.

STRENGTHS AND LIMITATIONS

This study provides valuable data on adolescents admitted to a psychiatric AIU in Johannesburg. However, limitations include missing files and incomplete records, may have compromised data integrity, led to biased or inaccurate findings and thereby affected the study's validity and reliability. The short study period was another limitation, failing to capture seasonal trends, long-term effects, or evolving patterns. A small sample size have constrained statistical significance and reduced the diversity needed to reflect the broader population, limiting generalizability.

RECOMMENDATIONS

Given the predominance of male adolescent inpatients, targeted preventive measures should be developed, focusing on early intervention, awareness, and tailored support. However, implementation must consider the country's shortage of facilities and mental health professionals. Addressing common psychological stressors, such as academic difficulties and parent-child conflict, require strengthening academic support and family counselling, though rollout may be affected resource constraints in public healthcare settings. Further research is needed into how LOS relates to clinical outcome, which can help optimize care models within an overstretched system. AIUs should provide caregiver-focused support, including education, parental counselling and therapy, to improve treatment adherence and outcomes. These efforts may benefit from multi-sectoral collaboration to overcome staff shortage and infrastructural gaps.

CONCLUSION

Most adolescents admitted to Tara Hospital's AIU had prior psychiatric treatment. Common stressors were academic issues and parent-child conflict, with mood disorders being the most frequent diagnosis, followed by anxiety, psychotic, disruptive, impulse-control, conduct, and substance use disorders. Comorbidities and multiple stressors were prevalent. Average LOS was 61.1 days. Treatment included antidepressants, antipsychotics, and psychosocial interventions. Shorter LOS was linked to conduct disorder, parental conflict, and separation, while longer LOS correlated with substance use disorder. The study did not examine clinical outcomes and further research is recommended.

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COMPETING INTERESTS

The author declares that there were no financial or personal relationships that may have inappropriately influenced the writing of this study.

AUTHORS' CONTRIBUTIONS

L.G. designed the protocol, collected and analysed the data, and authored the article. B.M. assisted with the data analysis and contributed to the write-up through supervision, revisions and editing.

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DISCLAIMER

The views expressed in this study are those of the author and are not an official position of any institution (Witwatersrand University).

REFERENCES

1. Zuhri MN. Cognitive psychology development in the early adolescence. JESI. 2023; 2(1):44-51.
2. Paruk S, Karim E. Update on adolescent mental health. SAMJ. 2016; 106(6):548-550.
3. Patel V. Mental health in low-and middle-income countries. Br Med Bull. 2007; 81(1):81-96.
4. Sisk LM, Gee DG. Stress and adolescence: Vulnerability and opportunity during a sensitive window of development. Curr Opin in Psychol. 2022; 44:286-292.
5. Pfeiffer SI, Strzelecki SC. Inpatient psychiatric treatment of children and adolescents: A review of outcome studies. J Am Acad Child Adolesc Psychiatry. 1990; 29(6):847-853.
6. Merikangas KR, Nakamura EF, Kessler RC. Epidemiology of mental disorders in children and adolescents. Dialogues Clin Neurosci. 2009; 11(1):7-20.
7. Zwaanswijk M, van Dijk CE, Verheij RA. Child and adolescent mental health care in Dutch general practice: time trend analyses. BMC Fam Pract. 2011; 12:133.

8. Daudin M, Cohen D, Edel Y, Bonnet N, Bodeau N, Consoli A, et al. Psychosocial and clinical correlates of substance use disorder in an adolescent inpatient psychiatric population. *J Can Acad Child Adolesc Psychiatry*. 2010; 19(4):264-273.
9. Mulraney M, Coghill D, Bishop C, Mehmed Y, Sciberras E, Sawyer M, et al. A systematic review of the persistence of childhood mental health problems into adulthood. *Neurosci Biobehav Rev*. 2021; 129:182-205.
10. World Health Organisation. Mental health of adolescents. 2024. Available: <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>. [Accessed 09.11.2024]
11. Jörns-Presentati A, Napp AK, Dessauvagie AS, Stein DJ, Jonker D, Breet E, et al. The prevalence of mental health problems in sub-Saharan adolescents: A systematic review. *PLoS One*. 2021; 16(5):e0251689.
12. Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, et al. Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication--Adolescent Supplement (NCS-A). *J Am Acad Child Adolesc Psychiatry*. 2010; 49(10):980-989.
13. Tkacz J, Brady BL. Increasing rate of diagnosed childhood mental illness in the United States: incidence, prevalence and costs. *Public Health Pract*. 2021; 2:100204.
14. Kleintjes S, Flisher AJ, Fick M, Railoun A, Lund C, Molteno C, et al. The prevalence of mental disorders among children, adolescents and adults in the Western Cape, South Africa. *S Afr Psychiatry Rev*. 2006; 9(3):157-160.
15. Eyal K, Burns J. The parent trap: cash transfers and the intergenerational transmission of depressive symptoms in South Africa. *World Dev*. 2019; 117:211-229.
16. Flisher AJ, Dawes A, Kafaar Z, Lund C, Sorsdahl K, Myers B, et al. Child and adolescent mental health in South Africa. *J Child Adolesc Ment Health*. 2012; 24(2):149-161.

17. Myers B, Browne FA, Carney T, Kline T, Bonner CP, Wechsberg WM. The association of recurrent and multiple types of abuse with adverse mental health, substance use, and sexual health outcomes among out-of-school adolescent girls and young women in Cape Town, South Africa. *Int J Environ Res Public Health*. 2021; 18(21):11403.
18. Kagee A, Donenberg G, Davids A, Vermaak R, Simbayi L, Ward C. Identifying community risk factors for HIV among South African adolescents with mental health problems: a qualitative study of parental perceptions. *J Child Adolesc Ment Health*. 2014; 26:165–176.
19. Mohammadi MR, Ahmadi N, Khaleghi A, Mostafavi SA, Kamali K, Rahgozar M, et al. Prevalence and correlates of psychiatric disorders in a national survey of Iranian children and adolescents. *Iran J Psychiatry*. 2019; 14(1):1-15.
20. Shih JH, Abela JR, Starrs C. Cognitive and interpersonal predictors of stress generation in children of affectively ill parents. *J Abnorm Child Psychol*. 2009; 37(2):195-208.
21. van Dijk MT, Murphy E, Posner JE, Talati A, Weissman MM. Association of multigenerational family history of depression with lifetime depressive and other psychiatric disorders in children: Results from the adolescent brain cognitive development (ABCD) study. *JAMA Psychiatry*. 2021; 78(7):778-787.
22. Foster CE, Webster MC, Weissman MM, Pilowsky DJ, Wickramaratne PJ, Rush AJ, et al. Course and severity of maternal depression: Associations with family functioning and child adjustment. *J Youth Adolesc*. 2008; 37(8):906-916.
23. Rice F, Harold G, Thapar A. The genetic aetiology of childhood depression: a review. *J Child Psychol Psychiatry*. 2002; 43(1):65-79.
24. Materu J, Kuringe E, Nyato D, Galishi A, Mwanamsangu A, Katebalila M, et al. The psychometric properties of PHQ-4 anxiety and depression screening scale among out of school adolescent girls and young women in Tanzania: a cross-sectional study. *BMC Psychiatry*. 2020; 20(1):321.

25. Rice F. Genetics of childhood and adolescent depression: insights into etiological heterogeneity and challenges for future genomic research. *Genome Med.* 2010; 2(9):1-6.
26. Minev M. Self-esteem and depression in adolescents. *Trakia J Sci.* 2018; 16(2):119-127.
27. Wilson LS, Kelly BD, Morgan S, Harley M, O'Sullivan M. Who gets admitted? Study of referrals and admissions to an adolescent psychiatry inpatient facility over a 6-month period. *Ir J Med Sci.* 2012; 181(4):555-560.
28. Costello EJ, Maughan B. Annual research review: optimal outcomes of child and adolescent mental illness. *J Child Psychol Psychiatry.* 2015; 56(3):324-341.
29. Bor W, Dean AJ, Najman J, Hayatbakhsh R. Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Aust N Z J Psychiatry.* 2014; 48(7):606-616.
30. Aggarwal S, Berk M, Taljard L, Wilson Z. South African adolescents' beliefs about depression. *Int J Soc Psychiatry.* 2016; 62(2):198-200.
31. Hayes C, Simmons M, Palmer V, Hamilton B, Simons C, Hopwood M. Key features of adolescent inpatient units and development of a checklist to improve consistency in reporting of settings. *J Psychiatr Ment Health Nurs.* 2023; 30(1):74-100.
32. Hawton K, Saunders KE, O'Connor RC. Self-harm and suicide in adolescents. *Lancet.* 2021; 379(9834):2373-2382.
33. Hayes C, Simmons M, Simons C, Hopwood M. Evaluating effectiveness in adolescent mental health inpatient units: A systematic review. *Int J Ment Health Nurs.* 2018; 27(2):498-513.
34. World Health Organisation. Child and Adolescent Mental Health Policies and Plans. 2005. Available: <https://iris.who.int/handle/10665/43068>. [Accessed 24.08.2024]
35. Zwaanswijk M, Van der Ende J, Verhaak PF, Bensing JM, Verhulst FC. Factors associated with adolescent mental health service need and utilization. *J Am Acad Child Adolesc Psychiatry.* 2003; 42(6):692-700.

36. Mokitimi S, Schneider M, de Vries PJ. A situational analysis of child and adolescent mental health services and systems in the Western Cape Province of South Africa. *Child and adolescent psychiatry and mental health*. 2022; 16(1):6.
37. Mokitimi S, Schneider M, de Vries PJ. Child and adolescent mental health policy in South Africa: history, current policy development and implementation, and policy analysis. *Int J Ment Health Syst*. 2018; 12:36.
38. Healy E, Fitzgerald M. A 16-year follow-up of a child inpatient population. *Eur Child Adolesc Psychiatry*. 2000; 9(1):46-53.
39. Newlove-Delgado T, McManus S, Sadler K, Thandi S, Vizard T, Cartwright C, et al. Child mental health in England before and during the COVID-19 lockdown. *Lancet Psychiatry*. 2021; 8(5):353-354.
40. Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. Child and adolescent mental health worldwide: evidence for action. *Lancet*. 2011; 378(9801):1515-1525.
41. Stein DJ, Shoptaw SJ, Vigo DV, Lund C, Cuijpers P, Bantjes J, et al. Psychiatric diagnosis and treatment in the 21st century: paradigm shifts versus incremental integration. *World Psychiatry*. 2022; 21(3):393-414.
42. Curry E. Outcome research on residential treatment: implications and suggested directions. *Am J Orthopsychiatry*. 1991; 61(3):348-357.
43. Hanssen-Bauer K, Heyerdahl S, Hatling T, Jensen G, Olstad PM, Stangeland T, et al. Admissions to acute adolescent psychiatric units: a prospective study of clinical severity and outcome. *Int J Ment Health Syst*. 2011; 5(1):1-11.
44. Ang YS, Pizzagalli DA. Predictors of treatment outcome in adolescent depression. *Curr Treat Options Psych*. 2021; 8:18-28.
45. Pizzagalli DA, Webb CA, Dillon DG, Tenke CE, Kayser J, Goer F, et al. Pretreatment rostral anterior cingulate cortex theta activity in relation to symptom improvement in depression: a randomized clinical trial. *JAMA Psychiatry*. 2018; 75(6):547-554.

46. Kennedy J, Hembry P, Green D, Skuse D, Lewis S. Predictors of change in global psychiatric functioning at an inpatient adolescent psychiatric unit: A decade of experience. *Clin Child Psychol Psychiatry*. 2020; 25(2):471-482.
47. Di Lorenzo R, Cimino N, Di Perro E, Pollutri G, Neviani V, Ferri P. A 5-year retrospective study of demographic, anamnestic, and clinical factors related to psychiatric hospitalizations of adolescent patients. *Neuropsychiatr Dis Treat*. 2016; 12:191-201.
48. South Africa. Department of Basic Education. Education Statistics in South Africa. 2014. Available: <https://www.education.gov.za/Portals/0/Documents/Publications/Education%20Statistics%202014.pdf>. [Accessed 24.08.2024]
49. Worldometer. Life Expectancy of the World Population. 2025. Available: <https://www.worldometers.info/demographics/life-expectancy/>. [Accessed 24.08.2024]
50. Statistics South Africa General household survey. 2014. Available: <https://www.statssa.gov.za/publications/P0318/P03182014.pdf>. [Accessed 24.08.2024]
51. Hansen AS, Christoffersen CH, Telléus GK, Lauritsen MB. Referral patterns to outpatient child and adolescent mental health services and factors associated with referrals being rejected. A cross-sectional observational study. *BMC Health Serv Res*. 2021; 21:1063.
52. Stein DJ, Seedat S, Herman A, Moomal H, Heeringa SG, Kessler RC, et al. Lifetime prevalence of psychiatric disorders in South Africa. *Br J Psychiatry*. 2008; 192(2):112-117.
53. Adjorlolo S, Setordzi M. Psychosis in adolescents in Africa: A scoping review for current understanding and future directions. *Cogent Psychol*. 2021; 8(1).
54. Farghaly WM, Abd Elhamed MA, Hassan EM, Soliman WT, Yhia MA, Hamdy NA. Prevalence of childhood and adolescence epilepsy in Upper Egypt (desert areas). *Egypt J Neurol Psychiatr Neurosurg*. 2018; 54(1):34.

55. Hsu CJ, Ayres A, Payne L. Evaluating outcomes following adolescent and youth mental health inpatient admissions: A systematic review. *Early Interv Psychiatry*. 2024; 18(7):481-501.
56. Chen A, Dinyarian C, Inglis F, Chiasson C, Cleverley K. Discharge interventions from inpatient child and adolescent mental health care: a scoping review. *Eur Child Adolesc Psychiatry*. 2022; 31(6):857–878.
57. Altuwairqi Y. Trends and prevalence of psychotropic medication use in children and adolescents in the period between 2013 and 2023: a systematic review. *Cureus*. 2024; 16(3):e55452.
58. Herman KC, Reinke WM, Parkin J, Traylor KB, Agarwal G. Childhood depression: Rethinking the role of the school. *Psychol Sch*. 2009; 46(5):433-446.

Appendix A: Approved Research Protocol

RETROSPECTIVE RECORD REVIEW OF ADOLESCENTS ADMITTED TO AN INPATIENT PSYCHIATRIC UNIT.

1. INTRODUCTION AND BACKGROUND

Mental health issues are of high priority in addressing both health and mental health challenges in the world population. In the promotion of global health, World Health Organization (WHO) states that there cannot be health without mental health (1). Kessler et al (2) concluded that mental health can be achieved by, among other things, providing early intervention and improving knowledge in addressing mental illness.

Adolescence is difficult to define. There are several definitions in the literature which agree on adolescence being a stage in human development; however, it does not have clear boundaries. The start and end of this stage vary for different communities. The Canadian Paediatric Society supports a more functional definition of adolescence which is the same as the one used by WHO, which is “*the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to 19 years*” (3). For the purpose of this study a definition of adolescence by the American Psychological Association (APA) seems more appropriate since the adolescent unit at Tara Hospital admits patients from age 13 to 18 years. According to the APA adolescence is a transitional stage from childhood to adulthood between ages 12 and 19 years of age. It is a critical transition period in human development, often characterized by physical, physiological and psychological changes with puberty marking the transition from childhood to adolescence (3). Psychological and social experiences such as social and economic independence, personal identity, forming

relationships, acquiring skills needed for adult roles including capacity for abstract reasoning crucially influence this transition period (5).

Adolescence is also a stage of immense risk during which social contexts have a significant influence (4). It is during this time that pressure to engage in high risk behaviours and experimentation is increased. Alcohol use, cigarette smoking, illicit drug use and sexual exploration are common in adolescence (4). These behaviours put one at high risk of injuries, unwanted pregnancies, sexually transmitted infections including HIV, conflict with parents or guardians, adjustment problems and a wide range of other mental health problems. Equipping adolescents with social skills, coping skills and self-confidence can help prevent mental disorders like conduct disorders, anxiety, depression and eating disorders including other risk behaviours such as those related to substance use and violence (5). Good mental health for children and adolescents results in well-adjusted and functional adults.

Psychiatric disorders are among the ten leading causes of disability in people between ages of 15 to 44 (3). Most adulthood psychiatric disorders begin in childhood and adolescence and remain the biggest problem among young people in their most productive years of life (3). Adolescent mental illnesses remain a serious public health issue, with increasing hospital admission during the teenage years. In a prospective longitudinal study by Kim-Cohen et al (8) following a birth cohort of 1,037 individuals, three quarters of those who met criteria for major psychiatric disorder in adulthood were said to have had a first episode diagnosis before the age of 18 years. Early identification and adequate treatment are important to prevent the downward spiral of problems that might be difficult to treat in adulthood (3). Referrals to

CAMHS are therefore a great opportunity to address the mental health and psychosocial needs of children and adolescents (9).

Prevalence studies among children, adolescents and adults in the Western Cape concluded that 1 in 5 South African children have mental disorder (10). Despite the magnitude and serious consequences of mental disorders in youth, only a minority of children and adolescents receive specialized care (10). The prevalence of mental disorders in children and adolescent is at 21% in South Africa and it is no different from what was found in similar international prevalence studies as reported by WHO 2005, where worldwide prevalence is at 20% on average (16). Adolescents that utilized the psychiatric services were more likely to have families with multiple psychosocial stresses such as unemployment, divorce, parental mental problems, and poor social support including poor economic status (16). Local and international epidemiological studies concluded that there's an unmet need for children and adolescent mental health services and a significant lack of resources to alleviate the problem (3).

Risk factors for the development of mental illness in adolescents are multi-factorial and have been divided into child characteristics and parent/family characteristics. One of the most consistent and potent risk factors is family psychiatric history (2). Predictors of positive outcome when treating adolescents with mental illness include less pathological clinical picture, family involvement in therapy, longer hospital admissions, a positive therapeutic alliance and good social support (11). An Irish follow-up study focused on inpatient population found that there were high rates of poor outcome including unemployment, imprisonment, disability and death in this

population (7). Poor mental health has major consequences for the adolescent's future and thus more support and age appropriate services are necessary (7).

Adolescence is a particular challenging phase in human development. It also happens to be a critical period for development of mental disorders (12). Studies done on inpatient mental health interventions of children and adolescents found that psychiatric hospitalization of this group was often beneficial, particularly if specialized treatment programs and aftercare services were available (12), (14), (15). Gower et al (13) conducted a prospective cohort study of consecutive admissions of children and adolescents and concluded that there were notable health benefits to inpatient care and sustained follow-up.

Adolescent inpatient units (AIU's) were initially developed in the 1960's (17). Their purpose remained largely unchanged over the decades and was to provide age appropriate medical and psychosocial support for teenagers requiring admission (17). AIU's differ in size, location and services they offer. There is however universal consensus that they are for acute, emergency response treatment of mental disorders (11). Despite the differences, treatment is actually effective in improving mental health. AIU's have since gradually developed into specialized settings for comprehensive diagnostic evaluation and brief interventions (16), (17). These developments corresponded with changes in the admission trends, inpatient care funding and community resources availability (16), (17).

The South African Mental Health Policy Guidelines provide for the development of safe and age-appropriate services for mental disorders, substance abuse and the consequences of trauma and violence for children and adolescents (16). There are 3,460 outpatient mental health facilities in South Africa and only 1.4% of them

dedicated to children and adolescents (16). To date, in South Africa, specialist day and outpatient services are only available from some tertiary level children and adolescent mental health services inpatient units which are not accessible to all its population (16).

Tara Hospital in Hurlingham, Johannesburg, is a specialized public sector psychiatric hospital linked to the University of the Witwatersrand. It renders specialized tertiary inpatient and outpatient services to children and adults with serious mental illness. It serves the national and provincial populations as it provides services not otherwise available in other provinces. It has an open AIU providing medium-term inpatient care for patients aged 13 to 18 with serious mental illness. The AIU has 10 usable beds to admit both males and females. The admitted adolescents receive comprehensive diagnostic evaluation and treatment from a multidisciplinary team comprising of psychiatrists, psychologists, occupational therapists, registered nurses, social workers and special education school teachers. The team involves the parents and guardians in the management of the adolescents, emphasizing on family-orientated approach throughout the adolescents stay in hospital.

A study conducted by Szabo and Katz at Tara Hospital concluded that there was notable decline in adolescents diagnosed with adjustment disorder and an increase in those diagnosed with psychotic, mood and anxiety disorders (18). However, according to the authors, it was not clear whether this represented a change in diagnostic practices or type of patients admitted.

It is often said that the future of any country lies in the hands of its children. It is therefore important to put adequate resources towards their physical and mental

wellbeing. Suitable care of hospitalized adolescents should be included in the planning of health care services in local, provincial and national levels.

2. AIM

To describe the socio-demographic characteristics, clinical profile and outcomes of the adolescents admitted to Tara Hospital over a three-year period.

3. RESEARCH OBJECTIVES

- To describe socio-demographic characteristics of patients admitted to Tara Hospital Adolescent Unit during the study period.
- To describe the clinical profile of patients admitted to Tara Hospital Adolescent Unit during the study period.
- To investigate the relationship between the socio-demographic, clinical characteristics and outcomes of patients admitted to Tara Hospital Adolescent Unit during the study period.

4. HYPOTHESES

- Socio-demographic variables such as age, gender, level of education and family structure will have significant associations with clinical outcome.
- Clinical characteristics such as diagnoses, duration of illness and prior treatment will have significant associations with clinical outcome.

5. RESEARCH DESIGN AND METHODOLOGY

5.1 STUDY DESIGN

A retrospective record review of all patients admitted to the Tara Hospital Adolescent Unit from 1st January 2012 to 31st December 2014.

5.2 STUDY POPULATION

Inclusion Criteria

- Male and female patients admitted to the Tara Hospital Adolescent Unit during the study period
- 13 – 18 years old

Exclusion Criteria

- None

5.3 STUDY SETTING

Tara Hospital is a provincial specialist psychiatric institution in Johannesburg, Gauteng. The hospital has 140 beds 10 of which are reserved for adolescent inpatient unit. It provides inpatient and outpatient psychiatric services to the severely mentally ill. Tara Hospital also serves as a training facility of the University of the Witwatersrand Faculty of Health Sciences. The study will be carried out from file records of patients previously admitted to the adolescent inpatient unit during the study period.

6. DATA

6.1 DATA AVAILABILITY AND COLLECTION

Information will be obtained from patients file records and discharge summaries kept at Tara Hospital. Data will be managed using Research Electronic Data Capture (REDCap) (19). The data sheet will capture demographic, social and clinical profiles and outcome variables of the study population (Appendix 1).

The demographic variables include age at admission, gender, race and highest level of education, type of school, religion, language, referral source and length of stay. The socio – economic variables include parental level of education, employment status and relationship status. The clinical variables include psychiatric diagnoses according to the DSM IV-TR, duration of illness, substance use history and interventions rendered during the admission. The outcome variables include clinically improved and clinically unimproved, completed treatment or not completed treatment and reasons for not completing treatment.

6.2 DATA ANALYSIS

6.2.1 SAMPLE SIZE DETERMINATION

This research is a descriptive study, where the main aim is the estimation of proportions and means in the population, with a secondary aim being to examine whether the proportions are related to demographic variables (i.e. a correlational analysis). The main results to be reported in this study are the percentages of patients who improved or not improved their clinical outcome. Follow-up analysis is to examine whether the proportions of clinical outcome depend on the demographic characteristics of patients (gender, age, level of education, race and family structure).

Sample size determination for descriptive studies is based on confidence intervals; that is, the level of precision required in providing estimates of the proportions and means.

Sample size calculations are based on the way the data will be analysed. In this study the chi-square test of two proportions will be used as the proportions of clinical improvement is compared to the ones of non-improvement. As the study is descriptive with one group of patients under study, where the number of those whose clinical outcome improved is compared to those without improvement, the following formula, for sample size determination is used:

$$N = \frac{1}{d^2} \left(\frac{p_0}{p_1} + \frac{p_1}{p_0} \right)$$
 where p_0 and p_1 are respectively, the proportions of improved and not improved. The expectation is that 65% will be improved against 35% not improved. So, the minimum number of patients will be

$$N = 44.4, \text{ say } 45.$$

In general, the larger the sample size is, the more precise your estimation is. So, in this study a total sample size of 90, double of the minimum, will be considered.

6.2.2 STATISTICAL ANALYSES

To achieve the research objectives of the study, descriptive statistics of demographic characteristics will be presented in Table or pie graph formats with frequencies and percentages. Clinical profiles of patients will also be described in Table or bar graph formats.

To investigate the relationship between the socio-demographic, clinical characteristics and outcomes, chi square test of independence will be carried out. In this test, the null

hypothesis (H_0) is the observed frequency is very close to expected frequency and the alternative (H_1) is that they are different.

All the statistical tests will be carried out with 5% significance level. So, H_0 will be rejected if p-value (the probability of getting the observed result by chance alone) is less than 0.05 in favour of the alternative hypothesis, otherwise H_0 will not be rejected.

One of the conditions of the use of chi square test is that, expected frequency count (row-total multiplied by column-total divided by the grand-total) for each cell, in the contingency table, must be at least 5. So, if the condition above is violated, Fisher Exact test will be used instead.

To investigate whether the duration of illness in each of the clinical characteristics differ between the improved and non-improved clinical outcome, two independent samples test will be carried out. Prior to the two independent samples test, the test of normality will be done to determine whether a parametric version or a non-parametric version will be used. If duration of illness variable is normally distributed, the parametric test (two independent T test) will be used; otherwise non-parametric test (Mann Whitney) will be used.

All the analyses will be carried out using the SPSS (Statistical Packages for Social Sciences) version 13 or Microsoft Excel.

7. ETHICAL CONSIDERATION

The study will use information that is already available in medical records. Consent has already been obtained for anonymous retrospective use of data for research (Appendix 2). Information will be reported anonymously using a specific code to substitute their identity which will only be available to the principal investigator. Tara

Hospital has granted provisional approval of the study (Appendix 3). Ethics clearance has been obtained from the Human Research Ethics Committee of Witwatersrand University (Appendix 4).

8. RESEARCH LIMITATIONS

As this is a retrospective record review there might be missing data in the records which will be accounted for as “unknown”. The study is limited to a population in Tara Hospital, which is in an urbanized area thus the results might not be generalized to other settings.

9. TIME FRAME 2016-2017	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan
Lit review													
Protocol Writing													
Protocol Revision													
Ethics Application													
Assessor Group													
Data Collection													
Report Writing													
Supervisor Review													

10. FUNDING AND BUDGET

The researcher will apply for funding from various, approved donors. Where funding is not available or is not sufficient, the costs will then be incurred by the researcher.

Items	Amount
Travel and petrol	R3500
Photocopies and stationeries	R1000

Printing and binding	R1000
Statistician costs	R6 000
Other	R500
Total budget	R12 000

REFERENCES

1. Murray C, Lopez A. *World Health Report 2002: Reducing Risks, Promoting Healthy Life*. Geneva, Switzerland: World Health Organization. 2002
2. Kessler R.C, Berglund P, Demler O, Jin R, Merikangas K.R, Walters E.E. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national Comorbidity survey replication. 2005 Jun;62(6):593-602
3. Merikangas K. R, Nakamura E.F, Kessler R.C. Epidemiology of mental disorders in children and adolescents. *Dialogues in clinical neuroscience*.2009; 11(1): 7.
4. Zwaanswijk M, van Dijk C.E, Verheij R.A. Child and adolescent mental health care in Dutch general practice: time trend analyses. *BMC family practice*.2011; 12(1): 133.
5. Daudin M, Cohen D, Edel Y, Bonnet N, Bodeau N, Consoli A, Guilé J.M. Psychosocial and clinical correlates of substance use disorder in an adolescent inpatient psychiatric population. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*.2010;19(4): 264.
6. Fergusson D.M, Horwood J.L. The Christchurch Health and Development Study: review of findings on child and adolescent mental health. *Australian and New Zealand Journal of Psychiatry*.2001; 35(3): 287-296.
7. Wilson L.S, Kelly B.D, Morgan S, Harley M, O'Sullivan M. Who gets admitted? Study of referrals and admissions to an adolescent psychiatry inpatient facility over a 6-month period. *Irish journal of medical science*.2012; 181(4), 555-560.
8. Kim-Cohen J, Caspi A, Moffitt T. E, Harrington H, Milne B. J, Poulton R. Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. *Archives of general psychiatry*.2003; 60(7): 709-717.
9. Healy E, Fitzgerald M. A 16-year follow-up of a child inpatient population. *European child & adolescent psychiatry*.2000; 9(1): 46-53.
10. Kleintjes S, Flisher A.J, Fick M, Railoun A, Lund C, Molteno C, Robertson B. The prevalence of mental disorders among children, adolescents and adults in

the Western Cape, South Africa: original article. *South African Psychiatry Review*.2006; 9(3): 157-160.

11. Hanssen-Bauer K, Heyerdahl S, Hatling T, Jensen G, Olstad P.M, Stangeland T, Tinderholt T. (2011). Admissions to acute adolescent psychiatric units: a prospective study of clinical severity and outcome. *International journal of mental health systems*.2011; 5(1): 1.
12. Pfeiffer S.I, Strzelecki S. C. Inpatient psychiatric treatment of children and adolescents: A review of outcome studies. *Journal of the American Academy of Child & Adolescent Psychiatry*.1990; 29(6): 847-853
13. Gowers S.G, Clarke J, Alldis M, Wormold P, Wood N. Inpatient admission of adolescents with mental disorder. *Clinical Child Psychology and Psychiatry*.2001; 6 (4): 537-544.
14. Pottick , Hansell S, Gaboda D, Gutterman E. Child and adolescent outcomes of inpatient psychiatric services: A research agenda. *Children and Youth Services Review*. 1993; 15: 371-384.
15. Curry E. Outcome Research on Residential Treatment: Implications and Suggested Directions. *American Journal of Psychiatry*.1991; 621:348-357.
16. Kleintjes S, Lund C, Flisher A. A situational analysis of child and adolescent mental health services in Ghana, Uganda, South Africa and Zambia. *African Journal of Psychiatry*.2010;13(2):132-139
17. Fisher M. Adolescent inpatient units. *Archives of disease in childhood*.1994;70(6): 461-463
18. Szabo C, Katz J. Adolescent psychiatry in the 90s: a retrospective analysis of emerging diagnostic trends from an in-patient unit. Paper presented at the 10th National Congress of The South African Association for Child and Adolescent Psychiatry and Allied Professions, Durban, 21-25 August 1995. *SAMJ*. 1996; 86(6): 746
19. Harris P, Taylor R, Thielke R, Payne J, Gonzalez N, Conde J. Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, *J Biomed Inform*. 2009 Apr; 42(2):377-81.

DATA CAPTURING SHEET

RETROSPECTIVE RECORD REVIEW OF ADOLESCENTS ADMITTED TO AN INPATIENT PSYCHIATRIC UNIT.

1. DEMOGRAPHIC DATA

AGE: 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐

GENDER:

MALE ☐ FEMALE ☐

RACE:

African ☐ White ☐ Coloured ☐ Indian ☐ Other ☐

RELIGION:

Unknown ☐ Christian ☐ Muslim ☐ Hindu ☐ Jewish ☐
Other ☐

LANGUAGE:

English ☐ Afrikaans ☐ Nguni ☐ Sotho ☐ Other ☐

RESIDENTIAL AREA:

JHB CBD ☐ East Rand ☐ South Rand ☐ West Rand ☐ North ☐ Other ☐

TYPE OF SCHOOL:

Mainstream ☐ Remedial ☐ Special Education ☐ Not in School ☐

HIGHEST LEVEL OF EDUCATION:

Preschool ☐ grade 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐
7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐

☐

REFERRAL SOURCE:

Public Psychiatrist
☐

Private Psychiatrist
☐

Other (specify)

LENGTH OF INPATIENT STAY IN DAYS:

2. SOCIAL DATA

PERINATAL COMPLICATIONS:

Unknown
☐

No
☐

Yes (specify)

MILESTONES:

Normal
☐

Delayed
☐

Unknown
☐

PRIMARY CAREGIVE:

Both Parents
☐

Mother
☐

Father
☐

Grandparents
☐

Guardian
☐

Fostered
☐

PARENTAL RELATIONSHIP STATUS:

Single
☐

Married
☐

Separated
☐

Divorced
☐

Cohabitation
☐

Remarried
☐

MATERNAL EDUCATION:

Primary School
Education
☐

Unknown

Completed High School
☐

Completed
☐

Higher
☐

PATERNAL EDUCATION:

Primary School
Education
☐

Unknown

Completed High School
☐

Completed
☐

Higher
☐

EMPLOYMENT STATUS:

Father Employed only
Parents Employed
☐

Mother Employed only
☐

Both
☐

Both Parents Unemployed
☐

Unknown
☐

3. CLINICAL DATA

PREVIOUS PSYCHIATRIC TREATMENT:

State Hospital ☐ Community Clinic ☐ Private ☐ Unknown ☐ Nil ☐

FAMILY PSYCHIATRIC HISTORY:

NO ☐ YES (specify) Unknown ☐

PSYCHIATRIC DIAGNOSIS: DSM –IV TR

Main Admission Diagnosis

Co-morbid Disorders

ADHD
Oppositional Defiant Disorder
Conduct Disorder
Learning Disabilities
Major Depressive Disorder
Major Depressive Episode
Bipolar Disorder Social Phobia
Generalised Anxiety Disorder
Obsessive Compulsive Disorder
Panic Disorder PTSD
Reactive Attachment Disorder
 V - Disrupted Attachment
 V - Physical Abuse
 V - Sexual Abuse
 V - Neglect
Schizophreniform
Schizophrenia
Alcohol Abuse
Polysubstance Abuse
Psychotic disorder due to Epilepsy
Psychotic disorder due to HIV
Psychotic disorder due to other general medical conditions
Mood disorder due to Epilepsy
Mood disorder due to HIV
Mood disorder due to other general medical conditions
Mental Retardation
Pervasive Developmental Disorders
Cluster A (emerging/traits/disorder)
Cluster B (emerging/traits/disorder)
Cluster C (emerging/traits/disorder)
Other
Unknow

Medical Diagnosis:

Nil
☐

HIV
☐

Head Injury
☐

Epilepsy
☐

Other
☐

Psychosocial Stressor:

Nil
Parental conflicts
Parental separation or divorce
Parental psychopathology
Early parental loss
Conflictual Relationship with parent (s)
Academic difficulties
Poor peer relationships
Maltreatment (Neglect, emotional, physical or sexual)

Interventions on admission

Pharmacological
Psychological
Social services
Occupational therapy
Speech therapy

Psychiatric Medication during admission

Nil
Risperidone
Risperidone Consta
Olanzapine
Quetiapine
Aripiprazole
Sulpiride
Amisulpiride
Citalopram
Venlafaxine
Fluoxetine
Lamotrigine
Sodium Valproate
Methylphenidate
Atomoxetine
Clozapine
Biperidin
Flupenthixol decanoate
Benzodiazepine
Other

Interventions recommended during admission

Nil
Continued psychiatric reviews
Individual psychotherapy
Interpersonal groups
Dialectical Behavioural Therapy
Social worker groups
Occupational therapy
Family therapy
Joint sessions
Parental counselling

Referred for State Grant/s
School
Other

Psychiatric Medication on Discharge

Nil
Risperidone
Risperidone Consta
Olanzapine
Quetiapine
Aripiprazole
Sulpiride
Amisulpiride
Citalopram
Venlafaxine
Fluoxetine
Lamotrigine
Sodium Valproate
Methylphenidate
Atomoxetine
Clozapine
Biperidin
Flupenthixol decanoate
Benzodiazepine
Other

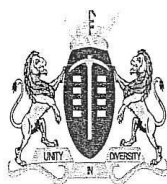
Interventions Recommended on Discharge

Nil
Ongoing psychiatric follow up
Ongoing individual psychotherapy
Occupational therapy
Family therapy Parental counselling
Referred for Substance Use Rehabilitation
Referred to Dept of Education
Department of Social Development
Other

4. OUTCOMES:

Completed treatment	Not completed treatment
Clinically Improved	Clinically unimproved
Refusal hospital treatment	Transferred to other unit

CONSENT FORM



GAUTENG PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

TARA, The H. Moross Centre

☒ Private Bag X7
RANDBURG 2125
SOUTH AFRICA

☎ (011) 535-3000

Fax (011) 535 3026

CHILDREN'S WARD- TARA HOSPITAL

INFORMED CONSENT (Parent Form)

To be completed at the time of registration of all patients and attached to patients file.

I, _____ the Father/ Mother/ Guardian
(delete which is not applicable) of: (Name of Patient) _____

Here by consent to:

- Psychiatric evaluation? Treatment and / or psychological assessment and/ or Counselling of myself/ my child (Tick): _____.
- Clinical information about myself and/ or my child to be discussed professional staff. All patients' rights are protected in term of Regulations set by the Health Professional Council of South Africa. (Tick) _____.
- Give permission for clinical information about myself/ my child to be use for retrospective research record review, provided that my confidentiality and anonymity is assured. (Tick): _____.

Give permission for reports about my child to be obtained his/ her school

(Tick) G.P (Tick) other (specify)

Signed Father: _____ Date: _____

Mother: _____ Date: _____

Guardian: _____ Date: _____

(Official use only): If only one parent available, give reason: _____

Appendix B: RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE



R14/49 Dr Lerato Galesitoe

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M160620

NAME: Dr Lerato Galesitoe
(Principal Investigator)
DEPARTMENT: Psychiatry
Tara the H Moss Hospital

PROJECT TITLE: Retrospective Review of Adolescents admitted to an Inpatient Psychiatric Unit

DATE CONSIDERED: 24/06/2016

DECISION: Approved unconditionally

CONDITIONS:

SUPERVISOR: Dr Nkokone Tema

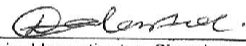
APPROVED BY: 
Professor P. Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 13/07/2016

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 10004, 10th floor, Senate House/2nd floor, Phillip Tobias Building, Parktown, University of the Witwatersrand. I/We fully understand the conditions under which I am/we are authorised to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit to the Committee. I **agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in June and will therefore be due in the month June each year.


Principal Investigator Signature

26/07/2016.
Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix C: Turnitin Report

Turnitin Originality Report

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[Sachin Shinde, Nandita Perumal, Alain Vandormael, Amare W. Tadesse et al. "Correlates of internalizing and externalizing problems among school-going young adolescents in Sub-Saharan Africa", Maternal & Child Nutrition, 2023](#)

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[Parfait M. Eloundou-Enyegue. "Addressing Global Challenges – Exploring Socio-Cultural Dynamics and Sustainable Solutions in a Changing World", Routledge, 2024](#)

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the study was previously submitted to Turnitin in December 2024.