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Six-month readmission and associated factors among psychiatry patients at Moi Teaching and Referral Hospital, Western Kenya

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Abstract

Background Hospital readmissions due to mental illnesses increase the burden and costs of patient management globally. While the transition to community-based mental health care is a key focus, readmission rates remain high. Understanding the risk factors associated with readmission to mental health units can help healthcare workers implement effective measures to reduce readmissions, enhance patient outcomes, and strengthen community-based care.

Objectives To determine readmission rates among psychiatric patients at Moi Teaching and Referral Hospital (MTRH) and the socio-demographic and clinical factors associated with readmission.

Methods The study was a prospective cohort study. The study was conducted at the Mental Health Unit of Moi Teaching and Referral Hospital. A calculated sample of 219 participants was recruited at discharge from the mental health ward and followed up for a period of six months. Consent to recruit participants was obtained after either administration of the University of California San Diego Brief Assessment Capacity to Consent tool to them or collaborative history from their caretakers. An interviewer-administered questionnaire was used to collect information on socio-demographic and clinical characteristics of the participants. They were followed up for six months to check for readmission. Data entry and cleaning was done using Microsoft Access and data analyzed using both descriptive and inferential statistical methods.

Results The median age of participants was 34, with most (67%) being male. Nearly half (48.9%) were single, while 34.7% were married. A majority (71.6%) had secondary or lower education. Almost half (44.7%) were unemployed, another 44.7% had temporary jobs. Over half (54.6%) lacked health insurance. Most (93.6%) were admitted involuntarily. The most common diagnoses were substance use disorder (32.4%), schizophrenia (25.1%) and bipolar disorder (24.2%). Over half (54.3%) missed medication before admission, 15.5% had suicide history, and 56.6% had a history of violence. The 6-month readmission rate was 30.6%. Logistic regression analysis showed that, those with health insurance were 3.13 times most likely to be readmitted (aOR = 3.13, $p = 0.03$), those with bipolar mood disorder were 3.85 times more likely to be readmitted (aOR 3.85, 95% CI 1.20, 12.50)) and those with primary level of education were 2.63 times more likely to be readmitted (aOR 2.63, 95% CI 1.10, 6.67).

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Conclusion The 6-month readmission rate was notably high at 30.6%, with significant factors for readmission being health insurance coverage, primary-level education, and a bipolar disorder diagnosis.

Keywords Readmission, Associated factors, Psychiatry patients

Introduction

A readmission is an occurrence where a patient who has been discharged from a hospital is then hospitalized again within a defined period of time. The most commonly used time frames to assess readmission in research are: 1 month or 30 days, 3 months or 90 days, 6 months or 180 days and one year or 360 days [1].

It is important to look into readmission rates among psychiatry patients because they experience significantly higher early readmission rates compared to other hospitalized patients [2–5]. Specifically, the pooled 30-day readmission rate for psychiatric patients is about 16%, notably higher than the approximately 10% observed in the general hospital population [6, 7]. High readmission rates among psychiatric patients are often due to unmet mental health treatment needs and a lack of resources especially at the community to manage mental illnesses [2, 3]. These readmissions also impose significant physical, psychological, and financial burdens on patients and their families, and strain the health system's infrastructural, human, and financial resources [8, 9]. Additionally, hospital readmissions for mental illnesses increase the global burden and costs of patient management [10, 11]. Moreover, some factors leading to readmissions such as medication non-adherence are modifiable, presenting opportunities for targeted interventions to reduce hospitalizations and improve patient outcomes [12].

Globally studies have found varying rates of readmission in different regions. A study done in Israel had a six-month readmission rate of 29% and factors associated with readmission included lack of outpatient follow-up visits, with 40% of those not seeking aftercare being readmitted, compared to 22% of those who did. A history of more than four hospitalizations also increased the likelihood of earlier readmission in this study [13] Another study done in Italy had a six-month readmission rate of 16% and found out that the key protective factors against readmission included discharge to a Psychiatric Nursing Home, compulsory index admission, and higher education. Conversely, longer hospital stays and a diagnosis of Personality Disorder were identified as significant risk factors [14]. In Malaysia, a study found a six- month readmission rate of 32.2% and the factor associated with readmission was poor adherence to medication [15]. A study in in England, had a readmission rate of 21.4% within six months. The median time to readmission was 34 days. The factors associated with higher readmission risk included older age, being female, being single, living in deprived areas, being of Black or mixed ethnicity, having a diagnosis of psychosis, and shorter stays during the index admission [16].

The six-month time frame provides an optimal period to assess medium-term relapse risks, capturing patients who may initially stabilize post-discharge but later experience deterioration due to various factors like treatment non-adherence, social stressors, or inadequate follow-up care. It also helps bridge the gap between short-term (1-month) and long-term (1-year) readmission assessments, offering valuable insights into patterns of psychiatric hospital utilization. No studies have been found that have examined six-month psychiatric admissions in Africa. We therefore set out to establish six-month readmission rates among psychiatric patients at Moi Teaching and Referral Hospital (MTRH) and to determine the factors associated with readmission among these patients.

Methods

Study design

A prospective cohort study design was used, whereby which patients who had been discharged from MTRH mental health unit were each followed up for six months to determine if they will be readmitted into the unit. This study assumed that all patients discharged from the MTRH Mental Health Unit who require future psychiatric hospitalization will return to the same facility for readmission. To mitigate the potential limitation of patients seeking admission elsewhere, follow-up phone calls were conducted to verify their admission status at MTRH within the study period.

Study area

The study was conducted at the inpatient Mental Health Unit (MHU) at Moi Teaching and Referral Hospital (MTRH) in Eldoret, Uasin Gishu County, Western Kenya. MTRH is the second largest national hospital in Kenya, serving a diverse population from 24 counties and parts of Eastern Uganda, South Sudan, Democratic Republic of the Congo, and Tanzania. The unit has a bed capacity of 100 bed. The unit admits around 105 patients in a month resulting in an average of about 1260 patients in a year and 630 patients in 6 months. The unit is a closed psychiatric unit, meaning it operates within a secure environment with restricted access. It provides specialized care for patients requiring acute and intensive psychiatric management.

Study population

The study targeted adult patients discharged from the MHU between January 2023 and December 2023. Inclusion criteria included patients aged 18 years or older with the ability to consent as assessed by the UBACC tool, and those unable to consent but with available caretakers to give consent. Patients admitted for medical conditions other than psychiatric conditions were excluded.

Sampling

The sample size was determined using the Fisher et al., 1998 formula;

n = sample size.

Z = Z-value corresponding to 95% confidence level (1.96).

α = level of significance (5% or 0.05).

δ = absolute precision of 5%.

p = readmission rate among mental health patients. The six-month readmission rate in a Malaysian study was reported as 32.2% [15]. We did not find any studies from Africa that examined six-month psychiatric readmission rates; therefore, the Malaysian study was used as a reference point, being the most recent and relevant study available on this outcome.

q = 1-p (rate of mental health patients who were not readmissions)

$$n = \frac{Z^2 pq}{d^2}$$

$$n = \frac{1.96^2 * 0.32 * 0.68}{0.05^2} = 335$$

The sampling of subjects was done in six months. (January 2023 to June 2023). The mental health unit admits an average of 105 patients monthly hence an average of 630 patients in six months. The sample size will thus be adjusted because the population is less than 10,000 for a finite population.

Adjustment for finite population will be given by the formula:

nf = n.

1 + n/N.

nf = sample size after adjustment of finite population.

n = sample size of 345 obtained from Fisher, et al. (1998) formula as outlined above.

N = population size (This will be 600 based on the average number of admissions expected within a six-month period)

$$nf = \frac{n}{1 + \frac{n}{N}}$$

$$nf = \frac{335}{1 + \frac{335}{630}} = 219$$

To account for potential non-response or unexpected events, an additional 10% was added to the calculated sample size, increasing it to 241 participants.

Data collection tools

The UBACC tool

The University of California, San Diego Brief Assessment of Capacity to Consent (UBACC) is a tool designed to assess an individual's capacity to provide informed consent in psychiatric research It was developed by Dr. Paul S. Appelbaum et al. in early 2000 s at the University of California, San Diego and was piloted in 2007 [17].It is a 10-item tool used to assess decisional capacity in three domains: understanding, appreciation, and reasoning. The tool has total scores range from 0 to 20, with a score of 15 and above on its first administration indicating sufficient capacity for informed consent. The tool has been shown to have good psychometric properties and has been validated for use among African populations [18].

The interviewer administered questionnaire which collected data on socio-demographic and clinical characteristics of the participants. The socio-demographic data that was collected included: age, sex, marital status, number of children, employment status, level of education, and availability of health insurance cover. The clinical data that was collected included: Mode of admission, current diagnosis, adherence to medication, suicide attempt or thoughts before admission, and history of violence before admission. For mode of admission patients were either admitted as voluntary or involuntary admissions. Involuntary admission refers to patients who were brought to the hospital by relatives or caregivers and lacked the insight or capacity to provide informed consent for their admission while voluntary admission are those who had insight and brought themselves for admission [19]. History of violence was defined as any reported or documented episode in which the patient engaged in physical aggression or violent behavior towards self, others, or property in the period prior to the index admission [20].

Patient medical records were used to confirm participants clinical information for example mode of admission, clinical diagnosis, adherence to medication, suicide attempt or thoughts before admission, and history of violence before admission.

Study procedure

Two research assistants who were medical officer interns were recruited and trained about the study by the principal investigator. The research team then identified patients due for discharge and obtained informed

consent to be participants in the study. Data on socio-demographic and clinical characteristics was collected using an interviewer administered questionnaire. Each participant was then followed up for six months to check if they will be readmitted back into the mental health unit as a readmission. The follow-up process to track patient readmissions involved both administrative data and direct participant contact. Admission registers at the mental health unit were reviewed to identify patients who had been readmitted. Additionally, follow-up telephone calls were made to all participants to ensure that, by the end of the six-month period, every participant was accounted for, regardless of whether they were readmitted or not. Of the 241 participants, 16 participants could not be traced on phone during the follow up period, 2 were reported deceased, and 4 declined further participation. The final analysis was conducted on the 219 remaining participants who completed the study (Fig. 1).

Data Storage, Analysis, and presentation

Data was entered into a password-protected Microsoft Access database and analyzed using Stata version 14. Categorical data was summarized with frequencies and percentages, while continuous variables were summarized using means, standard deviations, and ranges. Associations were tested using chi-square tests for categorical variables and t-tests for continuous variables. Logistic regression was used for inferential analysis. Assumptions used in the study was a confidence interval of 95%. Data was presented in form of tables.

Results

Socio-demographic and clinical characteristics of the patients

The median age of the 219 participants was 31 years (IQR = 26, 40) with a range from 18 to 72 years. About two thirds (67%) of the participants were males, almost half (48.9%) were single and one third (34.7%) were married. Majority (71.6%) had secondary level of education and below and only 28.4% had tertiary level of education. Almost half were unemployed (44.7%) and a similar percentage (44.7%) had temporary or casual jobs, and a tenth (10.5%) had regular employment. The median number of children per respondent was 1 (IQR = 1, 3), ranging from 0 to 20. More than half (54.6%) had no health insurance cover. This data is presented in Table 1.

Majority of the participants were admitted involuntarily (93.6%) and a small portion voluntarily (6.4%). The most common diagnosis was substance use disorder (32.4%), followed by schizophrenia (25.1%), bipolar mood disorder (24.2%), schizoaffective disorder (7.8%), and other diagnoses (10.5%). Over half of the participants (54.3%) had missed medication prior to admission, and 15.5% had a history of suicide attempts or thoughts. Additionally, more than half (56.6%) had a history of violence. This data is presented in Table 1.

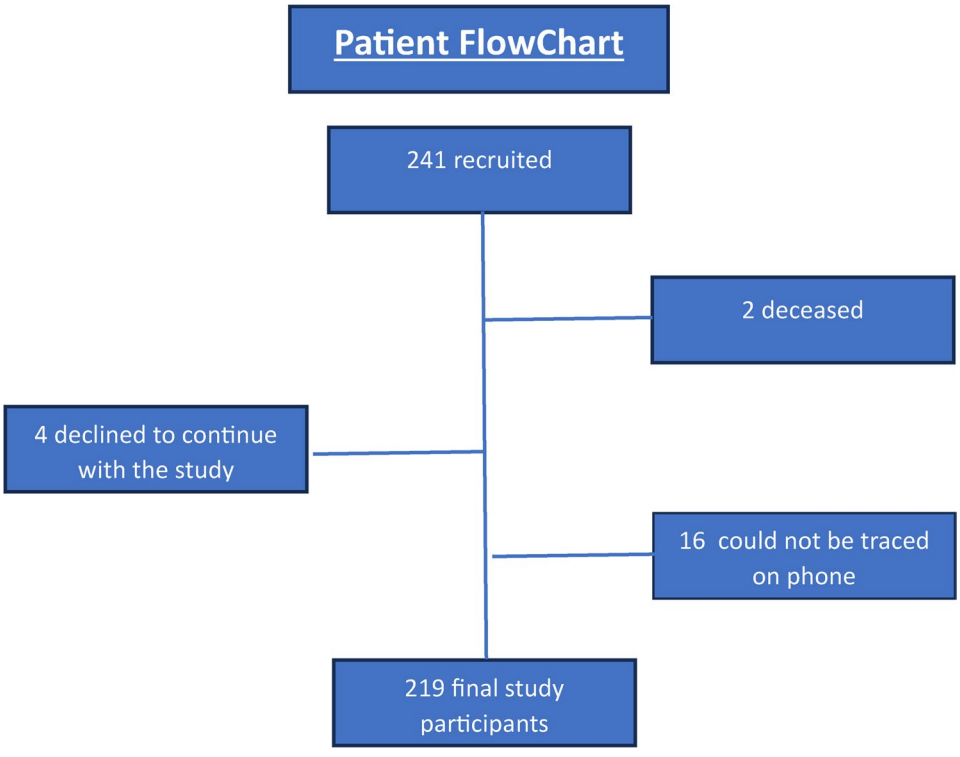

Fig. 1 Patient flow chart

Table 1 Socio- demographic and clinical characteristics of respondent

Variable	Overall (*N* = 219)
Age	
Median (IQR)	31 (26, 40)
Range	18.0–72.0
Sex	
Female	72 (32.9%)
Male	147 (67.1%)
Marital Status	
Divorced/Separated/widowed	36 (16.5%)
Married	76 (34.7%)
Single	107 (48.9%)
Education Level	
Primary	75 (34.2%)
Secondary	82 (37.4%)
Tertiary	62 (28.3%)
Type of Employment	
Regular employment	23(10.5%)
Temporary/Casual Job	98 (44.7%)
Unemployed	98 (44.7%)
Number of Children	
Median (IQR)	1 (0, 3)
Range	0–20
Health Insurance	
No	120 (54.6%)
es	99 (45.4%)
Mode of Admission	
Involuntary	205 (93.6%)
Voluntary	14 (6.4%)
Current Diagnosis	
Bipolar mood disorder	53 (24.2%)
Other primary diagnosis	23(10.5%)
Schizoaffective disorder	17 (7.8%)
Schizophrenia	55 (25.1%)
Substance use disorder	71 (32.4%)
Missed medication before current admission	
No	100 (45.7%)
Yes	119 (54.3%)
History of suicide attempt or thoughts	
No	185 (84.5%)
Yes	34 (15.5%)
History of violence	
No	95 (43.4%)
Yes	124 (56.6%)

Six-Month readmission rates of patients in the mental health unit

The readmission rates over the period were: at one month, was 9.1% (20 patients) with a 95% CI of 5.7% to 13.7%; at three months, was to 24.2% (53 patients) with a 95% CI of 18.7% to 30.4%; at 6 months was 30.6% (67 patients) with a 95% CI of 24.56% to 37.16%. This data is presented in Table 2.

Table 2 Six- month readmission rates

	Value(*N* = 219)	95% Confidence interval
1 month readmission		
No	199 (90.9%)	
Yes	20 (9.1%)	5.7%–13.7%
3 month readmission		
No	166 (75.8%)	
Yes	53 (24.2%)	13.7%–30.4%
6 month readmission		
No	152 (69.4%)	
Yes	67 (30.6%)	24.6%–37.2%

Factors associated with six-month readmission

The results of the bivariate analysis on social demographic characteristics showed that gender and health insurance status were statistically significant. Males had a significantly lower readmission rate (25.2%) compared to females (41.7%), with a p-value of 0.019. Additionally, participants with health insurance (41.4%), were more likely to be readmitted compared to participants without health insurance (21.8%) with a p-value of 0.002, For clinical characteristics participants with a diagnosis of bipolar mood disorder (49.1% readmitted), schizoaffective disorder (47.1% readmitted), schizophrenia (39.6% readmitted) were most likely to be readmitted, while those with substance use disorder (15.5% readmitted) were less likely to be readmitted, with a p-value of < 0.001. Additionally, medication non-adherence before the current admission significantly increased the likelihood of readmission, with 40.7% of non-adherent participants being readmitted compared to 19.0% of compliant patients, also with a p-value of < 0.001. This data is presented in Table 3.

Results from the multivariate logistic regression analysis showed that participants with primary education were 2.63 times more likely to be readmitted compared to those with secondary education (aOR 2.63, 95% CI 1.10, 6.67). Additionally, those with health insurance were 3.13 times more likely to be readmitted compared to those without health insurance (aOR 3.13, 95% CI 1.47, 6.83). Furthermore, individuals with bipolar mood disorder were 3.85 times more likely to be readmitted compared to those with substance use disorder (aOR 3.85, 95% CI 1.20, 12.50). This data is presented in Table 3.

However, after applying the Bonferroni correction (adjusted significance threshold = 0.0042), the associations for education level ($p = 0.034$) and bipolar mood disorder ($p = 0.023$) did not meet the stricter significance threshold. While these results indicate strong trends, they should be interpreted with consideration for multiple comparisons. In contrast, the association between health insurance and readmission ($p = 0.003$) remained statistically significant even after adjustment. This data is presented in Table 3.

Table 3 Factors associated with readmission at six-months

		Bivariate analysis			Multivariate analysis				
Variable	**Category**	No (*N* = 152)	Yes (*N* = 67)	**p-value**	**UOR (95% CI)**	**UOR p-value**	**AOR (95% CI)**	**AOR p-value**	**Bonferroni Significance (0.0042)**
Age	Median (Q1, Q3)	31 (25, 39.75)	35 (27, 45)	0.082	1.02 (1.00, 1.05)	0.05	1.02 (0.98, 1.06)	0.3	Not Significant
Sex	Female	42 (58.3%)	30 (41.7%)	0.019	1 (reference)		1 (reference)		
	Male	110 (74.8%)	37 (25.2%)		0.47(0.26, 0.86)	0.014	0.63 (0.29, 1.36)	0.2	Not Significant
Marital Status	Divorced/Separated/Widowed	21 (58.3%)	15 (41.7%)	0.251	1 (reference)		1 (reference)		
	Married	56 (73.7%)	20 (26.3%)		0.5 (0.22, 1.16)	0.1	0.72 (0.24, 2.14)	0.6	Not Significant
	Single	75 (70.1%)	32 (29.9%)		0.6 (0.27, 1.32)	0.2	0.52 (0.16, 1.68)	0.3	Not Significant
Education Level	Secondary	64 (78.0%)	18 (22.0%)		1 (reference)		1 (reference)		
	Primary	**48 (64.0%)**	**27 (36.0%)**	**0.099**	**2.00(1.00,4.17)**	**0.054**	**2.63(1.00,6.67)**	**0.034**	Not Significant
	Tertiary	40 (64.5%)	22 (35.5%)		0.98 (0.48, 1.97)	> 0.9	0.6 (0.21, 1.68)	0.3	Not Significant
Type of Employment	Regular employment	16 (69.6%)	7 (30.4%)	0.290	1 (reference)		1 (reference)		
	Temporary/Casual Job	73 (74.5%)	25 (25.5%)		0.78 (0.30, 2.23)	0.6	1.28 (0.31, 5.60)	0.7	Not Significant
	Unemployed	63 (64.3%)	35 (35.7%)		1.27 (0.49, 3.57)	0.6	2.16 (0.55, 9.13)	0.3	Not Significant
Number of Children	Median (Q1, Q3)	1 (0, 3)	1 (0, 2.5)	0.883	1.02 (0.90, 1.15)	0.7	0.88 (0.72, 1.07)	0.2	Not Significant
Health Insurance	No	93 (78.2%)	26 (21.8%)	0.002	1 (reference)		1 (reference)		
	Yes	58 (58.6%)	41 (41.4%)		**2.53 (1.41, 4.61)**	**0.002**	**3.13 (1.47, 6.83)**	**0.003**	Significant
Mode of Admission	Involuntary	141 (68.8%)	64 (31.2%)	0.559	1 (reference)		1 (reference)		
	Voluntary	11 (78.6%)	3 (21.4%)		0.6 (0.13, 2.00)	0.4	0.59 (0.10, 2.92)	0.5	Not Significant
Current Diagnosis	Substance Use Disorder	60 (84.5%)	11 (15.5%)		1 (reference)		1 (reference)		
	Other primary diagnosis	23 (100.0%)	0 (0.0%)		0	> 0.9	0 (0.00, 670,835,173,210)	> 0.9	Not Significant
	Schizoaffective Disorder	9 (52.9%)	8 (47.1%)		0.92 (0.30, 2.76)	0.9	0.53 (0.15, 1.81)	0.3	Not Significant
	Schizophrenia	32 (60.4%)	21 (39.6%)		0.68 (0.31, 1.46)	0.3	0.54 (0.21, 1.36)	0.2	Not Significant
	Bipolar mood disorder	**28 (50.9%)**	**27 (49.1%)**		**5.26 (2.33, 12.50)**	**< 0.001**	**3.85 (1.20, 12.50)**	**0.023**	Not Significant

Table 3 (continued)

		Bivariate analysis			Multivariate analysis				
Medication non-compliance before admission	No	81 (81.0%)	19 (19.0%)	< 0.001	1 (reference)		1 (reference)		
	Yes	70 (59.3%)	48 (40.7%)		2.92 (1.59, 5.53)	< 0.001	1.39 (0.56, 3.45)	0.5	Not Significant
History of suicide attempt or thoughts	No	126 (68.5%)	58 (31.5%)	0.687	1 (reference)		1 (reference)		
	Yes	25 (73.5%)	9 (26.5%)		0.78 (0.33, 1.73)	0.6	0.71 (0.26, 1.86)	0.5	Not Significant
History of violence	No	66 (69.5%)	29 (30.5%)	1.000	1 (reference)		1 (reference)		
	Yes	85 (69.1%)	38 (30.9%)		1.02 (0.57, 1.83)	> 0.9	0.79 (0.38, 1.64)	0.5	Not Significant

Discussion

The six-month readmission rate was 30.6% and factors associated with increased odds of readmission was having health insurance, having primary level of education and having a diagnosis of bipolar mood disorder.

The 6 months readmission rate was at 30.6%, almost similar to the 29% rate in an Israeli study [13] but higher than the 16% readmission rate in Italy [14] and the 21.4% six-month rate in Europe [16]. The high readmission rates can be attributed to poor socioeconomic status where majority of the patients reported to be unemployed and have temporary or casual jobs hence may have challenges affording their medications and clinic follow up visit leading to relapses. Majority also have lower level of education hence probably understanding their mental illness might be a challenge leading to relapses. Most patients also reported to have no insurance which makes the access to treatment a challenge hence relapses. Patients at MTRH also have severe mental illnesses (bipolar mood disorders, schizo-affective disorder, schizophrenia and substance use disorders) evidenced by majority having involuntary admissions, more than half being admitted with history of violence, and some having suicidal attempts or thoughts and the symptoms can be cyclical and the illness are chronic hence frequent readmission.

The study findings indicate that 45.6% of the psychiatric patients in this study had health insurance, and insured patients were 3.13 times more likely to be readmitted to the psychiatric unit compared to those without coverage (AOR = 3.13, 95% CI: 1.47–6.83, p = 0.003). This association remained statistically significant even after applying the Bonferroni correction (adjusted significance threshold = 0.0042), confirming that health insurance plays a crucial role in psychiatric readmissions. These findings are comparable with a 2016 study in the USA, which identified that patients with Medicaid were 1.8 times more likely to be readmitted (OR = 1.8; 95% CI, 1.0-3.3) [21]. The majority of insured patients in our study are covered under a low-cost, government-subsidized scheme known as Social Health Insurance, which similarly targets economically vulnerable populations. While not identical to Medicaid, this scheme shares some structural and functional similarities in its focus on improving access for disadvantaged groups. The financial burden associated with prolonged stays in psychiatric units makes health insurance a crucial resource. Patients with insurance are more likely to be readmitted since their treatment costs are covered, whereas those without insurance must pay hospital bills out of pocket or, in cases of financial hardship, may have their costs waived by the hospital, which can discourage readmissions. Additionally, relatives of patients with mental illnesses might prefer to pay for health insurance to ensure prompt readmission after discharge due to the burden of care-giving at home. Interestingly, the 45.6% insurance coverage among psychiatric patients in this study is higher than Kenya's national average, where only 30 to 35% of the population has health insurance, according to the National Hospital Insurance Fund 2022 report [22]. This discrepancy may be attributed to the chronic nature of mental illnesses, which often necessitate frequent and extended hospital admissions, making insurance coverage a financial necessity for affected individuals and their families. Also in our setting, post-discharge follow-up is

primarily hospital-based, with patients attending outpatient psychiatric clinics at MTRH. However, there are hardly any structured community-based follow-up services. Moreover, outpatient visits are usually paid out-of-pocket, as current insurance schemes do not cover these costs. This lack of coverage for outpatient services may also contribute to the paradoxical finding that insured patients are more likely to be readmitted, since gaps in follow-up care can precipitate relapses and subsequent hospitalizations.

Regarding education level, the study found that patients with only primary education were 2.63 times more likely to be readmitted compared to those with secondary education (AOR = 2.63, 95% CI: 1.00–6.67, p = 0.034). However, after applying the Bonferroni correction, this association did not meet the adjusted significance threshold (p >0.0042), suggesting a potential link between lower education and higher readmission rates, though this finding does not reach the stricter level of statistical significance. These findings differ from a study conducted in India [23], where patients with more than 10 years of schooling (OR = 3.93 95% CI, 1.88–8.23) were more likely to be readmitted compared to those with no schooling experience. However, the findings are similar to a study conducted in two Arab hospitals in Egypt and Saudi Arabia, which showed that those with a primary level of education were more likely to be readmitted than those with higher levels of education [24]. The difference in findings between our study and the study in India could be due to variations in healthcare systems, cultural attitudes towards education, and mental health care access. In our context, the higher readmission rates among individuals with lower education levels could be attributed to factors such as lower health literacy, which affects their ability to understand and manage their conditions effectively, and greater stigma surrounding mental health issues, leading to delayed treatment. Conversely, the similar findings in Egypt and Saudi Arabia suggest a regional trend where individuals with higher education levels have better resources and support systems to manage their mental health, reducing the likelihood of readmission.

The results indicated that patients with bipolar disorder were 3.85 times more likely to be readmitted compared to those with substance use disorder. Even after applying the Bonferroni correction (adjusted significance threshold = 0.0042), bipolar disorder remained a significant predictor of readmission (AOR = 3.85, p = 0.023), though it did not meet the stricter threshold. This suggests a strong trend toward significance, highlighting the need for targeted interventions to prevent frequent hospitalizations in this group. While the difference in readmission rates between individuals with bipolar disorder and those with schizophrenia or schizoaffective disorder was minor, patients with bipolar disorder still had the highest likelihood of readmission. This pattern aligns with a study from Canada, where patients with bipolar disorder (aOR = 2.90, 95% CI: 1.45–5.87) had the highest readmission rates within six months [25]. Similarly, research conducted in Uganda found a high frequency of readmissions among individuals with bipolar affective disorder and readmission was associated with patients' symptoms presentation on previous admission [26]. However, studies in England (aOR = 1.21, 95% CI: 1.18–1.25) [16] and the USA (OR = 1.69, 95% CI: 1.46–1.96) [27] have shown that psychotic disorders generally have higher readmission rates compared to non-psychotic illnesses. Also, a study done in South Africa showed that patients with schizophrenia were more likely to be readmitted compared to other diagnoses [28]. The increased risk of readmission among patients with bipolar disorder, schizophrenia, or schizoaffective disorder is likely due to the severity of these conditions, which require ongoing management and may lead to frequent hospitalizations. In contrast, individuals with substance use disorders are often admitted for detoxification and subsequently transition to inpatient or outpatient rehabilitation programs, which may contribute to their lower readmission rates within six months.

Limitations

The strength of this study is that we were able to follow up patients for 6 months and we have evidence of readmission of psychiatric patients in East Africa.

A limitation is that certain information such as clinic attendance of the participants post discharge was not collected which would help get patients who are not stable early and address their treatment challenges reducing their need for readmission.

Another limitation is that we used interviewer administered questionnaires to collect and patient files to confirm certain clinical information like history of medication adherence prior to admission, suicide attempt or thoughts before admission, and history of violence before admission. There is the risk of recall bias and social desirability bias. Participants may have under-reported or over-reported certain clinical details, such as adherence to treatment or a history of suicidal behavior, which could impact the accuracy of the findings. Future studies may benefit from integrating multiple data sources to enhance data reliability.

The study did not account for several variables that have been shown in the literature to impact psychiatric readmission. For instance, differences in medication type, particularly the use of oral versus long-acting injectable (depot) medications, could significantly affect readmission rates [29]. Future studies should incorporate these variables to provide a more comprehensive understanding of factors contributing to psychiatric readmission.

Additionally, there is a lack of detailed information regarding the clinical condition of patients at the time of discharge. The benchmark or criteria used for discharge were not uniformly documented, making it difficult to assess whether patients were discharged based on clinical stability, resource constraints, or strong community and family support.

Recommendations

We strongly recommend that the Ministry of Health and relevant government agencies prioritize the strengthening of community-based mental health services to ensure continuous follow-up care, monitoring, and psychosocial support for discharged patients. Expanding these services will be crucial in preventing relapses, stabilizing patients, and reducing hospital readmission rates. Integrating mental health services into primary healthcare facilities and increasing the availability of mobile mental health units can further improve access to care, particularly in underserved areas.

Given that a significant proportion of psychiatric patients lack health insurance, we recommend that health insurance providers, including social health insurance, expand mental health coverage to reduce financial barriers to care. Lack of coverage often prevents individuals from seeking timely treatment, leading to poor mental health outcomes and increased risk of readmission. Expanding insurance benefits to cover outpatient psychiatric care, medication, and community support programs will promote long-term recovery and financial sustainability for patients and their families.

We also recommend that mental health facilities, psychiatric hospitals, and healthcare professionals establish a structured post-discharge follow-up system for all discharged patients to ensure continuity of care. Regular post-discharge check-ins, through home visits, telehealth services, or scheduled clinic appointments, will allow for early intervention in case of deterioration. Additionally, healthcare providers should implement comprehensive psychoeducation programs for patients and caregivers on medication adherence, symptom management, and coping strategies, as poor adherence is a key modifiable risk factor for readmission.

Future research should focus on long-term follow-up studies to track readmission rates beyond six months. This will provide a more comprehensive understanding of factors influencing sustained recovery and long-term mental health outcomes. Also investigating the effectiveness of community-based mental health interventions, such as peer support programs, home-based care, and telepsychiatry, can help determine their role in preventing readmissions and improving patient outcomes.

Conclusion

This study found a high psychiatric readmission rate of 30.6% within six months. The key factors significantly associated with readmission included having health insurance, a primary level of education, and a diagnosis of bipolar disorder. These findings highlight the need for targeted interventions to improve continuity of care, enhance mental health literacy, and address financial barriers to treatment. Strengthening post-discharge support systems and ensuring access to comprehensive mental health services are critical to reducing readmission rates and improving long-term patient outcomes.

Abbreviations

MTRH Moi Teaching and Referral Hospital
MHU Mental health Unit
UBACC The University of California, San Diego Brief Assessment of Capacity to Consent
AOR Adjusted odds ratio
UOR Unadjusted odds ratio

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Authors' contributions

AT, JB and RS made contributions to conception and design of the study, acquisition of data, analysis and interpretation of data; were involved in drafting the manuscript. MO was involved in conception and design of the study, data entry, data cleaning and analysis of the data. LA was involved in drafting the manuscript and revising the manuscript critically for important intellectual content.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

The research was conducted in strict accordance with the ethical principles outlined in the Declaration of Helsinki.
Ethical approval was obtained from Moi University/ Moi Teaching and Referral Hospital Institutional Research and Ethics Committee (IREC) (Approval number FAN 0004283), the Chief Executive Officer of MTRH, and the National Commission for Science, Technology and Innovation (NACOSTI) (Approval number NACOSTI/P/22/2115). Informed consent was obtained from participants or their caretakers. Confidentiality was maintained, and data was securely stored

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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