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Adherence to Clinic Appointments and Medication Among Patients Accessing Mental Health Clinics in Lilongwe, Malawi: A Cross-sectional Analytical Study

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Abstract

Background: *Individuals who are nonadherent to treatment have higher rates of symptom recurrence, higher rates of hospital readmission and poorer quality of life. Nkhoma Mission Hospital (NMH) in the central region of Malawi has been integrating mental health within the existing services to ensure that the services are accessible to people. The purpose of the study was to investigate the prevalence and factors of nonadherence to appointments and medication among patients with mental illness.*

Design and Methods: *A cross-sectional analytical study was conducted at Nkhoma Mission Hospital. A survey approach and total population sampling were used. The MARS score was used to assess medication adherence. Associations of alcohol use, insight, and stigma with medication adherence were established using the AUDIT, BIRCHWOOD and ISMI scales, respectively.*

Results: *The prevalence of nonadherence to clinic appointments and medication was 64% (n=58) and 46.2%, respectively. Females were 4.7 times more likely to miss clinic appointments than males were (B =-1.555, Exp (B)=0.221, p=0.029), Protestant Christians were 5 times more likely to miss clinic appointments (B = 5.176, p=0.034), clients who were not married were 15 times more likely not to adhere to clinic appointments (B=2.722, Exp(B)=25.12, p=0.002), and clients who visited a mobile clinic were more likely to miss appointments (B =-1.762, Exp (B)=0.172, p=0.020). Patients who had been on medication for less than 2 years had significantly lower adherence to medication (B=-1.631, t=-2.053, p=0.043); patients whose occupation involved farming had lower adherence to medication (B=-1.541, t=-2.057, p=0.043); and psychotic patients had greater adherence to medication than nonpsychotic patients did (B=1.753, t=2.041, p=0.044).*

Conclusion: *It is important to address the factors that influence nonadherence to clinic appointments and medication to avoid relapse.*

Keywords: Nonadherence, Clinic Appointment, Medication

Introduction

Globally, more than 1 billion people were affected by mental and addictive disorders as of 2016; these disorders were responsible for 7% of all the global burden of disease, as measured by disability-adjusted life years (DALYs) [1]. By 2017, approximately 792 million people had a mental disorder, which was 10.7% of the global population, with depression and anxiety being the most common mental disorders [2].

The prevalence of common mental disorders in some African countries is as follows: 33% in Ethiopia, 24% in Tanzania and 25-26% in Zimbabwe [3].

The World Health Organization (WHO) describes medication nonadherence as "a case in which a person's behavior in taking medication does not correspond with agreed recommendations from health personnel" [4]. In contrast, nonadherence was defined as a failure to follow instructions and advice from service providers [5]. Nonadherent patients are reported to be 70% more likely to be admitted to the hospital [6].

The prevalence of nonadherence to mental diseases ranges from 70 to 80%, and for individuals with depression alone or bipolar disorder, it is between 26.5% and 70% [7]. This wide range is mostly due to a lack of agreement among investigators on the appropriate methodology or criteria for assessing adherence (e.g., quantitative vs qualitative research, direct measurement of blood or urine parameters vs indirect measurements, patient self-reports vs clinician reports) (Garcia et al, 2016).

Studies on treatment adherence conducted in patients with mental disorders and missing data during patient follow-up have reported up to 10-55% nonadherence [7]. Although considerable research has been devoted to evaluating adherence to medication for physical conditions, little attention has been given to researching the prevalence of and factors connected to adherence to mental health appointments and medication. However, a study conducted in Malawi in 2017 revealed that the prevalence of noncompliance with antipsychotic medication among patients with mental disorders was 43.9% [8].

The Nkhoma Mission Hospital has been integrating mental health within the existing general services in support of the PHC delivery model to ensure that services are accessible to where people are accessible [9]. Some patients reported missing appointments and medication despite the existence of outreach clinics. Therefore, this study sought to address this gap by investigating the prevalence and factors associated with nonadherence to clinic appointments and mental health treatment among patients accessing outreach and static clinics in Malawi.

Methods

Study Setting

This study was carried out at Nkhoma Mission Hospital, a general mission hospital with 250 beds in Lilongwe District, Malawi. The hospital is a referral facility for ten government and mission health centers (primary health facilities). The hospital runs an outpatient (static) clinic and 13 outreach clinics with 858 patients. NMH was chosen as the study setting because it is one of the first General Mission Hospitals to initiate the integration of mental health care in the country.

Study Design

The study used a cross-sectional analytical quantitative approach.

Data Collection Tools and Measurements

Adherence to clinic appointments and medication was assessed through interviewer-administered questionnaires consisting of measures assessing adherence to clinic appointments and medication. The Medication Adherence Rating Scale (MARS) was used to assess adherence to medication. Associations of alcohol use, insight, and stigma with medication adherence were established using the AUDIT scale, BIRCHWOOD scale and internalized stigma of mental illness (ISMI) scale, respectively. The questionnaire was pretested with 13 patients with mental illness at the Bwaila Psychiatric Clinic.

Sample Size and Sampling Technique

This study used a census approach in which the entire population of patients with a confirmed clinical diagnosis of a mental disorder on AXIS I based on the Diagnostic Statistical Manual for Mental Disorders Version IV (DSM IV) was included. There were 111 patients with a diagnosis of mental illness, and all of them were requested to participate in the study.

Statistical Analysis

The data were analyzed using Statistical Product and Service Solution (SPSS) version 23. Descriptive statistics were calculated for all the variables collected. Means with standard deviations were used to describe continuous variables, and counts and percentages were used for categorical data. The analysis of the data involved describing the frequency of demographic information (gender, diagnosis, religion, and district). Pearson's chi-square test was performed to determine whether there was an association between adherence to clinic appointments and any of the demographic characteristics, environmental-related factors or medical factors.

Multiple regression analysis was also conducted to identify factors that influence adherence to medication. A multivariate logistic regression model was used to check for factors that could significantly predict whether a patient was likely to adhere to clinic appointments. All factors that had p values less than 0.05 were considered to have a significant effect on adherence to medication. For those factors that were found to be significant predictors, odds ratios (ORs) were calculated at the 95% confidence intervals (CIs).

Results

Sociodemographic Characteristics of the Study Participants

The final sample consisted of 91 participants, representing 81.9% of the total sample. Initially, 111 participants were planned to participate. The majority of the participants were male (56%, n=51) and single (39.6%, n=36%). Male participants were 32 years old on average (SD=9.03) and were younger than female participants were 35 years old on average (SD=9.72) (Table 2).

Table 1: Sociodemographic characteristics of the participants

Sociodemographic Characteristics		Sex of respondent		
		Male (n=51)	Female(n=40)	Pearson Chi-square
	Catholic (n=9)	7	2	
Religion	Protestant (n=64)	32	32	8.815*

	Islam (n=2)	0	2	
	None (n=16)	12	4	
Education level	None (n=16)	7	9	7.349
	Primary (n=59)	30	29	
	Secondary (n=14)	12	2	
	Tertiary (n=2)	2	0	
Main occupation	Farmer (n=72)	36	36	8.028
	Trader/Business(n=4)	4	0	
	Casual laborer (n=11)	7	4	
	Student (n=2)	2	0	
	Other (n=2)	2	0	
Age	Minimum	18	19	18
	Maximum	73	80	80
	Mean	38	44	40
	Standard deviation	13	12	13

Prevalence of Nonadherence to Clinic Appointment

This study showed that 64% (n=58) of the respondents were nonadherent to clinic appointments, 22% (n=20) missed a one-month appointment and 32% (n=29) missed more than 2 months (see Figure 1).

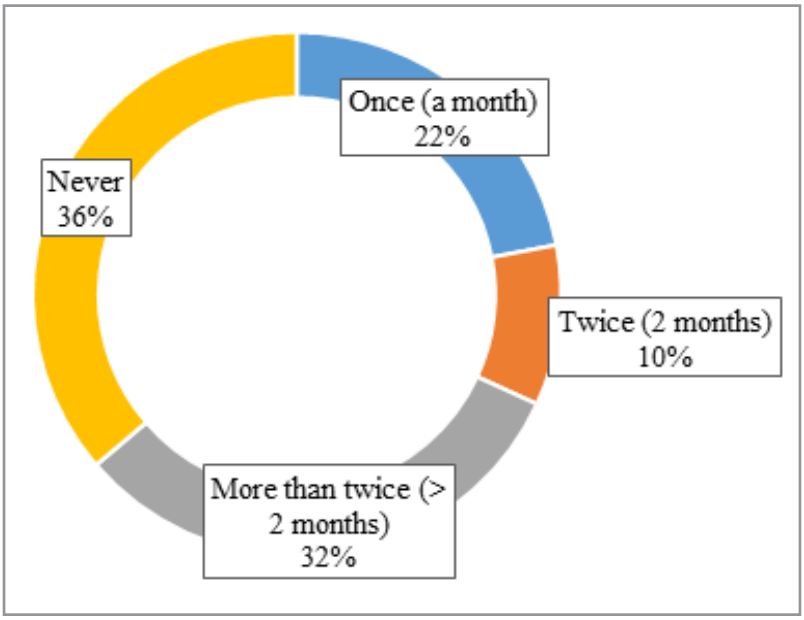

Figure 1: Number of missed clinic appointments

Factors Associated with Nonadherence to Clinic Appointments

The findings showed that sociodemographic characteristics and clinical factors were not significantly associated with nonadherence to clinic appointments.

Table 2: Factors associated with adherence to clinical appointments

	Categories	Adherent (%)	Nonadherent (%)	Pearson Chi-square
Demographic factors				
Sex	Male (n=51)	39	61	0.437
	Female (n=40)	33	67	
Education level	None (n=16)	31	69	0.366
	Primary (n=59)	37	63	

	Secondary (n=14)	36	64	
	Tertiary (n=2)	50	50	
Marital status	Never married (n=36)	20	80	9.317
	Married (n=20)	50	50	
	Separated (n=2)	0	100	
	Divorced (n=27)	48	54	
	Widowed (n=6)	50	50	
Religion	Catholic (n=9)	56	44	4.116
	Protestant (n=64)	30	70	
	Islam (n=2)	50	50	
	None (n=16)	50	50	
Main occupation	Farmer (n=72)	35	65	7.217
	Trader/Business (n=4)	0	100	
	Casual laborer (n=11)	64	36	
	Student (n=2)	0	100	
	Other (n=2)	50	50	
Clinical factors				
Diagnosis of patient	Psychosis (n=75)	40	60	7.354
	Depression (n=3)	33	66	
	Substance use disorder (n=8)	0	100	
	Alcohol use disorder (n=2)	0	100	
	Bipolar (n=3)	67	33	
Medication type	Haloperidol (n=40)	28	72	2.494
	Risperidone (n=5)	40	60	
	Chlorpromazine (n=31)	45	55	
	Modecate (n=7)	43	57	
	Carbamazepine(n=5)	40	60	
	Other (n=3)	33	67	
3.404	3-6 Months (n=3)	33	67	3.404
	7-12 months (n=5)	0	100	
	13-24 months (n=10)	30	70	
	>24 months (n=73)	40	40	

Reasons for Nonadherence to Clinic Appointments

There were multiple options for the participants to choose from as reasons for nonadherence to clinic appointments. The most frequently mentioned reasons were "I do not have a mental illness" (44%) and "transport problems" (44%) (see Figure 2).

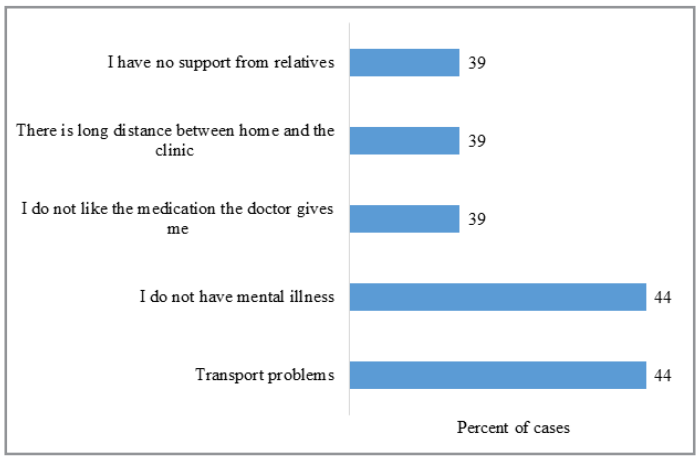

Figure 2: Reasons for nonadherence to clinic appointments

Factors Influencing Nonadherence to Clinic Appointments

The factors in the model accounted for 40.2% of the variance in adherence to medical appointments. The model was significant, indicating that it was good at predicting whether a client would adhere to clinic appointments.

Compared with male clients, female clients were 4.7 times more likely to miss clinic appointments (B= -1.555, Exp(B)=0.221, p=0.029).

Participants were 5 times more likely than those of other religions or those who did not belong to any religion to miss clinic appointments (B= 1.644, Exp(B)=5.176, p=0.034).

Marital status significantly predicts whether a client will adhere. Clients who had never been married were 15 times more likely not to adhere to clinic appointments than were clients who were married (B= 2.722, Exp(B)=25.12, p=0.002).

Clients attending a mobile clinic were 5.8 times more likely not to adhere than were those attending a static clinic (B= -1.762, Exp(B)=0.172, p=0.020).

Age of client, diagnosis and duration of medication did not significantly predict whether a client would adhere to clinic appointments (Table 3).

Table 3: Multivariate analysis of factors affecting clinic appointments

Characteristic	B	S.E.	Sig.	Odds Ratio	95C.I. C.I. for Odds Ratio
					Lower
Sex (Female)					
Male	-1.555*	0.712	0.029	0.211	0.052
Age	0.035	0.025	0.162	1.036	0.986
Religion (None)			0.098		
Catholic	-0.273	1.183	0.817	0.761	0.075
Protestant	1.644*	0.776	0.034	5.176	1.132
Muslim	-20.766	14011.92	0.999	0	0
Marital status (Married)			0.005		
Never married	2.722**	0.919	0.003	15.211	2.512
Once married but now single	-0.197	0.704	0.780	0.821	0.207
Clinic type (Mobile)					
Static	-1.762*	0.758	0.020	0.172	0.039
Duration on medication (> 2 years)			0.843		
<1 year	-0.514	0.879	0.559	0.598	0.107
1-2 years	21.999	14011.92	0.999	3.58E+09	0
Diagnosis type (Nonpsychotic)					
Psychotic	0.909	0.947	0.337	2.483	0.388
District (Dedza)					
Lilongwe	-1.621	0.958	0.091	0.198	0.03
Constant	-0.936	1.609	0.561	0.392	

R^2 = .402 (Nagelkerke).; Model $\chi 2$ (12) = 31.631***; *p < .05, **p<0.01, ***p < .001.

Prevalence of Nonadherence to Medication

The mean MARS score was 7.1 (SD=0.99), and the median score was 9. Using a median score of 8 as a cutoff point for nonadherence to medication according to the Medication Adherence Rating Scale (MARS), 46.2% (n=42) of the participants were nonadherent to medication [10].

Factors Influencing Adherence to Medication

Insight Score

The mean score for insight was 8.75 (SD=2.5). The majority of the participants (48; 52.8%) had poor insight into their illness, while 43 (47.3%) had good insight.

Audit score

The mean score for the Alcohol Use Disorder Identification Test (AUDIT) was 2.2 (SD=5.9). Seventeen participants indicated that they use alcohol. Of these, 9 (52.9%) had a score of 9 or above, indicating harmful drinking.

Ismi score

The mean score for internalized stigma of mental illness (ISMI) was 2.6 (SD=0.6). For the majority of the participants, 57 (62.6%) had a score of 2.5, indicating that they had internalized stigma about their mental illness.

Results on Factors Affecting Adherence to Medication

Marital status, medication, diagnosis of patient, alcohol and in-

sight explained a significant amount (24.8%) of the variation in medication adherence (F (6, 90) = 4.629, p<0.001). The results also showed that patients who had been on medication for less than two years had significantly lower adherence to medication than patients who had been on medication for more than two years. Patients whose main occupation was farming had lower adherence to medication than did those whose occupation was other (B = -1.541, t = -2.057, p=0.043). Finally, patients with psychotic disorders had greater adherence to medication than did non-psychotic patients (B=1.753, t=2.041, p=0.044) (see Table 4).

Table 4: Factors affecting medication adherence

Independent Variables	B	Std. Error	β	t-statistic	VIF
Constant	9.464	1.829		5.174	
Marital status = married	1.164	0.722	0.156	1.613	1.051
Duration on medication = Less than 2 years	-1.631	0.794	-0.211	-2.053*	1.177
Occupation = Farmer	-1.541	0.749	-0.203	-2.057*	1.091
Diagnosis = Psychotic	1.753	0.859	0.216	2.041*	1.256
Alcohol	-0.061	0.052	-0.115	-1.159	1.091
Insight measure	-0.268	0.152	-0.177	-1.759	1.131
R2	0.248				
F for R2 change	4.629**				
Durbin-Watson	1.517				

The dependent variable was adherence to medication (MARS).
* Significant at p<0.05 ** P<0.01
B= model coefficient; β = standardized model coefficient

Discussion

In general, 64% of the respondents were nonadherent to clinic appointments, 22% of the respondents missed 2 months of clinic appointments, 10% missed 2 months, and 32% missed more than 2 months of clinic appointments. A similar study conducted in South Africa revealed that 46.2% of participants attending outpatient mental health appointments had missed their appointment at one point [11]. Individuals who frequently missed clinic appointments may have reduced their judgment and understanding of the need for continued follow-up care.

The prevalence of nonadherence to medication was 46.2%, which is slightly greater than that reported in a study conducted in Mzimba, Malawi, among patients with a diagnosis of schizophrenia [8]. The high rate of nonadherence to medication is consistent with the findings of several studies. For example, a review of 46 studies conducted in Asia, Europe, Africa and North America revealed that the prevalence of nonadherence to treatment ranged from 48% to 57% [4]. These findings show that poor adherence to medication is common among patients with mental illness.

In this study, female clients were 4.7 times more likely not to adhere to clinic appointments than male clients were. This study agrees with the findings of a study in India's Kolkata Hospital, which revealed that women were 2.7 times more likely than men to be nonadherent [12]. However, a study from Nigeria indicated that men were 3.3 times more likely than women to fail to adhere to treatment [13]. Sociocultural factors may be responsible for the disparity in the reported findings. Women have many roles, including as homemakers, professionals, wives, mothers, and caregivers, which may add to their failure to adhere to the suggested regimen.

Protestants were more likely not to adhere than were those who did not belong to any religion. This study is consistent with a study performed at a psychiatric clinic in Nigeria that found that Christians were more likely to default to treatment than non-Christians were [14]. Because of their religious views, some individuals may refuse medical treatment, particularly for mental illness. Some people may be swayed by spiritual leaders to prioritize spiritual healing above physical care (Borras et al., 2007). On the other hand, believing that God will heal them may prevent them from adhering to clinic appointments and medication. In addition, patients may receive combined traditional therapies. Usually, the pathway to care in most communities is from traditional healers or spiritual leaders to hospitals and back and forth, which could contribute to nonadherence to appointments. For example, the findings of a study performed in Malawi showed that the majority of patients believe that mental illness is caused by witchcraft, and seeking alternative treatment from traditional healers is not uncommon even among Christians [9].

Respondents who were single and living alone were significantly more likely to miss their first appointment. These findings are consistent with those of a Malaysian Outpatient Psychiatric Clinic study, which showed that being alone was connected to missing appointments [15]. Single patients have less social support and are more prone to missed appointments. Furthermore, living alone deprives individuals of necessary emotional and social support, as well as the ability to bring patients to the clinic when they are ill or for follow-up care visits.

Clients attending a mobile clinic were more likely not to adhere than were clients attending a static clinic. There is a scarcity of data on studies assessing adherence to outreach clinics. Most studies have shown that there are many benefits of outreach clinics. Participants who attended mobile clinics were within a short

distance within the community. According to a study conducted in Nigeria, respondents who lived fewer than 20 kilometers from the hospital were substantially less likely to be clinic defaulters than were those who lived more than 50 kilometers away [16]. It is possible that some patients travel long distances to the clinic, which might explain why they were not adherent to their clinic appointment. However, further investigations are needed to determine the reasons for nonadherence among the beneficiaries of outreach clinics.

Patients who had been on medication for less than two years had significantly lower adherence to medication than patients who had been on medication for more than two years. The findings of this study are similar to those of a study conducted in Quebec, which revealed that nonadherent patients were more likely to refuse treatment within the first 6 months after initiation [17]. This finding is inconsistent with that of a study performed at Emmanuel Psychiatric Hospital in central Ethiopia, which revealed that a long treatment duration was associated with nonadherence among patients with schizophrenia [18]. Another study in Malaysia revealed that clients who had been in the clinic for less than 36 months were more likely to default to treatment [15]. The results of this study could be indicative of early stages of treatment, when difficulties such as treatment engagement and acceptance are still being ironed out with the patient, as the patient might still be in denial. This might indicate a lack of knowledge on the importance of adhering to medication.

Patients whose main occupation was farming had lower adherence to medication than patients whose main occupation was not farming. Most related studies have evaluated the association between occupation and nonadherence and have shown that occupation status is strongly associated with medication adherence. However, no specific studies have examined the association between farming and adherence. Although farming is a source of income, it may make patients busy, leading to nonadherence. Similar studies have shown that being busy is a reason for nonadherence to medication. Being a farmer is so involved that one is busy. For example, a study performed in Ethiopia showed that 17.7% of patients with schizophrenia were busy, which is one of the common reasons for nonadherence to medication [19].

The study revealed that psychotic patients have greater adherence to medication than nonpsychotic patients. This study is inconsistent with many other studies that have shown that patients with a diagnosis of psychosis have poor medication adherence. This finding is consistent with that of a study performed in Ethiopia, which showed that patients who were using psychoactive substances after the initiation of treatment were nearly twice as likely to be nonadherent to antipsychotic medication than were those who had no history of substance use [20]. This study differs from a study performed in Europe that showed that patients with bipolar disorder had poor adherence to medication due to poor insight [21]

Conclusion

It is important to address factors that influence nonadherence to clinic appointments to prevent relapse and improve overall quality of life.

Limitations

There was no prospective follow-up of clients who missed appointments or medications. The other limitation is the use of the Medication Adherence Rating Scale (MARS), which is a more subjective measure of medication adherence than objective measurements. However, the most applied measurement in adherence studies is subjective, with almost 75% of the existing studies using information taken from patients, their family members or service providers (Ljungdalh, 2017).

Ethical Consideration and Clearance

The study was approved by the Africa University Research Ethics Committee and the National Health Sciences Research Committee of Malawi (approval number 2727). Permission to conduct the study was also sought and granted by the relevant authorities of Nkhoma Mission Hospital. The respondents were also informed that their participation in the study was voluntary. Each respondent signed a written consent form.

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