Psychotropic Medication Non-Adherence among Psychiatric Patients at Two Hospitals in Eastern Ethiopia

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Abstract

Background: Major psychiatric disorders have significant contributions to the global burden of disease. The pharmacological management of major psychiatric disorders is mainly challenged by patients' lack of adherence to their medication. Although it may be well studied in the developed world, it is not well documented in less developed countries, including Ethiopia. Therefore, the aim of this study was to assess the prevalence of psychotropic medication non-adherence and its associated factors among psychiatric patients at two selected hospitals in eastern Ethiopia.

Methods: A hospital-based cross-sectional quantitative study was conducted at Hiwot Fana Specialized University Hospital and Dil Chora Hospital from May to June, 2015. A systematic sampling method was applied to recruit 660 adult patients (18 years and older) with major psychiatric disorders at two selected hospitals in the eastern Ethiopia. The patients' psychotropic medication non-adherence, attitude towards medication, perceived stigma and social support were assessed using adapted tools. Collected data were entered into EpiData version 3.5.3 and then exported to Statistical Package for social sciences (SPSS) version 20.0 for analysis. Descriptive and logistic regression analysis were carried out. Statistical association was declared using adjusted odds ratio (AOR) at 95% confidence interval (CI) and $p< 0.05$.

Results: The prevalence of psychotropic medication non-adherence was 61.2% (95% CI: 57.3-65.0%). Being female (AOR=2.3; 95% CI: 1.4-3.8); taking low potency typical antipsychotic with antidepressants concomitantly (AOR=2.7; 95% CI:1.0-6.9); being on treatment from 6 to 24 months (AOR=2.3; 95% CI:1.4,3.8); more than 24 months (AOR=2.5; 95% CI:1.5-4.1); substance use (AOR=2.6; 95% CI;1.7-4.0); perceived stigma (AOR=2.2; 95% CI:1.5-3.1); patient's poor attitude towards the medication (AOR=3.0; 95%CI:1.8-5.1), and poor social support (AOR=1.8; 95%CI:1.3-2.7) were the factors associated with psychotropic medications non-adherence**.**

Conclusion: About two-third of the major psychiatric patients were non-adherent to their psychotropic medication. The non-adherence was significantly associated with being female, low potency treatment and concurrently ill, long treatment duration, substance use, perceived stigma, poor attitude towards medications and lack of social support. Therefore, concerned stakeholders should focus on the associated factors in order to improve adherence to psychotropic medication.

Keywords: *Psychotropic medication non-adherence, Major psychiatric disorders, Ethiopia*

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Introduction

Globally, psychiatric disorders affect approximately 450 million people (WHO, 2008). The psychiatric disorders have caused 31.7% of different long-term disabilities and dependency. The major contributors to the long-term disability and dependency are unipolar depression (11.8%), alcohol-use disorders (3.3%), schizophrenia (2.8%), bipolar depression (2.4%) and dementia (1.6%) (Mathers and Loncar, 2006). The World Health Organization (WHO) has defined medication non-adherence "as a case in which a person's behavior in taking medication does not

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corresponds with agreed recommendations from a health care provider. It can be either willful or inadvertent which can include failing to initially fill or refill a prescription, discontinuing a medication before the course of therapy is completed, taking inappropriate dose of the medication than prescribed and at the wrong time" (WHO, 2003).

Patients who are suffering from major psychiatric disorders are less likely to adhere to their treatment (Rekha *et al*., 2005; Fawad *et al.,* 2008). Patients having poor reasoning skills, misbehaving towards prescribed medications and having poor insight about their illness and medication are some of the risk factor for psychotropic medication non-adherence (Colom and Vieta, 2002;Al-Qasem, 2011). Furthermore, patients who are non-adherent to their medication cause a complex problem for health care service, as a result of recurrent relapse of symptoms; become less responsive to subsequent medication; poorer mental and physical functioning; increase substance abuse and suicidal behavior; complications in co-morbid medical conditions; psychiatric hospitalization and health care costs (Lindstrom and Bingefors, 2000; Colom and Vieta, 2002; Lacro, 2002; Burton, 2007; Al-Qasem, 2011).

Information about the level of major psychiatric disorders patients' medication non-adherence and its associated factors is essential to inform policymakers and other concerned stakeholders. Hence, identifying the factors associated with psychotropic medication non-adherence is the foremost step to address the root causes and minimize unintended consequences of psychotropic medication non-adherence. Although some studies have been conducted in Ethiopia, we could not find a study in Eastern part of Ethiopia during our literature reviews. Therefore, this study aimed to assess the prevalence of psychotropic medication nonadherence and its associated factors among adult major psychiatric disorder patients on treatment follow up at two clinics at Hiwot Fana Specialized University Hospital (HFSUH) and Dil-Chora Hospital (DCH) in the Eastern selected psychiatric Ethiopia.

Materials and methods

Study design and settings

A hospital-based cross-sectional quantitative study was conducted to assess psychotropic medication non-adherence and its associated factors at HFSUH and DCH from 1 May to June, 2015. The two hospitals were selected purposefully due to having psychiatric clinics with an admission center and also used as referral destinations in the eastern Ethiopia.The HFSUH is a teaching hospital of Haramaya University College of Health and Medical Sciences. The hospital is in Harar city and 526km to the east of Addis Ababa. Similarly, DCH is found in Dire Dawa administration and is 515km to the east of Addis Ababa. In the two psychiatric clinics, there were 1,942 patients with major psychiatric disorders.

Sample size determination and sampling procedure

The sample size was calculated using a single population proportion formula considering 50% proportion for non-adherence to the psychotropic medications, 4% of margin of error and 95% significance level. Then, 10% of the sample size was added for methodological non-response. Then sample size (n=660) was proportionally allocated to size of psychiatric patients who had follow-up at HFSUH and DCH psychiatric clinics.

Finally, 660 (462 from HFSUH and 198 from DCH) patients were interviewed and their documents (patients card) were reviewed. A systematic sampling method was applied to select 660 study participants. Here, the sampling frame was constructed based on the patients' identification card numbers, which were obtained from the psychiatric patients' registry. Then the study participants were selected every other patient (k^{th} =2). The first patient was selected randomly and the others were selected systematically based on the 'k^{th}' value. In the case of a patient who had re-visit or consultation during the study period, the patient's identification number was cross-checked against the constructed sampling frame (list), and duplicated studies were excluded to avoid re-interview as well as document re-review. The upcoming psychiatric patients were consider for the sampling and continued every other patients. In the meantime, detail explanation about the aim of the study was provided to the study participants to achieve a desired response rate. The detail of participant's recruitment process have illustrated schematically (Fig. 1).

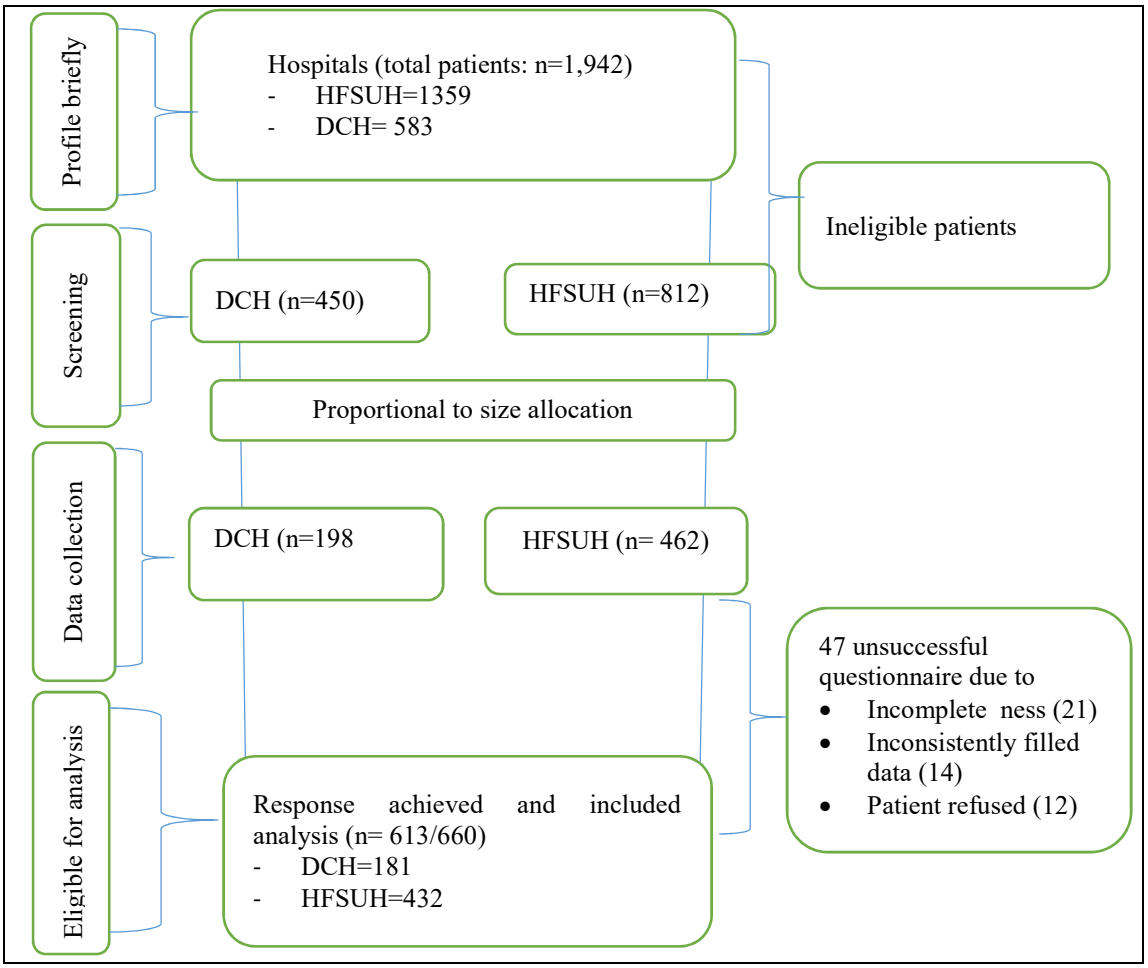

Figure 1: Schematic presentation of participant recruitment process.

Population

Patients with major psychiatric disorders (schizophrenia, bipolar and major depressive disorders) and who were on psychotropic medication were eligible to the study. Those patients who had had more than one visit that was confirmed from the patients record (registry) and patient aged 18 and above years (based on the record from patient card) were included in the study. Unfortunately, patients who were acutely agitated or severely retarded; and unable to communicate with the data collectors, and who had re-visited or already included previously were excluded from the study.

Data collection method

Data were collected using adapted structured questionnaire that comprised of patients' socio-demographic characteristics, health-care-related factors, patient related factors and other variables (Hogan *et al.,* 1983; Morisky *et al.,* 2008; Dalgard*, 2009;* Mahaye *et al*., 2012; Abiola *et al.,* 2013). This study focused on three major psychiatric disorders (schizophrenia, bipolar disorders and major depressive disorders). Both primary and secondary data were taken from psychiatric patients and patient records (registry), respectively. Initially, primary data were collected from the study participants, and then secondary data (document reviews) were carried out. Data on the type of major psychiatric disorder diagnosis and of medication, co-morbidities (if any), the group of drug(s), frequency of drug taken and other related variables found in the patient record were taken through document or record review..

Data on the patients' level of medication adherence, attitude towards their medication, social/family support, and their perceived stigma were collected using faceto-face interview with the patients, and eventually rated according to the adopted standard. Medication adherence and the associated factors were assessed using standard measurements such as Morisky Medication Adherence Rating Scale (MMARS); Drug Inventory Attitude (DIA) score; Oslo 3-items Social Support Scale (OSS-3) and perceived stigma

evaluation tools. Psychotropic medication non-adherence was assessed using the eight items Morisky Medication Adherence Rating Scale (MMARS) (Morisky *et al*., 2008; Mahaye *et al.,* 2012). Each item on the MMARS was used to assess the patient's medication taking behavior, and presented dichotomously (yes=0, no=1), in which score "1" is corresponding to negative answers. The sum of the MMARS score was greater than or equal to three negative answers. It was considered as non-adherent. On the other hand, the patients' attitude towards medication was assessed by ten items of the DIA. The DIA score less than six was considered negative attitude towards medication (Hogan *et al.,* 1983*)*. Furthermore, social support was assessed using the Oslo 3-items of OSS-3. It was described as the number of people that the person felt close to, interest and concern shown by others, and the ease of obtaining practical help from others. The sum score scale ranged from 3 to 14; in which 3 to 8 stands for "poor social support" and 9 to 14 stands for "good support" (Dalgard, 2009; Abiola *et al.,* 2013). In addition, perceived stigma was measured using the 3-items' perceived stigma measuring scale. Perceived stigma with an overall possible score ranging from 0 (no perceived stigma) that has at least one 'yes' perceived stigma to 3 (maximally perceived stigma).

Data quality control

Prior to data collection, a two-day training was given to the data collectors and the supervisors about the sampling procedure, content of the questionnaire, interview techniques, consent taking and confidentiality. Pretest was made in the nearby health facility (Harar Jugol Hospital) to make necessary modification on the data collection tools, sampling procedures and interview methods. Data were collected by six psychiatric nurses through face-to-face interview method and record review. Close supervision was held on the data collection process by two supervisors who had Master of Science degree in integrated clinical and community mental health. Eventually, the collected data were checked for completeness and consistency, coded and entered to computer based software for cleaning. Re-coding of the variables were carried out accordingly to suit with statistical methods.

Data processing and analysis

The collected data were entered into Epidata (3.5.3) and then exported to SPSS (20.0) for analysis. Descriptive statistics was used to compute frequencies, percentage, mean and standard deviation. Bivariate analysis was carried out for crude odds ratio (COR). Hosmer-Lemshow goodness-of-fit was used to construct the final model. The variables that had a P-values less than 0.25 in the binary logistic regression were included in the multiple logistic regression analysis. The multiple logistic regression analysis was computed to control confounders and to determine the independent predictors of psychotropic medication non-adherence using AOR at 95% CI and P-Value less than 0.05.

Ethical consideration

Ethical approval was obtained from Institutional Health Research Ethical Review Committee of the College of Health and Medical Science at Haramaya University**.** Permission and letter of cooperation was presented to the health institutions' administrative bodies. Participation was on voluntary basis and participants were informed that they had full right to skip, interrupt or withdraw at any time during the interview process if they fill uncomfortable. Informed consent was obtained mainly from study participants, but care givers and or relatives were asked for their willingness to interview their relative as necessary.

Results

Socio-demographic characteristics

A total of 613 participants were interviewed with a response rate of 92.9% (613/660) (Fig. 1). Of these study participants, 76.1% were males, and 56.2% were urban dwellers. The mean (SD) age of the participants was 32.9(±10.7) years (Table 1).

Prevalence of psychotropic medication non-adherence

The study participants by their diagnosis were schizophrenia (69.2%), major depressive disorder (21.5%) and bipolar-disorder (5%) respectively. The overall prevalence of psychotropic medication non-adherence among the patients with major psychiatric disorders was 61.2% (95% CI: 57.3-65.0%). Of these, the prevalence of medication non-adherence among the patients with schizophrenia, major depressive disorder and bipolar I disorder were 60.9%, 62.9% and 58.9% respectively (Fig. 2).

Table1: Sociodemographic characteristic of study participants at two selected hospitals in eastern Ethiopia from May-June, 2015 (n=613).

Variables	Categories	Freq.	%
Site	Dil Chora Hospital	181	29.5
	HFUH	432	70.4
Sex	Male	466	76.1
	Female	147	23.9
Age (years)	18-30	292	47.6
	31-45	198	32.3
	>45	123	20.1
Marital status	Single	254	41.4
	Married	293	47.7
	Divorced	52	8.5
	Widowed	14	2.5
Religion	Orthodox	195	31.8
	Protestant	42	6.8
	Muslim	370	60.3
	Others	3	0.4
Ethnicity	Amhara	185	30.1
	Oromo	307	50.0
	Harari	35	5.7
	Somali	23	3.7
	Tigray	24	3.9
	Gurage	37	6.0
	Others	2	0.3
Occupation	Government employed	93	15.1
	Private business	86	14.1
	Daily laborer	47	7.7
	Jobless	131	21.3
	Student	44	7.2
	Farmer	149	24.3
	House wife	62	10.1
Educational status	Unable to read and write	144	23.5
	Read and write	74	12.1
	Primary school	151	24.6
	Secondary school	140	22.8
	Diploma and above	103	16.8
Monthly income (in birr)	≤600	87	27.0
	601-1000	91	28.3
	1001-2000	85	26.4
	≥2000	59	18.3
Residence	Rural	268	43.6
	Urban	345	56.2

**religion (others): Catholic=2 and Wakifata =1; Ethnicity (other): 1Arigoba and Silte*

Patients self-reported reasons for psychotropic medication non-adherence

In this study, patients' skipping of medications (58.1%), fear of side-effects (69.0%), lack of information about their illness (54.8%), lack of information about their medication (56.3%), poor social support (50.1%), had perceived stigma (53.7%) and had history of different substance abuse (58.3%) were the most common reasons for psychotropic medication non-adherence (Table 2).

Clinical factors for medication non-adherence

The non-adherence for each prescribed treatment was higher than the total adherence level. However, some of the cell are with very few count, and also some common drugs were prescribed for different type of psychiatric disorders (Table 3).

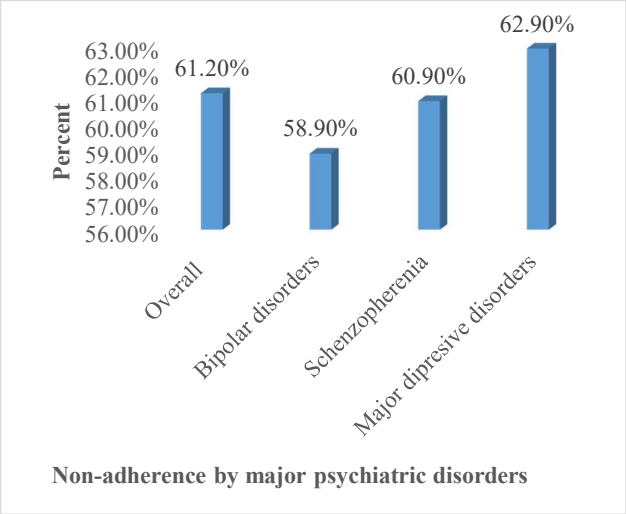

Figure 2: Psychotropic medication non-adherence among major psychiatric disorders at two selected hospitals in eastern Ethiopia from May-June, 2015 (n= 613).

Factors associated with psychotropic medication non-adherence

On the bivariate analysis, sex, residence, antipsychotic drug taken with antidepressants concomitantly, side effect, cost of the medication, duration of treatment, history of substance use, patient's attitude towards the medication, social support and perceived stigma with P-value less than 0.25 were entered in to multivariate analysis. In multivariate analysis being female (AOR =2.3; 95% I: 1.4-3.8); taking low potency typical anti-psychotic medication concomitantly with antidepressants (AOR=2.7; 95% CI: 1.0-6.9); being on treatment for 624 months (AOR=2.3; 95% CI:1.4-3.8); being on treatment for >24 months (AOR=2.5, 95% CI: 1.5-4.1); substance use (AOR =2.6; 95% CI:1.7-4.0); perceived stigma (AOR =2.2; 95% CI:1.5- 3.1); patient attitude towards the drug (AOR=3.0; 95% CI: 1.8-5.1); and having poor social support (AOR=1. 8; 95% CI:1.3-2.7) were significantly associated with medication non-adherence (Table 4).

Table 2: Description of reasons reported by patients for their psychotropic medication non-adherence among major psychiatric disorder patients at two selected hospitals in eastern Ethiopia from May-June, 2015 (n=613).

Variables	Categories	Freq.	%
Skipping	overall skipping of medicine	356	58.1%
	skip related to forgetfulness	228	64.0%
	skip due to feeling better	81	22.8%
	skip due to fear of side-effect	54	15.2%
Side-effect	Mouth dryness, blurred vision and constipation	149	69.0%
	drowsiness and sedation)	54	25.0%
	extra-pyramidal symptoms	31	14.4%
Lack of information	about their illness	136	22.1%
	about their medication	155	25.2
Lack of support	Negative attitude toward medication	119	19.4%
	Poor social support	307	50.1%
	Perceived stigma	328	53.7%
Substance	Overall substance use	357	58.3%
	Chew Khat	341	95.5%
	Ciggarate smoking	176	49.3%
	alcohol drinking	24	6.7%
	other substances use	6	1.7%
Cost of drug	drug not free (with payment)	492	80.3%

Note that: other substances: shisha, homemade beverages
(613) *multiple response was possible*

Discussion

This study determined the prevalence of psychotropic medication non-adherence among the patients with major psychiatric disorders in Eastern Ethiopia, and it was 61.2%. The most frequently raised reasons for their psychotropic medication non-adherence were the patients' skipping their medication, fear of side-effects, lack of information about their illness and their medication, poor social support, having perceived stigma and having a habit of substance. Furthermore, the factors significantly associated with psychotropic medication non-adherence were being female, taking low potency typical antipsychotic with antidepressants concomitantly, medication side-effects, treatment duration longer than six months**,** substance use, patients' attitude towards the medication, poor social support and having perceived stigma were significantly associated with non-adherence.

The present finding indicated, psychotropic medication non-adherence was 61.2% (95% CI: 57.3-65.0%). This study finding is quite greater than the studies conducted in Denmark, Pakistan, India, Nigeria, Kenya, South Africa and Ethiopia (Hansen *et al*., 2004; Okonji *et al.,* 2005*;* Fawad *et al.,* 2008; Kazadi *et al., 2008;* Adegoke *et al.,* 2011*;* Sangeeta *et al.,* 2012*;* Sharma *et al.,* 2012*;* Kenfe *et al.,* 2013*;* Ibrahim *et al* 2015a, b) which have showed that non-adherence ranged from 33.5% to 55.6%. The difference might be due to high substance use in our study area, where 58.3% of the study participants were using substance. This is also confirmed from the inferential analysis which have showed that patients who have had psychostimulant or addictive substance use were approximately three times more likely to be non-adherent to their medication than non-users. This study finding is consistent with the studies conducted in different areas (Hudson *et al.,* 2004*;* Janssen *et al* 2006*;* David *et al.,* 2012*;* Markowitz *et al.,* 2013*;* Tefera *et al.,* 2013).

The female patients with major psychiatric disorders were two times more likely to be non-adherent to their medication than the male patients. This is in line with a study done in India (Banerjee*,* 2012). In addition, major psychiatric patients who were taking low potency typical antipsychotic with antidepressants

Table 3: Major psychiatric disorders patients' treatment related factors at two selected hospitals in eastern Ethiopia from May-June, 2015 (n=613).

Variables	Categories	Freq.	%
Type of major psychiatric disorders	Major depressive disorder	132	21.5
	Schizophrenia	425	69.2
	Bipolar I disorder	56	9.1
Class of anti-depressant taken	Tricyclic anti-depressants	65	43
	selective serotonin reuptake inhibitors	86	57
Type of antipsychotic taken with antidepressants	Typical low potent[&]	39	39
	Typical high potent	49	49
	Atypical antipsychotics	12	12
antipsychotic medication(s) that the patient currently taking	Typical low potent [&]	320	71.7
	Typical high potent	82	18.4
	Atypical antipsychotics	44	9.9
Mood stabilizer medication	Sodium valproate	37	58.7
	Carbamazepine	26	41.3
Co- morbidity [a]	Yes	34	5.5
	No	579	94.5
Side effect	Yes	216	35.3
	No	397	64.7
Duration of treatment	≤6months	146	24
	7-24 months	231	38
	>24 months	231	38
Experiencing skipping of medication	Yes	356	58.1
	No	257	49.9

**Atypical antipsychotics (AAP): Also known as second generation antipsychotics (SGAs)) are a group of antipsychotic drugs (antipsychotic drugs in general are also known as major tranquilizers and neuroleptics.*

**Typical antipsychotics are a class of antipsychotic drugs first developed in the 1950s and used to treat psychosis. Typical antipsychotics may also be used for the treatment of acute mania, agitation, and other conditions.*

**Typical high-potent: are antipsychotic drugs have been formulated as the decanoate ester (e.g. fluphenazine decanoate) to allow for a slow release of the active drug when given as a deep, intramuscular injection.*

[&] *Typical low potent: are antipsychotic drugs with low-potency antipsychotics which is requiring higher doses to achieve the same effect as high-potency ones, but with different side effects*

[a] *Co-morbidities: is the presence of one or more medical/surgical/neurological/other mental illness in addition to major psychiatric disorders.*

concomitantly were three times more likely to be non-adherent than those patients who were taking atypical antipsychotics with antidepressants. This finding is consistent with other study reported that the presence of side effects of the medication was associated non adherence (Lambert *et al.,* 2004). Likewise, patients who were on treatment from 6- 24 months and > 24 months were two times more likely to be non-adherent than those who were on treatment for less than six months. This finding is consistent with the treatment recommendations guideline of the national institute for health (NIH, 2009).

The present study finding showed that 50.1% of the patients with major psychiatric disorders had poor social support. This finding is quite lower than the findings from different studies conducted in Ethiopia (84.6%) (Kenfe *et al.,* 2013), India Kolkata (66.9%) (Banerjee, 2012), Sudan (64.0%) (SAP, 2010) and Thailand (77.0%) (Prukkanone *et al*., 2005). The difference might be related to sociocultural contexts in which people in the eastern Ethiopia are so interactive and well supportive to their neighbors and other people regardless of their medical or other conditions. Likewise, patients who had poor social support were about two times more likely to be non-adherent to their medication than the patients who had good social support (AOR 1.8, 95%CI:1.3-2.7). This fining is similar with other studies that indicated social support serving as a cue to action or reinforcing factor for psychiatric patient's medication adherence (Adegoke *et al*., 2011; Scheurer *et al*., 2012; Kenfe *et al*., 2013; Ibrahim *et al*., 2015a). The present finding have showed that patients who had perceived stigma were two times more likely to be non-adherent than the patients who had no perceived stigma.

Table 4: Predictors of psychotropic medication non-adherence among major psychiatric disorders patients at two selected hospitals in eastern Ethiopia from May-June, 2015 (n= 613)

Variables	Categories	Medication non-adherence		COR (95% CI)	AOR (95% CI)
		Yes (%)	No (%)		
Sex	Male	272(58.4)	194(41.6)	1	1
	Female	103(70.1)	44(29.9)	1.7(1.2-2.5)	2.3(1.4-3.8)*
Residence	Rural	150(56.0)	118(44.0)	1	1
	Urban	225(65.2)	120(34.8)	1.5(1.1-2.1)	0.8(0.3-2.5)
antipsychotics taken with anti-depressants	Typical	30(76.9)	9(23.1)	2.5(1.01-6.1)	2.7(1.0-6.9)
	Atypical	35(57.4)	26(42.6)	1	1
Side-effect	Yes	161(74.5)	55(25.5)	2.5(1.7-3.6)	2.3(1.5-3.4)*
	No	214(53.9)	183(46.1)	1	1
Anticholinergic side-effect	Yes	113(75.8)	36(24.2)	2.4(1.6-3.7)	2.2(1.4-3.4)*
	No	262(56.5)	202(43.5)	1	1
Sleep related side-effect	Yes	46(85.2)	8(14.8)	4.0(1.9-8.7)	2.4(1.1-5.4)*
	No	329(59.8)	230(41.2)	1	1
Duration of treatment	≤6months	67(45.9)	79(54.1)	1	1
	7-24months	150(64.9)	81(35.1)	2.2(1.4-3.3)	2.3(1.4-3.8)*
	≥25months	155(67.1)	76(32.9)	2.4(1.6-3.7)	2.5(1.5-4.1)*
Cos of treatment	Freely	85(70.2)	36(39.8)	1.7(1.1-2.5)	0.8(0.5-1.4)
	Paid	290(58.9)	202(41.1)	1	1
Substance use	Yes	244(68.3)	113(31.7)	2.1(1.5-2.9)	2.6(1.7-4.0)*
	No	131(51.2)	125(48.8)	1	1
Khat use	Yes	232(68.0)	109(32.0)	1.9(1.4-2.7)	1.5(1.0-2.1)
	No	143(52.6)	129(47.4)	1	1
Cigarette smoking	Yes	133(75.6)	43(24.4)	2.5(1.7-3.7)	1.9(1.2,2.9)*
	No	242(55.4)	195(46.6)	1	1
Alcohol drinking	Yes	21(87.5)	3(12.5)	4.7(1.4-15.8)	2.5(0.7-8.9)
	No	354(60.1)	235(39.9)	1	1
Attitudes towards the drug	Negative	96(80.7)	23(19.3)	3.2(1.9-5.2)	3.0(1.8-5.1)*
	Positive	279(56.5)	215(43.5)	1	1
Social support	Poor	212(69.1)	95(30.9)	2.0(1.4-2.3)	1.8(1.3-2.7)*
	Good	163(53.3)	143(46.7)	1	1
Perceived stigma	Yes	240(73.2)	88(26.8)	3.1(2.2-4.3)	2.3(1.5-3.1)*
	No	133(47.0)	150(53.0)	1	1

Note that: * indicate significant association at 95% confidence interval; COR: Crude odd ratio; AOR: adjusted odds ratio

This finding is consistent with other studies' finding (Sirey *et al*., 2001; Wing *et al*., 2002; Gabriel and Violato, 2010). Likewise, the odds of being among patients who had negative attitude towards their medication were three times more likely to be non-adherent to their psychotropic medication than those who had positive attitude towards their medication. This is also supported by different studies (Hogan *et al*., 1983; Sirey *et al*., 2001; Acosta *et al*., 2012).

Strength and limitations of the study

This study used standard adapted measurement tools to assess psychotropic medication non-adherence, attitudes towards their medication, social support and perceived stigma. We used comprehensive data acquisition methods (face-to-face-interview and document/record reviews). Different quality assurance measures, probability sampling method and inferential statistical methods were applied to control confounders and maintain the credibility of the finding. Although we applied different measures and approaches to assure the quality of findings, this study have also some limitations. This study used only quantitative approach and patients and care givers perspectives were not addressed through exploratory study. So this might tends to underestimate the medication non-adherence due to recall bias. This hospital-based cross-sectional study design might not establish cause and effect relationship as well as might not be shown the temporality effect on medication adherence. Furthermore, classification of the major psychiatric disorders are also problematic due to mixed nature or comorbidity and co-medication issues.

Conclusion

About two-third of major psychiatric disorders patients found to be non-adherent to their psychotropic medication that associated with different reasons. Being female, taking low potency antipsychotic taken with anti-depressants concomitantly, side-effect**,** treatment duration longer than six months**,** substance use, negative attitude towards the drug, poor social support and having perceived stigma were the factors significantly associated with medication non-adherence. This study finding will give an insight to any concerned bodies about the level of major psychiatric patients' medication non-adherence and associated factors. We suggest researchers should undertake further studies using analytical study design to establish causal relationships of psychotropic medication non-adherence and associated factors.

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Conflict of Interest

All authors declared that have no conflict of interest

Author's contribution

MN, MD and AS made a substantial contribution to conception design, acquisition and interpretation of data. AS and GT drafted the manuscript and carried out rigorous editorial work. All authors revised the paper critically for the intellectual contents. All authors read and approved the final manuscript.

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