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Medication Adherence among Patients with Schizophrenia Treated with Antipsychotics at Adama Hospital, East Shoa Zone, Oromia Regional State

Mamo ES*, Gelaw BK and Tegegne GT

Department of Pharmacy, College of Medicine and Health Science, Ambo University, Oromia region, Ethiopia

***Corresponding author:** Mamo ES, Department of Pharmacy, College of Medicine and Health Science, Ambo University, Oromia region, Ethiopia, Tel: 251112362006; E-mail: b.pharm2006@yahoo.com

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Abstract

Background: Schizophrenia is a classic psychiatric diagnosis in which patients experience psychotic symptoms for longer than 6 months. Non adherence is a major problem in the treatment of schizophrenia which is significantly associated with treatment out come and is the major cause of relapse in the treatment of schizophrenia. High prevalence, costs associated with it and potentially severe consequences are those cases that made the study of this phenomenon a priority issue. The objective of this study was to evaluate adherence rates to schizophrenic patients.

Methods: Cross-sectional method was conducted over 2 month period (March 10th to May 15th) in Adama hospital and patients self-reporting using an interview (focusing on how often regular medication doses were missed altogether, and whether they missed taking their doses on time) was used to evaluate adherence rates to schizophrenic medications. Data collected was analyzed using the Statistical Package for the Social Sciences (SPSS) version 20 software, which is used to associate different variables with an adherence

Result: In the study 141 patients were included and on the basis of patients self-report, 56% of patients reported that they had never missed a medication dose, 14.18% sometimes missed their daily doses, 11.35% only missed taking their dose at the specific scheduled time and 18.49% missed both taking their dose at the specific scheduled time and sometimes missed their daily doses. The most common reason for missing medication doses were forgetfulness (43.5%), being busy (17.7%), lack of sufficient information about medication (14.5%) and pill burden (8%). duration of maintenance therapy, social drug Use and medication side effects each had a statistically significant association with medication adherence ($p < 0.05$).

Conclusion: It was well observed that medication adherence in this study was low as compared to previous reports. Forgetfulness was the most common reason for missing medication dose. Adherence must therefore be considered when planning treatment strategies with schizophrenic medications, particularly in countries such as Ethiopia.

Keywords: Non adherence; Antipsychotic; Schizophrenia; Adama

Introduction

The word psychosis is used to describe conditions that affect the mind, where there has been some loss of contact with reality [1]. In other words it is a condition in which people suffer from symptoms such as delusions, hallucinations, erratic behaviors and disordered thought [2].

There are three groups of psychotic symptoms-these are known as positive symptoms, disorganized symptoms, and negative symptoms. Positive Symptoms includes hallucinations and delusional beliefs. Disorganized Symptoms refers to disorganization of thinking, speech, and behavior. Negative symptoms include things like apathy or loss of interest, finding it hard to get motivated to do things, talking less, and changes in emotions so you feel flat or don't respond to something happening [1,3].

Schizophrenia is a classic psychiatric diagnosis in which a person experiences psychotic symptoms for longer than 6 months [4]. Schizophreniform psychosis is associated with psychotic symptoms for less than 6 months. When a person experiences psychotic symptoms and symptoms of a mood disorder (such as depression or mania) at the same time it is said to be Schizoaffective Disorder [1]. Psychosis can also occur as part of a mood or affective disorder, such as bipolar disorder (manic depression) or when very severely depressed (this is called psychotic depression) [3].

Antipsychotics may be used in a wide variety of psychotic disorders including schizophrenia, delirium, and dementia, the manic phase of bipolar disorder (manic depressive illness), psychotic depression, and other acute psychotic illnesses [5]. These medications are effective in the treatment of acute episodes of psychosis and in the prevention of relapse, reducing the risk of relapse in both first-episode and chronic schizophrenia patients [6]. Schizophrenia is one of the most complex and challenging of psychotic disorders and according to the epidemiologic catchment area study, the United State of America (USA) lifetime prevalence of schizophrenia ranges from 0.6% to 1.9%, with an average of approximately 1% [7].

Clinical research indicates that antipsychotic medications have shown to be effective in reducing positive psychotic symptoms and now they are the mainstay of treatment for patients with schizophrenia [8]. Antipsychotic therapy tends to be eclipsed by high rates of non-adherence.

Previous studies have reported a number of patient and clinical-related factors associated with antipsychotic medication adherence. Among individual characteristics, non-adherence has been associated with lower education, substance abuse, and poor insight negative attitude towards medications, a history of non-adherence, and inadequate discharge plan and poor therapeutic alliance with healthcare providers. Clinical conditions such as the presence of chronic medical conditions have also been associated with low adherence to antipsychotics [9].

Medication adherence relates to a patient's medication-taking behavior, and specifically refers to the extent to which a patient follows the mutually agreed treatment plan. In spite of recent progress in the treatment of schizophrenia during the last decades, non-adherence continues to be a frequent phenomenon, often associated to potentially severe clinical consequences and high costs [10]. The maximum benefit that a patient derives from antipsychotic medications is highly dependent on their adherence to treatment [11]. Although non-adherence is a ubiquitous problem in medicine [12], the nature of schizophrenia and other psychotic disorders makes it especially difficult for patients to adhere to treatment [4]. First, schizophrenia is an illness in which insight into the condition, and therefore need for treatment, is more likely to be impaired compared to other illnesses [13]. Second, disorganization and cognitive impairment are additional symptoms of schizophrenia that interfere with medication management [12]. Furthermore, the greater the exposure to treatment the more likely the patient is to experience side-effects, increasing the patient's reluctance to adhere to treatment. Finally, schizophrenia and its treatment (antipsychotics) are subject to stigma [14].

Suboptimal adherence to antipsychotic medications plays a major role in determining the frequent relapse and rehospitalization that is characteristic of schizophrenia [6]. In Ethiopia, due to the under-resourced health-care system, medication non-adherence rates are potentially much higher, thereby contributing to a substantial worsening of disease, increased mortality, and increased health care costs. Given the significance of this as a health issue and the scarcity of data to inform the scope of this problem in the local setting, the aim of this study was to evaluate adherence rates to schizophrenic medications, and to identify possible reasons and factors for non-adherence to medications, among patients with schizophrenia in Adama hospital East Central Ethiopia [15].

Statement of problem

The adherence project has adopted the following definition of adherence to long-term therapy the extent to which a person's behavior taking medication, following a diet, and or executing life style changes, corresponds with agreed recommendations from a health care provider [10,16]. Adherence to medication is a core component of recovery from illness [9] and it is an important modifier of health system effectiveness, so that improving adherence also enhances patient's safety [16]. Poor adherence to treatment of chronic disease is a worldwide problem of striking magnitude and its impact grows as the burden of chronic disease grows worldwide and its consequences are poor health outcomes and increased health care costs [9,16].

Non adherence to antipsychotic medication is a major cause of psychotic relapse [13] and is a major problem in the treatment of schizophrenia [10]. Increasing the effectiveness of adherence intervention may have a far greater impact on the health of the population than any improvement in specific medical treatments [16] and Compared with patients who were classified as adherent, those who were non adherent were 26% more likely to be hospitalized for any reason and 27% more likely to be hospitalized with a psychiatric diagnosis [17].

There was no enough study conducted regarding medication adherence previously. This study was conducted to evaluate adherence rates to schizophrenic patients, to identify possible reasons and factors for non-adherence to schizophrenic medications.

Significance of the study

To give information on patient non-adherence and relate factors that may help for the health care system to concern these issues.

To give information on respondents on different aspect of the disease that may help for further study of policy makers and some concerned governmental bodies.

It can help as a base line for further study on patient's adherence and to determine various adherence and non-adherence issues (Figure 1).

Structural frame work

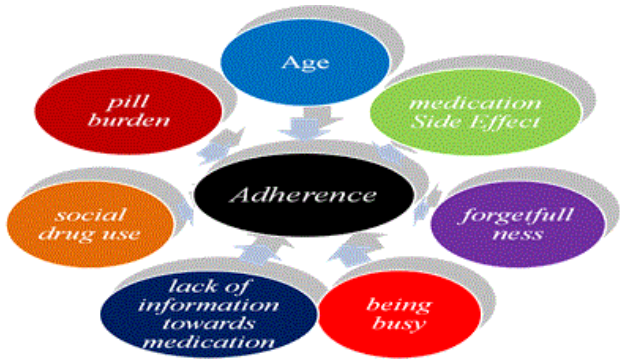

Figure 1: Structural frame work showing reasons and factors affecting adherence at Adama, Ethiopia in 2014.

Objective

General objective

To evaluate the prevalence of adherence to schizophrenic medications.

Specific objective

To evaluate adherence rates to schizophrenic medications.

To identify possible reasons for non-adherence to schizophrenic medications.

To identify potential factors associated with non-adherence.

Methodology

Study area

The study setting was Adama referral hospital, east showa, Oromia National Regional State, Ethiopia. Adama is located 99 km south east of Addis Ababa, (the capital city of Ethiopia). It is a medical college and teaches accelerated medicine, emergency surgery and anaesthesia nurses. Now the hospital has 465 different workers to who different services, of which 194 are administration workers. The other 271 workers are health professionals. There are specialist in different field (23), general practitioners (GP) 36, Nurses (116), laboratory workers (20), x-ray (5), physiotherapy (2), sanitarians (2), Biomedical (1), Midwifery (16), Anaesthesia (9), Health officers (9), psychiatry nurses (3) and masters in different fields (14). Psychiatric clinic is one of the outpatient department at which psychiatric patients including schizophrenic patients refill their medication. It has 1 psychiatry physician (psychiatrist), 5 psychiatry nurses and 8 nurses.

Study design

Cross-sectional study was conducted at Adama Referral Hospital, Ethiopia.

Study period

This study was conducted over a 2 month period (March 10th to May 15th) in 2014.

Population

Source of population

All patients who were identified with a diagnosis of schizophrenia in Adama Referral Hospital.

Study population

All patients enrolled to psychiatric clinic during the study period.

Study variables

Dependent variables

Knowledge

Response related to adherence

Independent variable

Socio demographic variable

Information on illness

Use of social drugs

Inclusion and exclusion criteria

Inclusion criteria

Patients diagnosed as schizophrenia.

Patients who received maintenance therapy for at least 3 months.

Patients older than 10 years.

Exclusion criteria

Those are severely ill and difficult to obtain information from them.

All patients below age of 10.

Patients who were on schizophrenic medication within the past 3 months.

Data collection

Structured questionnaires involving self-reporting of patients were used to determine adherence to prescribed medication. This questionnaire was used for interviewing patients who were refilling a prescription. Using this questionnaire, patients were considered to be adherent if they reported that they had never missed either a daily dose or the time of taking a dose.

Sampling technique and sample size

Sampling technique

Simple random sampling technique was used.

Sample size

The sample size was determined by using single proportion formula by taking the following assumption; Prevalence rate of 50%, confidence interval of 95%, margin of error 5%.Then,the minimum sample size is calculated by the formula.

$n= (z^2pq)/w^2$, where,

n = the minimum sample size

Z = reliability coefficient for confidence interval. [z for 95% CI is 1.96]

P = population proportion (p = 0.5)

q = 1 - p

w = 0.05 (taking 5% margin of error)

$n = (1.96)^2\ 0.5\ (1 - 0.5) / (0.05)^2$

n = 0.9604 / 0.0025

n = 384

Since source population is less than 10,000, sample size should be reduced by the reduction formula

Determination of the sample size

$$NF = \frac{n}{1 + n/N}$$

n_f = final sample size

n = initial sample size

N = the number of source population. The number of source population was 320. So that the sample size was calculated as follow:

$$n_f = \frac{n}{1 + n/N}$$

$$n_f = \frac{384}{1 + (\frac{384}{320})} = 174$$

Data analysis

All data collected was analyzed using the Statistical Package for the Social Sciences (SPSS) version 20 software to associate different variables with an adherence.

Ethical considerations

The study was approved by the Ethics Committee of Ambo University and official letter was written to the Adama Hospital to secure permission. The confidentiality of the data obtained was assured and no disclosure of any name of the patients, and drug product in relation to the funding was made.

Result

174 patients were approached out of this patients 141 were included in the study which resulted in a response rate of 81.03%. The remaining 33 patients were not included in the study because of either they did not fulfill the inclusion criteria or they are not willing to give a response which resulted in incompleteness of data. Majority of patients (54%) were males, (65.2%) were orthodox religion followers and 32.6% were unemployed. In respective with their age the majority groups were in the age group of 21-30 (51%). (Table 1 shows socio demographic characteristics of the patients).

Clinical characteristics of the patients

In relation to pill burden (Interms of the overall number of medications prescribed), most of prescriptions (73.8%) were prescribed only one agent and 26.2% were prescribed two agents and the majority of doses (73.8%) were prescribed as once-daily dosing.

In relation to their experience of medication side effects, it accounts (79.4%). when they asked about their side effects the majority (30.5%) were reported that they experienced depression, 23.4% weight gain, 14% multiple side effects and 11.3% Extra pyramidal side effects. when they asked about the measure they had taken when they experienced side effects the majority of those that experience side effects reported that 59.8% were told their family member, 16% stopped going to work, 13.4% stopped taking their doses and 10.7% did nothing. Most of the patients (88.7%) had feel comfortable in openly discussing about their medication issues with their health professionals.

Most patients (70.9%) reported that they have no exposure to social or recreational drugs previously and among those that were reported that they were exposed to it the majority (58.5%) was drinking alcohol, 39% khat and 2.5% cigarette. Among those who had an exposure to social or recreational drug they reported that (51.2%) were feeling depression, 34.1% feel different when they stopped using social or recreational drugs, and 14.6% felt that their illness had stopped. The majorities (56.7%) of the patients were used antipsychotic medication for more than 1 year and the rest (43.3%) were used antipsychotic medication for less than 1 year.

No	Socio demographic	Characteristics	frequency	Percent (%)
1	Gender	Male	76	54
		Female	65	46
2	Age (in years)	20-Oct	14	9.9
		21-30	72	51
		31-40	19	13.5
		41-50	18	12.8
		50+	18	12.8
3	Marital status	Never married	76	54
		Married	41	29
		Divorced		4.2
		Widowed	18	12.8
4	Living condition	With family	124	88
		Living alone	15	10.6
		Others	2	1.4
5	Educational status	Diploma and above	36	25.5
		10-12 grade	33	23.4
		7-10 grade	17	12%
		1-6 grade	4	2.8
		No formal schooling	51	36
6	Occupational status	Unemployed	46	32.6
		Private NGO	4	2.8
		Government		
		Farmer	4	2.8
		Student	48	34
		Merchant	19	13.5
		Others	2	1.4
7	Religion	Orthodox	92	65.2
		Muslim	22	15.6
		Protestant	18	12.8
		Catholic	8	5.7
		Others	1	0.7
8	Monthly income (in birr	300+	63	44.7
		200-300	45	31.9
		100-200	19	13.5
		< 100	14	9.9

Table1: Socio-demographic characteristics of the study participants at Adama Hospital, Ethiopia, 2014.

Patient's self-reported adherence to medication

When the results were seen with respects to their medication status (56%) were never missed a medication dose which included neither missing the daily dose out right nor missing the instructed time of dose administration, 32.25% sometimes missed their daily dose, (25.8%) only missed taking their dose at a specific scheduled time and 41.9%

missed both taking their daily dose at the specific scheduled time and sometimes missed their daily dose. The most common reason (43.5%) that the patient that had missed taking their medication dose reported was forgetfulness (Table 2).

No	Reasons	frequency	Percent (%)
1	Forgetfulness	27	43.5
2	Being busy	11	17.7
3	Lack of sufficient information about the medication	9	14.5
4	Pill burden	5	8
5	Medication side effects	3	4.8
6	Social drug use	6	9.7
7	Duration of maintenance therapy	1	1.6

Table 2: Patient's reason for missing their medication used for the treatment of schizophrenia using self-report at Adama Hospital, Ethiopia, 2014.

Adherence association with different variables

The study showed that the existence of significant association of age, medication side effect, social drug use, duration of maintenance therapy and pill burden with adherence to schizophrenic medications. But, there is no significant association between gender and adherence (Table 3).

No	Variables	χ^2	df
1	Age	9.396	4
2	Gender	1.885	1
3	Medication side effect	20.5	3
4	Social drug use	19.91	2
5	Duration of maintenance therapy	5.337	1
6	Pill burden	28.7	2

Table 3: Association between rates of adherence with different variables at Adama Hospital, Ethiopia, 2014.

Discussion

Socio- demographic factors

This study showed that there was no significant association between gender and adherence. Similarly two previous studies conducted in London in 2010 ($p = 0.108$) and in University of London and Southampton in 2007 showed that there was no significant association between gender and non-adherence [18,19]. In contrast to the this analysis, study conducted in Canada in 2013 showed that there was an association between gender and non-adherence showing that women were good adherent as compared to men. This difference may be explained by the sexual dysfunction which influences men more than women taking antipsychotic [9].

This analysis showed that there was significant association of age and adherence ($p = 0.05$). Similarly study conducted in Canada in 2013 showed a significant association between age and adherence. This might be due to younger individuals may not fully understand the severity of their illness and the need of treatment follow-up. In contrast study conducted in king's college London and university of Southampton in 2007 showed that were was no significant association of age and non-adherence.

This study showed there is no significant association between education and non-adherence. In contrast study conducted in London in 2010 showed a significant association between education and non-adherence [18].

Medication adherence and factor associated with non-adherence

Previous studies have reported that patients who discontinue antipsychotics may be two to five times more likely to relapse as other patients, leading to unnecessary suffering. It might be speculated that after experiencing one relapse patients would be substantially less likely to discontinue medication [15], so this study is particularly important in suggesting factors that might contribute to non-adherence.

It is well observed from this study that there was low rate of adherence (56%) to medication used for the treatment of schizophrenia as compared to previously studies done in Oslo University in 2011 which showed that there was adherence rate of 88% in schizophrenia [3]. This might be due to lack of access to get effective medications in Adama. But this study showed comparable rates of adherence (52.1%) to Antipsychotic medications to the study conducted in Jimma university, Ethiopia in 2012 [15]. Adherence must therefore be considered when planning treatment strategies with antipsychotic medications, particularly in countries such as Ethiopia.

In this study over half of the patients (56%) reported that they had never missed either a daily dose or the time of taking a dose, but there might be a controversy regarding the appropriateness of this method as patients self-report may still represent an under reporting magnitude of the problem.

This analysis showed that the most common reason for missing a medication dose was forgetfulness (43.5%). This might be due to cognitive impairment of patients. Similarly previous study conducted in Jimma University, Ethiopia in 2012 showed that the most common reason for missing a medication dose was forgetfulness (36.2%) [15].

This study showed that there was significant association of social drug use and non-adherence ($p < 0.001$). Similarly two previous studies conducted in Florida in 2010 ($p < 0.05$) [17] and Jimma, Ethiopia in 2012 ($p = 0.05$) [15] showed a significant association of social drug use and non-adherence. Active substance abuse has been found to have a nearly eight-fold higher risk of non-adherence [15]. This might be due to abusive substances may have an effect on the cognitive abilities of patients, which in turn may affect adherence.

This study showed a significant association of duration of maintenance therapy and non-adherence ($p = 0.0025$) as the patients that had used antipsychotic medication for the treatment of schizophrenia for greater than 1 year was more adherent than those that have treated with antipsychotic medication for less than 1 year. This might be due to the longer the history of illness, the more likely patients are to adhere to their medication.

This study showed that in relation to medication side effects the majority were reported that they experienced depression (30.5%), followed by weight gain (23.4%) and multiple extra pyramidal side effects (11.3%). Similarly study conducted in Jimma university, Ethiopia in 2012 showed that the major side effects patients experienced due to their medications were depression (44.1%), followed by multiple side effects (23.5%), weight gain (14.7%) and Extra pyramidal side effects (8.8%) [15].

It was well observed from this study that over 88% of patients responded that they felt comfortable in openly discussing their medication issues with their health professionals. This might be due to awareness of health professionals about how to ensure medication adherence. This clarity of communication is very supportive in overcoming a significant barrier to adherence, because when misunderstanding occurs, treatment becomes more complex and side effects are not managed.

Conclusion and Recommendation

Relatively the observed adherence rate to antipsychotic medications used for treatment of schizophrenia was low. Forgetfulness was the most common reason for missing medication dose. Age, Pill burden, social drug use, medication side effects and duration of maintenance therapy each has a significant association with medication adherence. Adherence must therefore be considered when planning treatment strategies with schizophrenic medications, particularly in countries such as Ethiopia. The physician should plan in accordance with the best of the patients and should continue in openly discussing about medication issues with patients who helps to overcome a significant barrier to adherence and the pharmacist should provide counseling on medications, educating about the importance of adherence, to patients as well as to their careers.

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Conflict of Interest

None declared.

Ethical Approval

Approval and permission was sought from Ethical Review Board of College of Medicine and Health Sciences of Ambo University.

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