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Knowledge and practice of Medication Adherence among patients with Schizophrenia attending Hospitals in North-western Nigeria

Ado Shehu [1,*], Hayat Gommaa [2], Sayeda Abdelateef [2], Emmanuel Ejambe Anyebe [3], Zulkiflu Musa Argungun [4], Usman Sunusi Usman [5], Attahir Sa'ad Ayuba [6], Ummukulsum Mustapha [1], Fatima Balarabe [2] and MuftahuSa'adu [7]

[1] *Faculty of Basic Medical Sciences, Khadija University Majia, Jigawa State, Nigeria.*
[2] *Department of Nursing Sciences Ahmadu Bello University, Zaria, Nigeria.*
[3] *Department of Nursing Science, University of Ilorin, Nigeria.*
[4] *Department of Nursing Science Usman Danfodio University Sokoto, Nigeria.*
[5] *Department of Public Health Bauchi State University, Nigeria.*
[6] *Faculty of Pharmacy, Suresh Gyan Vihar University, Jaipur, India.*
[7] *Department of Social Management Sciences, Khadija University Majia, Jigawa State, Nigeria.*

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Abstract

Background: Adherence to psychiatric medications is a complex, dynamic behaviour requiring patients to initiate treatment and continue to take their medications at the correct time, in the correct dose, for prolonged periods of time. But, improving adherence in schizophrenia may have a considerable positive impact on patients and society in terms of quality of life. This can be achieved by focusing on the identified multitude of factors driving non-adherence.

Aim: This study assessed the knowledge and practice of medication adherence among patients with Schizophrenia attending hospitals in Northwestern part of Nigeria.

Methodology: A quasi-experimental psycho-educational intervention study was conducted with before and after design among patients with Schizophrenia and their family caregivers selected from some hospitals in Northwest Nigeria. The study population comprised all the eligible patients with schizophrenia and their family caregivers within the study area, who were selected and agreed to participate in the study. A sample size of one hundred and thirty participants each for both the experimental and control groups were selected using a multistage sampling technique. Data was collected using Questionnaire Data collected was coded, entered, and analyzed using the Statistical Package for the Social Sciences (SPSS) version 22.

Result: There was an increase in the knowledge of schizophrenia and medication adherence, quality of life and level of medication adherence after the psycho-educational intervention.The predictors of medication adherence among the study participants in the experimental group include the following: type of treatment (ECT) (AOR=0.25, 95%CI= 0.18 – 0.75) was found to be negative predictor of medication adherence to treatment among study participants (AOR=0.25, 95%CI= 0.18 – 0.75). While, cost of treatment of more than one thousand five hundred naira per day (AOR=3.00, 95%CI=2.83 – 12.24).

Keywords: Adherence; Knowledge; Northern Nigeria; Practice; Schizophrenia

*Corresponding author: Ado Shehu

1. Introduction

The adherence project of the World Health Organisation (WHO, 2020) has adopted the following definition of adherence to long-term therapy: "*The extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider*". Strong emphasis was placed on the need to differentiate adherence from compliance. The main difference is that adherence requires the patient's agreement to the recommendations. It is generally believed that, patients should be active partners with health professionals in their own care and that good communication between patient and health professional is a must for an; effective clinical practice (Hsu et al., 2013). Medication adherence, previously known as compliance, has been defined as "the extent to which a person's behaviour coincides with the medical advice given." This may include refusing to attend medical appointments or to start a treatment program or early discontinuation, as well as incomplete implementation of the doctor's instructions (Tharani et al., 2013). Such behaviors have a negative effect on the outcome of the illness and leads to higher rates of recurrence and hospitalization, worsening of signs and symptoms, and increases in hospital costs (Roy et al., 2005); Sigmund et al., 2002);Ascher-Svanum et al., 2010).

Improving adherence requires a continuous and dynamic process. Recent research in the behavioral sciences has revealed that the patient population can be segmented according to level-of-readiness to follow health recommendations (Ogunnubi et al., 2017).The lack of a match between patient readiness and the practitioner's attempts at intervention means that treatments are frequently prescribed to patients who are not ready to follow them. Health care providers should be able to assess the patient's readiness to adhere, provide advice on how to do it, and follow up the patient's progress at every contact (Ascher-Svanum et al., 2010). Health providers can have a significant impact by assessing risk of non-adherence and delivering interventions to optimize adherence. For the effective provision of care for chronic conditions, it is necessary that the patient, the family and the community who support him or her all play an active role (Dolder et al., 2002). Social support, i.e. informal or formal support received by patients from other members of their community, has been consistently reported as an important factor affecting health outcomes and behaviors (Morken et al., 2008).There is substantial evidence that peer support among patients can improve adherence to therapy while reducing the amount of time devoted by the health professionals to the care of chronic conditions. Furthermore, a stronger commitment to a multidisciplinary approach is needed to make progress in this area (Dogan, 2013).

1.1. Knowledge and practice of Drug Adherence

Psycho-educational approaches have been developed to increase patients' knowledge of, and insight into, their illness and its treatment (Petretto et al., 2013). It is supposed that; this increased knowledge and insight will enable people with schizophrenia to cope in a more effective way with their illness, thereby improving prognosis. The purpose of patient education/teaching (or Psycho-education) is to increase patients' knowledge and understanding of their illness and treatment (Petretto et al., 2013); (Hsu et al., 2013). It is supposed that increased knowledge enables people with schizophrenia to cope more effectively with their illness. Psycho-educational interventions involve interaction between the information provider and the mentally ill person (Petretto et al., 2013). The efficacy of Psycho-education added to standard care as a means of helping severely mentally ill people compared with that of standard care alone, shows a significant reduction of relapse or readmission rates (Petretto et al., 2013). There seems to be some suggestion that Psycho-education may improve compliance with medication, but the extent of improvement remains unclear (Hsu et al., 2013). In the medium term, treating four people with schizophrenia with Psycho-education instead of standard care resulted in one additional person showing a clinical improvement. The scarcity of studies made the comparison between the efficacy of different formats (programmes of 10 sessions or less or 11 or more, individual or group sessions) weak (Petretto et al., 2013).

Non-adherence remains a global challenge for psychiatry that has been linked to suicide rates, all-cause mortality and hospitalization for patients;(Chapman & Horne, 2013). Adherence to psychiatric medications is a complex, dynamic behaviour requiring patients to initiate treatment and continue to take their medications at the correct time, in the correct dose, for prolonged periods of time (Sanele Mahaye, 2012). The person taking care of a family member with schizophrenia may deal with difficult emotions, including fear, guilt, anger, frustration, and disappointment (Bäuml*et al.*, 2006). It may be hard for a caregiver to accept the disorder; they may worry about schizophrenia label, and try to hide the disorder from others, or may become confused by the strange behaviours that they do not understand (Lucksted*et al.*, 2012). Although, the content of psycho-educational intervention varies between different studies, there are common factors among these studies (Lucksted*et al.*, 2012). Family caregivers of persons with bipolar disorder and schizophrenia experience high level of burden and compromised quality of life(Wilkinson et al., 2000). A considerable amount of burden on the caregivers often leads to display of certain attitudes towards persons with severe mental illness called expressed emotion, which then leads to poor quality of patients as well. Although numerous studies dealing with these issues separately are present, but studies dealing with relationship, using mixed methodology, among

these issues are scarce (Margetić*et al.*, 2013).Adherence requires the patient's agreement with these recommendations, while "compliance" is described as a patient passively following the Nurses/doctor's orders. In this case, the treatment plan is not based on a therapeutic alliance. In practice, the terms "adherence" and "compliance" are used interchangeably (Pothimas, *et al*., 2020). Adherence to a drug regime is a significant issue in the clinical management of schizophrenia. A study of adherence in Bipolar disorder showed that slightly more than one-half of the patients studied were fully adherent, 20% were partially adherent, and nearly 30% were non-adherent. Risk factors for non-adherence in this group included younger age, minority status, substance abuse, and homelessness (Shehu, *et al*., 2019). Non-adherence to antipsychotics was slightly higher (23%), among those with bipolar disorder but lower for lithium and antidepressants (26% and 22%) respectively.Lithium was associated with the highest rates of non-adherence in both groups, which reflects the adverse effect burden of the medication. Early treatment discontinuation on the part of patients with schizophrenia or schizophrenia-like disorders is strikingly common, with estimates of its prevalence in antipsychotic drug trials ranging from 25-75%.2

1.2. Medication non- adherence

In Nigeria, prevalence rates of non-adherence of 54.2%, 48% and 55% were reported from Maiduguri and Lagos respectively. While a study conducted in South Africa reported a non -adherence rates of 41% to 43% among patients with bipolar disorders. Risk factors for non-adherence included minority status, single status, and substance abuse. Reasons for non-adherence in this study included forgetting to take medications (55%) and adverse effects (20%); (Shehu, et al., 2019). Medication adherence was assessed with Morisky Medication Adherence Questionnaire, and participants completed the World Health Organization Quality of Life Scale-BREF. The mean age of participants was 38.54 (±11.30) years, and all the participants were on antipsychotics, but only 45% were adherent to their medication. Out of all the participants, 45 (28.2%) considered their overall QoL to be good, 97 (60.6%) considered theirs to be fair, while 18 (11.2%) (Ogunnubi et al., 2017).

Antipsychotic nonadherence has been reported to occur in 60% of patients with schizophrenia. A systematic review of 39 studies reported that approximately 40% of patients were partially adherent or nonadherent with antipsychotics; Nonadherence has been linked to symptomatic relapses, poorer quality of life, poorer illness prognosis, increased aggression towards self and others, suicidality, and completed suicide. Nonadherence for 1 to 10 days has been linked with an increased risk of re-hospitalization. Poor insight might be the result of cognitive dysfunction associated with schizophrenia, and often is due to a lack of awareness of the importance of taking medications. Limited insight into the need for treatment can be problematic early in the course of the illness when it may be directly related to positive symptoms. Perkins and colleagues demonstrated that patients recovering from a first psychotic episode who had limited insight into their illness and lacked desire to seek treatment were less adherent with medication (ref). In another study, 5% of psychiatrists surveyed thought that many of their patients with schizophrenia were nonadherent because those patients did not believe that medications were effective or useful (Chapman & Horne, 2013). Co morbid substance abuse disorders can contribute to medication nonadherence. In an analysis of 6,731 patients with schizophrenia, Novick and co-workers reported that alcohol dependence and substance abuse in the previous month predicted medication non- adherence. Hunt and colleagues demonstrated that, among 99 nonadherent patients with schizophrenia, time to first readmission was shorter for patients with co-morbid substance abuse disorders compared with patients who had a diagnosis of schizophrenia only. Over the 4-year study period, the 28 patients who a dual diagnosis (schizophrenia and substance abuse) had accounted for 57% of all hospital readmissions, several variables that affect medication adherence are related to the patient's relationship with healthcare providers, family, caregivers, and the service delivery system. Societal stigma associated with seeking treatment from a mental health professional may contribute to nonadherence in some patients. In one study, 36% of people surveyed would not want to work closely with a person who has a serious mental illness. The therapeutic alliance plays a key role in patients' attitudes toward taking medication. Magura and colleagues found that one-third of psychiatric patients (13% of whom had a diagnosis of schizophrenia) reported that their psychiatrist did not spend enough time with them explaining side effects, and felt "rushed."

1.3. Medication Adherence

Medication adherence is an important problem for those with schizophrenia. However, adherence rates differ amongst studies. Poor medication adherence rates of 39% and 35% have been reported, particularly during the first and second years of the illness. Likewise, other studies showed the rates of non-adherence ranging from 30-70%. On the other hand, a study reported good adherence rates at first-and second-year follow-up (51% and 44%, respectively). Additionally, some studies demonstrated adherence rates ranging from 13-60%. Medication non-compliance variables can be classified into the same three categories; (a) clinical factors such as the severity of psychotic symptoms increase drug non-compliance.(b) personal variables such as poor insight, drug abuse ,loss of work, poor functioning, negative attitudes towards antipsychotic medications, the stigma of taking antipsychotic medication that affects non-adherence

to taking medication and, (c) social support factors such as an increased risk for non-compliance for those living alone (Pothimas et al., 2020). At present, schizophrenia can be treated by drugs, psychological therapy, physical therapy, and surgery. Poor medication compliance among patients with schizophrenia is common, with a proportion of 30.9–60.3%. Research shows that young women have better medication adherence than men that elderly patients may be affected by memory impairment, and that patients with poor socioeconomic status and severe mental symptoms also have poor medication adherence (Yu*et al*., 2021). In China, 20% of community patients with schizophrenia were considered non-adherent. However, there is no research on the effect of treatment modes in different countries on the medication adherence of patients with schizophrenia (Yu et al., 2021).

Several studie have shown that up to 80% of all schizophrenic people discontinue antipsychotic medications and that nonadherence rates ranging from 20% to 89%, with an average rate of approximately 50%, have been reported. Although patient's satisfaction with treatment regimen is crucial for medication adherence, few studies had examined the relationship between adherences, treatment satisfaction, and therapeutic outcome in patients with schizophrenia (Sweileh et al., 2012). Findings endorse previous reports that treatment satisfaction is positively associated with antipsychotic medication adherence and improved clinical outcomes. A study by Maneesakorn and colleagues indicated that adherence to antipsychotic medication has positive impact on psychiatric symptoms and satisfaction with medication (Sweileh et al., 2012).

2. Material and methods

2.1. Research design

A quasi experimental study was conducted

2.2. Research setting

Northwest of Nigeria

2.3. Study Population and sampling technique

One hundred and thirty thousand were recruited

2.4. Sample

The total minimum sample size was approximated to one hundred and thirty (130). This means that 130 schizophrenic patients and their caregivers were selected for each of the study (intervention) and the control groups. One hundred and twenty seven (127) participants were assigned to the experimental (intervention) group while 126 participants were in the control group.

2.4.1. Tool

The main tool used was questionnaire prepared by the researcher based on WHO-QoLBref rating scale. The questionnaire contains six sections:

2.5. Procedure for data collection

- **Pre-intervention Baseline data:** This was collected from the potential respondents (patients with schizophrenia and their caregivers) in both experimental and control groups using the study questionnaire. Questionnaire was administered by a member of the research team the selected participants in the experimental group received training on psycho-education for ten days by the researcher and support staff/research assistants. The training guidelines and materials were developed by the researcher after extensive literature search and review on psycho-education.
- .**Intervention:** After the baseline data collection in both the experimental and control groups, **Post-intervention:**
- **Ethical considerations**: The provisions of the HELSINKI declaration were respected (Shehu,*et al.*, 2019). All privacy and confidentiality was also guaranteed during and after the data collection.

3. Results

3.1. Socio-demographic characteristics of the care givers of Patients

Table 1 above shows the socio-demographic characteristics of care-givers of the patients with schizophrenia in the experimental (intervention) and control group in Jigawa State, Nigeria. From the result, 127 participants in the experimental (intervention) group had mean age of 48.6 ± 11.7 years while the 126 participants in the control group had mean age of49.0 ± 12.1. The age group of 35 – 54 years constituted about 60% of the participants in both groups (59.1% and control 58.7% respectively). About three quarter of the participants in the experimental group and two-third in the control group have educational status of primary school certificate and above. More than half of the study participants in both groups were males. In terms of ethnicity and tribe, Hausa and Muslims constitute majority of the study population with majority of them as housewives.About half of the study participants in both the experimental and control group have monthly income of more than fifty thousand Naira

Table 1 Socio-demographic characteristics of the care givers of patients in both the experimental and control group

	Experimental (Intervention)		**Control**	
Variables	**Frequency**	**Percent (%)**	**Frequency**	**Percent (%)**
Age range				
25 – 34	12	9.4	11	8.7
35 – 44	42	33.1	44	34.9
45 – 54	33	26.0	30	23.8
55 – 64	25	19.7	22	17.5
65 – 74	15	11.8	19	15.1
Mean ± SD	48.6 ± 11.7		49.0 ± 12.1	
Educational status				
Non formal education	35	27.6	42	33.3
Primary	34	26.8	25	19.8
Secondary	47	37.0	43	34.1
Tertiary	11	8.7	16	12.7
Sex				
Male	65	51.2	75	59.5
Female	62	48.8	51	40.5
Ethnic group				
Hausa	110	86.6	111	88.1
Others	17	13.4	15	11.9
Religion				
Islam	112	83.0	114	90.5
Christianity	25	17.0	12	9.5
Occupation				
Farmers	30	23.6	33	26.2
Civil servants	15	11.8	17	13.5
Housewives	62	48.8	51	40.5

Student	10	7.9	13	10.3
Business	10	7.9	12	9.5
Marital status				
Married	101	79.5	103	81.7
Others	26	20.5	23	18.3
Monthly income				
>N50,000.00	64	50.4	63	50.0
≤N50,0000.00	63	49.6	63	50.0

Table 2 Medical History of the study participants in both the experimental and control group (I)

	Experimental (Intervention)		**Control**	
Variables	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Duration of illness				
1 – 5	24	18.9	30	23.8
6 -10	47	37.0	41	32.5
11 – 20	38	29.9	32	25.4
>20	18	14.2	23	18.3
Contacts with the Health Care provider				
Psychiatrist	67	52.8	65	51.6
Psychiatric nurse	42	33.1	45	35.7
Others	18	14.1	16	12.7
Admitted in Hospital				
Yes	85	66.9	95	75.4
No	42	33.1	31	24.6
Health Facilities attended				
Psychiatric hospital	90	70.9	85	67.5
Social services	10	7.9	13	10.3
Other hospitals	27	21.3	28	22.2
Member of family with similar condition				
Yes	52	40.9	50	39.7
No	75	59.1	76	60.3
Family member withschizophrenia				
Father	18	34.6	20	40.0
Mother	29	55.8	23	46.0
Others	5	9.6	7	14.0

Table 2: Above showed the medical history of the study participants in both the experimental and control group. The duration of illness in more than three quarter of the study participants were more than 5 years. More than halve of them have come in contact with psychiatrist in both the experimental (52.8%) and control (51.6%) group. Two third of the

study participants in the experimental group (66.9%) and three quarter in the control group (75.4%) were admitted in the hospital. About three quarter of participants in both the experimental (70.9%) and control (67.5%) group have attended Psychiatrist hospital prior to this study. About two fifth of the study participants in both the experimental (40.9%) and control (39.7%) group have family member with similar illness: out of which female members of the family were more affected in both the experimental (55.8) and control (46.0%) group.

Table 3 History of the study participants in both the experimental and control group (II)

	Experimental (Intervention)		**Control**	
Variables	**Frequency**	**Percent (%)**	**Frequency**	**Percent (%)**
Type(s) of treatment				
Drugs	82	64.6	87	69.0
ECT	34	26.8	26	20.6
Others	11	8.7	13	10.3
Cost of treatment per day				
<N1500.00	60	47.2	59	46.8
N1500.00	67	52.3	67	53.2
Any treatment side effects?				
Yes	95	74.8	93	73.8
No	32	25.2	33	26.2
What is/are the side effect?				
Weight gain	48	50.5	49	52.7
Sexual dysfunctions	22	23.2	20	21.5
Vomiting	12	12.6	14	15.1
Others	13	13.7	10	10.8
Any relapse due to none compliances to treatment?				
Yes	65	51.2	63	50.0
No	42	33.1	41	32.5
Not known	20	15.7	22	17.5
Does that treatment affect your performance?				
Yes	70	55.1	72	57.1
No	31	24.4	32	25.4
Not known	26	20.5	22	17.5

Table 3 above showed the medical history of the study participants in both the experimental and control group. From the result, most of the participants in both the experimental (64.6%) and control (69.0%) group were on drugs treatment; while very few are on both drugs and ECT. More than half of the participants in both the experimental (52.3%) and control (53.2%) group spend an average of one thousand five hundred Naira as the daily cost of treatment. About three quarter of participants in both the experimental (74.8%) and control (73.8%) group had complained of side effects: of which weight gain was the commonest in about half. About half complain of relapse due to non-compliance in both the experimental (51.2%) and control (55.1%) group. More than half in both the experimental (57.1%) and control (69.0%) group complained that the treatment affected their performance.

Table 4 Baseline knowledge on schizophrenia and medication adherence among care-givers in both the experimental (intervention) and control group

	Experimental (Intervention)		**Control**	
Variables	**Yes**	**No**	**Yes**	**No**
Schizophrenia is a chronic disease	43(33.9)	84 (66.1)	42(33.3)	84(66.3)
It is commoner among females	41(32.3)	86(67.7)	39(31.0)	87(69.0)
Knowledge of symptoms of schizophrenia	42(33.1)	85(66.9)	38(30.2)	88(69.8)
Coping with some of the patients symptoms	55(43.3)	72(52.8)	45(35.7)	81(64.3)
Drug treatment can reduce its severity	40(31.5)	87(68.5)	50(39.7)	76(60.3)
There is need of continues follow up	43(33.9)	84(66.1)	42(33.3)	84(64.7)
Appropriate time to take medication	42(33.1)	85(66.9)	40(31.7)	86(68.3)
Knowledge of side effects of drugs (positive and negative)	45(35.4)	82(64.6)	43(34.1)	83(65.9)
Knowledge of sign of relapse	43 (33.9)	84 (66.1)	41 (32.3)	85 (67.7)

About half of the study participants in both the experimental and control group have knowledge on parameters of knowledge of schizophrenia and medication adherence.

Table 5 Assessment of the baseline level of knowledge on medication adherence among care-givers of Schizophrenic patients in both the experimental (intervention) and control group

Knowledge on	**Experimental (Intervention)**		**Control**	
medication adherence	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Good	65	51.2	63	50.0
Poor	62	48.8	63	50.0
Total	127	100.0	126	100.0

About half of the study participants in both the intervention (51.2%) and control (50.0%) group have good scores on knowledge of medication adherence.

Table 6 Assessment of baseline medication adherence variables of participants in both the experimental (intervention) and control group

	Experimental(Intervention)		**Control**	
Variables	**Yes**	**No**	**Yes**	**No**
Do you sometimes forget to take your medication?	65(51.2)	62(48.8)	64(50.8)	62(49.2)
Have you ever cut back or stopped taking your medication?	70(55.1)	57(44.9)	60(47.6)	66(52.4)
Over the past two weeks, were there any days when you did not take your medicine?	62(48.8)	65(51.2)	63(50.0)	63(50.0)
When you travel or leave home, do you sometimes forget to bring along your medications?	60(47.2)	67(52.8)	65(57.7)	61(42.3)
Did you take your medicine yesterday?	80(63.0)	47(37.0)	70(55.6)	56(44.4)
When you feel like you are normal, do you sometimes stop taking your medicine?	63(49.6)	64(50.4)	62(49.2)	64(50.8)
Do you ever feel hassled about sticking to your treatment plan?	70(55.1)	57(44.9)	60(47.6)	66(52.4)

How often do you have difficulty remembering to take all your medication	75(59.1)	52(40.9)	70(55.6)	56(44.4)

About half of the study participants in both the experimental and control group have knowledge on parameters of medication adherence.

Table 7 Assessment of the baseline level of medication adherence scores among participants in both the experimental (intervention) and control group

	Experimental (Intervention)		**Control**	
Medication adherence	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Good	63	49.6	64	50.8
Poor	64	50.4	62	49.2
Total	127	100.0	126	100.0

About half of the study participants in both the intervention (49.6%) and control (50.8%) group have good practice scores of medication adherence as indicated in the table above.

4. Discussion

This paper Assess Knowledge and practice of medication Adherence among patients with attending hospitals in Jigawa State, Nigeria. Both the experimental and control group of study participants did not differ significantly with respect to socio-demographic characteristics: there were a total of one hundred and twenty seven (127) participants with mean age and standard deviation of 40.2 ± 11.1years participated in the experimental (intervention) group while; one hundred and twenty six (126) participants with mean age and standard deviation of 40.7 ± 11.8 years participated in the control group. The age group of 30 – 49 years constituted more than 60% of the participants in both the intervention and control group. Only about one third of the study participants have educational status of non-formal in both the experimental and control group. More than half of the study participants in both groups were females. In terms of ethnicity and tribe, Hausa and Muslims constitute majority of the study population with majority of them as housewives. In terms of medical history, the duration of illness in more than three quarter of the study participants were more than 5 years. More than halve of them have come in contact with psychiatrist in both the experimental (52.8%) and control (51.6%) group. Two third of the study participants in the experimental group (66.9%) and three quarter in the control group (75.4%) were admitted in the hospital. About three quarter of participants in both the experimental (70.9%) and control (67.5%) group have attended Psychiatrist hospital prior to this study. About two fifth of the study participants in both the experimental (40.9%) and control (39.7%) group have family member with similar illness: out of which female members of the family were more affected in both the experimental (55.8) and control (46.0%) group. Furthermore, as regards to medical history, most of the participants in both the experimental (64.6%) and control (69.0%) group were on drugs treatment; while very few are on both drugs and ECT, as More than half of the participants in both the experimental (52.3%) and control (53.2%) group spend an average of one thousand five hundred Naira as the daily cost of treatment. About three quarter of participants in both the experimental (74.8%) and control (73.8%) group had complained of side effects: of which weight gain was the commonest in about half.About half complain of relapse due to non-compliance in both the experimental (51.2%) and control (55.1%) group. More than half in both the experimental (57.1%) and control (69.0%) group complained that the treatment affected their performance In this study the following questions were asked as the components of knowledge parameters of Schizophrenia and medication adherence: Schizophrenia is a chronic disease, It is commoner among females, Knowledge of symptoms of schizophrenia, Coping with some of the patients symptoms, Drug treatment can reduce its severity, There is need of continues follow up, Appropriate time to take medication, Knowledge of side effects of drugs (positive and negative) and Knowledge of sign of relapse. At baseline only about one-third of the study participants have good knowledge on schizophrenia and medication adherence variables: However, there was no statistically significant difference between the intervention and control group in all the parameters of knowledge on medication adherence variables ($P>0.05$). At post-intervention level, more than three quarter of the participant have good score on knowledge of medication adherence in the experimental group while only about half in the control group have good score on knowledge of medication adherence. However, this relationship was found to be statistically significant ($P<0.05$). This is similar to findings in busy outpatient psychiatry clinic in Uganda that showed a formalized psycho-education intervention was positively associated with improved patient knowledge of mental illness and compliance with prescribed medications.

(Prost et al., 2013).Therefore, attendance at scheduled follow-up appointments for mental status checks, medication reviews, and support would seem essential. Also, diagnosis does not always occur at the first visit: psychotic and mood disorders evolve and often diagnosis becomes clearer only after evaluating a patient longitudinally. A large number of our study participants from both groups only attended the clinic once (44%).

5. Conclusion

Patients with schizophrenia often require access to social support systems provided by family members, friends, and community agencies that provide case management and attendant care services. Patients who are adherent to medication tend to have greater perceived family involvement in medication treatment, and tend to have been raised in a family that had more of a positive attitude toward medication resulted in patients having greater difficulty gaining access to case management and attendant care services, which then leads to increased rates of medication nonadherence.

Recommendations

Based on the findings of the study, the following were recommended

- Psycho-education should be included as part of management plan to all newly diagnosed schizophrenic patients and at least one of their care giver;
- Psycho-education should be conducted at least once for every two to three years for chronic schizophrenic patients and their caregivers: this will serve as re-enforcement to recommendation no

Compliance with ethical standards

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Disclosure of conflict of interest

As the Author; no any area of conflict of interest in the manuscript

Statement of ethical approval

Ethical clearance was obtained from the ethical committee of Jigawa State Ministry of Health, before commencement of the study. The provisions of the HELSINKI declaration will be respected.

Statement of informed consent

An informed consent was sought and obtained from each of the potential respondents before the commencement of the study.

References

[1] Ascher-Svanum, H., Zhu, B., Faries, D. E., Salkever, D., Slade, E. P., Peng, X., & Conley, R. R. (2010). The cost of relapse and the predictors of relapse in the treatment of schizophrenia. BMC Psychiatry, 10, 1–7. https://doi.org/10.1186/1471-244X-10-2

[2] Bäuml, J., Froböse, T., Kraemer, S., Rentrop, M., & Pitschel-Walz, G. (2006). Psychoeducation: A basic psychotherapeutic intervention for patients with schizophrenia and their families. Schizophrenia Bulletin, 32(SUPPL.1). https://doi.org/10.1093/schbul/sbl017

[3] Chapman, S. C. E., & Horne, R. (2013). Medication nonadherence and psychiatry. 26(5), 446–452. https://doi.org/10.1097/YCO.0b013e3283642da4

[4] Dogan, O. (2013). Adherence to treatment in patients with schizophrenia. In Bulletin of Clinical Psychopharmacology (Vol. 23).

[5] Dolder, C. R., Lacro, J. P., Dunn, L. B., & Jeste, D. V. (2002). Antipsychotic medication adherence: Is there a difference between typical and atypical agents? American Journal of Psychiatry, 159(1), 103–108. https://doi.org/10.1176/appi.ajp.159.1.103

[6] Hsu, N.-C., Lin, Y.-F., Shu, C.-C., Yang, M.-C., & Ko, W.-J. (2013). Noncancer Palliative Care. American Journal of Hospice and Palliative Medicine®, 30(4), 334–338. https://doi.org/10.1177/1049909112449068

[7] Lucksted, A., Mcfarlane, W., Downing, D., & Dixon, L. (2012). Recent developments in family psychoeducation as an evidence-based practice. Journal of Marital and Family Therapy, 38(1), 101–121. https://doi.org/10.1111/j.1752-0606.2011.00256.x

[8] Margetić, B. A., Jakovljević, M., Furjan, Z., Margetić, B., & Maršanić, V. B. (2013). Quality of life of key caregivers of schizophrenia patients and association with kinship. Central European Journal of Public Health, 21(4), 220–223. https://doi.org/10.21101/cejph.a3918

[9] Morken, G., Widen, J. H., & Grawe, R. W. (2008). Non-adherence to antipsychotic medication, relapse and rehospitalisation in recent-onset schizophrenia. BMC Psychiatry, 8, 1–7. https://doi.org/10.1186/1471-244X-8-32

[10] Ogunnubi, O. P., Olagunju, A. T., Aina, O. F., & Okubadejo, N. U. (2017). Medication adherence among Nigerians with schizophrenia: Correlation between clinico-demographic factors and quality of life. Mental Illness, 9(1). https://doi.org/10.4081/mi.2017.6889

[11] Pothimas, N., Tungpunkom, P., Kanungpiarn, T., & Hannes, K. (2020). Experiences of Medication Adherence Among People with Schizophrenia : A Qualitative Systematic Review. 2, 229–241.

[12] Prost, E., Musisi, S., Okello, E. S., & Hopman, W. M. (2013). The role of psycho-education in improving outcome at a general hospital psychiatry clinic in Uganda. African Journal of Psychiatry (South Africa), 16(4), 264–270. https://doi.org/10.4314/ajpsy.v16i4.35

[13] Roy, R., Jahan, M., Kumari, S., & Chakraborty, P. (2005). Reasons for drug non-compliance of psychiatric patients: A centre based study. Journal of the Indian Academy of Applied Psychology, 31(1–2), 24–28.

[14] Sanele Mahaye. (2012). Medication adherence of psychiatric patients in an outpatient setting. African Journal of Pharmacy and Pharmacology, 6(9), 608–612. https://doi.org/10.5897/ajpp11.646

[15] Shehu, A., Garba, S. N., Anyebe, E. E., Tukur, M., & Gomma, H. (2019). Adherence to drug treatment among schizophrenic patients in Jigawa State, Nigeria. Annals of African Medical Research, 2(1), 45–50. https://doi.org/10.4081/aamr.2019.77

[16] Tharani, A. J., Farooq, S., Saleem, F., & Naveed, A. (2013). Compliance to antipsychotic medication: A challenge for client, family and health care providers. Journal of the Pakistan Medical Association, 63(4), 516–518.

[17] Wilkinson, G., Hesdon, B., Wild, D., Cookson, R., Farina, C., Sharma, V., Fitzpatrick, R., & Jenkinson, C. (2000). Self-report quality of life measure for people with schizophrenia: The SQLS. British Journal of Psychiatry, 177(JUL.), 42–46. https://doi.org/10.1192/bjp.177.1.42

[18] Zygmunt, A., Olfson, M., Boyer, C. A., & Mechanic, D. (2002). Interventions to improve medication adherence in schizophrenia. American Journal of Psychiatry, 159(10), 1653–1664. https://doi.org/10.1176/appi.ajp.159.10.1653