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SOCIO-DEMOGRAPHIC AND CLINICAL DETERMINANTS OF MEDICATION ADHERENCE AMONG PATIENTS WITH SCHIZOPHRENIA IN AN OUTPATIENT FACILITY OF A NIGERIAN TERTIARY HOSPITAL

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ABSTRACT

Introduction: Adherence to prescribed mediation is an important factor to consider in determining the course and outcome of schizophrenia. Several factors have been established in literature to affect medication adherence in patients with schizophrenia. This study assessed the socio-demographic and clinical variables that determine level of medication adherence among patients with schizophrenia treated in a tertiary hospital. **Materials and methods:** One hundred consecutive and consenting patients with schizophrenia who met the inclusion criteria were interviewed using the socio-demographic/clinical characteristics questionnaire and Medication Adherence Rating Scale (MARS) on the clinic days at the outpatient unit of a tertiary hospital. **Results:** Fifty five (55%) participants were males, while 45(45%) were females. Thirty eight (38%) participants scored enough on MARS to be categorized as having good adherence to medication while 62(62%) participants had poor adherence to medication. Twenty three (60.5%) out of the 38 participants who showed adherence to medication were employed compared to 15(39.5%) who were unemployed (P = 0.013). Comparing those using typical and atypical antipsychotics, more participants, 23(60.5%) on atypical were adherent to prescribed medications, compared to 15(39.5%) who were on typical antipsychotics (P = 0.013). Patients who had only one episode were more likely to be adherent to medications compared to patients who had multiple relapses (P = 0.046). **Conclusion:** Findings from this study indicated that adherence to prescribed medication among patients with schizophrenia was low. Absence of relapses, use of atypical antipsychotic medications and employment were significantly associated with better adherence to medications.

KEYWORDS: medication adherence, patients, schizophrenia, tertiary hospital.

INTRODUCTION

Adherence to prescribed mediation is an important issue to consider in determining the course and outcome of schizophrenia. Medication adherence behaviour lies on a continuum from complete adherence to prescribed medication through partial adherence and complete non-adherence.[1] Psycho-educational interventions have long been the mainstay of treatment for adherence problems. However, there is growing evidence that other approaches such as cognitive-behavioural strategies and motivational interviewing may be effective.[2] Objective evaluation of medication adherence includes pill counts, pharmacy refill records, technology-assisted monitoring and drug detection in the patient's serum/urine. The subjective methods of assessing medication adherence include patient's reports during interviews and scores rated by an interviewer.[3] Self-report measures have the benefits of being cheap, easy to administer, non-intrusive and able to provide information on attitudes and beliefs about medication. The limitations to self-report measures are participants' ability to understand the items and willingness to disclose information. These can affect accuracy and questionnaire validity.[1] However, self-report method is established to be the most cost effective and time-efficient way of measuring compliance.[4, 5]

The causes of non-adherence to medication are multi-factorial.[6] A number of circumstances and parties are involved in the multifaceted issue of compliance. Therefore patients must never be solely blamed for compliance problems.[7] Some factors have been identified as key drivers of non-adherence. These include lack of insight, medication beliefs and substance abuse.[8]

Lacro et al[9] in a review of literature reported a mean rate of non-adherence of 41.2%. The review showed that factors most consistently associated with non-adherence were poor insight, negative attitude or subjective

response toward medication, previous history of non-adherence, substance abuse, shorter illness duration, inadequate discharge planning, aftercare environment, poor relationship with the therapist and poorer therapeutic alliance.

Many experts believed the average patient with schizophrenia in their practices takes only 51%-70% of prescribed medication. The factors identified to be associated with non-adherence included poor insight and lack of illness awareness, distress associated with specific side effects or a general fear of side effects, inadequate efficacy with persistent symptoms, believing medications are no longer needed, weight gain, sedation and persistent positive or negative symptoms in schizophrenia.[10] A study conducted to determine anti-psychotics adherence among out-patients with schizophrenia in Hong Kong showed that non-adherence was reported in at least 26% of patients. Also a logistic regression analysis on patients' decision to stop medication revealed that significant predictors included patients' poor knowledge about the benefits of medication, negative feelings of patients about regular medication and younger age.[11]

A study that examined the effect of first- versus second-generation antipsychotics on electronically monitored adherence in outpatients with schizophrenia or schizoaffective disorder revealed that there was no statistical difference in electronically monitored adherence over a 6-month period between patients taking first- and second-generation antipsychotics.[12] A study that assessed executive function, working memory and medication adherence among older adults reported that older patients may fail to adhere to treatments because of cognitive deficits especially when there is working-memory loss and impaired executive performance.[13]

Furthermore, a study that involved 160 randomly selected Nigerians with schizophrenia reported that only 45% of the participants were adherent to their medication. The participant's age and age of onset of illness correlated negatively with medication non-adherence.[14] Another study done in northeastern Nigeria documented that the prevalence of sub-optimal adherence was 55.7%. The independent predictors of sub-optimal adherence were seeking for traditional/ spiritual treatment, male gender, low levels of insight and low social support levels.[15]

Other risk factors identified for non-adherence to prescribed medications include history of previous non-adherence[16], more frequent in men than women, financial difficulties[7] and low educational level.[12] Marital status has not been identified to be a risk factor to non-adherence to prescribed medication.[17]

Antipsychotic medication plays a very important role in the treatment of schizophrenia including improvement of prognosis. The consequences of non-adherence to antipsychotic medication on patients have been established to increase the risk of relapse, re-hospitalization and suicide.[8,18,19] Knowledge of non-adherence risk factors is essential in making treatment decisions for patients with schizophrenia. Therefore, establishing the factors that influence medication adherence among patients with schizophrenia in a Nigerian tertiary hospital outpatient facility is therefore important.

METHODS

Study setting: This study was carried out at the psychiatry department of Federal Medical Centre Umuahia, Abia State Nigeria. Federal Medical Centre (formerly known as Queen Elizabeth Specialist Hospital) Umuahia is a 327 bedded tertiary hospital and one of the leading health care providers in south eastern part of Nigeria. It was established as a mission hospital in 1945 but was taken over by the Federal Government of Nigeria in 1991. The facility is centrally located and easily accessible to patients from south-east and south-south parts of Nigeria. The hospital presently has over 76 specialists in different fields of medicine, vibrant residency training programmed in different sub-specialties and a highly motivated work force with strong team spirit. Mental health clinic runs twice a week (Monday and Thursday) and has a facility for inpatient admission.

Ethical approval: The ethical approval for this study was obtained from the Health Research Ethics Committee of Federal Medical Centre Umuahia Abia State, Nigeria. Written informed consent was also obtained from the participants.

Instruments of the study

The sociodemographic and clinical characteristics questionnaire: This questionnaires was designed to provide information about the participants' age, residence setting (urban/rural), gender, marital status, occupation, employment status, level of education, ethnic background and religion in addition to some clinical characteristics such as duration of illness, number of pills (monotherapy/polytherapy), presence of insight, alcohol/drug use, class of antipsychotics (typical/atypical), frequency of administration of drugs and previous history of hospitalizations.

Medication Adherence Rating Scale (MARS): MARS is a quick and non-intrusive 10-item questionnaire for measuring of compliance to psychoactive medications. MARS is a useful tool in assessing medication adherence in a psychiatric clinic setting. Each question in the scale is answered with a yes/no response and scored with 0 or 1 value respectively. A maximum score of 10 (high likelihood of medication adherence) and a minimum score of 0 (low likelihood) are possible. MARS is a reliable and valid self-report questionnaire for measuring compliance. The reliability analysis of MARS using Cronbach's alpha is 0.75 while test-retest reliability

assessed after a 2-week interval using parallel-forms with 0.72 as Chi-square.[20] For the purpose of this study, a MARS score equal to 6 or above indicates adherence while scores less than 6 indicate non- or partial adherence.

Participants and sampling method: Participants were patients diagnosed of schizophrenia by a consultant psychiatrist employing the international classification of diseases, 10th edition (ICD-10) diagnostic criteria and confirmed with MINI International Neuropsychiatric Interview schedule. Participants were adults aged 18 to 64 years and receiving treatment at the Psychiatric outpatient clinic of Federal Medical Centre Umuahia, Abia State Nigeria. Patients with co-morbid medical/surgical problems were excluded from the study. Only patients with schizophrenia who had full insight were recruited.

Procedure: One hundred consecutive and consenting participants who met the inclusion criteria were interviewed using the sociodemographic and clinical characteristics questionnaire and Medication Adherence Rating Scale on the clinic days at the outpatient unit. Patients who were not literate had their interview with the translated Igbo version of the MARS. Participants were recruited into the study between April, 2014 and March, 2015.

Data analysis: Analysis was done with the Statistical Package for Social Sciences (SPSS), version 16. Frequency counts and chi-square test were used for categorical variables. All statistical value was set at 5% of significance ($p < 0.05$).

RESULTS

Socio-demographic characteristics of participants: One hundred patients with schizophrenia were interviewed. Fifty five (55%) were males, while 45(45%) were female. Forty five (45%) participants were married while 55(55%) were not married. Also 56 of them were employed while 44 were not employed at the time of interview. Table 1 shows the socio-demographic characteristics of the participants.

Clinical characteristics of participants: Duration of illness for 33(33%) of the participants was less than 5 years, 21(21%) participants had suffered the illness for 5-9 years while 46(46%) of them had the illness 10 years and above at the period of interview. Thirty five (35%) were treated mainly with typical antipsychotics while 65(65%) received atypical antipsychotic medication. Table 2 shows the clinical characteristics of participants.

Association between adherence and socio-demographic/clinical characteristics: Thirty eight (38%) participants scored enough on MARS to be categorized as having good adherence to medication while 62(62%) participants had poor adherence to medication. Twenty three (60.5%) out of the 38 participants who showed adherence to medication were employed compared to 15(39.5%) who were unemployed. In essence employment significantly affected level of medication adherence ($X^2 = 6.794$, df=1, P =0.013). Comparing those using typical and atypical antipsychotics, more participants, 23(60.5%) on atypical were adherent to prescribed medications, compared to 15(39.5%) who were on typical antipsychotics ($X^2 = 4.46$, df=1, P = 0.013). Patients who had only one episode were more likely to be adherent to medications compared to patients who had multiple relapses ($X^2 = 4.46$, df=1, P = 0.046).

Table 1: Socio-demographic data of participants.

Demographic data	Frequency (f)	Percentage (%)
Gender		
Male	55	55.0
Female	45	45.0
Marital status		
Never married	55	55.0
Married	38	38.0
Divorced	5	5.0
Widowed	2	2.0
Employment status		
Employed	56	56.0
Not employed	44	44.0
Religion		
Christianity	99	99.0
Islam	1	1.0
Ethnic group		
Igbo	95	95.0
Hausa	2	2.0
Others	3	3.0
Level of education		
Primary	12	12.0
Secondary	41	41.0
Tertiary	47	47.0

Table 2: Clinical characteristics of participants.

Clinical characteristics of participants	Frequency (f)	Percentage (%)
Duration of illness		
Less than 5 years	33	33.0
5-9 years	21	21.0
10 years and above	46	46.0
Class of antipsychotics		
Typical	35	35.0
Atypical	65	65.0
Any relapses		
No	72	72.0
Yes	28	28.0
Hospitalization		
Yes	53	53.0
No	47	47.0
Suicidal ideas		
Yes	22	22.0
No	78	78.0
Suicidal attempts		
Yes	6	6.0
No	94	94.0

Table 3: Level of Adherence.

	Frequency (f)	Percentage (%)
Likely adherence	38	38.0
Non-adherence	62	62.0
Total	100	100.0

Table 4: Association between adherence and gender.

Adherence	Gender		Total
	Male	Female	
Likely adherence	20 (52.6%)	18 (47.4%)	38
Non adherence	35 (57.4%)	27 (42.6%)	62
Total	55 (100%)	45 (100%)	100

$X^2 = 0.139$, df=1, P = 0.836.

Table 5: Association between adherence and marital status.

Marital status	Adherence		Total
	Adherence	Non-adherence	
Never married	20 (52.6%)	35 (56.5%)	55 (55.0%)
Married	14 (36.8%)	24 (38.7%)	38 (38.0%)
Divorecd	3 (7.9%)	2 (3.2%)	5 (5.0%)
Widow	1 (2.6%)	1 (1.6%)	2 (2.0%)
Total	38 (100.0%)	62 (100.0%)	100 (100.0%)

$X^2 = 1.234$, df=3, P = 0.745

Table 6: Association between adherence and employment.

	Employment status		Total
	Employed	Unemployed	
Likely adherence	23 (60.5%)	15 (39.5%)	38 (38%)
Non adherence	41 (66.1%)	21 (33.9%)	62 (62%)
Total	56 (56.0%)	44 (44.0%)	100 (100%)

$X^2 = 6.794$, df=1, P-value=0.013

Table 7: Association between adherence and Class/Type of Anti-psychotics.

Adherence	Class of antipsychotic		Total
	Typical	Atypical	
Likely adherence	15 (39.5%)	23 (60.5%)	38(100.0%)
Non-adherence	20 (32.3%)	42 (67.7%)	62 (100.0%)
Total	35 (35%)	65 (65.0%)	100 (100.0%)

$X^2 = 4.463$, df=1, P = 0.013

Table 8: Association between adherence and any relapses.

Adherence	Any relapses		Total
	No	Yes	
Likely Adherence	34 (89.5%)	4 (10.5%)	38 (100%)
Non-adherence	38 (61.3%)	24 (38.7%)	62 (100%)
Total	72 (72%)	28 (28%)	100 (100%)

$X^2 = 4.463$, df=1, P = 0.046

DISCUSSION

Findings from this study indicated that adherence to prescribed medication among patients with schizophrenia was low. Thirty eight (38%) participants scored enough on MARS to be categorized as having good adherence to medication while 62(62%) participants had non-adherence to medication. This is close to a previous study that involved 160 randomly selected Nigerians with schizophrenia which reported that only 45% of the participants were adherent to their medication.[14]

Gender in this study played no significant role in determining non-adherence to medication. This is in contrast to an earlier study that identified medication non-adherence to be more frequent in men than women.[7] This may be accounted for by the family cohesion that still exists in Nigeria. A sick member of the extended family is usually cared for by many family members who directly may encourage and remind the patient to take prescribed medications, hence encouraging compliance.

Marital status has not been identified to be a risk factor to non-adherence to prescribed medication.[17] The finding from this study is in agreement to this previous study. Employment significantly affected level of medication adherence. Participants who were employed had better medication adherence compared to those who were unemployed in this study. Participants in this study who took atypical antipsychotic medication had better compliance to medication compared to those that used typical antipsychotic medications. This is in contrast to study that examined the effect of first- versus second-generation antipsychotics on electronically monitored adherence in outpatients with schizophrenia or schizoaffective disorder which documented that there was no statistical difference in electronically monitored adherence over a 6-month period between patients taking first- and second-generation antipsychotics.[12] The finding in this study may have been accounted for by the many side effects profile of the first generation drugs that may encourage non-compliance among patients. Distress associated with specific side effects or a general fear of side effects from medications has been recognized as important factors that determine non-adherence.[10] This study also showed that patients who had only one episode were more likely to be adherent to medications compared to patients who had multiple relapses. Non-adherence to medication in patients with schizophrenia has been established as risk factor for relapse, re-hospitalization and suicide.[8, 18, 19]

Limitations: This was a cross-sectional study that involved only participants in one tertiary hospital. Hence, the study sample was selective rather than representative and cannot be generalized to the entire population. However findings provide useful information for future further studies.

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