# MEDICATION ADHERENCE MODERATES THE INFLUENCE OF DEPRESSION ON QUALITY OF LIFE AMONG PEOPLE LIVING WITH SCHIZOPHRENIA

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**Abstract**

The study examined the moderating effect of medication adherence on the influence of depression on quality of life and investigated the gender differences on quality of life among people living with schizophrenia. The study conducted a cross-sectional survey design. A convenience sample of 188 (59.1% Males & 40.9% Females) people living with schizophrenia who were receiving follow-up clinical treatment in psychiatry department, Federal Medical Centre, Lokoja were used. Data were collected using the Morisky Medication Adherence Scale (MMAS–8), Calgary Depression Scale (CDSS), stigma scale of Epilepsy (SSE) and World Health Organization Quality of Life-BREF Scale (WHOQOL-BREF). The data were analysed using Moderation and Conditional Process Analysis. The analyses were carried out with ROCESS Macro for IBM/SPSS Version 22.0. The Results showed positive significant influence of depression on quality of life of people living with schizophrenia. The results further revealed positive significant influence of medication adherence on quality of life people living with schizophrenia and also, the findings further revealed significant negative moderating effects of medication adherence on quality of life of people living with schizophrenia. Lastly, results further showed type of gender has significant difference on patient's quality of life.This study concluded that quality of life of people living with schizophrenia that is influenced by depression is moderated by their medication adherence.

**Keywords**: Medication adherence, Depression, Schizophrenia

## Introduction

One of the topmost ten ailments that were linked as contributors to the general burden of disorder is schizophrenia (Desalegn et al., 2020). Schizophrenia is described as one of the most rigorous, inveterate and incapacitating psychological condition (Kaplan, 2016). It is a psychological disorder that affected people who do not have access to care in developing nations such as Nigeria (Adegbaju, 2014). Notwithstanding, all the phases of life of people with schizophrenia may be affected by the rigorous illness such as work, self-care and capacity to substantiate interpersonal connections which may affects their quality of life. People with schizophrenia may face a lot of tough challenges in dealing with their illness, which may contain bulk and side effects of antipsychotic drugs, clumsy routine procedures of clozapine usage as the case maybe and society's perception about their

illness which may jeopardize their quality of life (Pitkänen, 2010).

Quality of life of people living with schizophrenia can be modified by different reasons which includes socio-demographic variables, nature of psychopathology (Mahmud, et al., 2015) social support and substance use disorders (Aras, Yazar. &Altinbas, 2013). The Quality of life is the universal well-being and pleasure of unfriendly and friendly sides of life, including healthiness, relations, education, work, possessions, spiritual beliefs, economics and the environment (Barcaccia, Barbara, 2013). According to world health organization [WHO, 1997] Quality of Life refers to individuals' perception of their position in life in the context of the culture and worth systems in which they reside and in relation to their purpose, prospects, norms and concerns.

A cross-sectional comparative study in Pakistan revealed that people with schizophrenia had significantly poorer quality of life when compared with individuals without schizophrenia (Bokhari et al., 2015). Previous study by Shafie et al. (2021), carried out in Singapore finds no revealing difference in quality of life between genders. While study which was carried out in Israel that recruited 1624 participants found **advanced** quality of life scores were significantly companied with a reduced trouble of subsequent admissions among males but not among females (Rotstein et al., 2022).

Medication is essential in management of schizophrenia because it is a mental condition that requires long term intervention which normally incorporates antipsychotics and psychosocial interventions (Videbeck, 2020). According to World health organization, [2019] adherence is refers to the extent to which a person's behavior in taking medication, following a diet, and/or making lifestyle changes, is in accordance with agreed recommendations from health care providers. In this study, medication adherence is a behavior that must be followed by drugs prescription (antipsychotics) according to doctor's orders. However, people with schizophrenia may feel tired by the day to day required medication or extrapyramidal side effects of these medications which may cause relapse and deterioration of their mental health.

Previous study by Adelufosi et al. (2012), investigated the medication adherence and quality of life among Nigerian outpatients with schizophrenia. The finding of the study showed that medication nonadherence is common among outpatients with schizophrenia and is associated with poor quality of life. Research by Oladejo (2018) showed that medical adherence significantly predicted quality of life of diabetic patients in Ondo State. Hill and Roberts, (2011) conducted a study on the role of adherence in the relationship between conscientiousness and perceived health. The research findings found out that medication adherence mediated the link between conscientiousness and perceived health. In a study conducted by Ni et al., (2022), found a moderating role of medication literacy between illness perceptions and medication adherence.

Depression has shown to coexist with

schizophrenia and the rate of depression is higher when compared with the general people (Dai et al., 2018; Rahim & Rashid, 2017). The availability of comorbid depression in people living with schizophrenia is related with poor quality of life (Abedi et al., 2015), increased risk of suicide (Duko&Ayano, 2018), poor intervention adherence (Higash et al., 2013), always relapse that require hospital admission (Ayano&Duko, 2017), as compared to those people living with schizophrenia without depression.

Studies have examined the relationship between depression and quality of life of people living with schizophrenia and among other populations. Oladejo et al. (2019), study found depression and medical adherence to have relationship with quality of life. A Portugal study by Ribeiro et al. (2020), which consisted of adults 1765 at baseline and 1201 at follow up concluded that depression and anxiety decisively shape individuals trajectories of quality of life over time. Lia and Sani (2020), research found a significant relationship between depression and social domain such as physical, psychological and environment domain.

Previous findings by Hussenoeder et al. (2021) revealed significant association between depression and quality of life. In as much that depression is considerably common in people living with schizophrenia with its unpleasant outcome to the surfers; to our knowledge there is no study in Nigeria that examined the moderating effects of medication adherence influence of depression on quality of life among people living with schizophrenia. Hence, this study

**Objectives of the Study**

The study was aimed to examining the moderating effects of medication adherence on the influence of depression on quality of life and also investigated the gender differences on quality of life among people living with schizophrenia.

**Methods**

**Design**

The study adopted a cross-sectional survey design. Primary data was collected through the administration of a set of standardised psychological scales on a convenient sample of the study population.

**Study Population**

The total population of consisted of 369 who were registered outpatients attending clinical follow-up in mental health department of Federal Centre, Lokoja. A total of 188 participants were selected using a sample size of Taro Yemen's formula. Slovin's formula below:

$n = N/(1+Ne^{*2})$

n= Sample size

N= Population size = 369

e= Margin of error = 0.05

Confidence level = 95%

1 = constant value

Hence $n= 369/ (1+ 369(0.05)^2 = 370$ n= 369/ (1+369* 0.0025) =369

n= 369/ (1+0.96) =369 n=369/1.96 = 188.2

Minimum acceptable sample size was 188

Convenience sampling technique was adopted, whereby available potential respondents were approached individually on their clinic days

**Instruments**

**Morisky Medication Adherence Scale (MMAS–8):** This instrument was developed by Morisky et al. (1986), which was designed for screening non-adherence in patients with several chronic conditions. It consisted of 8 items, out of which seven must be answered negatively and last one positively, with the last question being answered according to a scale of five options: never, almost never, sometimes often and always. Response choices are "yes" or "no" for items 1 through 7 and item 8 has a five point Likert response scale. Each "no" response is rated as 1 and each "yes" response is rated as 0 except for item 5, I which each "yes" response is rated as 1 and each "no" response is rated as 0. For item 8 the code (0-4) has to be standardized by dividing the result by 4 to calculate a summated score. Total scores on the MMAS-8 ranges from 0 to 8 with high adherence (eight points), average adherence (6 to 7 points) and low adherence (< 6 points). The measurement of medication adherence was proven to be reliable with good concurrent and predictive validly in primarily low income with minority patients with hypertension. The moderate internal consistency was (Crohnbach's alpha a = 0.682) and the test – retest reliability (Spearman's r = 0.928; p < 0.001) was satisfactorily good, (Moharamzad*et al*., 2015).

**Calgary Depression Scale (CDSS):** This was developed by Addinton et al. (1990), Calgary depression scale was designed to measure depression in patients with schizophrenia, separate from positive symptoms and extra pyramidal symptoms. It has been extensively evaluated in both relapsed and remitted patients and appears sensitive to change. In comparison to the Hamilton Depression Scale, it has fewer factors and less overlap with positive and negative symptoms. It is an observer scale, semi-structured, administered by goal directed interview. It has 9 items rated from 0 to 3. The CDSS depression score is obtained by adding each of the item scores. A score above 6 has 82% specificity and 85% sensitivity for predicting the presence of a major depressive episode.

**World Health Organization Quality of Life-BREF Scale (WHOQOL-BREF):** developed by World Health Organization, (1998) and is short form of the WHOQOL-100. WHOQOL-BREF contains a total of 26 questions of four domains: physical health, psychological health, social relationships, and environment. The social domain contains 3 items and the environmental domain contains 8 items. The response scale is a 5-point Likert scale, ranging from 'very low'(0), 'low'(1), 'neutral' (2), 'high' (3) and 'very high' (4) scores. The scores on the different domains are transformed into scales to compare between the domains due to the unequal number of items (Skevington, Lofty, & O'Connell 2004). The mean score of the items belonging to one domain multiplied by four are representative for the score on the domain and made comparable with other domains (World Health Organization, 1998).

**Collection Procedure**

Research ethical approval was applied for and obtained from the Federal Medical Center Lokoja research committee. The study was done in accordance with the institutional and national research

committees' procedure and guidelines. All procedures in the study involved human participation. All respondents were informed of the objectives of the study and assured them the confidentiality of their responses, it was clearly stated to them that participation was voluntary and those who participated completed informed consent forms before the distribution of the study questionnaire and was retrieved from them before the end of the clinic the same days (Fridays) within the hospital premises during their waiting time to see their doctors and clinical psychologist for consultations. The one hundred and eighty eight (188) of questionnaires properly completed were used for data analysis in the study while seven (7) that were not properly completed were discarded.

**Data Analysis**

Data collected in the study were subjected to statistical analysis using SPSS package. Demographics were analyzed using descriptive statistics such as mean, standard deviation and percentage. Independent samples t-test was used in order to compare mean difference between male and female on quality of life. Moderation and conditional process analysis were carried out with ROCESS macro for IBM/SPSS version 22.0

**Results**

**Table 1:** Summary of moderated analysis of Medication Adherence and Depression predicting quality of life (model 1 of PROCESS macro $N = 188$)

| | Explained Variables | | | |
|---|---|---|---|---|
| | **Quality of Life** | | | |
| Model | . | ***SE*** | ***T*** | **95% CI** |
| | | | | **LLCI (ULCI)** |
| Constant | -20.04** | 3.15 | -6.34 | -26.28(-13.81) |
| Depression | 1.42** | 0.09 | 14.46 | 1.23 (1.62) |
| Medication Adherence | 0.37** | 0.06 | 6.20 | 0.02 (0.50) |
| Medication adherence* Depression | -0.01** | 0 .01 | -9.67 | -0.02 (-0.01) |
| | $R^2$ | 0.62 | | |
| | *F(df)* | *F*(3, 184) = 103.4** | | |

**Moderating Analysis**

Moderation analysis presented in Table 1 showed positive significant influence of depression on quality of life of people living with schizophrenia (β = 1.42, P< 0.05)[95% CI: 1.23 (1.62)]. The result also showed positive significant influence of medication adherence on quality of life of people living with schizophrenia (β = 0.37, P< 0.05)[95% CI: 0.02 (0.50)]. The results further showed significant negative moderating effects of medication adherence on depression among people living with schizophrenia (β = -0.01, P< 0.05)[95% CI: -0.02 (-0.01)]. This is not a

surprise that the overall model of the moderation analysis accounted for 62% of the total variance of quality of life F(3, 184) =103.4, P< 0.05. This indicates that quality of life of people living with schizophrenia that influenced by depression is moderated by their medication adherence.

**Table 2:** Independent sample t- test of Quality of Life by Type of gender among persons with Schizophrenia (*N* = 188)

| Variable | Groups | N | Mean | SD | Df | *T* | p-value |
|---|---|---|---|---|---|---|---|
| **Types of Gender** | Male | 111 | 8.14 | 4.51 | 186 | -19.7 | 0.00 |
| | Female | 77 | 30.4 | 10.5 | | | |

Results presented in Table 2 showed difference between male ($\overline{X}$= 8.14, *SD* = 4.51) and female ($\overline{X}$= 30.4, *SD* = 10.5) on patient quality of life. The results further showed that type of gender has significant difference on patient's quality of life *t* = (186)-19.7, *P*>0.05. This implies that female enjoyed more level of quality of life than their male counterparts.

**Discussion**

Schizophrenia is a chronic disease that has a great negative influence on one's quality of life. The adherence to medication according to the physician prescription may improve the psychological and physical health and also improve the quality of life of the patients. However, the need toexamine the moderating effect of medication adherence on the influence of depression on quality of life and investigated the gender differences on quality of life among people living with schizophrenia necessitated this study.

The first objective was to examine the moderating effects of medication adherence on the influence of depression on quality of life among the people living with schizophrenia. This finding showed that medication adherence moderated the influence of depression on quality of life of people living with schizophrenia. This indicates that quality of life of people living with schizophrenia that influenced by depression is moderated by their medication adherence. The relationship between the medication adherence and depression highlights the effects on the quality of life of the patients especially among the patients of chronic diseases such as schizophrenia. The finding is similar to Okunrinboye et al. (2019), Goldstein et al. (2017) who reported that there is relationship between the medication adherence and depression and affects the quality of life of hypertension and cardio vascular disease patients.

The second objective of this study was to investigate the gender differences on quality of life among people living with schizophrenia. The finding showed that there is gender difference in quality of life of schizophrenia. This implies that female patients of schizophrenia enjoyed more level of quality of life than their male counterparts. This may be attributed that female especially mothers received more care and support from children than the father. This finding is

similar to the Rotstein, et al. (2022), who reported that there is gender difference on the quality of life among patients of schizophrenia. Higher quality of life scores were significantly associated with a reduced risk of subsequent admissions among males but not among females. Furthermore, the result of this study is in consistent with previous findings of Bonsaksen (2012) who reported that there is gender difference on quality of life among patients of severe mental illness. The findings further stated that women with severe mental illness tend to have more depression and lower quality of life than their male counterparts, and combating depression appears to be important for increasing quality of life in women with severe mental illness.

**Limitation of the study**

The sample size of the study was relatively small and the samples were drawn from one hospital in Kogi state and this can affect generalization of the findings. The collections of data were based on self- report.

**Conclusion**

The study indicated that medication adherence moderated depression to influence the quality of life among the schizophrenia patients. The study also showed that there is gender difference in quality of life among schizophrenia attending the federal medical hospital in Kogi state.

**Ethical Approval**

Ethical approval was sought for from the research committee of Federal medical centre and the approval was given. The study was carried out in accordance with national research committee procedure and guidelines.

**Conflict of Interest**

The authors declare no conflict of interest in this study

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