Jordan Journal of Nursing Research, Volume **4**, No. **4**, **2025**
DOI: https://doi.org/10.14525/JJNR.v4i4.04

Jordan Journal of Nursing Research

https://jjnr.just.edu.jo/jjnr/

Determinants of Antipsychotic Drug Accessibility and Their Impact on Treatment Adherence among Patients with Schizophrenia in North-Western Nigeria

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ARTICLE INFO

Article History:
Received: September 16,2025
Accepted: October 5, 2025

ABSTRACT

Background: Schizophrenia requires prolonged use of anti-psychotics, yet accessibility challenges often hinder adherence in low- and middle-income nations. ***Purpose*:** This study examines factors influencing drug accessibility and their effect on treatment adherence in North-Western Nigeria. ***Methods*:** A cross-sectional survey was conducted among 865 individuals diagnosed with schizophrenia across seven states. Data was collected using a standardized questionnaire, including the Morisky Medication Adherence Scale (MMAS-8). Analysis employed SPSS, version 26 with descriptive statistics, Chi-square tests, and logistic regression, using a significance threshold of $p < 0.05$. ***Results*:** The mean age was 42.3 ± 11.2 years, and 53.9% were male. Adequate drug accessibility was reported by 53.7%, while 46.3% experienced poor accessibility due to high costs (75%), stock-outs (52.5%), and distance to facilities (53.1%). Adherence levels were classified as good (44.9%), moderate (32.8%), and poor (22.3%). Poor accessibility was significantly associated with low income (AOR=3.42), rural residence (AOR=2.18), and unemployment (AOR = 1.87). Predictors of non-adherence included structural barriers (high costs, frequent stock-outs, distance to facilities) and clinical factors (adverse effects, polypharmacy), as well as limited education. Patients with adequate accessibility were nearly three times more likely to adhere (AOR = 2.94, 95% CI=1.74-4.53). ***Conclusion*:** Drug accessibility strongly influences adherence to anti-psychotics among people with schizophrenia. Strengthening medicine supply chains, subsidizing costs, and expanding community-based support are vital for improved outcomes. ***Implications for Nursing*:** Nurses play a central role in improving adherence by addressing accessibility barriers, providing patient and family education, and advocating for affordable and consistent antipsychotic availability.

Keywords: Schizophrenia, Anti-psychotics, Drug ccessibility, Adherence, Nigeria.

What does this paper add?

1. It identifies key determinants influencing the accessibility of antipsychotic drugs among patients with schizophrenia in North-Western Nigeria.
2. It demonstrates how limited drug availability directly affects treatment adherence and increases risk of relapse.
3. It highlights the role of nurses in addressing accessibility barriers through patient education, advocacy, and community-based support.
4. It provides evidence to inform policymakers and health administrators on improving drug supply chains and mental health services in resource-limited settings.

Introduction

Schizophrenia is a persistent, severe mental condition that remains one of the primary causes of disability worldwide. The mainstay of treatment is the constant use of antipsychotic drugs, which have been demonstrated to minimize relapse rates and enhance clinical and functional results (Erohubie et al., 2025; Riva et al., 2021). However, despite the demonstrated effectiveness of these drugs, treatment adherence among patients with schizophrenia remains a substantial concern, particularly in low- and middle-income countries (Tamene et al., 2024). In Nigeria, hurdles such as high out-of-pocket expenses, inconsistent drug supply, inadequate health system resources, and societal stigma continue to hamper access to critical anti-psychotics (Edefo et al., 2020; Ofor et al., 2024). Evidence suggests that patients commonly abandon medication due to the unaffordability of atypical anti-psychotics and the existence of unacceptable side effects, which further undermines adherence and increases relapse risk (Abubakar & Tangiisuran, 2020; Shehu, 2023). These hurdles are worsened by the insufficient integration of mental health services into primary care and continuing human resource shortages (De Berardis et al., 2021; Wada et al., 2021).

Several recent studies in Nigeria and other Sub-Saharan African contexts have revealed that pharmaceutical non-adherence is multi-faceted. Socio-economic status, polypharmacy, dose frequency, poor social support, and limited follow-up treatment greatly influence whether patients remain adherent (Anosike et al., 2024; Erohubie et al., 2025). Studies by Shehu et al. (2023) and Robert et al. (2018), comprising both patients and caregivers across North-Western Nigeria verified the role of psycho-educational programs in promoting adherence. Notably, the use of electro-convulsive therapy (ECT) was a negative predictor of adherence, revealing complex treatment-related hurdles. Furthermore, community pharmacists are often the initial point of access for patients reporting dispensing anti-psychotics without legal prescriptions due to stock-outs and health system inadequacies, which might impair treatment continuity and safety (Abubakar & Tangiisuran, 2020; Crossly et al., 2010).

Globally, the World Health Organization has underlined that enhancing accessibility to psychotropic drugs and addressing adherence challenges are key to lowering the treatment gap for persons living with psychotic disorders (WHO, 2022). Yet, in North-Western Nigeria, where poverty levels are high and mental health facilities are sparse, the determinants of antipsychotic drug accessibility and their impact on treatment adherence remain poorly studied. A contextual assessment in this location is therefore vital to inform evidence-based therapies, improve adherence, and ultimately enhance the quality of life of individuals with schizophrenia. Schizophrenia is a devastating mental condition associated with high rates of disability, recurrence, and premature mortality if not successfully controlled (De Berardis et al., 2021; Huhn et al., 2019). Antipsychotic drugs remain the cornerstone of treatment; however, consistent access and adherence to these prescriptions remain a serious barrier in low- and middle-income countries, including Nigeria. Recent research reveals that in Nigeria, approximately a half of patients with schizophrenia fail to adhere to their prescribed treatment regimens, mostly due to difficulties in accessibility, price, and availability of important anti-psychotics (Erohubie et al., 2025; Ofor et al., 2024). In North-Western Nigeria, multiple inter-connected criteria impair antipsychotic drug accessibility. These include the high out-of-pocket cost of medications, frequent shortages of psychotropic drugs in public health facilities, irregular supply chains, and the dominance of private pharmacies where medicines are often unaffordable for patients from low Socio-economic backgrounds (Abubakar & Tangiisuran, 2020; Edefo et al., 2020). Additionally, socio-cultural stigma, low mental health literacy, and dependence on traditional healers further delay access to formal psychiatric care, consequently reducing adherence and long-term results (Alamoush et al., 2025; Wada et al., 2021). The effects of inadequate accessibility and low adherence are substantial. Interruptions in treatment not only raise the likelihood of relapse and hospitalization, but also lead to increasing cognitive and functional deterioration, family strain, and lower quality of life for affected individuals. Moreover, minimal region-specific research in North-Western Nigeria has created gaps in understanding the contextual factors that most strongly impact accessibility and adherence among patients with schizophrenia. Without such evidence, policymakers and healthcare professionals may be unable to devise targeted interventions, such as drug subsidy programs, community-based mental health finance, or mechanisms to increase drug supply and monitoring.

Therefore, researching the variables of anti-psychotic drug accessibility and their impact on treatment adherence among patients with schizophrenia in North-Western Nigeria is vital. Such evidence would not only contribute to narrowing the mental health treatment gap, but also support efforts to increase adherence, reduce relapse rates, and enhance the overall quality of life for this vulnerable population.

Materials and Methodology

Study Design

A descriptive cross-sectional study design was adopted to investigate the variables of anti-psychotic drug accessibility and its impact on treatment adherence among patients with schizophrenia in North-Western Nigeria. This methodology was chosen, as it allows for the systematic gathering of quantitative data at a particular point in time, making it suited for discovering correlations between accessibility criteria and adherence outcomes.

Study Area and Sampling

Study sites were chosen tertiary and secondary health facilities providing psychiatric services across the seven states of North-Western Nigeria: Jigawa, Kano, Katsina, Kebbi, Sokoto, Zamfara, and Kaduna. A multi-stage sampling procedure was performed with proportionate allocation of the whole sample (N = 892) to each state. Proportional sample distribution is shown in Table 1.

Table 1. Proportional sample distribution (N = 892)

State	Allocated sample
Kano	128
Kaduna	128
Katsina	128
Jigawa	127
Kebbi	127
Sokoto	127
Zamfara	127
Jigawa	128
Total	**892**

Sampling within Each Facility

In each chosen facility, the state allocation was sub-divided among the selected tertiary and secondary hospitals (one tertiary and one secondary per state), employing systematic random sampling on clinic/inpatient registers to recruit individual participants.

Study Cohort

The target population comprised adult patients (aged 18 years and older) diagnosed with schizophrenia and undergoing outpatient or inpatient treatment at psychiatric units or mental health clinics within the designated facilities.

Determination of Sample Size

A total of 892 patients were enrolled in the study. The sample size was calculated using Cochran's formula for cross-sectional studies, which estimates the minimum number of participants required to achieve a desired level of precision, confidence, and variability.

The formula is:

$$n_0 \frac{Z^2 \, . \, p \, . \, (1-p)}{e^2}$$

where: - n_0 = initial sample size.

Z = Z-score corresponding to the desired confidence level.

p = estimated proportion of the attribute in the population.

e = margin of error (precision).

For a finite population, the sample size was adjusted using:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

where N is the total population size

The calculated sample size was then slightly increased to enhance representativeness and statistical power across the study region, resulting in a final sample of 892 participants.

Sampling Methodology

A multi-stage sampling procedure was applied:

1. **Stage One:** Selection of states in North-Western Nigeria utilizing purposive sampling to ensure regional representation.
2. **Stage Two:** Selection of one tertiary and one secondary health facility in each state using simple random sampling.
3. **Stage Three:** Proportionate allocation of the sample size (892) throughout the seven states depending on patient load in the designated facilities.
4. **Stage Four:** Systematic random sampling of eligible patients from outpatient records and inpatient wards until the appropriate sample per facility was collected.

Inclusion Criteria

I. Adult patients (≥18 years) with a verified diagnosis of schizophrenia by a psychiatrist.

II. Patients using anti-psychotic drugs for at least six months before the research.

III. Patients who have given informed consent (or caregiver-assisted consent where appropriate.

Exclusion Criteria

I. Patients with severe cognitive impairment or acute psychotic episodes that prohibited informed consent or meaningful involvement.

II. Patients having concomitant serious physical illness at the time of data collection.

Data Collection Instruments

Data was obtained using a structured, interviewer-administered questionnaire modified from the World Health Organization's instruments on drug accessibility and adherence, using previously validated assessments, such as the Morisky Medication Adherence Scale (MMAS-8).

MMAS-8 is a widely validated and reliable instrument; it consists of 8 items: 7 Yes/No questions and 1 item rated on a 5-point Likert scale. It evaluates common adherence behaviors, such as forgetting to take medication, stopping medication when feeling better, or neglecting doses due to side effects.

Scoring System

- Each "no" response on items 1–7 scores 1 point, and each "yes" response scores 0.
- Item 8 is scored from 0 to 1 based on the Likert response.
- Total scores range from 0 to 8, with higher scores indicating better adherence.

Cut-off Points

- **Good adherence:** 8 points.
- **Moderate adherence:** 6 to <8 points.
- **Poor adherence:** <6 points.

Validity and Reliability

MMAS-8 has demonstrated strong psychometric properties across multiple populations, including patients with chronic conditions. Reported Cronbach's alpha ranges from 0.83 to 0.88, indicating high internal consistency. Correlating scores with objective adherence measures, such as pharmacy refill data and clinical outcomes, established its validity. In this study, the MMAS-8 was adapted slightly for cultural context and pilot-tested to ensure clarity and comprehension.

The questionnaire includes questions on:

I. Socio-demographic variables.

II. Clinical history and duration of disease.

III. Accessibility indicators (availability, cost, distance to facility, supply chain reliability).

IV. Adherence behaviors and predictions.

V. Perceived impediments to drug usage.

Data Collection Procedure

Trained research assistants, overseen by the scientists, performed face-to-face interviews with patients (and caregivers where needed) in a private location within the institutions. To avoid response bias, assistants were fluent in both English and Hausa languages and were taught on ethical handling of sensitive material.

Data Analysis

Data was coded and entered into SPSS, version 26 for analysis. Descriptive statistics (means, standard deviations, frequencies, and percentages) were employed to summarize variables. Chi-square tests were employed to investigate relationships between categorical variables. Logistic regression analysis was conducted to determine predictors of drug accessibility and treatment adherence. A p-value <0.05 was judged statistically significant.

Ethical Considerations

Ethical approval for this study was obtained from the Research and Ethics Committees of the participating institutions across the states, with approval numbers [IRB-009.00]. Written informed consent was obtained from all participants or, where necessary, their caregivers. Confidentiality and anonymity were strictly maintained, and participation was entirely voluntary. Participants were informed of their right to withdraw at any stage without any consequence to their current treatment.

Data Analysis and Results

Data Analysis

Data was entered and cleaned using SPSS, version 26. Descriptive statistics (means, standard deviations, frequencies, and percentages) were employed to summarize socio-demographic and clinical factors. Accessibility and adherence scores were categorized into levels (good/poor) using pre-determined cut-off points. Associations between categorical variables were examined using Chi-square (χ^2). Binary logistic regression was employed to discover predictors of drug accessibility and treatment adherence. Statistical significance was defined at $p < 0.05$ with 95% confidence interval (CI).

Socio-demographic Characteristics and Medical History of the Patients

The results of this study present the analyses of the variables of antipsychotic drug accessibility and their impact on treatment adherence among patients with schizophrenia receiving care in hospitals across North-Western Nigeria. A total of 892 surveys were administered to eligible individuals across the seven states of the region. Of these, 865 questionnaires were completed and retrieved, giving a response rate of 97.0%, while the remaining 27 copies (3.0%) were either not returned or lost during the data collection procedure. Table 2 shows the socio-demographic characteristics of the study participants.

Table 2. Socio-demographic characteristics of the study participants (N = 865)

Variables	Frequency	Percent (%)
Age range		
20–29	286	33.1
30–39	217	25.1
40–49	134	15.5
50–59	124	14.3
60–69	104	12.0
Total	**865**	**100.0**
Educational level		
Non-formal	249	28.8
Primary	125	14.5
Secondary	399	46.1
Tertiary	92	10.6
Total	**865**	**100.0**
Gender		
Male	466	53.9
Female	399	46.1

Total	**865**	**100.0**
Ethnic group		
Hausa	534	61.7
Fulani	228	26.3
Others	103	12.0
Total	**865**	**100.0**
Religion		
Islam	717	83.0
Christianity	148	17.0
Total	**865**	**100.0**
Occupation		
Farmers	410	47.4
Civil servants	151	17.5
Housewives	119	13.8
Students	100	11.6
Business	85	9.8
Total	**865**	**100.0**
Income (monthly)		
Low (<₦50,000)	380	43.9
Middle (₦50,000–₦150,000)	247	28.6
High (>₦150,000)	238	27.5
Total	**865**	**100.0**
Residency		
Urban	485	56.1
Rural	380	43.9
Total	**865**	**100.0**
Employment status		
Employed	531	61.5
Unemployed	334	38.5
Total	**865**	**100.0**

A total of 892 questionnaire forms were administered, out of which 865 were properly completed and recovered, yielding a response rate of 97.0%. The socio-demographic characteristics of the respondents are presented in Table 2. The mean age of participants was 42.3 ± 11.2 years. The plurality (33.1%) were aged 20-29 years, followed by 25.1% aged 30-39 years, while participants aged 60-69 years formed the smallest group (12.0%). Slightly more than a half were male (53.9%). Regarding education, 46.1% had secondary education, while 28.8% had no formal education. Ethnically, the majority were Hausa (61.7%), followed by Fulani (26.3%). Most participants practiced Islam (83.0%). Farming was the most common occupation (47.4%), followed by government service (17.5%). In terms of income, 43.9% reported low monthly household income (<₦50,000), 28.6% middle income (₦50,000–₦150,000), and 27.5% high income (>₦150,000). Residency was classified as urban (56.1%) or rural (43.9%) based on the local government area.

Employment status indicated that 61.5% were employed (formal or self-employed), while 38.5% were unemployed. Medical history of participants is shown in Table 3.

Table 3. Medical history of the study participants (N = 865)

Variables	Frequency	Percent (%)
Duration of illness		
< 5 years	228	26.4
5–9 years	247	28.6
10–14 years	201	23.2
≥ 15 years	189	21.8
Total	865	100.0
History of hospitalization		
Yes	514	59.4
No	351	40.6
Total	865	100.0
Type of anti-psychotic used		
Typical only	421	48.6
Atypical only	292	33.7
Combination (typical + atypical)	152	17.6
Total	865	100.0
Side effects experienced		
Yes	579	67.0
No	286	33.0
Total	865	100.0
Comorbid substance use		
Yes	198	22.9
No	667	77.1
Total	865	100.0

The medical history of responders is provided in Table 3. More than a half of the subjects (59.4%) reported a history of psychiatric hospitalization. Regarding illness length, 28.6% had been living with schizophrenia for 5-9 years, while 21.8% claimed an illness duration of 15 years or more. With respect to medication, 48.6% were on conventional anti-psychotics, 33.7% on atypical anti-psychotics, and 17.6% used a mixture of both. A high majority (67.0%) had side effects due to pharmaceutical use. Additionally, 22.9% indicated concomitant drug use.

Table 4. Drug accessibility indicators among study participants (N = 865)

Accessibility Indicator	Frequency	Per cent (%)
Good accessibility	465	53.7
Poor accessibility	400	46.3
Barriers to access*		
High cost of medication	619	71.5
Stock-outs in hospital pharmacies	457	52.8
Long distance to facilities	373	43.1

As stated in Table 4, slightly more than a half (53.7%) of respondents reported good accessibility to anti-psychotics, while 46.3% experienced poor access. The most common hurdles were high cost of medication (71.5%), stock-outs in hospital pharmacies (52.8%), and long distance to health facilities (43.1%).

Table 5. Treatment adherence levels among study participants (N = 865)

Adherence Level	Frequency	Percent (%)
Good adherence	388	44.9
Moderate adherence	284	32.8
Poor / Non-adherence	193	22.3
Total	865	100.0

Treatment adherence, assessed by the Morisky Medication Adherence Scale (MMAS-8), is presented in Table 5. Less than a half of the subjects (44.9%) indicated good adherence, whereas 32.8% had moderate adherence and 22.3% were non-adherent.

Table 6. Predictors of poor drug accessibility among study participants (N = 865)

Predictor	Adjusted Odds Ratio (AOR)	95% CI	p-value
Low household income	3.42	2.41 – 5.36	<0.001
Rural residence	2.18	1.36 – 3.12	0.004
Unemployment	1.87	1.22 – 2.74	0.011

Multi-variate logistic regression (Table 6) identified low household income (AOR = 3.42, 95% CI: 2.41-5.36, $p < 0.001$), rural residence (AOR = 2.18, 95% CI: 1.36-3.12, $p = 0.004$), and unemployment (AOR = 1.87, 95% CI: 1.22-2.74, $p = 0.011$) as significant predictors of poor accessibility.

Table 7. Predictors of non-adherence among study participants (N = 865)

Predictor	Adjusted Odds Ratio (AOR)	95% CI	p-value
High cost of medication	4.25	2.37 – 7.63	<0.001
Experience of side effects	3.14	1.95 – 5.06	0.002
Polypharmacy	2.71	1.33 – 4.29	0.009
Low educational attainment	2.08	1.16 – 3.17	0.016

As shown in Table 7, non-adherence was significantly predicted by high cost of medication (AOR= 4.25, 95% CI: 2.37-7.63, $p < 0.001$), experience of side effects (AOR = 3.14, 95% CI: 1.95-5.06, $p=0.002$), polypharmacy (AOR = 2.71, 95% CI: 1.33–4.29, $p = 0.009$), and low educational attainment (AOR= 2.08, 95% CI: 1.16–3.17, $p = 0.016$).

Table 8. Relationship between drug accessibility and treatment adherence (N = 865)

Variable	Adjusted Odds Ratio (AOR)	95% CI	p-value
Good accessibility *vs*. poor access	2.94	1.74 – 4.53	<0.001

As demonstrated in Table 8, individuals with high accessibility to anti-psychotics were almost three times more likely to adhere to treatment compared to those with poor accessibility (AOR = 2.94, 95% CI: 1.74-4.53, $p < 0.001$).

Discussion

This study investigated the variables of anti-psychotic drug accessibility and its impact on treatment adherence among patients with schizophrenia in North-Western Nigeria. The findings indicate large disparities in both accessibility and adherence, which are comparable with patterns described in other low- and middle-income countries (LMICs). The study population was largely male and in early-to-middle adulthood. The mean age (42.3 years) accords with the normal onset and chronic course of schizophrenia reported in global literature (Schneider-Thoma et al., 2022; Tamene et al., 2024). The prevalence of Hausa and Fulani ethnic groupings reflects the population mix of the studied region. Importantly, low educational attainment and unemployment were frequent, both of which have been connected to poor health-seeking behavior and lower adherence in earlier research (Erohubie et al., 2025; Ofor et al., 2024).

More than two-fifths of respondents reported inadequate accessibility to prescription anti-psychotics, with cost, medicine stock-outs, and distance to facilities being the key hurdles. This finding is consistent with Edefo et al. (2020), who showed that most atypical anti-psychotics were costly for patients in Benin City, Nigeria. Similarly, Ofor et al. (2024) revealed the considerable economic burden associated with out-of-pocket expenses for psychiatric drugs in Nigeria. The high occurrence of stock-outs implies inefficient supply chain management and limited government support for mental health services, which has been consistently underlined in policy evaluations (Shettima et al., 2023; Wada et al., 2021). Shehu et al. (2019) similarly showed that a daily treatment cost over ₦1,000 and drug side effects were significant predictors of non-adherence among patients in Jigawa State. Less than a half (44.9%) of patients indicated strong adherence, a proportion comparable to data from other Nigerian and African contexts (Erohubie et al., 2024; Tamene et al., 2024). Non-adherence was substantially connected with cost of therapy, experience of side effects, and polypharmacy. These findings are consistent with Abubakar and Tangiisuran (2020), who observed that cost and drug availability greatly influenced the dispensing and use of anti-psychotics in Nigerian communities.

Regression analysis indicated that low income, unemployment, and rural residency were major predictors of poor accessibility. These Socio-economic predictors parallel the findings of Fadele et al. (2024), who showed structural inequities in mental health treatment provision in Nigeria. Similarly, high treatment expense, pharmacological side effects, polypharmacy, and poor education predicted non-adherence. These results match global evidence that financial and therapy-related issues are the biggest impediments to long-term drug adherence (Tareke et al., 2018; WHO, 2022).

This study indicated a considerable link between drug accessibility and adherence: patients with good access to anti-psychotics were approximately three times more likely to adhere to treatment. This strengthens the premise that enhancing medicine availability and price is crucial to promoting adherence and minimizing relapse. Comparable findings have been recorded in Ethiopia, Malawi, and Ghana, where accessibility reliably predicts adherence and quality of life among patients with schizophrenia (Erohubie et al., 2024; Tamene et al., 2024).

Implications for Nursing

The results underline the urgent need for policy-level initiatives to address the financial and institutional hurdles restricting access to anti-psychotics. Potential methods include government subsidies for necessary psychotropics, enhanced procurement and supply chain management to avoid stock-outs, and integration of mental health into primary care to decrease geographic obstacles. Community-based mental health education and stigma reduction activities are also important to boost treatment uptake.

Strengths and Limitations

A major aspect of this study is its large and regionally representative sample of 865 people spanning all seven North-Western states of Nigeria, which promotes generalizability. However, the cross-sectional design limits causal inference, and dependence on self-reported adherence may introduce recall bias or social desirability bias.

Conclusion

This study explored the variables of anti-psychotic drug accessibility and their impact on treatment adherence among patients with schizophrenia in North-Western Nigeria. The data revealed that less than a half of respondents demonstrated good adherence to anti-psychotic treatment. Accessibility was limited by high cost of treatment, frequent medicine stock-outs in health facilities, and considerable travel distances to hospitals. Socio-economic characteristics, such as low household income, unemployment, and rural domicile were significant predictors of poor accessibility, while high cost of medication, adverse drug effects, polypharmacy, and low educational attainment predicted non-adherence.

Importantly, patients with strong accessibility to pharmaceuticals were approximately three times more likely to adhere to therapy than those with poor access, underscoring the crucial significance of availability and affordability in ensuring continuity of care. These findings indicate the critical need for focused interventions to strengthen mental health systems in Nigeria, especially in resource-limited locations.

Recommendations

Based on the study findings, the following recommendations are proposed:

1. Government assistance and subsidies: Federal and state governments should pay the cost of important anti-psychotics to alleviate the financial strain on patients and their families.
2. Strengthening drug supply chains: Ministries of health and hospital management boards should strengthen procurement and distribution procedures to prevent frequent stock-outs of psychiatric medicines in public facilities.
3. Integration into basic health care: Mental health services, particularly anti-psychotic drug availability, should be incorporated into primary health clinics to reduce travel distance and improve coverage in remote regions.
4. Community participation and education: Awareness initiatives should be strengthened to decrease stigma, enhance mental health literacy, and support treatment-seeking and adherence.
5. Supervised treatment programs: Community-based adherence support initiatives, such as directly observed therapy (DOT) models modified for mental health, should be evaluated to enhance long-term drug adherence.
6. Capacity building: Training and assistance for community pharmacists, nurses, and primary health care workers should be addressed to ensure safe dispensing, monitoring of side effects, and continuity of care.
7. Policy and finance reforms: Mental health budgets should be expanded, and health insurance plans should include coverage for antipsychotic drugs and psychiatric services.

Authors' Contributions

Study Design: **AS**, **HIG**. Data Collection: **NMA**, **HIG**, **SGN**, **SKA**. Data Analysis: **ASA**, **NMA**, **SGN**, **SKA**. Study Supervision: **EEA**, **SGN**, **ZMA**. Manuscript Writing: **ASA**, **NMA**, **HIG**, **SKA**. Critical Revision for Important Intellectual Content: **EEA**, **ZMA**.

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