Improving Medication Adherence among Patients with Schizophrenia in the Sunyani Municipality, Ghana: The Role of Therapeutic Alliance

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Abstract: Schizophrenia is a chronic condition associated with poor psychosocial and medical outcome. Non-adherence to anti-psychotic medications accounts for most of the relapses in schizophrenia, resulting in frequent hospital readmissions, self-harm, violence, and poor cognitive, clinical, and functional outcomes. This multicenter study examined the role of therapeutic alliance in medication adherence. The study was conducted at the Bono Regional Hospital and the Sunyani Municipal Hospital in Ghana. One hundred and eight (108) schizophrenia patients aged 18–60 years were recruited for the study through purposive sampling technique. The Medication Adherence Rating Scale (MARS) and the Scale to Assess the Therapeutic Relationship-Patients version (STAR-P) were adapted for the study. Statistical Package for Social Sciences (SPSS) version 25 was used to analyze the data. Most of the respondents were between 18 and 35 years of age (85.2%). Males constituted 61.1% of the sample. A larger proportion of the respondents were residents of urban communities (66.7%). More than half of the sample did not have any formal education (51.9%) and 51.9% were unemployed. Mean (standard deviation) for medication adherence and therapeutic alliance were 4.56 (1.715) and 42.16 (7.710) respectively. Overall, therapeutic alliance was not associated with medication adherence; r_s =.14, n = 108, p =.146. However, there was a weak negative correlation between affective bond and medication adherence; r_s =.19, n = 108, p =.044. This finding highlights the need for clinicians to consistently seek patients' views and concerns at each level of their treatment to achieve an optimum outcome.

Keywords: Medication adherence, patient, schizophrenia, therapeutic alliance, Sunyani.

1. INTRODUCTION

Schizophrenia is a chronic condition associated with poor psycho-social and medical outcome (World Health Organization [WHO], 2022a).

Persons diagnosed with schizophrenia do not present a single pathognomonic symptom. Symptoms may range from abnormality in

thinking, to poor insight and judgment, to emotional disorders, to altered behavior or personality (Kareem & Mahmood, 2022). Conservative estimates suggest that schizophrenia affects 24 million people worldwide, i.e. 1 in 300 people (0.32%). At this rate, 1 in every 222 (0.45%) adults (18 years and above) is affected (WHO, 2022a). The prevalence of schizophrenia has increased steadily in the last four decades globally, from 13.1 million to 20.9 million cases between 1990 and 2016. Eastern sub-Saharan Africa (SSA) (126%) and North Africa/Middle East (128%) recorded the highest percentage increases in cases in the 26-years period (1990-2016), partly due to the significant population expansion in these regions between the period (Charlson *et al*., 2018). Schizophrenia typically starts in late adolescence and early twenties. The onset of the disease seem to occur earlier in males than in females (WHO, 2022a). In males, schizophrenia usually develops in the mid-twenties with an average onset between 20 and 25 years. In females, the disease often develops in the late twenties, with an average onset between 25 and 30 years (Kareem & Mahmood, 2022). However, a recent systematic review based on 129 outcome studies did not find any significant difference in age-standardized point prevalence rates of schizophrenia across countries and continents (Charlson *et al*., 2018). In Ghana, the prevalence of schizophrenia is estimated to be between 0.15% and 0.25% (46,922 – 73, 750). The highest number of cases occur among young adults (age 20-29) and males (0.51%; 0.20%) (WHO, 2022b).

Currently, a range of treatment modalities for schizophrenia are available and these include antipsychotic drugs, psycho-education, social support, behavioural-cognitive therapy and rehabilitation (WHO, 2022a). Despite these available options, most schizophrenia patients around the world are not on treatment. Globally, only about one-third (31.3%) of psychosis patients receive specialist care (WHO, 2022a). Overall, treatment coverage of schizophrenia in Ghana is about 33.21% (WHO,

2022b), slightly above the global average of 31.3% (WHO, 2022a). There are significant deficiencies in evidence-based care in many parts of Ghana. Concurrently, social stigma, discrimination, religious dominance and spiritual interpretations of mental illness persist in many of these communities which tend to influence the patronage of traditional and complementary healthcare (WHO, 2022b). A recent WHO Mental Health Situational Assessment in Ghana revealed that several human right abuse are associated with these care (WHO, 2022b). The research base of schizophrenia and schizoaffective disorders has grown considerably in recent years. Even so, outcomes from best-practice in mental health are often below standards. In a systematic review and meta-analysis of 50 outcome studies, Jääskeläinen *et al*. (2013) found that only 13.5% of schizophrenia patients met the criteria for clinical and social recovery.

Central to the management of patients with schizophrenia is the clinician-patient relationship (therapeutic alliance) which has been found to significantly affect the treatment process and outcome (Hsieh *et al*., 2022). Therapeutic alliance refers to "a purposeful, goal-directed relationship between a clinician (doctor/nurse, or psychologist) and a patient that is directed at advancing the best interest of the patient and [their] health outcome" (Donald *et al*., 2022). Several factors affect adherence or non-adherence to medication, including insight (Maqbali *et al*., 2022), quality of clinician-patient relationship (Deniz *et al*., 2021), patient's age, marital status (Grover *et al*., 2021), income status, educational background, socio-familial support, stigma and discrimination (Peña *et al*., 2021). However, Zacharia (2022) noted that therapeutic alliance was the single most important determinant of medication adherence. Medication adherence refers to the degree to which a patient is able to take their medication as prescribed, including the dosing, timing etc. (Kareem & Mahmood, 2022). Poor adherence or non-adherence to antipsychotic medications accounts for most of the relapses in

schizophrenia, resulting in several hospital readmissions, suicidal behaviours (Zacharia, 2022), violence (Hsieh *et al*., 2022), and poor cognitive, clinical and functional outcome (Tessier *et al*., 2017).

In addition to poor recovery outcomes, schizophrenia patients who are not on treatment or experience frequent relapses have a significantly short life expectancy. Case fatality rate seem to be in excess across all age groups and the differential mortality gap between persons with schizophrenia and those without schizophrenia seem to have widened over the years (Charlson *et al*., 2018). There is a paucity of literature on the burden of psychotic disorders during patients' first visit to the hospital in low- and middle income countries (LMICs) (Kiiza *et al*., 2020), which reflects the existing deficiencies in mental health in these regions and the lack of prioritization of mental health by respective governments, especially in Africa (Sankoh *et al*., 2018). This multi-center study examined therapeutic alliance and medication adherence and the association between them. Findings of the study could guide the development of mental health policies and programmes in Ghana.

2. MATERIALS AND METHODS

Study Design and Study Area

This multi-center descriptive cross-sectional study was conducted in Sunyani in the Bono region of Ghana. The psychiatric units of the two comparable secondary-level hospitals in Sunyani – the Bono Regional Hospital, and the Sunyani Municipal Hospital were chosen for the study. The 2021 Ghana Demographic and Health Survey report indicates that the Sunyani Municipality has the highest population in the Bono region, thus 193,595. Females constitute more half of the population (50.2%; 97,237). About 81% (80.8%) of the municipality's population are residents of urban communities (GSS, 2021). The Sunyani Municipality is divided into six (6) sub-municipals which include Penkwase, Abesim, Sunyani central,

New Dormaa, Antwikrom, and New Town/Baakoniaba (Asare *et al*., 2019).

The largest secondary-level hospital (by patient attendance and specialist care) in the Sunyani Municipality and the Bono Region is the Bono Regional Hospital. The hospital serves as the major referral center for both primary-level healthcare facilities and secondary-level hospitals in the Bono, Bono East, and Ahafo Regions of Ghana (Nketia *et al*., 2022). The mental health unit of the Bono Regional Hospital provides 24-hour healthcare, including expert services for patients who have health insurance and those who do not. The hospital's mental health unit has about 20 beds for admission and inpatient care and remains the largest mental health unit in the region. A cadre of healthcare staff works at the unit; including a clinical psychiatric officer, community mental health officers, and nurses. The Sunyani Municipal Hospital also serves as a referral center for some clinics, health centers, private hospitals and maternity homes in the municipality (Mohammed *et al*., 2019). The mental health unit of the Sunyani Municipal hospital provides 24-hour health services to clients, similar to that of the Bono Regional Hospital. A range of effective mental health services are available at these two hospitals. They include screening, psychoeducation, medication, etc. These hospitals, however, do not provide rehabilitation services for schizophrenia patients.

There are other 63 public and private health facilities in the Sunyani Municipality which includes community health centers, clinics, quasi medical centers, maternity homes, faith-based health facilities, and community health planning and services (CHPS). Almost all private facilities in the municipality are located in the urban areas (Ministry of Finance - Ghana, 2022). Two factors determined the selection of the Bono Regional Hospital and Sunyani Municipal Hospital for the study: the hospitals' status (secondary-level referral centers) and services provided at the mental health units of the two hospitals. It is

anticipated that research-informed policies and programmes implemented to improve service delivery at the mental health units of the two hospitals would benefit populations in the three regions (Ahafo, Bono, and Bono East) who continue to access care at these hospitals.

Study Population

The study population comprised schizophrenia patients aged 18-60 years who were considered stable and had been diagnosed with schizophrenia based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) criteria (American Psychological Association [APA], 2000). In the context of this study, a stable patient was one whose antipsychotic medications had not been changed in the 2 months preceding the survey, and could appropriately respond to the self-rating psychiatric scales used for the study (Chang *et al.*, 2019).

Sampling

In this multicenter study, 108 patients with schizophrenia were recruited consecutively in two comparable secondary-level hospitals in Sunyani. Seventy-three (73) respondents were selected from the Bono Regional Hospital and 35 were recruited from the Sunyani Municipal Hospital, using purposive sampling technique. Between the two centers, there was no difference in the socio-demographic data of patients chosen for the study. There was no control group. First, patients registered at the medical records departments of the respective hospitals and obtained their medical folders. Thereafter, they visited the mental health clinics to access care where the researchers met them and described the study to them. Subsequent to that, patients' diagnoses were asked for and confirmed from the medical folder. Those who met this criterion were subsequently assessed for other three criteria after which they were included or excluded from the study. Criteria for inclusion in the study were (i) a prior diagnosis with schizophrenia based on DSM-IV-TR criteria

(APA, 2000), (ii) aged 18-60 years, (iii) considered to be stable, and (iv) willing to participate in the study voluntarily. Patients who had traumatic injury to the head, and/or suffered from any serious medical/neurological condition at the time of the study were not included in the study. The period of the study development was between November 2020 and August 2021.

Research Instruments

The Medication Adherence Rating Scale (MARS) was used to assess the level of medication adherence. This scale, developed from the Drug Attitude Inventory (DAI) and the Medication Adherence Questionnaire (MAQ), is a 10-item self-reporting scale (Thompson *et al.*, 2000). MARS has been validated and used extensively in the African region (Owie *et al.*, 2018). To obtain the total score for MARS, the relevant subscale scores are added. The scores range from 0 to 10, with 0 being the minimum possible score and 10 being the maximum possible score. With regards to assessment of the clinician-patient relationship, the Scale to Assess the Therapeutic Relationship-Patients version (STAR-P) was used (McGuire-Snieckus *et al.*, 2007). STAR-P is a twelve-question, 5-point self-rating Likert scale for patients. The scale has factor structures – collaborative bond, and affective bond. The collaborative bond highlights the shared understanding of treatment targets and goals between the clinician and the patient, as well as mutual respect and openness (Chang *et al.*, 2019). On the contrary, affective bond reflects the subjective concerns of the patient, particularly on the notion that the clinician is authoritarian, reserved about sharing the truth, or impatient. All questions on affective bond factor are inverse-scored (Chang *et al.*, 2019). To obtain the total score for STAR-P, the relevant subscale scores are added. A higher score indicates a better relationship between the clinician and the patient.

Data Collection

Data were collected at the psychiatric units of the two hospitals chosen for the study, using interviewer-administered questionnaires. The questionnaire assessed patients' demographic characteristics, medication adherence, and clinician-patient relationship. Verbal informed consent was obtained after describing the study to the patients. Following this, questions relating to their socio-demographic data were read out to them. To ensure that responses given and data recorded were accurate, every question was read two times and interpreted in the local dialect (Ashanti Twi) before responses were recorded. Each interview was conducted within 5-10 minutes.

Data Analysis

After the data collection, the primary data were checked for completeness, coded and entered into Statistical Package for Social Sciences version 25 (IBM Corp, Armonk, New York, United States, 2017). Descriptive statistics on the distribution of respondents' socio-demographic characteristics were presented as frequencies and percentages. The following variables were reported; age, sex, marital status, residence, level of education, employment and religious affiliation. Descriptive statistics on therapeutic alliance (measured by STAR-P) and medication adherence (measured by MARS) were reported as mean, standard deviation, median, mode, minimum and maximum. Preliminary tests, including normality test (Kolmogorov–Smirnov 1-sample test) were performed on therapeutic alliance and medication adherence data, yielding p-values of .001 for medication adherence, and .006 for therapeutic alliance. This informed the selection of Spearman's rho correlation coefficient to examine the association between therapeutic alliance and medication adherence. All tests were two-sided, and statistical significance was defined as $P < .05$. The results were presented in tables 1-4.

Ethical Consideration

Having obtained approval for the study from the Research and Ethics Review Committee of the College of Health, Yamfo, Ghana, introductory letters were obtained from the college and served to the management of the Bono Regional Hospital and the Sunyani Municipal Hospital. Permission to undertake the study in the respective institutions was granted by the management of the institutions. Subsequent to that, the researchers met the respondents to discuss the objectives and significance of the study. All questions and concerns raised by the respondents were clarified. Thereafter, informed consent (verbal) was obtained. Questionnaires for the study were anonymized to ensure that confidentiality was maintained.

3. RESULTS

Socio-Demographic Characteristics of Respondents

Table 1 presents the results of respondents' socio-demographic data. One hundred and eight (108) patients with schizophrenia participated in the study with 100% response rate. Most of the respondents were between 18 and 35 years (85.2%). Males constituted 61.1% of the sample. With regards to marital status, more than half of the respondents were single (54.6%). A larger proportion of the respondents were residents of urban communities (66.7%). More than half of the sample had no formal education (51.9%) and were unemployed (51.9%). Christians constituted more than two-thirds (71.3%) of the sample.

Table 1 Socio-demographic characteristics of respondents (n = 108).

Variable	Category	Frequency (n)	Percent (%)
Age	18-35 years	92	85.2

Variable	Category	Frequency (n)	Percent (%)
	≥ 36 years	16	14.8
Sex	Male	66	61.1
	Female	42	38.9
Religion	Christianity	77	71.3
	Islam	31	28.7
Marital status	Single	59	54.6
	Divorced/separated	35	32.4
	Married	9	8.3
	Co-habiting	5	4.6
Residence	Rural community	36	33.3
	Urban community	72	66.7
Level of education	No formal education	56	51.9
	Primary school/JHS	40	37.0
	SHS/Vocational school	7	6.5
	College/University	5	4.6
Employment status	Employed (Full time)	9	8.3
	Employed (Part time)	12	11.1
	Self-employed	31	28.7
	Unemployed	56	51.9

Note. JHS = junior high school; SHS = senior high school.

Therapeutic Alliance

Table 2 presents descriptive statistics of the therapeutic alliance (STAR-P). The Cronbach α coefficient was used to check the reliability of STAR-P. The Cronbach α value of the scale was 0.72. This value, according to Pallant (2016), indicates that the scale had enough conditions for reliability. The mean (standard deviation), median, and modal score for the overall therapeutic alliance were 42.16 (± 7.710), 41, and 38 respectively. The maximum and minimum scores for the overall therapeutic alliance were 60 and 25 respectively. With regards to collaborative bond, mean (standard deviation), median, and modal scores were 32.32 (± 1.644), 33, and 33 respectively. Mean (standard deviation), median, and modal scores for affective bond were 9.83 (± 2.709), 9, and 9 respectively.

Table 2 Therapeutic alliance

Descriptive statistics	STAR-P		
	Total	Collaborative bond	Affective bond
Mean	42.16	32.32	9.83
S.D.	7.710	6.644	2.709
Median	41	33	9
Mode	38*	33*	9
Minimum	25	14	3
Maximum	60	45	15

Note. STAR-P = Scale to Assess the Therapeutic Relationship-Patient version; S.D. = Standard deviation. The questions addressing affective bond factor were inverse-scored. *Multiple modes exist, the smallest value is shown. Cronbach α value for STAR-P = 0.72.

Medication Adherence

Table 3 presents descriptive statistics of the medication adherence (MARS). The Cronbach α coefficient was used to check the reliability of MARS. The Cronbach α value of the scale was 0.81. This value, according to Pallant (2016), indicates that the scale had enough conditions for reliability. Mean (standard deviation), median, and modal scores for medication adherence were 4.56 (± 1.715), 5, and 4 respectively. The minimum and maximum scores for MARS were 0 and 9 respectively.

Table 3 Medication adherence

Descriptive statistics	MARS
Mean	4.56
S.D.	1.715
Median	5
Mode	4*
Minimum	0
Maximum	9

Note. MARS = Medication Adherence Rating Scale; S.D. = Standard deviation. *Multiple modes exist, the smallest value is shown. Cronbach α value for MARS = 0.81.

Association between Therapeutic Alliance and Medication Adherence

Spearman's rho correlation coefficient was performed to determine the association between medication adherence and therapeutic alliance. Of the two factors (affective bond, and collaborative bond) constituting therapeutic alliance, affective bond showed a weak negative correlation with medication adherence, $r_s = .19$, n = 108, $p = .044$, with a lower level of affective bond associated with a higher level of medication adherence. However, there was no relationship between collaborative bond and adherence to medication, $r_s = .13$, n = 108, $p = .199$. Also, there was no association between overall therapeutic alliance and medication adherence, $r_s = .14$, n = 108, $p = .146$ (Table 4).

Table 4 Association between therapeutic alliance and medication adherence

Variable	STAR-P		
	Total	Collaborative bond	Affective bond
Medication adherence (MARS)	.14	.13	.19*

Note. STAR-P = Scale to Assess the Therapeutic Relationship-Patients version; MARS = Medication Adherence Rating Scale. Table entries are Spearman's rho correlation coefficient (r_s). Significant at *$p < 0.05$.

4. DISCUSSION

We sought to assess medication adherence and therapeutic alliance among patients with schizophrenia and the association between the two variables. The result of our study indicates that the mean score for MARS (4.56) was less than half the highest possible score for the scale (10). Although there is no absolute cutoff value for MARS, the mean score in our study is lower than those of similar studies that employed the same scale, in Korea (Chang *et al*., 2019), Oman (Maqbali *et al*., 2022) and Taiwan (Hsieh *et al*., 2022), where mean MARS scores were 6.8, 5.7, and 5.8 respectively. Our results, however, are consistent with the findings of previous research into medication adherence among mental health patients in

SSA. In a study among schizophrenia patients attending the Federal Neuro-Psychiatric Hospital (FNPH) in Benin City, Nigeria, Owie *et al.* (2018) reported a relatively low mean MARS score (3.92). These differences and similarities in study results could be explained in part by the diverse socio-cultural and economic factors and country-specific situations that seem to affect health-seeking behaviour and medication attitude/adherence. In a systematic review based on 7 outcome studies, Mathes *et al.* (2014) found that out-of-pocket payment and the higher cost of medication negatively affected medication adherence. In a similar but more extensive review based on 33 outcome studies, patient-related factors such as lower level of education, substance use disorder, lack of employment, and previous physical assault, and environment-related factors such as lack of social/family support were negatively associated with medication adherence (Leclerc *et al.*, 2015). The WHO Mental Health Situational Assessment in Ghana (WHO, 2022b) revealed that significant deficiencies in evidence-based care exists in many communities in Ghana. Concurrently, social stigma, discrimination, religious dominance and spiritual interpretations of mental illness were observed in many of these communities (WHO, 2022b). These, the researchers believe, could have informed respondents' decision to seek or not to seek care from the hospital, leading to the low mean MARS score. Poor adherence or non-adherence to antipsychotic medications accounts for most of the relapses in schizophrenia, resulting to frequent hospital readmissions, suicidal behaviours (Zacharia, 2022), violence (Hsieh *et al.*, 2022), and poor cognitive, clinical and functional outcome (Tessier *et al.*, 2017). This suggests that many of our respondents could be at a heightened risk of poor disease prognosis and suggests a critical need for intervention from relevant stakeholders; the Ministry of Health, Ghana, the Ghana Health Service (GHS), the Ghana Mental Health Authority, the Bono Regional Health Directorate, Management of the Bono Regional Hospital and the Sunyani Municipal Hospital, non-governmental organizations (NGOs) working on mental health in Ghana, and Civil Society Organizations (CSO).

Overall, therapeutic alliance (STAR-P) was 42.16 in the current study. The level of therapeutic alliance expressed by respondents in our study seem to be consistent with those previously described by Chang *et al.* (2019) (45.04). The observed similarity in study findings could be explained in part by the data collection instrument (STAR-P) used in both studies. This purposeful, goal-directed relationship between the clinician and the patient directed is critical to improving the best interest of the patient and their health outcome.

Our study found a weak negative correlation between affective bond and medication adherence, suggesting that patients who perceived their clinicians to be authoritarian, reserved about sharing the truth, or impatient would most likely not adhere to prescribed medications. This result is consistent with those of other studies (Chang *et al.*, 2019) which found a weak negative correlation between affective bond and medication adherence among schizophrenia patients. The current finding highlights the need for clinicians to consistently seek patients' views and concerns at each level of their treatment and to address these concerns (such as fear of dependence on medication and side effects of drugs) appropriately to achieve optimum treatment outcome.

The result of our study also indicates that collaborative bond was not associated with adherence to medication. This result is consistent with those of a previous study (Chang *et al.*, 2019) that investigated the association between therapeutic relationship and medication adherence among schizophrenia patients. Among schizophrenia patients accessing care at two mental health hospitals in urban and rural areas of Korea, Chang *et al.* (2019) reported that there was no association between collaborative bond and adherence to medication. The results of our study suggests that shared understanding of

treatment targets and goals between the clinician and the patient, as well as mutual respect and openness had limited impact on medication adherence.

The result of our study also indicates that overall therapeutic alliance had no impact on medication adherence. This result is inconsistent with findings of previous studies in France (Tessier *et al.*, 2017), Korea (Chang *et al.*, 2019), Nigeria (Donald *et al.*, 2022), Oman (Maqbali *et al.*, 2022), Taiwan (Hsieh *et al.*, 2022), Turkey (Deniz *et al.*, 2021), which found that poor therapeutic alliance was associated with low level of adherence to anti-psychotic medications. Overall, our finding suggests that the quality of the relationship between the clinician and the patient did not have a significant impact on medication adherence. This inconsistency in the study findings could be attributed to the role of diverse socio-cultural and economic factors and country-specific situations affecting health seeking behaviour and medication adherence. In previous studies, side effects of anti-psychotic drugs (Kareem & Mahmood, 2022), higher cost of medication, out-of-pocket payment (Mathes *et al.*, 2014), substance abuse comorbidity (Fenton *et al.*, 1986), younger age, low socio-economic status, poor insight, belonging to ethnic minority, and experiencing difficulties in accessing care were major risk factors for medication non-adherence in schizophrenia (García *et al.*, 2016). Among epileptic patients accessing care at Yirgalem General Hospital in Southern Ethiopia, Hasiso & Desse (2016) found that residence in urban community, higher educational status, and government employment were positively associated with medication adherence, bringing to fore the important role of other socio-cultural and economic factors in medication adherence.

5. CONCLUSION

Overall, there was no link between therapeutic alliance and medication adherence. There was however, a weak negative relationship between affective bond and adherence to medications. This finding highlights the need for health professionals to consistently seek patients' views and concerns at each level of their treatment to achieve optimum treatment outcome. In future studies, it may important to examine the role of financial incentives, cost-sharing, and home-based care in medication adherence among schizophrenia patients in Sunyani.

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