

Explanatory Beliefs, Psychosocial Factors, and Medication Adherence among Adults Living with Schizophrenia in Zimbabwe

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ABSTRACT : Medication adherence remains an important challenge in the long-term management of schizophrenia, particularly in settings where psychological, social and cultural factors may shape how people understand illness and treatment. Explanatory beliefs, social support and stigma may influence treatment-related behaviours, but evidence from Zimbabwe remains limited. This study examined the associations between explanatory beliefs, psychosocial factors and medication adherence among adults living with schizophrenia receiving outpatient psychiatric care in Zimbabwe. A cross-sectional quantitative study was conducted among 96 adults diagnosed with schizophrenia who were receiving outpatient psychiatric care. Participants completed measures assessing explanatory beliefs, medication adherence, perceived social support and stigma, while demographic and clinical information was also collected. Data were analysed using descriptive statistics, Pearson's correlation coefficients and multiple linear regression. Medication non-adherence was common, with 59 participants (61.5%) classified as non-adherent and 37 (38.5%) classified as adherent. None of the explanatory belief domains, psychosocial variables or selected demographic and clinical variables showed a statistically significant correlation with medication adherence. In the multivariable regression model, the overall model was not statistically significant, $F(8,87) = 1.58, p = .143$, and explained 12.7% of the variance in medication adherence (adjusted $R^2 = .047$). Biological explanatory beliefs showed the strongest positive association with adherence ($B = 0.498, \beta = .183, p = .076$), although this did not reach statistical significance. The findings indicate that the explanatory and psychosocial variables examined in this study did not adequately explain variation in medication adherence in this sample. The relatively modest explanatory power of the regression model also suggests that other factors not examined here may contribute to medication-taking behaviour. The findings support the value of understanding medication adherence within the wider social and cultural context of psychiatric care, while highlighting the need for studies that directly measure broader dimensions of treatment engagement.

KEYWORDS: Schizophrenia; treatment engagement; medication adherence; explanatory beliefs; person-centred care; cultural psychiatry; Zimbabwe.

1.0 INTRODUCTION

Engagement in treatment is one of the most important predictors of positive outcomes in individuals with schizophrenia. In addition to reducing symptoms and preventing relapse, ongoing use of psychiatric services has been related with better treatment adherence, continuity of care, social functioning and quality of life. Contemporary approaches to the management of schizophrenia increasingly recognize that meaningful engagement with treatment involves collaborative participation in therapeutic processes occurring across clinical, familial and community settings, extending beyond medication-taking behaviours alone (World Health Organization [WHO], 2025).

There is growing evidence that actively involving people living with schizophrenia in shared decision-making processes concerning their psychiatric care improves their treatment engagement. Current models of person-centred

psychiatry stress that people living with schizophrenia should be seen as active participants in treatment planning rather than passive recipients of care. This shift has been recognised as a defining feature of the *WHO World Mental Health Report 2022* (Barbui, 2023). Collaborative approaches that include patients' preferences, values, lived experience and treatment goals have been associated with improved therapeutic relationships, increased satisfaction with care and improved engagement with mental health services (Dixon et al., 2016). Moreover, recovery-oriented approaches that foster shared decision-making have emphasized the need of allowing people to have meaningful participation in decisions about treatment, especially in the context of long-stay psychiatric hospitals (Fiorillo, et al., 2020). Therefore, collaborative approaches which incorporate individual preferences, treatment experiences and explanatory views have become significant components of person-centred and recovery-oriented schizophrenia care (Bhui & Bhugra, 2021; World Health Organization [WHO], 2022).

There are an estimated 24 million people worldwide who have schizophrenia, according to international estimates, and it continues to be a major contributor to disability and healthcare burden, despite breakthroughs in pharmaceutical and psychosocial therapies (WHO, 2025). Living with schizophrenia sometimes entails managing complicated problems in relation to psychological wellbeing, social participation, occupational functioning and long-term treatment needs. Antipsychotic drugs continue to be core elements of psychiatric care, but treatment outcomes are affected by much more than clinical interventions. The way adults with schizophrenia experience psychiatric care may be influenced by individual beliefs, social relationships, insight into illness and wider sociocultural experiences.

Recovery-oriented mental healthcare has been crucial in broadening contemporary conceptions of therapeutic success for persons living with severe mental illness. There has been a growing focus on person-centred models of care that emphasize autonomy, collaboration and meaningful involvement in treatment-related decision-making. These approaches recognise persons living with schizophrenia as active participants in their treatment journeys, with their experiences and perspectives shaping continuous involvement with healthcare providers. Such appreciation of complexities is especially crucial for understanding treatment participation in culturally heterogeneous and resource-constrained settings.

In recent years, advances in the treatment of schizophrenia have increasingly emphasized shared decision-making as a critical component of treatment engagement and recovery-oriented practice. Current psychiatric models emphasize that genuine engagement in treatment goes beyond symptom management, but rather collaborative collaborations between doctors and persons living with schizophrenia. Improved treatment experiences, higher engagement in therapy and more chances for tailored care planning have been linked to shared decision-making. Such techniques are especially pertinent to the management of schizophrenia, because treatment choices, illness beliefs, and psychosocial experiences may have a considerable impact on ongoing engagement in care. Thus, recovery-oriented psychiatric therapy considers people with schizophrenia not just as beneficiaries of treatment but as active participants in treatment-related decisions that shape their therapeutic journeys (Fiorillo et al., 2020).

Medication adherence is an important behavioural component of care among adults living with schizophrenia. Although adherence does not capture the full range of ways in which a person may engage with psychiatric treatment, taking prescribed medication remains a clinically important part of ongoing care. Difficulties with medication-taking are common and may have consequences for continuity of treatment and clinical outcomes. Understanding these behaviours therefore requires attention to the beliefs and social circumstances within which treatment decisions are made. However, medication-taking behaviours should not be conceptualised in a vacuum, separate from the wider psychological and social circumstances in which treatment engagement happens. Contemporary psychiatric research is increasingly aware that adherence is a multifaceted phenomenon impacted by explanatory views, therapeutic connections, perceived social support, stigma and insight into illness.

Explanatory beliefs have been found to play an essential role in shaping how individuals make sense of sickness, assess treatment alternatives and interact with healthcare providers. These beliefs, originally elaborated in explanatory models of sickness, comprise the meanings that individuals give to the causes, consequences and management of health disorders (Kleinman, 1980). In psychiatric practice, explanatory beliefs influence help-seeking behaviors, attitudes to treatment, perceptions of recovery, and readiness to maintain participation with mental healthcare therapies. Their influence is particularly crucial in the management of schizophrenia where understandings of illness often go beyond scientific explanations alone.

Experiences of schizophrenia are frequently understood in terms of a range of overlapping explanatory frameworks. Biomedical perspectives may live side by side with psychological, spiritual, religious, family, and societal perspectives of sickness, and they do not necessarily compete with one another. Current cultural psychiatry acknowledges more and more that people actively negotiate these explanatory frameworks when deciding whether, how and for how long to follow recommended treatment. (Bhui & Bhugra, 2021). This complexity must be understood if we are to build psychiatric care which are both clinically effective and culturally sensitive. Treatment recommendations that reflect people's belief structures may foster stronger therapeutic partnerships and encourage continued engagement in care.

Recent research has also pointed to the influence of psychosocial factors on treatment engagement among adults living with schizophrenia. Social support has been consistently related with positive treatment outcomes including medication adherence, continuity of care and psychological wellness. Family members can help practically with attending clinics, managing medication and providing emotional support during lengthy treatment trips. Community and family relationships may also influence continued involvement with psychiatric services, particularly where access to specialist mental health treatment is limited.

Another clinically relevant issue in the treatment of schizophrenia is insight into illness. Current study conceptualises insight as a multidimensional entity, which involves knowledge of mental illness, recognition of the need for treatment, and understanding of the implications of illness and its treatment. Insight is increasingly conceptualized as dynamic rather than static; and may be subject to cognitive, psychological, social and cultural influences over the course of illness (Lysaker et al., 2020; World Health Organization [WHO], 2022). Poor insight has been associated with poorer treatment-related outcomes, including reduced treatment engagement and recovery (Lysaker et al., 2020).

Emerging evidence further indicate that the relationships between insight, explanatory views and treatment involvement are complex and cannot be properly understood in isolation. A person may be aware of aspects of their illness and yet maintain cultural, religious or personal beliefs about the cause of mental symptoms and what they signify. Treatment-related behaviours are thus increasingly understood as the result of dynamic interactions between insight, explanatory beliefs, psychosocial experiences and therapeutic relationships rather than as simple direct reflections of clinical awareness (Bhui & Bhugra, 2021; Killaspy, 2022; WHO, 2025).

The stigma remains a serious barrier for people with schizophrenia across the globe. Public stigma, expected discrimination and self-stigmatization may have negative consequences for treatment seeking behaviours and for sustained involvement with mental health care providers (Corrigan et al., 2014). In addition to the psychological repercussions, stigma can result in treatment discontinuation, social isolation, and decreased access to proper psychiatric care. Therefore, it remains vital to understand how stigma interacts with explanatory ideas and psychosocial experiences when looking at treatment involvement in individuals with schizophrenia.

The existing literature indicates that treatment participation is best understood as a complex phenomenon, formed by ongoing interactions of psychological, social, cultural, and therapeutic factors. Medication adherence is a crucial feature of participation with psychiatric care, but it is only one part of people's treatment experiences more broadly. The investigation of beliefs about causes of illness alongside psychosocial variables such as social support, insight

and stigma may therefore give substantial potential for enhancing person-centred approaches to the therapy of schizophrenia in varied healthcare settings.

In Africa mental health care is often located at the interface of biological, psychological, spiritual, family and community systems of care. Adults living with schizophrenia may navigate their treatment paths by engaging with psychiatric services while also relying on religious beliefs, traditional understandings of illness, and family-centered support networks. These heterogeneous encounters offer valuable possibilities to explore the role of explanatory views on involvement with psychiatric care. Hence, cultural responsiveness is an increasingly considered factor in contemporary global mental health studies, especially in the context of treatment-related behaviours in low-resource contexts (Patel et al., 2018).

Increasingly, modern global mental health literature recognizes the need to understand the complex relations among explanatory beliefs, social experiences, and health care systems for culturally relevant psychiatric care. Treatment engagement in low resource settings often takes place in diverse circumstances where biological understandings of illness coexist with culturally embedded explanatory frameworks and community-based support structures. Effective psychiatric therapies therefore require approaches that are sufficiently flexible to recognize such complexity while staying attentive to individuals' treatment preferences and life experiences. In the context of global mental health, there has been increasing attention on person-centred and culturally aware models of care as key to equitable delivery of mental healthcare to various populations.

Zimbabwe provides an essential backdrop for investigating treatment participation in culturally heterogeneous and resource-poor psychiatric facilities. Current research in global mental health increasingly recognises that effective psychiatric care requires approaches that acknowledge individuals' explanatory beliefs, sociocultural experiences and participation in treatment-related decision-making (World Health Organization, 2022; Patel et al., 2018; Killaspy, 2022).

Zimbabwe provides an important context for understanding treatment engagement in culturally diverse and resource-poor psychiatric services. These challenges are consistent with broader efforts to strengthen mental healthcare in low-resource settings through the WHO Mental Health Gap Action Programme (Keynejad et al., 2021). The country's mental health system continues to be challenged by specialist workforce shortages, limited access to mental health services and substantial treatment gaps and there are ongoing national efforts to strengthen community-based and primary mental healthcare delivery (World Health Organization [WHO], 2021, 2023). In Zimbabwe, mental health care often coexists with family, community, religious and culturally based understandings of mental illness, resulting in pluralistic systems of care that influence how people understand illness, approach treatment and interact with psychiatric services (Patel et al., 2018; WHO, 2022).

Adults with schizophrenia receiving outpatient psychiatric care may therefore mediate treatment within complex psychological, social and cultural contexts that shape their experiences of illness and recovery. Family members are vital in facilitating attendance at the clinic, management of medications and continued engagement with therapy. Explanations for mental disease may be in parallel with biomedical understandings of psychiatric treatment. Contemporary global mental health scholarship increasingly acknowledges the need to consider not only clinical symptoms and medication adherence, but also individuals' explanatory beliefs, psychosocial experiences and participation in treatment-related decision-making in person-centred psychiatric care (Bhui & Bhugra, 2021; Killaspy, 2022; WHO, 2025).

It is thus important to understand how adults living with schizophrenia perceive psychiatric symptoms, take prescribed medications and navigate broader psychosocial experiences to develop culturally responsive and person-centred approaches to psychiatric care in Zimbabwe and similar low-resource settings (Patel et al., 2018; WHO, 2022).

In both high income and low resource settings, prior scholarship has largely studied treatment-related factors in schizophrenia separately, such as medication adherence, explanatory beliefs and treatment attitudes, social support, stigma and clinical insight. Systematic reviews have shown that each of these factors is linked with treatment experiences and recovery outcomes for adults with schizophrenia; however, these factors are often analyzed separately and within discipline-specific conceptual frameworks (Sarraf et al., 2022). Although there is much evidence supporting the importance of these characteristics individually, comparatively little emphasis has been given to understanding how they interact to form broader therapeutic engagement and participation in psychiatric care.

Moreover, modern person-centred and recovery-oriented approaches are increasingly recognizing treatment engagement as a multi-dimensional phenomenon that goes beyond medication adherence to include individuals' beliefs about illness, psychosocial experiences, relationships with healthcare providers and involvement in treatment-related decision-making (World Health Organization [WHO], 2022; Killaspy, 2022). Recent systematic reviews have highlighted the importance of social connectedness, stigma reduction, insight and treatment attitudes in facilitating recovery among people living with schizophrenia spectrum disorders, while simultaneously demonstrating considerable heterogeneity in how these constructs are conceptualised and measured across studies. Similarly, research in African and other low-resource contexts continues to highlight significant gaps in culturally sensitive understandings of treatment participation despite increasing worldwide attention to person-centred mental healthcare. Explanatory beliefs about mental illness are often associated with biomedical explanations of psychiatric treatment, suggesting that treatment engagement happens within broader social and cultural contexts that are poorly described by traditional adherence models (Patel et al., 2018; WHO, 2022). Therefore, there remains a need for integrative approaches that consider explanatory beliefs, medication-taking behaviours and psychosocial experiences simultaneously when investigating treatment engagement among persons living with schizophrenia.

Zimbabwean mental health research has contributed significantly to the study of explanatory theories of mental illness, cultural understandings of psychiatric disorders and psychosocial experiences linked with severe mental illness. Existing research has shown that explanatory ideas about mental disease often accompanies biological understandings of psychiatric therapy and impact help-seeking behaviours and feelings of recovery. Likewise, cultural, religious and social contexts have been found to influence how individuals living with schizophrenia understand and experience their illness in Zimbabwe (Patel et al., 1995; Patel et al., 1997; Chidarikire et al., 2020). However, the literature has predominantly focused on these phenomena in isolation and there is a paucity of empirical evidence about their combined impact on treatment participation for people with schizophrenia in outpatient psychiatric settings. To the authors' knowledge, there is limited published evidence from Zimbabwe examining explanatory beliefs alongside psychosocial factors in relation to medication adherence among adults living with schizophrenia. Much of the available literature has considered cultural understandings of mental illness, help-seeking, or barriers to psychiatric care, while less is known about how these factors relate to medication-taking behaviour among people already receiving outpatient psychiatric treatment. This leaves an important gap in understanding medication adherence within the particular social and cultural context in which schizophrenia care is delivered in Zimbabwe.

These gaps in information are important to address clinically and scientifically, as engagement in treatment is a core component of recovery-oriented psychiatric care for individuals with schizophrenia. However, contemporary mental health scholarship increasingly recognises that treatment engagement extends beyond medication-taking behaviours to include collaborative participation in treatment-related decision-making, therapeutic relationships, psychosocial wellbeing and meaningful involvement in care processes (World Health Organization [WHO], 2022; Killaspy, 2022). Increased engagement in psychiatric care has been associated with better continuity of care, lower relapse rates, improved functional outcomes, and better quality of life for people with severe mental illness (Correll et al., 2022; Fiorillo et al., 2020).

Emerging evidence suggests that explanatory beliefs, social support, experiences of stigma, illness insight and wider sociocultural circumstances may each be relevant to treatment-related behaviour. (Bhui & Bhugra, 2021; Patel et al., 2018; WHO, 2025). Exploring factors that facilitate or impede ongoing engagement with psychiatric care can therefore offer significant opportunities to develop culturally sensitive and person-centred interventions that take into account individuals' psychological experiences, social relationships and treatment preferences. Such strategies are particularly relevant in low-resource contexts where psychiatric care often takes place at the intersection of biomedical, familial, community and culturally embedded systems of support.

Therefore, producing contextually relevant evidence on treatment engagement among adults living with schizophrenia may inform contemporary understandings of collaborative and recovery-oriented psychiatric practice, and the development of interventions that are responsive to the realities of mental healthcare delivery in Zimbabwe and similar low-resource contexts.

Against this background, the present study examined associations between explanatory beliefs, selected psychosocial factors and medication adherence among adults living with schizophrenia receiving outpatient psychiatric care in Zimbabwe. Medication adherence was treated as the primary behavioural outcome, while social support and stigma were examined as psychosocial factors that may be relevant to medication-taking behaviour. The study was situated within the broader context of treatment engagement, but did not attempt to measure treatment engagement as a multidimensional outcome. More specifically, the analysis examined explanatory beliefs, perceived social support, stigma and selected demographic and clinical characteristics in relation to medication adherence. By examining these relationships within an outpatient psychiatric setting in Zimbabwe, the study adds context-specific evidence to the literature on medication adherence in schizophrenia and may help inform more culturally responsive approaches to care.

2.0 METHODOLOGY

The study used a quantitative cross-sectional correlational design to examine associations between explanatory beliefs, selected psychosocial factors, demographic and clinical characteristics, and medication adherence among adults living with schizophrenia who were receiving outpatient psychiatric care in Zimbabwe. Medication adherence was treated as the primary behavioural outcome of the study, while the psychosocial and explanatory variables were examined as factors potentially associated with variation in adherence.

A cross-sectional design was appropriate because it allowed the study to examine relationships among these variables within the participants' usual outpatient treatment context without altering the care they received. The design was therefore intended to identify patterns of association rather than establish causal relationships or test interactions among predictors. The study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional research.

The study was carried out at the Annex Psychiatric Unit, Parirenyatwa Group of Hospitals, Harare, Zimbabwe, which is one of the largest tertiary referral and teaching hospitals in Zimbabwe. The unit offers a wide range of outpatient psychiatric services to individuals with severe mental disorders, including psychiatric assessment, pharmaceutical treatment, psychoeducation, psychosocial therapies, and interdisciplinary follow-up care. Patients attending the clinic are referred from basic, secondary and provincial health facilities across Zimbabwe, therefore making the unit a significant location for expert mental health care.

The study population consisted of persons aged 18 years and above with a confirmed clinical diagnosis of schizophrenia who were on out-patient psychiatric care at the Annex Psychiatric Unit of the Parirenyatwa Group of Hospitals, Harare, Zimbabwe. The inclusion criteria were that the patient was prescribed antipsychotic medication at the time of the recruitment, that they attended at least one follow-up outpatient appointment and that they were clinically stable enough to understand the procedures of the study and to give informed consent.

Exclusion criteria were an acute psychotic episode, severe cognitive impairment or other conditions that significantly hindered their capacity to give informed consent or complete the study questionnaires. The clinical eligibility was assessed by the treating psychiatric team prior to recruitment.

Participants were systematically sampled at typical outpatient healthcare appointments. Eligible patients presenting throughout the data collection period were enrolled until the required sample size was obtained (every *n*th eligible patient). Participation was voluntary, no financial incentives were offered and reluctance to participate did not influence care provided for participants. Written informed consent was obtained from ninety-six eligible participants and they were included in the final analysis.

2.1 Measures

The internal consistency of all study instruments was assessed using Cronbach's alpha coefficients. Values of 0.70 and above were judged to represent acceptable reliability. Cronbach's alpha coefficients for each instrument are provided in Results section.

2.2 Demographic and Clinical Questionnaire

The researcher designed a structured questionnaire including demographic and clinical information to get characteristics of participants relevant to the investigation. Data collected included age, gender, marital status, level of education, employment status, duration of illness, duration of therapy, history of psychiatric hospitalization, and the antipsychotic medication currently being used. These variables were collected to describe the study population and to examine their associations with medication adherence.

2.3 Explanatory Beliefs Questionnaire (EBQ)

Explanatory Beliefs are measured by a modified Explanatory Beliefs Questionnaire (EBQ) based on Kleinman's Explanatory Model of Illness (Kleinman, 1980). Beliefs on the causes and nature of schizophrenia were tested with a questionnaire containing items on biological, psychological, and spiritual or supernatural theories. Participants assessed their agreement with each of the statements on a Likert-type response scale with higher scores indicating greater endorsement of the explanatory belief category. The questionnaire was chosen because it reflects culturally informed understandings of mental illness that are especially important in Zimbabwe, where biological and traditional explanatory systems typically co-exist.

2.4 Medication Adherence Rating Scale (MARS)

Medication adherence was assessed with the 10-item Medication Adherence Rating Scale (MARS) created by Thompson et al. (2000). The MARS is a commonly utilized self-report measure for persons undergoing treatment for psychotic illnesses. It examines medication-taking behaviour, attitudes towards medication, and experiences of medication-related adverse events. Items are assessed dichotomously (Yes/No) and total scores vary from 0 to 10. The higher the score, the greater the adherence to medication. The MARS has exhibited satisfactory reliability and validity in trials with persons with schizophrenia and other psychotic diseases.

2.5 Multidimensional Scale of Perceived Social Support (MSPSS)

Perceived social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), a 12-item scale. The MSPSS assesses perceived support from three sources: family, friends and significant others. Responses were assessed on a seven-point Likert scale ranging from Very Strongly Disagree to Very Strongly Agree. Higher scores indicate better perceived social support. The measure has shown strong reliability and validity across a range of clinical and cultural populations.

2.6 Internalized Stigma of Mental Illness Scale (ISMI)

The Internalized Stigma of Mental Illness Scale (ISMI; Ritsher et al., 2003) was used to measure internalised stigma. ISMI is a commonly used measure of internalized stigma for those living with mental illness. In the present study, the scale was used to measure participants' experiences of stigma, including perceptions of discrimination, social disengagement, and stigma resistance. The scale was used as an extra psychosocial measure to assess characteristics related to treatment participation and medication adherence among participants.

2.7 Schedule for the Assessment of Insight (SAI)

Insight was included in the study questionnaire as a clinical variable, based on a short-form measure described in the study protocol as the Schedule for the Assessment of Insight (SAI; David, 1990). The questionnaire contained five insight items addressing recognition of mental illness, perceived need for treatment, attribution of experiences to illness, perceived medication benefit, and anticipated deterioration without treatment. During data verification, however, participant-level responses were available for only the first four items. The fifth item was not available in the analytic dataset, and the variable labelled INS5 represented a calculated sum of INS1–INS4 rather than a fifth item response. Consequently, a complete five-item insight score could not be reconstructed and insight was excluded from the formal multivariable analysis.

2.8 Procedure

Participant recruitment at the Annex Psychiatric Unit was conducted during ordinary outpatient clinic sessions after ethical approval had been obtained from the Midlands State University Faculty of Social Sciences Research Ethics Committee and written permission had been obtained from the Parirenyatwa Group of Hospitals and the management of the Annex Psychiatric Unit. The treating psychiatric team examined potential participants for eligibility according to the inclusion and exclusion criteria of the study.

Eligible patients received a detailed explanation of the study objectives, procedures, potential risks, and anticipated benefits. Written informed consent was obtained from participants who agreed to participate before registration. Participants were told that participation was completely optional and that refusal to participate or withdrawal from the study would not influence the clinical care they received.

Data were gathered by a standardized questionnaire distributed in a private setting at the outpatient clinic to ensure confidentiality and minimize disruptions. The researcher gave clarifications for questionnaire items as needed without influencing the participants' responses. It took the participants about 30–45 minutes to complete the questionnaire.

Completed surveys were checked for completeness at the point of collection, and were then issued unique identifying codes to ensure participant confidentiality. All data were stored securely in password protected electronic files and in locked filing cabinets to which only the research team had access.

2.9 Statistical Analysis

Data were examined using IBM SPSS Statistics (Version 29). Before analysis, the data set was inspected for completeness, correctness, missing values and outliers. Descriptive statistics, including frequencies, percentages, means and standard deviations were used to provide an overview of the demographic and clinical features of the participants and primary study variables.

Internal consistency of the study instruments was evaluated using Cronbach's alpha coefficients, with values of 0.70 or above indicating satisfactory reliability. Assumptions underlying parametric analyses were reviewed before implementation. Normality of continuous variables was evaluated using Shapiro-Wilk test and visual inspection of histograms and Q-Q plots. Scatterplots of normalized residuals were used to investigate linearity and homoscedasticity, while Variance Inflation Factor (VIF) and tolerance statistics were used to analyze multicollinearity among predictor variables. Values of VIF <5.0 and tolerance >0.20 were regarded suggestive of acceptable multicollinearity.

Pearson's product-moment correlation coefficients were calculated to examine associations between medication adherence and explanatory beliefs, perceived social support, stigma, and selected demographic and clinical variables. Insight was not included in these inferential analyses because a complete score could not be derived from the available data. A multiple linear regression model was then fitted with medication adherence as the dependent variable and biological, spiritual and psychological explanatory belief scores, perceived social support, internalised stigma, age, duration of illness, and previous psychiatric admissions as predictors. Regression results are reported with unstandardized coefficients (B), standardized coefficients (β), 95% confidence intervals, and p-values. Model fit was evaluated using R^2 and adjusted R^2 . Statistical significance was set at $p < .05$.

2.10 Ethical Considerations

Ethical approval to conduct the study was obtained from the Midlands State University Faculty of Social Sciences Research Ethics Committee before data collection. Written permission to conduct the study was also obtained from the Parirenyatwa Group of Hospitals and the management of the Annex Psychiatric Unit. All participants were fully briefed on the aims, procedures, possible hazards and expected benefits of the study prior to their enrolment. Written informed consent was obtained from each participant before data collection. Participation was fully voluntary and participants were advised of their ability to refuse participation or to withdraw from the study at any time without penalty or influence on the psychiatric care they received.

All questions were anonymised and were given unique identification numbers to ensure the confidentiality of the participants. No personally identifying information was recorded. All the completed questionnaires and electronic datasets were maintained securely in password protected files and in locked storage facilities accessible only to the study team. Data were utilized for research purposes only and reported in aggregate to ensure anonymity.

Considering the vulnerability of the study group, individuals were recruited only when clinically stable and able to offer informed permission. If any participant encountered emotional distress during data collection, appropriate support was given from the treating mental health specialists in the outpatient clinic.

The study was performed in conformity with the ethical standards of the Declaration of Helsinki for research involving human subjects.

3.0 RESULTS

3.1 Participant Characteristics

A total of 96 participants undergoing outpatient psychiatric treatment for schizophrenia participated in the study. Participants' ages ranged from 20 to 60 years ($M = 41.81$, $SD = 11.67$). The sample consisted of 50 males (52.1%) and 46 females (47.9%), showing a fairly balanced sex distribution. In general, adherence to medicine was low. Fifty-nine participants (61.5%) were classed as nonadherent to prescribed antipsychotic medication, whereas just 37 participants (38.5%) satisfied the criteria for adherence to medication. These findings demonstrate the high level of medication non-adherence in the present outpatient sample and highlight the clinical importance of understanding factors associated with adherence to prescribed antipsychotic medication. Further descriptive analyses showed variation across the explanatory belief domains and psychosocial measures. Mean scores indicated variation in the extent to which participants endorsed biological, spiritual and psychological explanatory beliefs.

3.2 Preliminary Data Screening

Before the inferential analyses, the dataset was inspected for missing values, duplicate records and probable outliers. Visual assessment did not identify duplicate participant records or major patterns of missing data in the primary research variables. Insight was not included in the formal inferential analyses because the available dataset did not contain a complete set of responses for the five-item insight measure specified in the study instrument. Participant-level responses were available for only four insight items, while the variable labelled INS5 represented a calculated sum of these four items rather than a response to a fifth item. A complete five-item insight score could therefore not be reconstructed reliably, and the four recorded items were not combined into a formal SAI score. Descriptive statistics suggested that the main study variables were sufficiently varied. Medication adherence scores were different among both adherent and non-adherent categories and explanatory belief domains differed in how participants conceptualized schizophrenia and psychiatric treatment. This variation provided an appropriate basis for examining associations between explanatory beliefs, psychosocial factors, and medication adherence in the present sample.

3.3 Associations among Medication Adherence, Explanatory Beliefs, and Psychosocial Variables

Pearson's product-moment correlation analysis was used to explore the association of medication adherence with explanatory beliefs, perceived social support, stigma, and selected demographic and clinical factors. None of the variables was associated with medication adherence at a 5% level of statistical significance.

Of the explanatory belief domains, biological explanatory beliefs had the strongest positive connection with medication adherence ($r = .177$, $p = .085$), but this was not statistically significant. Psychological explanatory beliefs were weakly negatively associated ($r = -.143$, $p = .163$) while spiritual explanatory beliefs were weakly positively associated ($r = .104$, $p = .315$).

Among psychosocial variables, perceived social support was weakly positively correlated with medication adherence, although the association was not statistically significant ($r = .058$, $p = .575$), while internalised stigma was weakly negatively correlated with adherence ($r = -.113$, $p = .271$).

3.4 Multiple Linear Regression Analysis

Multiple linear regression analysis was used to examine whether explanatory beliefs, perceived social support, internalised stigma, age, duration of illness, and previous psychiatric admissions were independently associated with medication adherence.

Overall regression model was not significant, $F(8, 87) = 1.58$, $p = .143$, suggesting that the set of predictors did not meaningfully explain variance in medication adherence. The model accounted for 12.7% of the variability in medication adherence ($R^2 = .127$), with adjusted R^2 of .047.

Biological explanatory belief domains were most strongly positively associated with medicine adherence ($B = 0.498$, $\beta = .183$, 95% CI -0.053 to 1.049 , $p = .076$) among the explanatory belief domains. Spiritual explanatory views were also positively related ($B = .526$, $\beta = .182$, 95% CI -0.091 to 1.143 , $p = .093$). Conversely, psychological explanatory views were adversely related to medication adherence ($B = -0.402$, $\beta = -.172$, 95% CI -0.878 to 0.074 , $p = .097$). These associations approached, but did not reach, statistical significance at the predetermined threshold of $p < .05$.

For psychosocial variables, higher internalised stigma was associated with lower medication adherence scores, although this association was not statistically significant ($B = -0.716$, $\beta = -.178$, 95% CI $[-1.550, 0.119]$, $p = .092$).

Neither the demographic nor clinical variables emerged as significant independent predictors. There was a slight negative correlation with age and medication adherence ($B = -0.020$, $\beta = -.137$, $p = .203$), while duration of illness was small positive associated ($B = 0.038$, $\beta = .132$, $p = .203$). Previous psychiatric admissions were weakly positively associated with medication adherence ($B = 0.064$, $\beta = .074$, $p = .468$).

The assumptions of multiple linear regression were satisfied, as evidenced by the regression diagnostics. The residuals were generally normally distributed (Omnibus $p = .933$; Jarque-Bera $p = .891$), the requirement of the independence of errors was met (Durbin-Watson = 1.93), and there was no evidence of problematic multicollinearity among the predictor variables.

Taken together, none of the variables included in the regression model was a statistically significant independent predictor of medication adherence. The model explained a modest proportion of the variance in adherence (12.7%), while the adjusted R^2 indicated that only 4.7% of the variance was accounted for after adjustment for the number of predictors. Most of the variation in medication adherence therefore remained unexplained by the variables included in the model.

4. DISCUSSION

4.1 Key Findings

This study examined associations between explanatory beliefs, psychosocial factors and medication adherence among adults living with schizophrenia receiving outpatient psychiatric care in Zimbabwe. Three main findings emerged. First, medication non-adherence was common, with 61.5% of participants classified as non-adherent. Second, none of the biological, psychological or spiritual explanatory belief domains showed a statistically significant independent association with medication adherence in the regression model. Third, perceived social

support, internalised stigma, age, duration of illness and previous psychiatric admissions were also not statistically significant independent predictors. Insight could not be evaluated formally because the available dataset did not contain a complete five-item measure. Overall, the variables examined in this study explained only a modest proportion of the variation in medication adherence, suggesting that additional factors not measured in the present analysis may be relevant.

4.2 Treatment Engagement & Adherence to Medication

This study demonstrates a significant prevalence of medication non-adherence, with 61.5% of patients being classified as non-adherent to prescribed antipsychotic medication. This prevalence is higher than the global estimate of ~50% in populations with schizophrenia and highlights the continued challenge of maintaining long-term treatment, especially in low- and middle-income countries (Correll et al., 2022; World Health Organization [WHO], 2022). Similar percentages have been reported in sub-Saharan Africa, where medication adherence is commonly affected by financial constraints, irregular drug supply, poor community mental health facilities and little professional follow-up (Semahegn et al., 2020).

Medication still plays a central role in the treatment of schizophrenia, but adherence represents only one component of broader treatment engagement. Medication adherence is unlikely to be determined by patient characteristics alone. Previous research has identified a range of factors that may be relevant, including illness characteristics, treatment experiences, family support, therapeutic relationships and health-system conditions. The current findings are consistent with the possibility that factors beyond the explanatory and psychosocial variables examined here may contribute to medication adherence. However, the present analysis did not test interactions among these factors or establish how they operate together. Future research using methods such as QCA may help to examine these possible combinations more directly.

In Zimbabwe therapeutic alternatives are sought in a diverse health care system where psychiatric treatments co-exist with traditional healing approaches, religious support and considerable family involvement. Thus, people may choose to combine biological treatment with spiritual or traditional traditions, rather than viewing them as opposing choices. This environment may partly explain the high prevalence of medication non-adherence seen in the present study and highlights the need for interventions other than medication management. programs that emphasize enhancing the therapeutic relationship, increasing access to mental health care, involving families, and providing culturally responsive psychoeducation may be more effective in promoting sustained treatment engagement than programs that emphasize compliance.

4.3 Explanatory Beliefs and Treatment Engagement

Explanatory beliefs did not independently predict medication adherence after accounting for psychosocial and demographic characteristics. Biological and spiritual beliefs were modestly positively associated with adherence while psychological beliefs were modestly negatively associated with adherence, but none of the associations were statistically significant. In sum, the present findings suggest that the explanatory belief domains examined did not independently explain statistically significant variation in medication adherence in this sample.

This finding differs from studies suggesting that beliefs about illness and medication may be associated with treatment adherence. In Ghana, Ocansey et al. (2024) found that stronger beliefs in the need for antipsychotic medication were associated with better medication adherence among patients with schizophrenia, particularly in the context of good doctor–patient communication. The difference may reflect variation in study populations, measures, healthcare settings and sociocultural contexts. In the present study, the explanatory belief domains were not statistically significant predictors of medication adherence after adjustment for the other variables included in the model. The findings therefore suggest that the relationship between explanatory beliefs and adherence may vary across settings and should not be assumed to operate uniformly.

Findings are consistent with Kleinman's (1980) idea that explanatory models are culturally formed and may coexist

rather than compete. Earlier research in Zimbabwe has documented the coexistence of biomedical and spiritual explanations of mental illness, particularly in primary care and community settings (Patel et al., 1995, 1997). Similarly, Chidarikire et al. (2020) reported that people and families often sought help from psychiatric services and traditional or faith-based healers. The coexistence of different explanatory frameworks may be one reason why a single explanatory belief domain did not show a statistically significant association with medication adherence in the present sample. However, this possibility was not directly tested in the current analysis.

Taken together, these data support the view that explanatory beliefs should be understood in the larger cultural and social context in which treatment decisions are made. Clinicians should not try to supplant traditional or spiritual beliefs with biological explanations but should examine patients' explanatory models, correct misconceptions using culturally appropriate communication, and integrate patients' beliefs into collaborative decision-making. This is in line with person-centred psychiatric care and may enhance therapeutic connections and long-term treatment commitment.

4.4 Psychosocial Factors and Treatment Engagement

In this study, psychosocial factors like perceived social support, internalised stigma and understanding into illness did not independently predict medication adherence. Social support was weakly positively associated with adherence, while internalised stigma was modestly negatively associated with adherence, but neither effect was statistically significant. The absence of statistically significant independent associations in the present model does not establish that these psychosocial factors are unimportant. Their relationships with medication adherence may depend on other factors that were not measured or tested in this study.

The present findings differ from earlier studies reporting associations between psychosocial factors and treatment-related outcomes. Livingston and Boyd (2010), for example, found that internalised stigma was associated with poorer treatment adherence, lower self-esteem and reduced recovery among people with severe mental illness. Similarly, Corrigan et al. (2014) identified stigma as a potential barrier to help-seeking and continued participation in mental health services. Although the present study did not permit formal analysis of insight, previous research has also linked greater insight with treatment adherence and recovery. Differences between these findings and the present results may reflect variation in study populations, measures, healthcare settings and sociocultural contexts. In Zimbabwe, the benefits of social support may be hampered by poverty, transportation costs, the unavailability of medication and the scarcity of community mental health services. Families can often provide emotional and practical support, but may not have the finances to help with long-term treatment. Also, when structural hurdles such as poor access to treatment limit the opportunity to get medication, awareness of sickness may not transfer into consistent medication use. These contextual limitations may explain the lack of psychosocial variables as important predictors despite their known role in the management of schizophrenia.

Taken together, the findings suggest that psychosocial factors warrant consideration alongside the practical and clinical circumstances surrounding medication use. Interventions that combine family psychoeducation, stigma reduction, stronger therapeutic alliances and improved access to mental healthcare may be useful, but their effectiveness should be evaluated empirically rather than assumed from the present findings.

4.5 Towards a Person-Centred Model of Treatment Engagement

The findings should be interpreted primarily in relation to medication adherence, which was the behavioural outcome measured in this study. Although the wider literature conceptualises treatment engagement as multidimensional, the present analysis did not measure therapeutic relationships, shared decision-making, treatment satisfaction or other dimensions of engagement directly. The lack of statistically significant independent predictors in the current model therefore does not demonstrate that treatment engagement is produced by a confluence of cultural, psychological, social and clinical factors. Rather, it indicates that the explanatory belief and psychosocial variables included in the model did not adequately account for variation in medication adherence in this sample.

Person-centred care emphasizes the value of cooperation, shared decision-making, therapeutic partnerships and the respect of patients' values and preferences throughout the treatment process (World Health Organization [WHO], 2022). This approach breaks away from reliance on engagement measurement based purely on medication adherence and instead acknowledges patients as active agents whose decisions are influenced by living experiences, family relationships, cultural views, and contacts with healthcare providers. Consistent with this view, Ocansey et al. (2024) found that good doctor–patient communication enhanced the association between medication attitudes and adherence, emphasizing the role of therapeutic connections in sustaining long-term therapy.

In Zimbabwe's heterogeneous healthcare system, psychiatric services may coexist with traditional, religious and family-based sources of support. Recognising these different care contexts may help clinicians engage patients in culturally responsive discussions about treatment. The present findings do not establish that integrated approaches improve adherence, but they support the relevance of culturally sensitive care as an area for further investigation.

4.6. Clinical Implications, Strengths, Limitations and Future Research

Because medication adherence was the primary behavioural outcome assessed in this study, clinicians should avoid interpreting adherence as the sole indicator of successful psychiatric care. Where feasible, assessment should also consider patients' explanatory models, psychosocial circumstances, family relationships and treatment experiences. Routine elicitation of patients' illness beliefs may support culturally appropriate communication and collaborative decision-making. Psychoeducation should address spiritual and traditional explanatory beliefs respectfully while providing evidence-based information about schizophrenia and its treatment. These approaches are consistent with recovery-oriented care, although their effects on adherence should be evaluated empirically.

A strength of this study is that it examined medication adherence alongside explanatory beliefs and selected psychosocial, demographic and clinical variables within the same analytical framework. It also provides context-specific evidence from Zimbabwe, where empirical research examining these relationships among adults receiving outpatient psychiatric care remains limited. The use of established measures for key constructs and multivariable statistical analysis further strengthens the methodological contribution of the study.

Several limitations should be considered. The cross-sectional design does not allow causal inference, and recruitment from a single tertiary mental health outpatient clinic may limit generalisability to primary care settings and rural communities. With 96 participants and eight predictors, the regression model had limited power to detect small associations; therefore, non-significant findings should not be interpreted as evidence that the examined factors have no relationship with medication adherence. Medication adherence was assessed using self-report measures, which are susceptible to recall and social desirability bias. In addition, the available dataset did not contain a complete set of responses for the five-item insight measure specified in the study instrument, so insight was excluded from formal inferential analysis.

With 96 participants and eight predictors, the regression model had limited power to detect small associations; therefore, non-significant findings should not be interpreted as evidence that the examined factors have no relationship with medication adherence. A sensitivity analysis was conducted to further assess the statistical power of the regression model. With 96 participants and eight predictors, the analysis had 80% power to detect an effect size of approximately $f^2 = 0.17$ at the 5% significance level. The observed effect size for the model was $f^2 = 0.15$, which was slightly below this level. This suggests that the study may not have had enough power to detect smaller effects. The non-significant findings should therefore be interpreted with caution and should not be taken to mean that the factors examined have no relationship with medication adherence.

Future research should use longitudinal and mixed-methods designs to examine how explanatory beliefs and medication-taking behaviour change over time. Multisite studies including urban and rural populations would improve generalisability. Intervention studies could evaluate whether culturally sensitive psychoeducation, collaborative decision-making and family-centred care improve medication adherence and other directly measured

dimensions of treatment engagement. Further research should also assess therapeutic alliance, symptom severity, medication side effects and access to healthcare to develop a more comprehensive understanding of sustained treatment participation in schizophrenia.

Future studies could also use Qualitative Comparative Analysis (QCA) to examine whether different combinations of factors are linked to medication adherence. For example, explanatory beliefs may occur together with social support, stigma and other clinical factors, and different combinations may be associated with similar treatment outcomes. This type of analysis may provide a better understanding of how these factors occur together. However, the present study did not use a QCA design or analyse the data using this approach. Therefore, the current findings cannot be used to conclude that particular combinations of factors lead to medication adherence.

5. CONCLUSION

This study examined associations between explanatory beliefs, psychosocial factors and medication adherence among adults living with schizophrenia receiving outpatient psychiatric care in Zimbabwe. Medication non-adherence was common, with 61.5% of participants classified as non-adherent. None of the explanatory belief domains, perceived social support, internalised stigma, or selected demographic and clinical variables showed a statistically significant independent association with medication adherence in the regression model. The model explained 12.7% of the variance in adherence, with an adjusted R^2 of .047, indicating that most of the variation remained unexplained by the variables included in the analysis. Insight could not be formally evaluated because a complete five-item measure was not available in the analytic dataset.

The findings suggest that medication adherence among adults receiving outpatient psychiatric care in this setting cannot be adequately understood from the explanatory and psychosocial variables examined alone. The study therefore supports continued attention to the wider circumstances surrounding medication-taking behaviour, while recognising that the present analysis did not directly measure multidimensional treatment engagement or test interactions among explanatory, psychosocial and clinical factors. Future research using larger samples, longitudinal designs and direct measures of treatment engagement may provide a clearer understanding of the factors associated with sustained participation in schizophrenia care.

DECLARATIONS

Abbreviations

EBQ, Explanatory Beliefs Questionnaire; ISMI, Internalized Stigma of Mental Illness; MARS, Medication Adherence Rating Scale; MSPSS, Multidimensional Scale of Perceived Social Support; SAI, Schedule for the Assessment of Insight; SPSS, Statistical Package for the Social Sciences; STROBE, Strengthening the Reporting of Observational Studies in Epidemiology; VIF, Variance Inflation Factor; WHO, World Health Organization.

Ethics approval and consent to participate

Written permission to conduct the study was obtained from the Department of Applied Psychology, Faculty of Social Sciences, Midlands State University, and permission to collect data at the Annex Psychiatric Unit was granted by the relevant hospital authorities, including the Clinical Director of Parirenyatwa Group of Hospitals. Copies of the institutional and hospital permissions authorising the study can be provided to the journal upon request.

All participants were informed about the purpose and procedures of the study, and written informed consent was obtained before participation. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without prejudice to the care they received. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Consent for publication

Not applicable. The manuscript does not contain identifying images or other information that could reasonably identify an individual participant.

Availability of data and materials

The dataset generated and analysed during the current study is not publicly available because it contains potentially sensitive information from participants receiving psychiatric care. A de-identified version of the dataset may be available from the corresponding author on reasonable request, subject to confidentiality and applicable institutional requirements.

Use of Artificial Intelligence

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) as a language-support tool to assist with editing, improving sentence clarity, refining grammar and organising portions of the text. ChatGPT was not used to generate or determine the study data, statistical analyses, research findings or their interpretation. All substantive content was reviewed and verified by the authors, who take full responsibility for the accuracy, originality and integrity of the manuscript.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Temba Munsaka and Johnson Chingozho contributed to the study design, interpretation of the findings, and preparation and critical revision of the manuscript. Both authors read and approved the final manuscript.

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