

Determinants of Duration of Untreated Psychosis in Patients with Schizophrenia in Indonesia

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Abstract

Background: The duration of untreated psychosis (DUP) is a crucial factor influencing the prognosis of schizophrenia, affecting long-term outcomes and treatment efficacy. Despite its importance, there is a paucity of research on the determinants of DUP in Indonesian patients with schizophrenia, highlighting the need for a focused investigation within this specific context. This study aims to identify the determinants of DUP among patients with schizophrenia in Indonesia.

Methods: A cross-sectional study was conducted involving patients with schizophrenia admitted to a referral psychiatric hospital in Indonesia. Data were collected using guided interviews and observations through structured questionnaires. Additionally, socio-demographic information was gathered.

Results: A multiple linear regression analysis revealed that previous consultations with traditional healers ($\beta = 21$, 95% CI = 11.4 - 30.6, $p = 0.001$) and religious healers ($\beta = 16.7$, 95% CI = 8.2 - 25.2, $p = 0.0001$) were independently predicting the longer DUP. **Conclusions:** Treatment-seeking behavior is significantly influencing the DUP in patients with schizophrenia. Efforts should focus on improving health literacy to encourage earlier mental health treatment-seeking.

Keywords: Determinant, Duration of Untreated Psychosis, Schizophrenia

Introduction

Mental disorders are serious health problems because the number continues to increase, and includes chronic diseases with a long healing process (Hartanto et al., 2021). Schizophrenia is one of the heterogeneous mental disorders that includes psychotic features, cognitive deficits, and impaired daily performance and is one of the most serious forms of mental illness and can become chronic, recurrent, disabling and debilitating among people treated in psychiatric clinics in both developing and developed countries. Typically, recurrent relapses in schizophrenia are associated with exacerbations of psychotic symptoms and decreased functioning (Hasan, 2019)

Worldwide, the prevalence of mental illness includes approximately 50 million people with dementia, 45 million people with bipolar disorder, and 20 million people with schizophrenia. Schizophrenia affects about 0.75% of the world's population (Charlson et al., 2018), and is the 12th most disabling disease out of 310 diseases and injuries globally in 2016 (Rantala et al., 2022). In Indonesia, around 400,000 people, or 1.7 per 1,000 population, are affected by schizophrenia. In the province of Aceh, the prevalence is 8.7 per 1,000 households, indicating that 8.7 out of every 1,000 households have members diagnosed with schizophrenia (Kemenkes RI, 2019).

The rising prevalence of schizophrenia has garnered the attention of researchers seeking to determine its precise causes. However, the exact cause of schizophrenia remains uncertain. It is believed that a combination of multiple factors affecting neurotransmitter function is responsible for the disorder (Lai et al., 2016) Psychosis is a component of schizophrenia, a mental health condition characterized by disruptions in the perception of reality that impact an individual's thoughts, perceptions, emotions, and behavior. Those experiencing psychosis may lose touch with reality, encounter distorted thinking and perceptions, and display emotional responses that do not align with the actual circumstances (Kadir et al., 2023) but the disease can also appear with symptoms such as disorganization of thoughts or apathy (Harshan et al., 2023) and psychosis in the early phase is difficult to diagnose because the appearance of symptoms is very different between individuals (Beek et al., 2022). Psychosis often begins in young adulthood, when a person is in their late

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teens to mid-20s. However, people can experience psychotic episodes at both young and old ages and as part of many disorders and illnesses. For example, elderly people with neurological disorders may be at higher risk of psychosis (Williams & Rollings-Mazza, 2023).

A key factor in managing schizophrenia is the duration of untreated psychosis (DUP), which refers to the time from the onset of psychotic symptoms until the individual receives appropriate treatment. Recently, DUP has received significant attention because of its strong correlation with the outcomes of the first episode of psychosis. The DUP is the duration or length of time of untreated psychosis symptoms (Albert, 2017) According to (Kaminga et al., 2019) the DUP is the interval from the onset of the first psychotic symptoms to start adequate treatment. This is in line with what ((Allott et al., 2018) that DUP is often referred to as a characteristic of the disease and the time that elapses between the first onset of psychotic symptoms and the initiation of adequate treatment.

The longer duration of untreated psychosis is closely related to sociodemographic factors, age at come, high negative symptoms and poor premorbid function (Smaoui et al., 2015). At least 75% of subjects have long DUP, which is associated with lower levels of education, poor insight, and younger age at onset (Kaminga et al., 2019). Longer DUP was also associated with older age, male sex, living alone, and unemployment status (Oduola et al., 2021).

Research from Norway has found that, symptoms at an earlier age, low premorbid function, poor knowledge, and schizophrenia diagnosis have been associated with longer DUP, with the median DUP being 30 weeks (Takizawa et al., 2021). Another study from Malawi also had similar sociodemographic findings except at a median DUP of 42 months. In Indonesia, precisely in Yogyakarta, there was untreated DUP for 15.8 months (Marchira et al., 2016) while according to research (Ariella et al., 2021) it was said that the median DUP was 2 months, ranging from < 2 weeks to 84 months. Unlike what happened in Aceh, (Marthoenis et al., 2016) found that the duration of untreated psychosis occurred for 2 months or even up to 16 years before finally getting treatment. The difference in DUP time obtained is due to factors that influence it.

Although many factors influence DUP, much research focuses on the relationship between DUP and its outcomes. This study aims to investigate relationship between sociodemographic factors, positive and negative symptoms, age at onset, age at contact, treatment seeking, self-stigma, and social support with the DUO among patients with schizophrenia in Indonesia.

Methods

Study Design and participants

This cross-sectional study was conducted from April to May 2024 in Inpatient wards of Aceh Psychiatric Hospital in Indonesia. The data collection tool used questionnaires conducted with guided interviews and observations. A convenience sampling method was used to select 83 patients with schizophrenia to participate in this study. All patients gave written informed consent and participated in the study voluntarily.

Stigma

The presence of stigma was measured using a standard questionnaire from the Internalized Stigma Mental Illness Scale-10 (ISMI-10) consisting of 10 question items (Boyd et al., 2014) which was adopted from the Internalized Stigma Mental Illness Scale (Ritsher et al., 2003). Answer choices are rated on a Likert scale from 1 to 4, where 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Scores between 1.00 and 2.50 indicate low stigma, while scores between 2.51 and 4.00 indicate high stigma. The Cronbach alpha of the ISMI-10 in the current study population was 0.98, which suggest an excellent reliability.

Positive and Negative Symptoms

The positive and negative symptom of psychosis was screened using a standard questionnaire from the Positive and Negative Syndrome Scale-Exited Component (PANSS-EC). The instruments used to assess symptoms in schizophrenia patients include measures for restlessness, tension, hostility, uncooperativeness, and impulse control. The PANSS-EC is specifically designed to evaluate aggressive behavior and agitation in these patients (Obermeier et al., 2011). Each item on the PANSS-EC is rated as follows: 1 = none, 2 = minimal, 3 = mild, 4 = moderate, 5 = moderately severe, 6 = severe, and 7 = very severe. The total score can range up to 35; a score greater than 20 indicates significant restlessness or agitation in the patient (Yehya et al., 2016).

Social Support

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The perceived social support was investigated using the Indonesian version of Multidimensional Scale of Perceived Social Support (MSPSS) questionnaire (Laksmi et al., 2020). The MSPSS is a 12-item short, self-contained measurement tool with three subscales: Family (items 3, 4, 8, and 11), Friends (items 6, 7, 9, and 12), and Significant Others (items 1, 2, 5, and 10). Each item is rated on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). A higher score reflects greater perceived social support. Total scores range from 12 to 84, with scores between 69 and 84 indicating high social support, scores between 49 and 68 indicating medium social support, and scores between 12 and 48 indicating low social support (Laksmi et al., 2020). The Cronbach alpha of the MSPSS questionnaire in the current study population was 0.98, which suggest an excellent reliability.

Duration of Untreated Psychosis

The DUP of the study subject was accessed using several questions adopted from (Barnes et al., 2008; Compton et al., 2004; Elsheshtawy & Hussein, 2015). The questions were posed to patients and their families through guided interviews. The DUP was reported in months and calculated based on information provided by the family or caregivers regarding the onset of psychotic symptoms and the first contact with health professional.

Covariate

Information regarding age, gender, marital status, education level, occupation, age of onset, age of contact and health-seeking behavior was collected during interviews by researchers.

Statistical analysis

The data was analyzed using PSPP statistical software. Descriptive analysis was conducted to determine the sociodemographic characteristics of respondents, self-stigma, positive and negative symptoms, social support and DUP. The relationship between respondent demographics, self-stigma, positive and negative symptoms, social support and DUP, was examined using linier regression analysis.

Result

Socio-demographic and clinical characteristics of respondents

The study's respondents were characterized by variables such as age, gender, educational level, marital status, employment status, age of onset, age at first healthcare contact, treatment-seeking behavior, self-stigma, positive and negative symptoms, social support, and Duration of Untreated Psychosis (DUP). Among the 83 participants, the average age was 39 years, ranging from 19 to 65 years. The mean age of onset was 36 years, with a minimum of 19 years and a maximum of 64 years. The average age at first healthcare contact was 38 years, with the youngest at 19 and the oldest at 65. The average score for positive and negative symptoms was 11.64, with scores ranging from 7 to 14. The mean DUP was 24 months, with a range from 2 to 84 months. The study also revealed that most respondents were male (71%). The most common employment status was working (67.5%), with the predominant educational level being high school (57.8%). Additionally, 65.1% of respondents were married, and nearly half (42.2%) sought treatment from healers. A significant proportion of participants exhibited high levels of self-stigma (71.1%), while social support was most rated as medium (72.3%). Detailed information is provided in Table 1.

DUP and associated factors

Statistical analysis suggests sociodemographic factors such as age, gender, educational status, marital status, employment status, age of onset, and age at first contact were not associated with the DUP ($p > 0.05$). A simple linear regression analysis was conducted to explore the relationship between Duration of Untreated Psychosis (DUP) and various factors. The analysis identified four significant factors associated with DUP: age at first contact ($p = 0.03$), previous consultations with traditional healers and religious healers ($p = 0.0001$), perceived stigma ($p = 0.001$), and perceived social support ($p = 0.001$). Additionally, multiple linear regression analysis revealed that independently predicting factors for a longer DUP were previous consultations with traditional healers ($\beta = 21$, 95% CI = 11.4 - 30.6, $p = 0.001$) and religious healers ($\beta = 16.7$, 95% CI = 8.2 - 25.2, $p = 0.0001$). The R^2 value was 0.41, indicating that 41% of the variance in DUP is explained by the combined influence of the independent variables in the model. Further details of the multiple regression analysis are presented in Table 2.

Table 1. Demographic Characteristics, DUP and covariates of study respondents

Demographic characteristics	Mean (SD)/ Frequency (%)
Age	39.9 (10.8)
Age at Onset	36.6 (10.7)
Age at Contact	38.7 (11)
Positive and Negative Symptoms	11.6 (1.3)
DUP (month)	24.4 (20)
Male gender	59 (71.1)
Having employment	(56 (67.5)
Highest education	
Primary education	31 (27.3)
Secondary Education	48 (57.8)
Higher Education	4 (4.8)
Marital Status	
Single	17 (20.5)
Married	54 (65.1)
Widow - widower	12 (14.5)
Previous Treatment Seeking	
Traditional healer	19 (22.9)
Religious healer	35. (42.2)
Health professional	29 (34.9)

Discussion

This study examined various factors that could predict the Duration of Untreated Psychosis (DUP) among schizophrenia patients in Indonesia. The analysis found no significant association between DUP and factors such as age, gender, educational status, marital status, employment status, age of onset, or age at first contact. These findings differ from those of previous studies, such as the research by Odinka et al. (2015), which identified marital status as significantly related to DUP. Furthermore, research by Myaba et al. (2021) found a significant association between employment and a longer DUP. Hardy et al. (2018) reported a relationship between the age of onset of psychosis and the duration of untreated psychosis. Additionally, Leeping et al. (2020) found that patients who had healthcare contact before the onset of psychosis had shorter DUP-H and DUP-R compared to those who sought help only after the onset of psychosis ($F(1.498) = 4.85, p < 0.03$; $F(1.492) = 3.34, p < 0.07$) (Ku et al., 2020).

Our findings, however, aligns with the findings of Souaiby et al. (2018), which reported that age is unrelated to DUP. Additionally, Spinazzola et al. (2021) found that gender and education level did not significantly correlate with DUP in patients with early-onset schizophrenia, with p-values of 0.18 and 0.25, respectively. Similarly, Mishra et al. (2021) reported no significant association between DUP and age, gender, religion, education, family history of mental illness, marital status, or employment status. Furthermore, there was no observed relationship between DUP and the status of positive and negative symptoms, which contrasts with Yu et al. (2023), who found a significant association between DUP and both positive and negative symptoms.

Table 2. Predictors of DUP: A multiple regression analysis

Variable	β	SE	p-value	95% CI
Age	0.19	0.1	0.2	0.13 - 0.53
Seeking help to Religious Healer	16.74	4.2	0.001	8.21 - 25.27
Seeking help to traditional healer	21.01	4.8	0.001	11.42 - 30.61
Perceived Stigma	-0.42	0.28	0.14	- 0.99 - 0.14
Perceived social support	0.43	0.22	0.05	-0.01 - 0.88

Our study also did not identify a significant contribution from perceived stigma and social support. These findings appear to contradict previous research; for instance, Pablo et al. (2023) reported that high levels of stigma associated with mental disorders in certain cultures and communities can prolong the Duration of Untreated Psychosis (DUP) due to individuals' reluctance to seek medical assistance. Additionally, Myaba et al. (2021) demonstrated that family support is a significant factor influencing the duration of untreated

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psychosis. Similarly, other studies have found that strong social support can reduce DUP in psychosis patients, particularly in rural medical settings (Arushi Singh et al., 2024).

In our study, we examined three types of treatment-seeking behaviors: seeking help from shamans, healers, and health services. Consistent with other research, it was found that patients with a DUP greater than six months often delayed seeking treatment because their mental health issues were trivialized, deemed a transient phase, or attributed to black magic. Consequently, many patients first sought help from shamans and sacred places before eventually turning to health services (Mishra et al., 2021). Our observations suggest that a longer period of seeking alternative treatments is associated with an extended DUP, indicating that delays in seeking medical treatment may contribute to the prolongation of untreated psychosis.

Conclusion

This study found no significant association between DUP and variables such as age, gender, educational status, marital status, employment status, age of onset, or age at first contact, which contrasts with some previous research findings. To better understand the predictors of DUP, future research should explore other potential factors and consider longitudinal studies to examine changes over time, while also addressing the variability in findings across different populations and settings.

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