Original Article

Habibillah et al. AJPHN 2024; 2 (X): - http://doi.org/10.62377/wvqy8b17

# 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 (β = 21, 95% CI = 11.4 - 30.6, p = 0.001) and religious healers (β = 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 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

The perceived social support was investigated using the Indonesian version of Multidimensional Scale of Perceived Social Support (MSPSS) questionnaire (Laksmita 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,

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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 (Laksmita 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**

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| 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, Leepping 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 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.

## References

Albert, N. (2017). The effect of duration of untreated psychosis and treatment delay on the outcomes of prolonged early intervention in psychotic disorders. Npj Schizophrenia, 2017(Sept), 1–7. https://doi.org/10.1038/s41537-017-0034-4

Allott, K., Fraguas, D., Bartholomeusz, C. F., Díaz-Caneja, C. M., Wannan, C., Parrish, E. M., Amminger, G. P., Pantelis, C., Arango, C., McGorry, P. D., And, & Rapado-Castro, M. (2018). Duration of untreated psychosis and neurocognitive functioning in first-episode psychosis: a systematic review and meta-analysis. Psychological Medicine, 48(10), 1592–1607. https://doi.org/DOI: https://doi.org/10.1017/S0033291717003002

Ariella, I., Hadi, N., Ekaputri, M., & Cahyo, J. (2021). Journal of Affective Disorders Reports Association between duration of untreated psychosis and executive function in early-onset psychosis. Journal of Affective Disorders Reports, 4(December 2020), 100068. https://doi.org/10.1016/j.jadr.2020.100068

Arushi Singh, M., Poonam, S. S., & Krithishree, R. A. (2024). Factors Associated with Duration of Untreated Psychosis - A Retrospective Study done in a Rural Medical College. 55–59. https://doi.org/10.4103/amhs.amhs

Barnes, T. R. E., Leeson, V. C., Mutsatsa, S. H., Watt, H. C., Hutton, S. B., & Joyce, E. M. (2008). Duration of untreated psychosis and social function : 1-year follow-up study of first-episode schizophrenia. 203–209. https://doi.org/10.1192/bjp.bp.108.049718

Beek, A. Van, Zeeuw, J. De, Leeuw, M. De, Poplawska, M., Kerkvliet, L., Dwarkasing, R., Nanda, R., & Veling, W. (2022). Duration of untreated psychosis and pathways to care in Suriname : a qualitative study among patients , relatives and general practitioners. 10–12. https://doi.org/10.1136/bmjopen-2021-050731

Boyd, J. E., Otilingam, P. G., & Deforge, B. R. (2014). Brief version of the Internalized Stigma of Mental Illness (ISMI) scale: psychometric properties and relationship to depression, self esteem, recovery orientation, empowerment, and perceived devaluation and discrimination. Psychiatric Rehabilitation Journal, 37(1), 17–23. https://doi.org/10.1037/prj0000035

Charlson, F. J., Ferrari, A. J., Santomauro, D. F., Diminic, S., Stockings, E., Scott, J. G., McGrath, J. J., & Whiteford, H. A. (2018). Global Epidemiology and Burden of Schizophrenia: Findings From the Global Burden of Disease Study 2016. Schizophrenia Bulletin, 44(6), 1195–1203. https://doi.org/10.1093/schbul/sby058

Compton, M. T., Kaslow, N. J., & Walker, E. F. (2004). Observations on parent / family factors that may influence the duration of untreated psychosis among African American first-episode schizophrenia-spectrum patients. 68, 373–385. https://doi.org/10.1016/j.schres.2003.09.001

Elsheshtawy, E., & Hussein, R. A. (2015). Determinants of Long Duration of Untreated Psychosis and Medication Adherence in Egyptian Schizophrenic Patients: The role of Social Support. The Arab Journal of Psychiatry, 25(1), 84–93. https://doi.org/10.12816/0010509

Hardy, K. V, Noordsy, D. L., Ballon, J. S., Mcgovern, M. P., Salomon, C., Stirman, S. W., Hardy, K. V, Noordsy, D. L., Ballon, J. S., Mcgovern, M. P., & Stirman, W. (2018). Impact of age of onset of psychosis and engagement in higher education on duration of untreated psychosis education on duration of untreated psychosis. Journal of Mental Health, 00(00), 1–6. https://doi.org/10.1080/09638237.2018.1466047

Harshan, V. A., Saji, P. G., & Michael, J. P. (2023). Association between Sociodemographic Factors and Severity of Psychiatric Symptoms with Duration of Untreated Psychosis in Patients with First

Episode Psychosis : A Cross-sectional Study. 1–4. https://doi.org/10.7860/JCDR/2023/61136.17982

Hartanto, A. E., Hendrawati, G. W., & Sugiyorini, E. (2021). Pengembangan Strategi Pelaksanaan Masyarakat Terhadap Penurunan Stigma Masyarakat Pada Pasien Gangguan Jiwa. Indonesian Journal for Health Sciences, 5(1), 63. https://doi.org/10.24269/ijhs.v5i1.3249

Hasan, A. A. H. (2019). The correlation between the quality of life and clinical variables among outpatients with schizophrenia. Psychiatry Research, 271(May 2018), 39–45. https://doi.org/10.1016/j.psychres.2018.09.062

Kadir, N. U., Wijaya, F., & Sanusi, M. (2023). Jenis Gangguan Psikotik Berdasarkan PPDGJ III. Journal of Social Science Research, 3(4), 9140–9150.

Kaminga, A. C., Dai, W., Liu, A., Myaba, J., Banda, R., & Wen, S. W. (2019). Effects of socio-demographic characteristics , premorbid functioning , and insight on duration of untreated psychosis in first-episode schizophrenia or schizophreniform disorder in Northern Malawi. December 2018, 1455–1464. https://doi.org/10.1111/eip.12794

Kemenkes RI. (2019). Profil Kesehatan Indonesia 2018 Kemenkes RI. In Health Statistics.

Ku, B. S., Pauselli, L., Manseau, M., & Compton, M. T. (2020). Neighborhood-level predictors of age at onset and duration of untreated psychosis in fi rst-episode psychotic disorders. Schizophrenia Research, https://doi.org/10.1016/j.schres.2019.12.036

Lai, C. Y., Lee, S. Y., Scarr, E., Yu, Y. H., Lin, Y. T., Liu, C. M., Hwang, T. J., Hsieh, M. H., Liu, C. C., Chien, Y. L., Udawela, M., Gibbons, A. S., Everall, I. P., Hwu, H. G., Dean, B., & Chen, W. J. (2016). Aberrant expression of microRNAs as biomarker for schizophrenia: from acute state to partial remission, and from peripheral blood to cortical tissue. Translational Psychiatry, 6(1), 1–7. https://doi.org/10.1038/TP.2015.213

Laksmita, O. D., Chung, M. H., Liao, Y. M., & Chang, P. C. (2020). Multidimensional Scale of Perceived Social Support in Indonesian adolescent disaster survivors: A psychometric evaluation. PLoS ONE, 15(3), 1–12. https://doi.org/10.1371/journal.pone.0229958

Leepping, P., Aboalkaz, S., Squire, S. B., Romanov, D. V., Bewley, A., Huber, M., & Noorthooen, E. O. (2020). Later Age of Onset and Longer Duration of Untreated Psychosis are Associated with Poorer Outcome in Delusional Infestation. 1–2. https://doi.org/10.2340/00015555-3625

Marchira, C. R., Supriyanto, I., Good, B. J., Marchira, C. R., Supriyanto, I., & Good, B. J. (2016). The association between duration of untreated psychosis in first psychotic episode patients and help seeking behaviors in Jogjakarta , Indonesia. 2863. https://doi.org/10.1080/17542863.2015.1103276

Marthoenis, M., Aichberger, M. C., & Schouler-Ocak, M. (2016). Patterns and Determinants of Treatment Seeking among Previously Untreated Psychotic Patients in Aceh Province, Indonesia: A Qualitative Study. Scientifica, 2016, 1–7. https://doi.org/10.1155/2016/9136079

Mishra, A., Bang, A., Umate, M. S., & Andrade, C. (2021). An exploratory evaluation of predictors of duration of untreated psychosis in first-episode psychosis in lower income patients. Psychiatry Research, 305(February), 114203. https://doi.org/10.1016/j.psychres.2021.114203

Myaba, J., Mwale, C. M., & Jumbe, V. C. (2021). Clinical Predictors of Duration of Untreated Psychosis : Exploring Psychosocial and Clinical Predictors of Duration of Untreated Psychosis in First-Episode Psychotic Patients in Mzuzu , Malawi. April, 23–29.

Obermeier, M., Schennach-wolff, R., Meyer, S., Möller, H., Riedel, M., Krause, D., & Seemüller, F. (2011). Is the PANSS used correctly ? a systematic review. BMC Psychiatry, 11(1), 113. https://doi.org/10.1186/1471-244X-11-113

Odinka, P. C., Oche, M., Ndukuba, A. C., Muomah, R. C., Osika, M. U., Bakare, M. O., Agomoh, A. O., & Uwakwe, R. (2015). The socio-demographic characteristics and patterns of help-seeking among patients with schizophrenia in South-east Nigeria. Journal of Health Care for the Poor and Underserved, 25(1), 180–191. https://doi.org/10.1353/hpu.2014.0055

Oduola, S., Craig, T. K. J., & Morgan, C. (2021). Ethnic variations in duration of untreated psychosis : report from the CRIS - FEP study. Social Psychiatry and Psychiatric Epidemiology, 56(6), 931–941. https://doi.org/10.1007/s00127-020-01922-9

Pablo, G. S. De, Aymerich, C., Guinart, D., Baringo, E. M., Soler-vidal, J., & Rubio, J. M. (2023). What is the duration of untreated psychosis worldwide ? – A meta-analysis of pooled mean and median time and regional trends and other correlates across 369 studies.

Rantala, M. J., Luoto, S., Borráz-León, J. I., & Krams, I. (2022). Schizophrenia: The new etiological synthesis. Neuroscience and Biobehavioral Reviews, 142(August). https://doi.org/10.1016/j.neubiorev.2022.104894

Ritsher, J. B., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: Psychometric properties of a new measure. Psychiatry Research, 121(1), 31–49. https://doi.org/10.1016/j.psychres.2003.08.008

Smaoui, N., Feki, I., Feki, R., Baati, I., Masmoudi, J., & Jaoua, A. (2015). Clinical and Social Determinants of Duration of Untreated Psychosis (DUP). European Psychiatry, 30(10), 1716. https://doi.org/10.1016/s0924-9338(15)31319-5

Souaiby, L., Gauthier, C., Kazes, M., Mam-lam-fook, C., Daban, C., Plaze, M., Gaillard, R., & Krebs, M. (2018). Individual factors influencing the duration of untreated psychosis. February, 1–7. https://doi.org/10.1111/eip.12562

Spinazzola, E., Trotta, G., Quattrone, D., & Tom, P. (2021). The association between reasons for first using cannabis , later pattern of use , and risk of first-episode psychosis : the EU-GEI case – control study. 2017.

Takizawa, N., Melle, I., Barrett, E. A., Nerhus, M., & Ottesen, A. A. (2021). The Influence of Mental Health Literacy , Migration , and Education on the Duration of Untreated Psychosis. 9(July), 1–9. https://doi.org/10.3389/fpubh.2021.705397

Williams, T., & Rollings-Mazza, P. (2023). Understanding psychosis. Nursing, 53(10), 22–28. https://doi.org/10.1097/01.NURSE.0000977564.10896.47

Yehya, A., Ghuloum, S., Mahfoud, Z., Opler, M., Khan, A., Hammoudeh, S., Al-Mujalli, A. A. A., Hani, Y., Elsherbiny, R., & Al-Amin, H. (2016). Validity and Reliability of the Arabic Version of the Positive and Negative Syndrome Scale. 181–187. https://doi.org/10.1159/000447328

Yu, M., Tan, Q., Wang, Y., Xu, Y., Wang, T., Liu, D., Chen, D., Deng, P., Huang, C., Liang, X., Liu, K., & Xiang, B. (2023). Correlation between duration of untreated psychosis and long-term prognosis in chronic schizophrenia. February. https://doi.org/10.3389/fpsyt.2023.1112657