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# Strategic Model of Mental Health Nurse Competence and Caregiver in Preventing Relapse Risk in Schizophrenia Patients

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## ABSTRACT

**Background:** The competences under consideration include clinical knowledge, clinical skills, communication competence, crisis and safety management, professional growth, management of care, and recommendations.

**Purpose:** Analyzing the Strategic Model of Mental Health Nurse Competence and Caregiver in Preventing Relapse Risk in Schizophrenia Patients.

**Methods:** The study used a quantitative design with a cross-sectional methodology and included 110 participants, including nurses and caregivers from five community health clinics in East Java Province. The data were obtained using a Likert-scale instrument that was previously validated and reliable. The data was analyzed using the Structural Equation Modeling (SEM) approach using the SmartPLS tool.

**Results:** All competency characteristics of psychiatric nurses and caregivers have a substantial and essential relationship to the prevention of relapse risk in schizophrenia patients, with a very high model commitment in producing variations in variables which are dependent variables.

**Conclusion:** Thoroughly enhancing the competence of psychiatric nurses and caregivers is an effective method for lowering relapse rates among schizophrenia patients. Suggestions include enhancing the psychiatric nurse education curriculum, providing competency-based continuing training, and incorporating collaborative care models into health care organizations.

**Keywords:** caregiver, competence, nurse, preventive, relapse risk, schizophrenia

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## BACKGROUND

Mental health difficulties are a major global burden, particularly in underdeveloped nations where stigma, Severe mental diseases, such as schizophrenia, influence not only the individuals who suffer from them but also their families, social environments, and healthcare systems (Zayts-Spence et al., 2023). Mental health is an important component of total health, defined by the World Health Organization (WHO) as a state of well-being in which an individual may reach their full potential, deal with the demands of daily life, work efficiently, and contribute to their community (Cuijpers et al., 2023). As a result, managing schizophrenia involves a multifaceted strategy that includes not just pharmaceutical therapy but also psychological support, family engagement, and the role of competent healthcare professionals (Takeda et al., 2024). Schizophrenia is a recurrent multifaceted mental condition defined by abnormalities in thought, perception, emotions, language, and behavior (Solmi et al., 2023). The worldwide prevalence of schizophrenia is believed to be roughly one percent of the population, with generally consistent rates across nations; nonetheless, the illness burden is significant (Rantala et al., 2022). This illness frequently need long-term treatment, considering the significant recurrence rate reported to approach within five years of the first diagnosis (Van Leeuwen et al., 2021). Relapse in individuals with schizophrenia not only slows rehabilitation but also increases the chance of chronic impairment, lengthens hospitalization, and raises healthcare expenses (Bighelli et al., 2021). This circumstance demonstrates that avoiding relapse is one of the primary objectives in the therapy of schizophrenia patients (Zukowska et al., 2022).

Preventing relapse in people with schizophrenia requires a multidisciplinary strategy including many stakeholders, including doctors, psychologists, social workers, and, in particular, psychiatric nurses (Brand et al., 2024). Nurses and Caregiver have critical roles in delivering direct nursing care, monitoring patient circumstances, and developing long-term therapy partnerships (Iswanti et al., 2024). These qualities have a considerable impact on patient treatment adherence, early recognition of relapse indicators, and prompt intervention execution (Liu et al., 2024).

Research in several nations has demonstrated that skilled nurses and Caregiver may enhance patients' quality of life while also lowering recurrence rates (Dijkstra et al., 2025). The competencies in question are clinical abilities, theoretical knowledge, interpersonal skills, and cultural understanding relevant to the patients' conditions (Imkome, 2025). Nurses and Caregiver who can detect early indicators of relapse can take preventative steps such as educating patients and families about warning signals, changing care plans, or working with the medical team for continued treatment (Susanti et al., 2024). As a result, psychiatric nurses' competence is more than just a supporting factor; it might be a critical determinant in the successful treatment of schizophrenia (Arai et al., 2025).

An additional problem is that mental health nurses' abilities fluctuate amongst healthcare institutions (Kumari et al., 2023). Some hospitals and mental health treatment centers have well-developed competency development programs, whereas others have insufficient resources (Zhu et al., 2025). This difference can have an influence on service consistency and, ultimately, patient relapse rates. As a result, research that maps the association between mental health nurses' competences and the probability of relapse in schizophrenia patients can assist in identifying current competency gaps between nurses and caregiver. The outcomes of such study can be used to develop more focused competency improvement programs (Intharit et al., 2021).

This disorder has the potential to impact service quality and the efficacy of relapse prevention treatments. Nurses often engage with patients, therefore their competency is critical

in determining illness treatment effectiveness (Fagiolini et al., 2025). As a result, assessing and understanding the link between psychiatric nurses' competence and relapse risk is critical for enhancing the quality of mental health care in Indonesia (Renwick et al., 2023). The study's findings may be utilized to improve evidence-based practice in schizophrenia care by ensuring that nurse treatments are reactive, proactive, and preventative (Maramis et al., 2022). This goal is anticipated to produce solid empirical evidence on the value of nursing competence in avoiding relapse, as well as a reference for designing competency enhancement programs and strengthening the mental health care system between nurses and caregiver.

## METHODS

This study used primary data collected through the delivery of questionnaires among recipients. The survey is an instrument for gathering information in which respondents are given written questions to answer independently. The questionnaire was created online with Google Forms and sent to respondents at five community health clinics in East Java. The questionnaire had closed- ended inquiries with a Likert scale, multiple-choice answers, and a few open-ended questions. This combination of question types allowed the researchers to obtain quantitative data relevant to the research objectives. The entire data collection process received ethical approval under Ethical Clearance Number: 2803/KEPK/UNIV-NHM/EC/IV/2025, dated April 3, 2025.

While the application form was circulated, tests for reliability and validity were performed to ensure that the measurement instrument was accurate and consistent. The analysis of factors and validity of construction were used to determine validity, while Cronbach's Alpha was used to determine reliability. The instrument had already been examined in a preliminary study to confirm its reliability and applicability for the purposes of the current investigation. In addition, certain criteria were used to choose community health clinics to guarantee proper representation. These criteria included categorizing community health facilities with respect to kind, physical location, and quantity of patients. The selection of community health centers influences the generalizability of the research findings, making the results more relevant to community health centers with similar characteristics. This should be considered when drawing broader conclusions from the findings of this study. The selection of these locations was also based on the diversity of characteristics such as education, age, length of employment, and gender, thus enabling a broader exploration of the phenomenon under study. The research was carried out from February to May 2025 to ensure that the collected data reflect the actual dynamics in the field, while also considering situational variations that might influence the study's results.

Sampling was performed employing a cluster sampling approach, whereby randomly assigns groupings rather than individual people (Suhron, 2024). Inclusion and exclusion criteria were applied when selecting Community Health Centers and respondents. The inclusion criteria were community health centers with certain facilities and a sample of patients who met the study's features. In contrast, the exclusion criteria included community health clinics that did not satisfy this baseline requirement. In a comparable manner, participants were picked through eligibility standards which included gender, age, and educational level, and respondents who did not match these conditions were excluded (Creswell, J. W., & Creswell, 2017). When the study object or information source is big, for instance, a whole country, municipality, or neighborhood's population, the area or cluster sampling approach is used to calculate the sample size. Meanwhile, respondents with cognitive impairments or severe communication barriers were excluded from the study sample. A total sample of 110 respondents was determined from the existing population, proportionally distributed among each Community Health Center, with an average of around 20 respondents in each center. This

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number was deemed sufficient to support the quantitative analysis to be conducted, particularly in examining the correlation between mental health nurses' competence and the prevention of relapse risk in patients with schizophrenia.

Data management in this study employed SEMpls software to test for correlations among variables related to research and reinforce the researcher's hypothesis regarding examining the link of psychiatric nurse competency with a lower risk of relapse in schizophrenia patients. Regression evaluations have been employed for collecting exact information on quantitative value characteristics applying a Likert scale technique (1. Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree, and 5. Strongly Agree). This SEM model is ideal for evaluating multifaceted hypotheses while developing a better grasp of the dynamics of the variables in this investigation and to test complex relationships between variables simultaneously.

## RESULTS

**Table 1.** Distribution of the frequency of Nurse and Caregiver

| Characteristics | N | (%) |
|---|---|---|
| **Age** | | |
| 21 years 30 years | 75 | 68 |
| >30 years | 35 | 32 |
| Total | 110 | 100 |
| **Gender** | | |
| Male | 37 | 37 |
| Woman | 73 | 63 |
| Total | 110 | 100 |
| **Education** | | |
| Diploma | 29 | 27 |
| Bachelor | 81 | 73 |
| Total | 110 | 100 |
| **Length of work** | | |
| 1 – 10 years | 68 | 62 |
| >10 years | 47 | 38 |
| Total | 110 | 100 |

Source: primer 2025

Based on the table above, it was found that most of the characteristics of Nurse and Caregiver in this study were most in the Age 21-30 years (68%), Gender 73 women (63%), for education were Bachelor's 81 (73%), for Length of work, 1 – 10 years 68 (62%).

### Research Variable Reliability

**Table 2.** Results of Composite Reliability and Cronbach's Alpha Examination

| Construction | Cronbach's Alpha | Rho_A | Composite Reliability | Average Variance Extracted (AVE |
|---|---|---|---|---|
| Clinical knowledge (X1) | 0.841 | 0.922 | 0.941 | 0.887 |
| Clinical skills (X2) | 0.754 | 0.845 | 0.772 | 0.751 |

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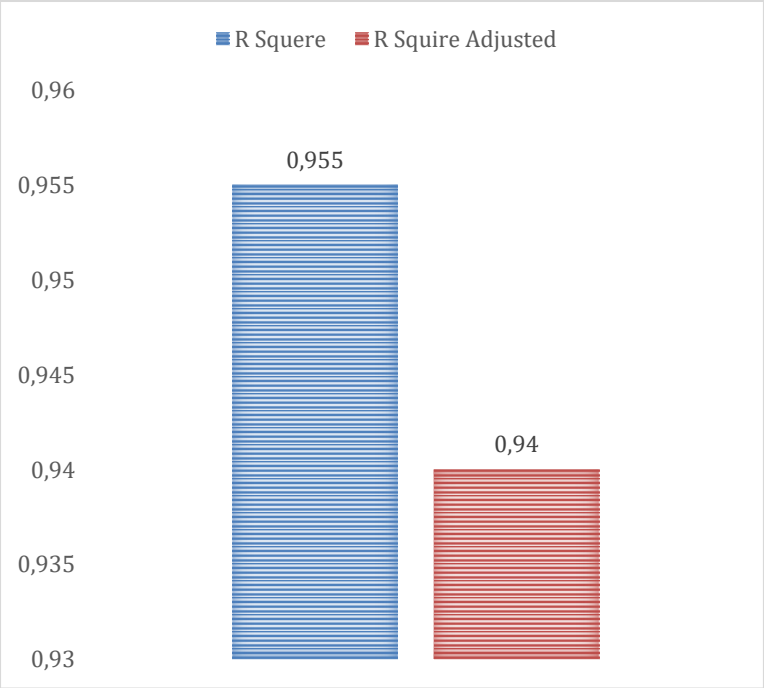
| | | | | |
|---|---|---|---|---|
| Communication competency (X3) | 0.729 | 0.833 | 0.878 | 0.780 |
| Crisis management & security (X4) | 0.836 | 0.781 | 0.848 | 0.871 |
| Professional development (X5) | 0.886 | 0.925 | 0.859 | 0.978 |
| Coordination of care & referrals (X6) | 0.836 | 0.974 | 0.759 | 0.831 |
| Correlation between psychiatric nurse competence and reduced risk of relapse in schizophrenia patients | 0.841 | 0.951 | 0.938 | 0.721 |

Source: Processed from primary data using SmartPLS tools, 2025

The construct reliability study revealed that all measured dimensions have strong internal consistency. Cronbach's Alpha and Composite Reliability ratings for each construct were higher than the specified criteria, showing that the indicators utilized could accurately assess each variable. Furthermore, the Average variation Extracted (AVE) values for each construct exceeded the minimal criteria of 0.5, indicating that the construct accounts for a significant share of indicator variation. These findings show that all dimensions—clinical knowledge, clinical skills, communication competence, crisis and safety management, professional development, care coordination, and referral have appropriate reliability and convergent validity for evaluating psychiatric nurses' competence. This excellent reliability confirms the validity of the association discovered between psychiatric nurses' competence and the prevention of relapse risk among schizophrenia patients, indicating that the research instrument can accurately reflect the phenomena under investigation.




**Graph 1.** Correlation regression results between nurse competency and prevention risk of relapse in schizophrenia patients

The research findings show that the level of competency of psychiatric nurses can significantly explain variations in the probability of relapse in schizophrenia patients. The fraction of the independent variable's contribution to the dependent variable is quite high, indicating a close and practically meaningful link. The model's adjusted results demonstrate that the link is constant even after accounting for any bias or other variables outside the model. These data support the view that strengthening the competency of psychiatric nurses is critical in reducing the incidence of relapse in schizophrenia patients.

## Hypothesis Testing


**Graph 2.** Strategic Model of Mental Health Nurse Competence and Caregiver in Preventing Relapse Risk in Schizophrenia Patients

| Variable | Original Sample (O) | Sample Mean (M) | STDEV | T-Statistics (\|O/STDEV\|) | P value | Hypothesis |
|---|---|---|---|---|---|---|
| Clinical knowledge (X1) | 0.782 | 0.751 | 0.076 | 2.622 | **0.041** | **Accepted** |
| Clinical skills (X2) | 0.699 | 0.692 | 0.112 | 2.762 | **0.032** | **Accepted** |
| Communication competency (X3) | 0.779 | 0.747 | 0.048 | 2.519 | **0.028** | **Accepted** |
| Crisis management & security (X4) | 0.580 | 0.571 | 0.154 | 2.487 | **0.022** | **Accepted** |
| Professional development (X5) | 0.799 | 0.748 | 0.038 | 2.872 | **0.045** | **Accepted** |
| Coordination of care & referrals (X6) | 0.869 | 0.748 | 0.038 | 2.882 | **0.028** | **Accepted** |

Source: Processed from primary data using SmartPLS tools, 2025

All elements of psychiatric nurse competence were shown to be strongly associated with reduced relapse risk in schizophrenia patients. These relationships include clinical knowledge, clinical skills, communication competency, crisis and safety management, professional development, care coordination, and referral. These findings show that

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improvements in each aspect of nursing competence significantly reduce the likelihood of relapse, emphasizing the importance of comprehensive capacity development for psychiatric nurses as a preventive strategy in the care of patients with schizophrenia.

## DISCUSSION

According to the respondents' characteristics, the majority of nurses are in the early to mid-productive age range, which is linked with excellent physical and cognitive capability for increasing professional competence. The comparatively high level of education, with a considerable number of bachelor's degree graduates, suggests a solid theoretical foundation for psychiatric nursing practice (Gramaglia et al., 2025) . The different periods of work experience allow for the exchange of information between senior and freshly hired nurses, which ideally can increase clinical abilities and improve the effectiveness of nursing treatments (Chen et al., 2023). This variety reveals the potential for synergy within the care team, which may impact the quality of treatment (Putri et al., 2025). Nurses' educational background and work experience directly contribute to their competency in treating patients with mental illnesses (Abu Sabra et al., 2022).

The reliability test findings show that all notions have strong internal consistency and convergent validity. This shows that the questionnaire accurately captures the characteristics of psychiatric nurses' competence, including clinical knowledge, care coordination, and referrals (Song et al., 2024). Clinical expertise, which includes mastery of schizophrenia theory, a grasp of medication, and identification of relapse risk factors, has been shown to have a considerable impact on relapse prevention (Abu Sabra & Hamdan-Mansour, 2022). These findings are similar to another research that says that an in-depth understanding of the pathophysiology and management of schizophrenia helps nurses to recognize early indicators of relapse and apply preventative measures immediately (Yu et al., 2023).

Good assessment skills improve the accuracy of symptom severity diagnosis and guide more effective interventions, thereby reducing relapse rates (Gumley et al., 2022). Likewise, communication competence, which includes the ability to communicate therapeutically with patients and their families, becomes a key factor in the success of mental health nursing care. This is in line with the findings of another research, which highlight that effective communication increases patient adherence to treatment and strengthens family support (Thongsalab et al., 2023).

The factor of crisis and safety management, which involves abilities in dealing with agitated or acute psychotic patients as well as the application of safety protocols, has a substantial association with relapse prevention (Ostuzzi et al., 2022). This conclusion is corroborated by another research, which discovered that nurses' readiness to address psychiatric emergencies can avoid symptom escalation and limit the need for recurring hospitalization. (Zlatintsi et al., 2022). Meanwhile, professional development improves service quality by covering participation in Continuing Professional Development (CPD) programs and implementing practice guidelines. In line with the study that nurses' involvement in CPD is associated with increased technical and non-technical competencies, positively impacting clinical outcomes (Luconi et al., 2022).

Finally, excellent care coordination and referral, which involves collaboration with psychiatrists, other healthcare institutions, and support groups, has been shown to have an essential role in lowering relapse rates (Hyatt et al., 2024). This conclusion is consistent with previous research, which found that a collaborative care approach in mental health can improve service continuity and lower the likelihood of relapse. Overall, the findings of this study enhance the idea that psychiatric nurses' competence across all examined aspects has a substantial role in minimizing the probability of relapse among patients with schizophrenia

(Moncrieff et al., 2025). These findings have practical consequences, such as strengthening psychiatric nursing education curriculum, providing organized and continuous training, and implementing collaborative care models that place nurses as essential players in relapse prevention (Demarais et al., 2024). The implications of this research can be used to develop a communication competency paradigm that combines professional skills, therapeutic communication, and early detection of relapse (early warning indicators). Furthermore, early identification of relapse can be improved. Nurses can detect behavioral changes, hydration status, sleep disturbances, and psychological stress that often lead to relapse. A recovery-oriented treatment approach, even in the emphasis is not only on symptoms, but also on the patient's social functioning, quality of life, and independence.

## CONCLUSION

Considering the research's conclusions, it is possible to conclude that all dimensions of psychiatric nurses' competencies, which include clinical knowledge, clinical skills, communication competence, crisis and safety management, professional development, and care coordination and referral, have a significant correlation with reducing the risk of relapse in patients with schizophrenia. These outcomes suggest that high nursing competence aids in the early detection of relapse symptoms, enhances patient adherence to treatment, effective crisis management, and strengthened social support through cross-sectoral coordination. Empirical research shows that boosting psychiatric nurses' ability should be a priority in relapse prevention measures, whether through formal education, ongoing training, or building collaborative work arrangements in mental health care facilities. Caregivers whom observe early symptoms of relapse can take preventative measures such as educating patients and families about warning signs, altering care plans, or collaborating with the medical team for continuing treatment.

## REFERENCES

Abu Sabra, M. A., Hamaideh, S. H., & Hamdan-Mansour, A. M. (2022). Testing Efficacy of Relapse Prevention Intervention among Patients Diagnosed with Schizophrenia in Jordan. *Issues in Mental Health Nursing*, *43*(7), 670–682. https://doi.org/10.1080/01612840.2022.2025634.

Abu Sabra, M. A., & Hamdan-Mansour, A. M. (2022). Using Relapse Prevention Interventions to Maintain Remission and Minimize Relapse Rates for Individuals With Schizophrenia: A Scoping Review. *Journal of Psychosocial Nursing and Mental Health Services*, *60*(7), 47–54. https://doi.org/10.3928/02793695-20220112-02.

Arai, H., Ng, C. G., Siew, W. H., & Abousheishaa, A. A. (2025). Schizophrenia and cancer: Insights into psychiatric nursing care. *Archives of Psychiatric Nursing*, *54*, 102–109. https://doi.org/10.1016/j.apnu.2025.01.006.

Bighelli, I., Rodolico, A., García-Mieres, H., Pitschel-Walz, G., Hansen, W.-P., Schneider-Thoma, J., Siafis, S., Wu, H., Wang, D., Salanti, G., Furukawa, T. A., Barbui, C., & Leucht, S. (2021). Psychosocial and psychological interventions for relapse prevention in schizophrenia: a systematic review and network meta-analysis. *The Lancet Psychiatry*, *8*(11), 969–980. https://doi.org/10.1016/S2215-0366(21)00243-1.

Brand, B. A., Sommer, I. E., Gangadin, S. S., Tanskanen, A., Tiihonen, J., & Taipale, H. (2024). Real-World Effectiveness of Menopausal Hormone Therapy in Preventing Relapse in Women With Schizophrenia or Schizoaffective Disorder. *American Journal of Psychiatry*, *181*(10), 893–900. https://doi.org/10.1176/appi.ajp.20230850.

Chen, J., El-Den, S., Pham, L., O'Reilly, C. L., & Collins, J. C. (2023). Healthcare professionals' knowledge, confidence and attitudes in relation to psychosis care: A

systematic review. *International Journal of Social Psychiatry*, *69*(8), 1856–1868. https://doi.org/10.1177/00207640231194490.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (pp. 123–126). SAGE Publications Ltd.

Cuijpers, P., Javed, A., & Bhui, K. (2023). The WHO World Mental Health Report: a call for action. *The British Journal of Psychiatry*, *222*(6), 227–229. https://doi.org/10.1192/bjp.2023.9.

Demarais, M., Fisher, M., Williams-Wengerd, A., Alexandre, C., Meyer-Kalos, P., & Vinogradov, S. (2024). Impact of family engagement on client participation in coordinated specialty care for first episodes of psychosis. *BMC Psychiatry*, *24*(1), 686. https://doi.org/10.1186/s12888-024-06126-y.

Dijkstra, L. G., Weiss, H. A., Birhane, R., Medhin, G., de Silva, M., Hanlon, C., Fekadu, A., & Asher, L. (2025). Effects of community-based rehabilitation on caregivers of people with schizophrenia in Ethiopia in the RISE trial. *BMC Psychiatry*, *25*(1), 231. https://doi.org/10.1186/s12888-025-06651-4.

Fagiolini, A., Leopold, K., Pappa, S., Cottam, W. J., Hickey, J., Rogerson, O., Yildirim, M., & Beckham, C. (2025). Survey on the Initiation of Aripiprazole Once-Monthly via a Two-Injection Start in Adult Patients with Schizophrenia: Experience of European Healthcare Professionals. *Advances in Therapy*, *42*(4), 1935–1949. https://doi.org/10.1007/s12325-025-03130-w.

Gramaglia, C., Gambaro, E., Bestagini, L., Bassi, E., Molin, A. D., & Zeppegno, P. (2025). Nurse-led psychoeducational interventions in patients suffering from schizophrenia or other psychotic disorders and their families: A scoping review protocol. *PLOS One*, *20*(7), e0327486. https://doi.org/10.1371/journal.pone.0327486.

Gumley, A. I., Bradstreet, S., Ainsworth, J., Allan, S., Alvarez-Jimenez, M., Aucott, L., Birchwood, M., Briggs, A., Bucci, S., Cotton, S. M., Engel, L., French, P., Lederman, R., Lewis, S., Machin, M., MacLennan, G., McLeod, H., McMeekin, N., Mihalopoulos, C., … Gleeson, J. (2022). The EMPOWER blended digital intervention for relapse prevention in schizophrenia: a feasibility cluster randomised controlled trial in Scotland and Australia. *The Lancet Psychiatry*, *9*(6), 477–486. https://doi.org/10.1016/S2215-0366(22)00103-1.

Hyatt, A., Mullin, B., Hasler, V., Madore, D., Progovac, A. M., Cook, B. L., & DeLisi, L. E. (2024). Predictors of relapse and engagement in care one year after ending services in an urban safety net coordinated specialty care program for first episode psychosis. *Schizophrenia Research*, *264*, 140–146. https://doi.org/10.1016/j.schres.2023.12.022.

Imkome, E. (2025). Psychometric Evaluation of the Thai Version of the Burdened Caregiver Scale for Schizophrenia and Co-occurring Methamphetamine Use: A Pilot Study. *F1000Research*, *10*, 484. https://doi.org/10.12688/f1000research.52288.4.

Intharit, J., Kittiwattanagul, K., Chaveepojnkamjorn, W., & Tudpor, K. (2021). Risk and protective factors of relapse in patients with first-episode schizophrenia from perspectives of health professionals: a qualitative study in northeastern Thailand. *F1000Research*, *10*, 499. https://doi.org/10.12688/f1000research.53317.1.

Iswanti, D. I., Nursalam, N., Fitryasari, R., Sarfika, R., & Saifudin, I. M. M. Y. (2024). Effectiveness of an Integrative Empowerment Intervention for Families on Caring and Prevention of Relapse in Schizophrenia Patients. *SAGE Open Nursing*, *10*. https://doi.org/10.1177/23779608241231000.

Kumari, S., Joseph, J., & Singh, B. (2023). Nurse-led brief psycho-education on self-stigma among clients with schizophrenia and affective disorders: - Solomon four-group design.

*Applied Nursing Research*, *69*, 151657. https://doi.org/10.1016/j.apnr.2022.151657.

Liu, W.-I., Hsieh, W.-L., Lai, C.-T., Liu, C.-C., Tai, Y.-M., & Liu, C.-Y. (2024). Effectiveness of a needs-tailored nurse-led recovery program for community-dwelling people with schizophrenia: a cluster-randomized controlled trial. *BMC Nursing*, *23*(1), 329. https://doi.org/10.1186/s12912-024-01986-x.

Luconi, F., Montoro, R., Lalla, L., & Teferra, M. (2022). An Innovative Needs Assessment Approach to Develop Relevant Continuing Professional Development for Psychiatrists. *Academic Psychiatry*, *46*(1), 106–113. https://doi.org/10.1007/s40596-021-01564-2.

Maramis, M. M., Sofyan Almahdy, M., Atika, A., Bagus Jaya Lesmana, C., & Gerick Pantouw, J. (2022). The biopsychosocial-spiritual factors influencing relapse of patients with schizophrenia. *International Journal of Social Psychiatry*, *68*(8), 1824–1833. https://doi.org/10.1177/00207640211065678.

Moncrieff, J., Pillai, E., Marston, L., Lewis, G., Barnes, T. R. E., Johnson, S., & Priebe, S. (2025). The association between relapse and the outcome of schizophrenia and recurrent psychotic disorders. *The British Journal of Psychiatry*, *227*(4), 673–679. https://doi.org/10.1192/bjp.2024.304.

Ostuzzi, G., Bertolini, F., Tedeschi, F., Vita, G., Brambilla, P., del Fabro, L., Gastaldon, C., Papola, D., Purgato, M., Nosari, G., Del Giovane, C., Correll, C. U., & Barbui, C. (2022). Oral and long-acting antipsychotics for relapse prevention in schizophrenia-spectrum disorders: a network meta-analysis of 92 randomized trials including 22,645 participants. *World Psychiatry*, *21*(2), 295–307. https://doi.org/10.1002/wps.20972.

Putri, S. B., Suwito, T. bin, Panduragan, S. L., Esti, A., Martin, W., Welly, & Ulya, R. (2025). Recovery Nursing Care to Prevent Relapse Among Schizophrenia Patients: A Systematic Review. *Malaysian Journal of Medicine and Health Sciences*, *21*(May), 167–174. https://doi.org/10.47836/mjmhs.21.s3.26.

Rantala, M. J., Luoto, S., Borráz-León, J. I., & Krams, I. (2022). Schizophrenia: The new etiological synthesis. *Neuroscience & Biobehavioral Reviews*, *142*, 104894. https://doi.org/10.1016/j.neubiorev.2022.104894.

Renwick, L., Susanti, H., Brooks, H., Keliat, B., Bradshaw, T., Bee, P., & Lovell, K. (2023). Culturally adapted family intervention for people with schizophrenia in Indonesia (FUSION): a development and feasibility study protocol. *Pilot and Feasibility Studies*, *9*(1), 53. https://doi.org/10.1186/s40814-023-01280-8.

Solmi, M., Seitidis, G., Mavridis, D., Correll, C. U., Dragioti, E., Guimond, S., Tuominen, L., Dargél, A., Carvalho, A. F., Fornaro, M., Maes, M., Monaco, F., Song, M., Il Shin, J., & Cortese, S. (2023). Incidence, prevalence, and global burden of schizophrenia - data, with critical appraisal, from the Global Burden of Disease (GBD) 2019. *Molecular Psychiatry*, *28*(12), 5319–5327. https://doi.org/10.1038/s41380-023-02138-4.

Song, J., Zhang, Y., Qin, M., Ren, J., Jia, Y., Yu, H., & Zhou, Y. (2024). Experiences of returning to work in patients with schizophrenia after treatment: A longitudinal qualitative study. *International Journal of Social Psychiatry*, *70*(3), 588–600. https://doi.org/10.1177/00207640231223423.

Suhron, M. (2024). *Public Health Epidemiology Research Book* (DR M. Suhron S.Kep.,Ns. (ed.); 1st ed.). SABDA EDU PRESS. https://scholar.google.co.id/scholar?hl=id&as_sdt=0,5&cluster=14372596901005326170.

Susanti, H., Brooks, H., Keliat, B., Bradshaw, T., Wulandari, D., Fadilah, R., Diorarta, R., Suherman, Bee, P., Lovell, K., & Renwick, L. (2024). Stakeholder perspectives of family interventions for schizophrenia in Indonesia: a qualitative study. *BMC*

*Psychiatry*, *24*(1), 59. https://doi.org/10.1186/s12888-024-05504-w.

Takeda, T., Umehara, H., Matsumoto, Y., Yoshida, T., Nakataki, M., & Numata, S. (2024). Schizophrenia and cognitive dysfunction. *The Journal of Medical Investigation*, *71*(3.4), 205–209. https://doi.org/10.2152/jmi.71.205.

Thongsalab, J., Yunibhand, J., & Uthis, P. (2023). Recovery-oriented nursing service for people with schizophrenia in the community: An integrative review. *Belitung Nursing Journal*, *9*(3), 198–208. https://doi.org/10.33546/bnj.2632.

Van Leeuwen, E., van Driel, M. L., Horowitz, M. A., Kendrick, T., Donald, M., De Sutter, A. I., Robertson, L., & Christiaens, T. (2021). Approaches for discontinuation versus continuation of long-term antidepressant use for depressive and anxiety disorders in adults. *Cochrane Database of Systematic Reviews*, *2021*(4). https://doi.org/10.1002/14651858.CD013495.pub2.

Yu, H., Sun, Y., Qin, M., Ren, J., Yu, K., Song, J., Zhou, Y., & Liu, L. (2023). Perception of risk of relapse among patients with first episode and recurrent schizophrenia: a descriptive phenomenological study. *BMC Psychiatry*, *23*(1), 582. https://doi.org/10.1186/s12888-023-05023-0.

Zayts-Spence, O., Edmonds, D., & Fortune, Z. (2023). Mental Health, Discourse and Stigma. *BMC Psychology*, *11*(1), 180. https://doi.org/10.1186/s40359-023-01210-6.

Zhu, E., Wang, J., Zhou, G., Li, C., Chen, F., Ju, K., Chen, L., Yin, Y., Chen, Y., Zhang, Y., Zhang, X., Zhou, X., Wang, Z., Qiu, J., Wang, H., Shi, W., Wang, F., Wang, D., Chen, Z., … Ai, Z. (2025). A highly scalable deep learning language model for common risks prediction among psychiatric inpatients. *BMC Medicine*, *23*(1), 308. https://doi.org/10.1186/s12916-025-04150-7.

Zlatintsi, A., Filntisis, P. P., Garoufis, C., Efthymiou, N., Maragos, P., Menychtas, A., Maglogiannis, I., Tsanakas, P., Sounapoglou, T., Kalisperakis, E., Karantinos, T., Lazaridi, M., Garyfalli, V., Mantas, A., Mantonakis, L., & Smyrnis, N. (2022). E-Prevention: Advanced Support System for Monitoring and Relapse Prevention in Patients with Psychotic Disorders Analyzing Long-Term Multimodal Data from Wearables and Video Captures. *Sensors*, *22*(19), 7544. https://doi.org/10.3390/s22197544.

Zukowska, Z., Allan, S., Eisner, E., Ling, L., & Gumley, A. (2022). Fear of relapse in schizophrenia: a mixed-methods systematic review. *Social Psychiatry and Psychiatric Epidemiology*, *57*(7), 1305–1318. https://doi.org/10.1007/s00127-022-02220-2.