A Cross-sectional study: The Relationship of Family Support Toward Level Adherence Therapy and Hospitalization in Outpatient Treatment of Schizophrenia

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ABSTRACT

Adherence is one of the essential components in the management of schizophrenia. However, adherence levels remain suboptimal, ranging from 20-89%. Multiple factors, including sociodemographic characteristics and family support have been reported to influence medication adherence and hospitalization rates. This study aimed to investigate the relationship between family support, medication adherence, and hospitalization among patients with schizophrenia at the Mental Health Hospital Lampung Province. A cross-sectional study design was employed, and data were collected through patient interviews. Medication adherence was assessed using the Medication Adherence Rating Scale (MARS), while family support was measured using a validated and reliability-tested family support questionnaire. A total of 106 patients met the inclusion criteria, of whom 65% demonstrated high levels of medication adherence. The factors including sex (p=0,047), employment status (p=0,004), and family support (p<0.000) were significantly associated with medication adherence. In addition, age (p=0.019), family support (p<0.001), and medication adherence (p<0,000) were significantly associated with hospitalization. These findings indicate that family support has a positive influence on medication adherence and serves as a protective factor against a worsening prognosis, as reflected by reduced hospitalization. This study emphasizes the crucial role of family support in achieving successful treatment outcomes in patients with schizophrenia.

Keywords: Adherence, Family support, Hospitalization, Schizophrenia

INTRODUCTION

Schizophrenia is a chronic and severe mental disorder marked by positive, negative and, cognitive symptoms. This illness requires long-term treatment and it is related to significant deterioration in social functioning (Blackman and MacCabe, 2020). Several positive symptoms are delusion, hallucination, disorganized thinking, disorganized speech and behaviour, while negative symptoms are lack of motivation, social withdrawal, lack of emotion, anhedonia, and low energy (Kaxhn et al., 2015). The poor adherence remains as global challenges in management of schizophrenia, it contributes nonadherence and also poor outcome. Moreover, this illness could lead to violence behaviour and self harm, supported by reporting in 1435 experienced self harm in 18 months (Buchanan et al., 2019).

Pharmacology treatment has a main role in management of schizophrenia. Adherence is required to achieve optimal outcomes. However, it often becomes a major problem and challenge in the management of schizophrenia. Nonadherence has many implication, including of uncontrolled psychotic symptoms, symptom exacerbation, rehospitalization, longer length of hospital stay, increased treatment cost, reduce quality of life, and increased morbidity and mortality (Kadakia et al., 2022; Lafeuille et al., 2013; Oates et al., 2020). Adherence refers to the extent to which medication use is appropriate and complies with prescribed treatment. Patient are considered nonadherent when they miss at least 20% of their prescribed medication (Phan, 2016). The prevalence of nonadherence among schizophrenia patients ranged from 20% to 89%, and another study reported that 55% of patients were nonadherent

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after a first episode psychosis. Moreover, patients with a history of nonadherence are more likely to experience nonadherence in subsequent treatment (Barkhof et al., 2012; Haddad, Brain and Scott, 2014).

Family support is the one of factors contributing to medication adherence and is essential for achieving optimal therapeutic outcomes (Z, Muraraiah and H, 2019). In addition to drug selection, the optimization of a supportive environment is an important part of the treatment strategy. Negative stigma in society may make families reluctant to be open to the public. Family support is complex and involves multiple factors, comprising knowledge, socio-economic, and culture. In general there are five psychosocial approaches in management of schizophrenia including, cognitive (cognitive behavioral dan cognitive remediation therapy), psychoeducation, family intervention, social-skill training, assertive communication (Chien et al., 2013; Ozsahin et al., 2020).

Several studies have reported that family support is related to patients' medication adherence and hospital admissions (Jessica et al., 2021). A systematic review study reported that family support and health professionals play an important role in the treatment of schizophrenia particularly in motivating medication use and reducing adverse effects (Higashi et al., 2013). In Indonesia, stigma toward patients with schizophrenia remains prevalent, including stereotypes, discrimination, and the practice of "pasung" by family (Hartini et al., 2018). Sociodemographics of the community such as low educational level, limited awareness of mental health, and low economic status are generally related with negative stigma toward patients with schizophrenia (Hartini et al., 2018). Family support in Indonesia therefore remains challenging to implement. This study aimed to provide an overview of adherence levels and to examine the association between family support and medication adherence among patients receiving mental health services in Lampung Province.

METHODS

This study employed observational study with cross-sectional design. Data were collected using a validated and reliable questionnaire. The study population consisted of patients with schizophrenia attending the outpatient psychiatric clinic of the Provincial Mental Hospital of Lampung between May and July 2023. Participants were selected using purposive sampling. Ethical approval was granted by the Health Research Ethics Committee of the Faculty of Medicine, University of Lampung (No. 4393/UN26.18/PP.05.02.00/2022). Eligible participants were adults aged 18–60 years with a diagnosis of schizophrenia who were receiving oral antipsychotic therapy, with or without adjunctive medications, were clinically stable, able to communicate effectively, and willing to participate. Patients with refractory schizophrenia, cognitive impairment, or hearing deficits were excluded. Medication adherence was assessed through direct patient interviews, with clinical stability confirmed by the attending psychiatrist. Associations between categorical variables were analyzed using the Chi-square test, with Fisher's exact test applied as an alternative when the assumptions of the Chi-square test were not met.

Adherence Instrument

Medication adherence was measured using the Five Medication Adherence Report Scale (MARS-5). The instrument consists of 10 items assessing medication-taking behavior, attitudes toward medication, and perceived side effects. The instrument demonstrated acceptable validity (two-tailed significance $\leq \alpha$ 0.05; $r > 0.254$) and reliability, with a Cronbach's alpha coefficient of 0.725.

Family Support Instrument

Family support was assessed using a 16-item family support questionnaire developed by (Nursalam, 2017) and adapted by (Ginting, 2019), measured on a Likert scale (0–3) with both favorable and unfavorable items. Total scores were calculated and converted into percentage values. The instrument demonstrated acceptable validity (two-tailed significance $\leq \alpha$ 0.05; $r > 0.254$) and reliability, with a Cronbach's alpha coefficient of 0.731.

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RESULTS

Patients' characteristics

A total of 106 ambulatory patients with schizophrenia fulfilled the inclusion criteria, with their characteristics presented in Table 1. The majority of patients were aged 26–45 years (n = 68), and most were male (n = 73). Based on educational level, patients were predominantly educated to the senior high school level, accounting for approximately 50%. In terms of employment status, 61.3% of patients were employed, while the remaining patients were unemployed. The majority of patients reported previously being hospitalized, most of which occurred no more than twice. Family support assessment showed that patients largely had adequate family support (74.5%), while 25.5% had low family support. The number of medications consumed by patients was similarly distributed, with 42% taking fewer than four medications and 58% taking four or more.

Table 1. Characteristics of Schizophrenia Patients

Characteristics	Frequency (n=106)	Percentage (%)
Age (year)		
18-25	14	13,2
26-45	68	64,2
46-60	24	22,6
Sex		
Man	73	68,9
Women	33	31,1
Level education		
Primary school	14	13,2
Second school	32	30,2
Tertiary school	53	50
University	7	6,6
Employee status		
Employed	65	61,3
Unemployed	41	38,7
Hospitalizations		
Never	54	40,9
≤ 2 times	44	41,5
≥ 3 times	8	7,5
Family support		
High	79	74,5
Low	27	25,5
Number of medication (mean)		
< 4	44	42
≥ 4	62	58

Adherence Measurement

The dominant responses were related to patients' perceptions of their treatment, with 94.3% of patients reporting a clear understanding of their medication. A total of 61% of patients reported missing their medication due to forgetfulness, and 72.2% discontinued therapy when they felt better. Uncomfortable experiences such as fatigue and lethargy were reported by 58.9% of patients, while 50.9% reported feeling "like a zombie" after taking medication. Overall, 65% of patients demonstrated high adherence, whereas 35% showed low adherence.

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Table 2. Frequencies of Responses on the MARS among outpatients schizophrenia

No	Questions	Yes	No
A1	Do you ever forget to take your medication? Yes/No	61 (57,5)	45 (42,5)
A2	Are you careless at times at taking medication? Yes/No	51 (48,1)	55 (51,9)
A3	When you feel better, do you sometimes stop taking your medication? Yes/No	77 (72,6)	29 (27,4)
A4	Sometimes if you feel worse when you take the medication, do you stop taking it? Yes/No	92 (86,8)	14 (13,2)
A5	I take my medication only when I am sick. Yes/No	70 (66,0)	36 (34,0)
A6	It is unnatural for my mind and body to be controlled by medication. Yes/No	62 (58,5)	44 (41,5)
A7	My thoughts are clearer on medication. Yes/No	100 (94,3)	6 (5,7)
A8	By staying on medication, I can prevent getting sick. Yes/No	95 (89,6)	11 (10,4)
A9	I feel weird, like a 'zombie', on medication. Yes/No	54 (50,9)	52 (49,1)
A10	Medication makes me feel tired and sluggish. Yes/No	62 (58,5)	45 (41,5)

Family support Measurement

As shown in Table 3, family support among patients with schizophrenia was assessed across four domains: emotional, informational, instrumental, and appraisal support. Emotional support demonstrated the highest mean score (84.02%). Most patients reported receiving acceptance and attention from their families, with 46.2% indicating that family members always accompanied them when they felt anxious or needed support, 42.5% reporting that families consistently motivated medication intake and regular follow-up, and 51.9% stating that families continued to pay attention to their condition during illness.

Table 3. Distribution of Responses to the Family Support Questionnaire Among Patients with Schizophrenia

No.	Family support	Always	Often	Sometimes	Never
Emotional Aspect					
P1	The family does not differentiate between the patient and other family members	1 (0,9)	1 (0,9)	6 (5,7)	98 (92,5)
P2	The family is willing to accompany the patient when they are anxious or need a friend	49 (46,2)	24 (22,6)	17 (16,0)	16 (15,1)
P3	The family motivates the patient to take medication and have regular control	45 (42,5)	36 (34,0)	18 (17,0)	7 (6,6)
P4	The family continues to pay attention to the patient's condition during illness	55 (51,9)	28 (26,4)	20 (18,9)	3 (2,8)
	Total score (mean)				**356 (84,02%)**
Information aspect					
P5	The family reminds the patient to take medication regularly	51 (48,1)	17 (16,0)	13 (12,3)	25 (23,6)
P6	The family helps provide appropriate information about the patient's illness	15 (15,2)	26 (24,5)	19 (17,9)	35 (33,0)
P7	The family explains the instructions regarding the medication given to the patient	44 (41,5)	18 (17,0)	9 (8,5)	35 (33,0)
P8	The family helps direct the patient's abilities so that they are more useful and become achievements	43 (40,6)	27 (25,5)	25 (23,6)	11 (10,4)
	Total Score (mean)				**286 (67,45%)**
Instrumental aspect					
P9	The family provides time to accompany the patient for treatment at the hospital	70 (66,0)	15 (14,2)	10 (9,4)	11 (10,4)
10	The family facilitates the transportation needed by the patient to get to the hospital	79 (74,5)	19 (17,9)	5 (4,7)	3 (2,8)
P 11	While at home, the family accompanies the patient to take the medicine, until the medicine is actually taken	35 (33,0)	17 (16,0)	9 (8,5)	45 (42,5)

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12	The family provides time to communicate with the patient while at home	14 (13,2)	56 (52,8)	29 (27,4)	7 (6,6)
	Total score (means)				**321 (75,77%)**
Appraisal aspect					
13	The family gives praise to the patient when the patient does activities at home	16 (15,1)	39 (36,8)	22 (20,8)	29 (27,4)
14	The family gives the patient a sense of trust when they are facing problems	27 (25,5)	41 (38,7)	23 (21,7)	15 (14,2)
15	The family helps increase the patient's self-esteem and self-confidence during treatment	34 (32,1)	46 (43,4)	8 (7,5)	18 (17,0)
	Total score (means)				**285 (67,14%)**

Informational support showed a moderate mean score (67.45%). Nearly half of the patients reported that their families always reminded them to take medication regularly (48.1%). However, lower proportions were observed for the provision of illness-related information and explanation of medication instructions, with 33.0% of patients reporting that families never provided information about the illness and never explained medication instructions.

Instrumental support demonstrated a relatively high mean score (75.77%). Most patients reported that their families always facilitated transportation to the hospital (74.5%) and accompanied them during treatment visits (66.0%). In contrast, supervision of medication intake at home was less consistent, with 42.5% of patients reporting that family members never accompanied them until the medication was actually taken.

Appraisal support showed the lowest mean score among the four domains (67.14%). A total of 27.4% of patients reported never receiving praise for their activities at home, while 14.2% reported not receiving a sense of trust from family members when facing problems. Additionally, 17.0% of patients indicated that their families did not support efforts to improve self-esteem and self-confidence during treatment.

Association Between Patient Characteristics, Medication Adherence, and Hospitalization Rates

Table. 4 shows the association between patients' characteristics and levels of medication adherence and hospitalization rate. Age (p=0,126) and education level (p=0,313) were not significantly associated with medication adherence. In contrast, sex (p=0,047), employment status (p=0,004), and family support (p<0,000) significantly associated with medication adherence and hospitalization rate among ambulatory patients with schizophrenia.

Table 4 Association Between Patient Characteristics, Medication Adherence, and Hospitalization Rates

Characteristics	**Adherence level**		**p value**	**Hospitalization**			**p value**
	High (%)	Low		Never	≤ 2 times	≥ 3 times	
Age (years)							
18-25	12 (11,3)	2 (1,9)	0,126[a]	11	3	0	**0,019**[a]
26-45	40 (27,7)	28 (26,4)		29	35	4	
46-60	17 (16)	7 (6,6)		0	4	4	
Sex							
Man	43 (40,6)	30 (28,3)	**0,047**[a]	33	35	5	0,135[a]
Women	26 (24,5)	7 (6,6)		21	9	3	
Level education							
Primary school	27 (25,5)	19 (17,9)	0,313[a]	20	22	4	0,446[a]
Intermediate school	36 (34,0)	17 (16)		29	21	3	
University	6 (5,7)	1 (0,9)		5	1	1	

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Employment status							
Employed	47 (44,3)	18 (17)	**0,004**[a]	35	24	6	0,415[a]
Unemployed	22 (20,8)	19 (17,9)		19	20	2	
Number of medication							
< 4	30	14	0,680[b]	24	16	4	0,635 [a]
≥ 4	39	23		30	28	4	
Family support							
High	67 (63,2)	12 (11,3)	**0,000**[a]	50	27	2	**0,000** [a]
Low	2 (1,9)	25 (23,6)		4	17	6	
Adherence level							
High				48	18	2	**0,000** [a]
Low				5	26	6	

a= chi square, b= *fisher exact*

DISCUSSION

This study shows that more than half of patients with schizophrenia demonstrated a high level of medication adherence (65%); however, a proportion of patients indicated low adherence. Nonadherence medication among patients with schizophrenia is a global issue and has been consistently found in various studies, including systematic reviews and meta-analyses that reported wide ranges of adherence rates (Ljungdalh, 2017; Loots et al., 2021). Notably, it is also related with a higher risk of rehospitalization, prolonged hospital stays, and the development of high-risk behaviors, including violence and self-harm (Barliana et al., 2023; Buchanan et al., 2019). The effectiveness of an intervention assessment usually evaluated by frequency of rehospitalization or hospitalization. These indicators are frequently associated with medication adherence and commonly used to determine prognosis in schizophrenia (Barliana et al., 2023; Dilokthornsakul et al., 2016; Egglefield et al., 2020).

We found that emotional and instrumental support were demonstrated at higher levels than informational and appraisal domains. Families play an active role in providing emotional and practical assistance, such as monitoring medication intake and meeting patients' daily needs. Emotional support is an essential aspect in strengthening psychological resilience particularly in terms of facing their illness in both personal and social contexts (Akgenç & Ünsal, 2025). These findings different with a study conducted in Ciamis, West Java, which reported that most socially isolated patients with schizophrenia experienced low levels of emotional support (Nurherliyany et al., 2020). This discrepancy suggests the presence of contextual and cultural variations in family may contribute patterns. In contrast, the informational and appraisal domains in this study were categorized at lower levels. Both domains are closely related to understanding of the illness and treatment, as well as the family's ability to provide psychological reinforcement and positive feedback to patients. Lack of informational support may contribute to poor patient awareness of the illness and its treatment, which has been identified as one of the aspect determinants of medication nonadherence (Kulkarni & Reeve-Parker, 2015).

Family knowledge and engagement in illness-related education have a crucial role in improving adherence among patients with schizophrenia (Nuralita & Khairunisa, 2022). The discrepancy between high emotional support and low information support observed in this study highlights the potential need for structured psychoeducation. The previous study showed that psychoeducation can improve families' understanding of mental health problems and emotional support for patients with schizophrenia (Novitasari et al., 2025). Furthermore, previous studies have demonstrated a relationship between knowledge about schizophrenia, informational support, appraisal or esteem support, instrumental

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support, emotional support, and medication adherence (Mamang et al., 2024).

We found family support associated prominently with medication adherence among patients with schizophrenia. A higher levels of family support was possessed by patients who adhere with their treatment, while patients with lower family support were more likely to be nonadherent. Based on statistical analysis indicated a significant relationship between the two variables ($p = 0.000$). It is consistent with previous studies reporting that family support is an important predictor of medication adherence in patients with schizophrenia (Purba et al., 2020).

There were several factors including sex and employment status that were also associated with medication adherence. Female patients had higher adherence than male patients, which was consistent with findings from previous studies (Barliana et al., 2023). Employment status positively correlated with medication adherence. Patients who were employed more had stable clinical conditions and social functioning. Hence, this factor has also been associated with health-related quality of life among patients with schizophrenia (Bouwmans et al., 2015). Occupations and earnings could support patient independence and enhance self-esteem, which is likely to contribute positively to symptom improvement and recovery. Employment support programs help promote work participation among clinical stable psychiatric patients, however the implementation is quite challenging in practice (Khalid et al., 2023). Self-stigma and public stigma remain major challenges for patients with schizophrenia in reintegrating into society. Other studies emphasized that medication adherence plays a crucial role in improving both positive and negative symptoms, which subsequently leads to better social functioning and quality of life (Martini et al., 2018; Stentzel et al., 2018).
Cultural factors and community beliefs also influence medication adherence. Studies in developing countries have shown that the use of alternative treatments, limited illness insight, and beliefs in supernatural causes of mental illness remain major barriers to adherence (Subu et al., 2022) . These findings highlight the importance of culturally sensitive psychoeducation, particularly approaches that actively involve families as key partners in the care of patients with schizophrenia. Family-based interventions should focus not only on emotional and instrumental support but also on strengthening informational and appraisal support through structured psychoeducation programs. Such approaches may improve family understanding of the illness, reduce stigma, and enhance the family's capacity to support medication adherence (Kim & Park, 2023). Family interventions have been shown to improve treatment outcomes and are widely implemented in schizophrenia care. These interventions aim to promote a positive family environment, reduce expressed emotion, and increase family knowledge regarding early signs and symptoms of relapse (Okpokoro et al., 2014). Positive outcomes have also been reported from the caregiving experience itself. A qualitative study by Darban et al. (2021) identified positive effects among families caring for patients with schizophrenia, including strengthened family bonds, enhanced life insight, and improved social mobility. These findings suggest that caregiving experiences may provide meaningful benefits to families, and such experiences may be shared by clinicians with families of newly diagnosed patients.

Family support is essential in the management of severe psychiatric disorders particularly in schizophrenia. The involvement of the family as a source of support is highly required by patients to achieve optimal care, particularly in ambulatory patients. Family support, such as a positive family atmosphere or living with loved ones, may help improve medication adherence during the early phase of treatment (Zhang & Ye, 2020). Family support contributes through several mechanisms, including supervision of medication intake, enhancement of patient motivation, reduction of self-stigma, and increased feelings of safety and emotional attachment within the family environment. Health care professionals should encourage the family to provide multiple support including emotional, information, instrumental, and appraisal. We assessed the medication adherence and family support using self-reported questionnaires, which may be subject to recall and social desirability bias. Future studies should include caregiver-reported measures and family functioning variables to better depict the dynamics

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of family support and adherence in patients with schizophrenia.

CONCLUSION

In conclusion, this study demonstrates that sociodemographic factors, including sex, employment status, and family support, are associated with medication adherence among patients with schizophrenia. Age, family support, and adherence were also found to contribute to hospitalization rates. Patients with better adherence tended to receive stronger family support. These findings emphasize the importance of strengthening family support through collaboration with healthcare professionals, including pharmacists, to enhance patient and family knowledge and improve treatment adherence.

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