



THE RELATIONSHIP BETWEEN KNOWLEDGE LEVEL AND MEDICATION ADHERENCE AMONG OLDER ADULTS WITH CHRONIC DISEASES

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ABSTRACT

The number of older adults in Indonesia continues to increase each year due to rising life expectancy alongside improvements in the quality of health services. The types of diseases commonly experienced by older adults are chronic conditions such as diabetes mellitus, hypertension, and heart disease, all of which require continuous and routine treatment. Medication adherence among the elderly remains a serious concern. This study, conducted within the Prolanis program at Bululawang Community Health Center, aimed to determine and analyze the relationship between the level of knowledge of older adults and their adherence to taking prescribed medications. The study population consisted of all older adults enrolled in the Prolanis program at Bululawang Community Health Center, totaling 197 individuals. A purposive sampling technique was used to obtain a sample of 74 respondents. Knowledge was measured using a questionnaire developed by Herawati & Setiawan consisting of ten closed-ended questions. The validity of the knowledge questionnaire was tested using item-total correlation, and all items were declared valid. The reliability test showed good internal consistency with a Cronbach's alpha coefficient greater than 0.70. Meanwhile, medication adherence was assessed using the short version of the Morisky Medication Adherence Scale (MMAS-4). The MMAS-4 has been widely validated in various populations and demonstrated acceptable reliability, with a Cronbach's alpha value indicating satisfactory internal consistency. A bivariate analysis was conducted using the non-parametric Spearman's rho test. The findings indicated a p -value > 0.05 (0.132), suggesting no significant relationship between knowledge and medication adherence. Health workers should therefore not only focus on improving the knowledge of older adults but also consider other factors such as motivation, family support, psychological conditions, and perceptions of treatment. Increasing family involvement in reminding medication schedules or assisting with medication preparation is strongly recommended.

Keywords: adherence; knowledge; medication; older adults

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INTRODUCTION

According to (Girsang, A., n.d.), in 2022 the proportion of older adults in Indonesia reached 10.48% of the total population. Based on sex distribution, older women constituted a higher proportion at 51.81%, while older men accounted for 48.19%. The increasing number of older adults over time is associated with rising life expectancy, which reflects progress in healthcare services and overall population health quality. However, medication adherence among older adults remains a significant concern that requires careful attention. Several factors contribute to non-adherence, including cognitive decline, polypharmacy, medication side effects, and limited knowledge regarding disease conditions and their treatment. Adequate knowledge about the importance of regular medication use can enhance motivation and understanding of therapeutic benefits, thereby potentially improving adherence among older adults (Singh et al., 2020). Knowledge itself is defined as the result of recognizing and understanding something through sensory and cognitive processes. It encompasses accumulated information, experience, and learning stored within an individual's cognition (Cesari et al., 2021). (Juniarti, Bhanu, Setyani, F. A. R., & Amigo, 2023) and (Sowtali et al., 2020) emphasize that a good level of knowledge regarding the importance of medication adherence contributes to positive treatment behaviors. Conversely, insufficient knowledge is often associated

with limited health literacy, leading patients to misunderstand treatment actions and their rationale, which in turn results in irregular medication use. The knowledge level of older adults is influenced by multiple factors, including educational background, cognitive function, access to information, family and environmental support, prior treatment experience, as well as language, cultural, and sensory abilities (Shen, Z., 2022).

The Chronic Disease Management Program (Prolanis) is a promotive and preventive healthcare initiative organized by BPJS Kesehatan. This program targets individuals with chronic diseases, particularly older adults with hypertension and diabetes mellitus. Through regular educational activities, Prolanis contributes to improving older adults' understanding of chronic disease management, the importance of medication adherence, healthy dietary patterns, and regular physical activity (BPJS KESEHATAN, 2022). Observations at the Prolanis program of Bululawang Community Health Center, Malang Regency, indicate that among 197 registered older adult participants, participation in routine activities such as medication collection, health consultations, blood pressure and blood glucose monitoring, and health education sessions—remains relatively low. Internal data show that only about 40–50% of participants consistently attend monthly activities. In addition, inappropriate medication use and limited understanding of potential side effects are still frequently identified.

Based on these conditions, the researcher is interested in examining the relationship between the level of knowledge among older adults and their medication adherence within the Prolanis program at Bululawang Community Health Center. The findings of this study are expected to provide deeper insights into the importance of strengthening health education as an effort to improve medication adherence among older adults. The objective of this study is to determine the relationship between the level of knowledge among older adults with chronic diseases and medication adherence in the Prolanis Program at Bululawang Public Health Center.

METHOD

This study employed a non-experimental quantitative approach with a cross-sectional design. Data were collected at the Prolanis program of Bululawang Community Health Center, Malang Regency, in June 2025. The study population consisted of all older adults registered in the Prolanis program, totaling 197 individuals. The sample comprised 74 respondents selected using purposive sampling. The inclusion criteria were the ability to communicate effectively, absence of cognitive impairment, and willingness to participate as knowledge was measured using a questionnaire developed by Herawati & Setiawan consisting of ten closed-ended questions. The validity of the knowledge questionnaire was tested using item-total correlation, and all items were declared valid. The reliability test showed good internal consistency with a Cronbach's alpha coefficient greater than 0.70. Meanwhile, medication adherence was assessed using the short version of the Morisky Medication Adherence Scale (MMAS-4). The MMAS-4 has been widely validated in various populations and demonstrated acceptable reliability, with a Cronbach's alpha value indicating satisfactory internal consistency.(Herawati, E., & Setiawan, 2018), consisting of 10 closed-ended items. Medication adherence was assessed using the Morisky Medication Adherence Scale (MMAS-4). This study applied ethical principles, including respect for respondent autonomy, voluntary participation without coercion, protection of confidentiality and anonymity, and adherence to principles of scientific integrity. Data analysis was conducted using univariate and bivariate methods. The relationship between the two variables was analyzed using Spearman's rho test because the data were not normally distributed.

RESULT

Table 1 shows that of the 74 respondents included in this study, the majority were female, totaling 55 individuals (74.32%), while male respondents accounted for 19 individuals (25.68%). These findings indicate that most participants in the Prolanis program at Bululawang Community Health Center were older adult women.

Table 1.

Presents the characteristics of respondents, including age, sex, highest educational attainment, and the types of diseases experienced by the older adult participants

Respondent Characteristics		Frequency	
		f	%
Sex	Female	55	74,32
	Male	19	25,68
Age Group	Early Elderly (60–74 years)	69	93,24
	Late Elderly (≥ 75 years)	5	6,76
Educational Level	Primary Education	11	14,86
	Junior Secondary Education	18	24,32
	Senior High School Education	43	58,11
	Higher Education	2	2,70
Comorbid Conditions	Hypertension	32	43.24
	Other Condition	23	31,08
	Diabetes Melitus	8	10.81
	Kholesterol	3	4.05
	Gastric Disorder	2	2.70
	Cardiovascular Disease	3	4.05
	Anemia	1	1.35
	Lung Disease	1	1.35
	Gout	1	1.35

Table 2.

Distribution of Respondents by Level of Knowledge of Medication Use

Knowledge Category	f	%
Baik	63	85,14
Sedang	10	13,51
Kurang	1	1.35

Table 3.

Distribution of Respondents by Level of Medication Adherence

Knowledge Category	f	%
Tinggi	22	29.73
Sedang	35	47,30
Rendah	17	22,97

Table 2 shows that the majority of respondents had a good level of knowledge regarding medication use (85.14%), while 13.51% had a moderate level of knowledge and only 1.35% had a low level of knowledge. These findings indicate that most older adults in the Prolanis program at Bululawang Community Health Center possess adequate understanding of the importance of regular medication use, its benefits, and the consequences of non-adherence. However, the data presented in Table 3 demonstrate that the level of adherence does not fully correspond with the level of knowledge. High adherence was observed in 47.30% of respondents, moderate adherence in 29.73%, and 22.97% of respondents still exhibited low medication adherence.

Table 4.

Analysis of the Relationship Between Knowledge Level and Medication Adherence Among Older Adults with Chronic Diseases

Knowledge	Knowledge		Adherence
	Pearson Correlation	1	
	Sig. (2-tailed)		.132
Adherence	Adherence		1
	Pearson Correlation	.177	
	Sig. (2-tailed)	.132	

The data presented in Table 4 show a p-value greater than 0.05 ($p = 0.132$), indicating that there is no statistically significant relationship between knowledge level and medication adherence. This finding suggests that a high level of knowledge does not necessarily correspond directly to adherence behavior.

DISCUSSION

Table 1 reflects a pattern consistent with data from Statistics Indonesia (Badan Litbang Kesehatan, 2018), which report that women have a higher life expectancy than men, resulting in a greater proportion of older adult women in the population. (Luy, M., Zannella, M., & Caselli, 2022) noted that this sex-based difference in life expectancy occurs in nearly all countries, with women living on average 5–7 years longer than men. This gap is associated with biological factors, such as the protective effects of estrogen against cardiovascular disease, as well as behavioral factors, including higher rates of smoking and alcohol consumption among men and their lower utilization of preventive health services. In addition, women tend to participate more actively in health programs such as Prolanis. (Notoatmodjo, 2018) stated that sex may influence health behavior, with women generally demonstrating higher treatment adherence. (Ardhani & Nawangsih, 2020) further support this finding, showing that women are more active in accessing healthcare services, attending routine check-ups, and adhering to treatment. Therefore, the predominance of female respondents in this study is reasonable and consistent with empirical data, and it provides an important basis for gender-responsive planning of older adult health interventions. Most respondents were classified as young-old adults (60–74 years), totaling 69 individuals (93.24%), while those aged ≥ 75 years accounted for 5 individuals (6.76%). This composition indicates that most Prolanis participants were in the early elderly stage, which is generally associated with better physical condition, mobility, and cognitive function. According to (Setiati, S., & Setyawati, 2018), young-old adults typically retain relatively good cognitive and functional capacity, enabling them to participate more easily in educational and treatment activities on a regular basis.

Based on educational attainment, Table 1 shows that the majority of respondents were senior high school graduates (58.11%). Education plays a crucial role in shaping individuals' understanding of health information and their adherence to treatment (Ministry of Health of the Republic of Indonesia, 2019). (Kusumaningrum, 2025) identified education as a primary determinant of health behavior. Older adults with higher educational backgrounds tend to have better health literacy, a stronger ability to understand medication instructions, and greater awareness of chronic disease risks (Sutrisno, 2017). Thus, the relatively good educational level of most respondents represents a positive potential for improving awareness and treatment adherence.

Regarding comorbid conditions, hypertension was the most common diagnosis, affecting 32 respondents (43.24%). This finding is consistent with Ministry of Health of the Republic of Indonesia (Vrijssen et al., 2020), which indicate that hypertension is the most prevalent chronic disease among individuals aged over 55 years (Kearney, 2020). added that the rising prevalence of hypertension in older adults is associated with aging processes, unhealthy lifestyle patterns, and low awareness of blood pressure screening. This trend also aligns with global patterns showing increasing hypertension prevalence among older populations. A discrepancy between knowledge and behavior is evident in Tables 2 and 3. This gap between knowledge and actual behavior confirms that knowledge alone is not the sole determinant of medication adherence among older adults. This phenomenon is consistent with the (World Health Organization, 2019), which states that adherence is influenced by multidimensional factors, including individual conditions, therapy-related characteristics, social support, patient–provider relationships, and healthcare system factors. Even when individuals have a good understanding of their disease, adherence may remain low due to barriers such as medication side effects, complex treatment regimens, cost, or limited access to healthcare services. Furthermore, (Horne, R., Weinman, J., & Barber, 2013) explained that adherence behavior is strongly influenced by necessity beliefs (beliefs about the personal need for medication to maintain health) and concerns (worries about side effects or dependency). Thus, individuals with high knowledge levels may still demonstrate poor adherence if their concerns outweigh their perceived necessity of medication. This framework helps explain why some older adults in this study showed low adherence despite having good knowledge levels.

Advanced age may also affect adherence through cognitive decline, difficulty remembering medication schedules, and increased dependence on family members or caregivers. Previous studies, including (Jimmy, B., & Jose, 2011), have similarly shown that daily routines, family support, and health perceptions play important roles in improving adherence among older populations. The findings of this study emphasize that interventions to improve adherence should not rely solely on increasing knowledge. Educational programs should be complemented by strategies aimed at strengthening motivation, reducing concerns about side effects, improving communication between patients and healthcare providers, and enhancing social support in medication routines. Such a comprehensive approach is considered more effective in improving medication adherence among older adults with chronic diseases.

Table 4 presents results consistent with (Choi et al., 2021), who reported that knowledge is only one of many factors influencing adherence, while psychological factors, individual motivation, treatment complexity, and trust in healthcare providers also play important roles (Kardas, P., Lewek, P., & Matyjaszczyk, 2013). Psychosocial factors such as stress, depression, limited family support, economic constraints, distance to healthcare facilities, and medication availability also substantially contribute to reduced adherence. Therefore, efforts to improve knowledge through education should be accompanied by a more holistic approach that includes emotional, social, and economic support for older adults. (Sabaté, 2020) emphasized that attitudes toward illness, personal motivation, social support, and ease of access to medication significantly influence patient adherence.

Although most respondents had relatively high educational backgrounds, this did not necessarily correspond to higher levels of medication adherence. This finding is consistent with (Maya Arfania, 2023), who reported that high knowledge does not automatically translate into improved adherence among geriatric patients. Factors such as illness perception, family support, and psychological condition play major roles in shaping treatment behavior (Wulandari, P. D., & Lestari, 2018). Interventions aimed at improving medication adherence among older adults should therefore be multifactorial, addressing not only educational components but also motivational strengthening, psychosocial support, and the reduction of barriers to medication access. Such a comprehensive approach is expected to enhance adherence and ultimately improve the quality of life of older adults with chronic (Vrijens, B., Urquhart, J., & Van der Veer, 2021).

CONCLUSION

This study found that the p-value was greater than 0.05 ($p = 0.132$), indicating no statistically significant relationship between the level of knowledge and medication adherence among older adults with chronic diseases enrolled in the Prolanis program at Bululawang Community Health Center. Although knowledge is an important factor, medication adherence is influenced by multiple other determinants.

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