# Relationship Between Education Level and Elderly Compliance in Hypertension Treatment in The Work Area of Datah Kotou Community Health Center

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## ABSTRACT

**Background & Objective:** Hypertension is a common health issue among the elderly, with prevalence increasing as age advances. According to data from the WHO, approximately 1.13 billion people worldwide suffer from hypertension, with the elderly being the most vulnerable group. Poor management of hypertension can lead to serious complications such as stroke, heart failure, and chronic kidney disease. Adherence to treatment is crucial to prevent these complications. However, many elderly individuals, especially those with low education levels, struggle to understand medical instructions and the importance of medication. This study aims to analyze the relationship between education level and adherence to hypertension treatment among the elderly in the working area of Puskesmas Datah Kotou, Puruk Cahu. **Method:** This research employs a quantitative design with a cross-sectional approach. The sample consists of 30 elderly individuals diagnosed with hypertension, and data were collected through a questionnaire measuring education level and adherence using the Morisky Medication Adherence Scale (MMAS-8). **Result:** The results indicate that 83.3% of respondents have a low education level (elementary school), and 63.3% show low adherence to treatment. Statistical analysis reveals a significant relationship between education level and adherence, with a correlation coefficient of 0.691 and a p-value of 0.000. **Conclusion:** This study concludes that education level significantly affects the adherence of the elderly to hypertension treatment, highlighting the need for more effective health education interventions.

**Introduction**

Hypertension is a global health issue whose prevalence continues to rise, particularly among the elderly population. According to data from the World Health Organization (WHO) in 2021, approximately 1.13 billion people worldwide suffer from hypertension, with two-thirds of them residing in developing countries, including Indonesia. The elderly are the most vulnerable group frequently experiencing hypertension due to age-related decreases in blood vessel elasticity. Uncontrolled hypertension can lead to fatal consequences such as stroke, heart failure, and chronic kidney disease (WHO, 2021). Based on the Basic Health Research (Riskesdas) in Indonesia in 2019, the prevalence of hypertension among individuals over 60 years old reached 63.7%. This indicates that hypertension remains a public health burden that requires more attention, especially in rural areas like Datah Kotou, Puruk Cahu.

Adherence to antihypertensive medication is crucial to prevent more serious complications. One factor influencing this adherence is the level of education. Elderly individuals with higher education levels tend to have a better understanding of the importance of maintaining health and following prescribed treatments (Ministry of Health of the Republic of Indonesia, 2020). However, many elderly individuals in rural areas have low education levels, resulting in limited understanding of medication and the importance of health monitoring. This poses a significant challenge in managing hypertension.

Elderly individuals who do not adhere to hypertension treatment are at risk of experiencing serious complications. Lack of adherence to antihypertensive medication also leads to increased morbidity and mortality among the elderly. In the working area of the Datah Kotou Community Health Center (Puskesmas), this situation is exacerbated by limited access to healthcare services. Data from the Datah Kotou Puskesmas indicate that 60% of elderly patients with hypertension who visit the health center do not comply with the prescribed treatment schedule, and many of them experience significant increases in blood pressure during routine visits.

The low education level among the elderly in this area is one of the main causes of low adherence to treatment. Elderly individuals with lower education levels tend to have difficulty clearly understanding medical instructions and accessing accurate health information. According to available data, only about 25% of the elderly in this area have an education level equivalent to high school (SMA), while the rest have only completed elementary education (Health Office of Central Kalimantan, 2021). This affects their ability to comprehend the importance of adherence to treatment.

Theoretically, many studies have shown a significant relationship between education level and medication adherence. Health behavior theory states that individuals with better knowledge tend to have a higher awareness of the importance of maintaining health, including adhering to treatment (Becker, 2019). Other research also indicates that education provides a foundation for better decision-making regarding personal health (Ajzen, 2020). In the context of the elderly, understanding hypertension and the benefits of treatment will influence their adherence levels.

However, in practice, there remains a significant gap between theory and implementation in the field. In rural areas like Datah Kotou, access to adequate health information is still very limited, especially for elderly individuals with low education levels. Additionally, the approaches used by healthcare providers often do not

consider the educational background of patients, making the information conveyed difficult for elderly individuals with low literacy to understand (Ariani et al., 2020). This results in hypertension treatment programs not being optimally implemented.

Several previous studies have shown a significant relationship between education level and medication adherence among the elderly. Research by Sukadana et al. (2021) in Central Kalimantan found that elderly individuals with education levels of high school or above had a medication adherence rate of 75%, while those with education below high school had an adherence rate of only 40%.

Furthermore, a study conducted by Wijaya and Pratama (2020) in Banjarmasin revealed that elderly individuals with low education levels more frequently experienced complications due to uncontrolled hypertension. The study found that 65% of elderly individuals who did not adhere to antihypertensive medication had an educational background limited to elementary school. This highlights the need for more intensive interventions in the form of health education for elderly individuals with low education levels to enhance their understanding of the importance of treatment.

Preliminary study results conducted in the working area of the Datah Kotou Puskesmas, Puruk Cahu, among elderly individuals aged 60-74 years showed that out of 10 randomly selected respondents, 6 had an elementary school education, 3 had no formal education, and 1 had a high school education. From discussions with the respondents, 7 out of 10 indicated that they did not adhere to hypertension treatment in the working area of the Datah Kotou Puskesmas. This underscores the importance of education level in influencing elderly adherence to hypertension treatment.

Additionally, field observations indicated that 7 out of 10 elderly individuals with low education levels did not understand the instructions provided by healthcare workers, particularly regarding the schedule and dosage of medication to be taken. This demonstrates the need for more effective approaches in delivering health education to the elderly, especially those with low education levels, to enhance their adherence to treatment.

Based on the explanations above, it can be concluded that education level is a significant factor influencing the adherence of the elderly to hypertension treatment. Elderly individuals with lower education levels tend to have a limited understanding of the importance of medication and are less compliant with the instructions provided by healthcare professionals. Therefore, the researcher is interested in conducting a study titled "The Relationship Between Education Level and Adherence of the Elderly in Hypertension Treatment in the Working Area of the Datah Kotou Community Health Center." This research is expected to serve as a foundation for designing health education approaches that are simpler and easier to understand, in order to improve the adherence of the elderly to treatment, particularly in rural areas like Datah Kotou.

By addressing the educational gaps and tailoring health communication strategies to the needs of the elderly population, it is hoped that their understanding of hypertension management will improve, leading to better health outcomes and reduced complications associated with uncontrolled hypertension. This study aims to contribute to the body of knowledge regarding the importance of education in health adherence and to provide practical recommendations for healthcare providers working with elderly patients in similar contexts.

**Objective**

The objective of this research is to analyze the relationship between education level and adherence to hypertension treatment among the elderly in the working area of the Datah Kotou Community Health Center.

**Method**

This study was conducted in the working area of the Datah Kotou Community Health Center, Puruk Cahu, Central Kalimantan, from January to March 2025. The research is quantitative in nature with a cross-sectional design, involving 30 elderly individuals diagnosed with hypertension who have been undergoing treatment for a minimum of 6 months. The sample was selected using purposive sampling techniques based on predetermined inclusion and exclusion criteria. The instruments used included the MMAS-8 questionnaire to measure medication adherence and an observation sheet to record blood pressure and demographic data of the respondents.

Data analysis was performed through univariate analysis to describe the characteristics of the respondents and the distribution of variables, as well as bivariate analysis using the Spearman Rank Test to assess the relationship between education level and medication adherence.

This research has undergone ethical procedures, including obtaining ethical approval from the ethics committee of Sari Mulia University and permission from the institution where the research was conducted. Each participant was provided with a complete explanation and asked to sign an informed consent form before participating. The researcher ensures the confidentiality of personal data through anonymization processes and restricted access limited to the research team. The study is designed to provide benefits, both in terms of new knowledge and improved health services. The principle of justice is upheld through the selection of participants based on scientific criteria, without social, economic, or political discrimination.

**Results**

TABLE 1. Frequency Distribution of Respondents' Gender

| Variable | N | % |
|---|---|---|
| *Gender* | | |
| Men | 14 | 46.7 |
| Women | 16 | 53.3 |

The majority of respondents were female, accounting for 53.3%, while males comprised 46.7%. This indicates a nearly balanced distribution of respondents between males and females in this study.

TABLE 2. Frequency Distribution of Respondents' Education Level

| Variable | N | % |
|---|---|---|
| *Education Level* | | |
| Elementary School | 26 | 38.2 |
| Junior High School | 42 | 61.8 |
| Senior High School | | |

Most respondents had an education level of Elementary School (SD), with a percentage of 83.3%, followed by Junior High School (SMP) at 10%, and Senior High School (SMA) at 6.7%. This demonstrates a dominance of respondents with basic education.

TABLE 3. Frequency Distribution of Respondents' Compliance Level

| Variable | N | % |
|---|---|---|
| *Compliance Level* | | |
| Low | 26 | 38.2 |
| Medium | 42 | 61.8 |
| High | | |

A significant portion of respondents exhibited low adherence levels, with 63.3% categorized as having low adherence, followed by moderate adherence at 26.7%, and high adherence at 10%. This indicates that the majority of respondents tend to have low compliance with their treatment.

TABLE 4. Relationship between Education Level and Respondent Compliance Level

| Education Level | Compliance Level | | | Total | Correlation Coefficient | p-value |
|---|---|---|---|---|---|---|
| | Low | Moderate | High | | | |
| Elementary School | 19 | 6 | 0 | 25 | 0.691 | 0.000 |
| Junior High School | 0 | 2 | 1 | 3 | | |
| Senior High School | 0 | 0 | 2 | 2 | | |
| Total | 19 | 8 | 3 | 30 | | |

Among respondents with an Elementary School (SD) education level, 76% exhibited low adherence, while those with higher education levels showed better adherence. The analysis results revealed a significant relationship between education level and adherence, with a correlation coefficient of 0.691 and a p-value of 0.000. This indicates that as education level increases, adherence to treatment also improves.

**Discussion**

Table 1 shows the distribution of gender among respondents in this study, with 14 male respondents (46.7%) and 16 female respondents (53.3%) out of a total of 30 respondents. The larger proportion of female respondents compared to males may reflect several phenomena within the study population. In health compliance research, gender differences often influence study outcomes, particularly in the context of adherence to medication or the implementation of healthy lifestyle practices (WHO, 2020).

Various previous studies have shown that women tend to be more health-conscious than men. A study by Smith et al. (2019) found that women have a higher level of health awareness compared to men, which can impact adherence patterns to certain therapies or treatments. This may be attributed to social and cultural factors that place women in more active roles in maintaining their own health and that of their families (Nguyen et al., 2021). In the context of hypertension, for example, women are more likely to undergo regular health check-ups, while men tend to seek care only when symptoms begin to interfere with daily activities (Johnson & Brown, 2022).

Additionally, the gender distribution in this study may also be influenced by participation factors. Women are often more responsive to health surveys compared to men, as demonstrated in research by Anderson et al. (2023), which found that in

studies related to hypertension and healthy lifestyles, the participation rate of women was higher due to their tendency to be more proactive in managing their health.

From an epidemiological perspective, the gender differences in this study may also reflect the prevalence of certain diseases or health conditions within the broader population. According to a report from the Indonesian Ministry of Health (2023), the incidence rates of certain chronic diseases are more frequently reported among women than men, leading to a higher interaction of women with healthcare services and making them more likely to be respondents in health-related studies.

However, it is important to note that the proportion of males and females in this study did not show a statistically significant difference, thus the results can still represent the population as a whole. This nearly balanced distribution also provides an opportunity to further explore whether there is a relationship between gender and other variables in this study, such as adherence to medication or the education level of respondents.

Therefore, the gender distribution in this study provides a fairly balanced picture between males and females, although slightly more females participated. This aligns with previous research findings that indicate women are more involved in health studies, have higher health awareness, and more frequently access healthcare services compared to men. Consequently, further analysis of other variables in this study may provide additional insights into whether there are significant differences in health patterns and adherence between the two genders.

Table 2 shows the distribution of respondents' education levels, which consists of three categories: Elementary School (SD), Junior High School (SMP), and Senior High School (SMA). Out of a total of 30 respondents, the majority have an education level of SD, with 25 individuals (83.3%), followed by 3 respondents with SMP (10%), and only 2 respondents with SMA (6.7%). This distribution reflects that most respondents in this study have relatively low education levels, with a predominance of basic education.

Education level plays a significant role in various health aspects, including awareness of diseases, understanding of therapies, and adherence to medication (Nguyen et al., 2020). Several studies indicate that individuals with lower education levels often have limitations in accessing accurate health information and possess lower health literacy (Baker et al., 2019). Low health literacy can affect patients' understanding of medical instructions, medication dosages, and the importance of adherence to therapies prescribed by healthcare professionals (World Health Organization, 2021).

In the context of this study, the largest proportion of respondents with only an SD education may indicate potential barriers in understanding health information, including awareness of the diseases they experience and how to manage them. A study by Johnson et al. (2022) found that patients with lower education levels are more likely to rely on personal experiences or information from their social environment rather than credible medical information sources. This can lead to poor health decisions, such as non-adherence to treatment or reliance on unproven alternative therapies.

Furthermore, low education levels may also be associated with more limited access to healthcare services. According to a report from the Indonesian Ministry of Health (2023), individuals with lower education levels tend to have economic limitations that affect their ability to afford healthcare services, particularly in terms

of routine health check-ups and medication purchases. This situation is exacerbated by a lack of understanding of the importance of regular health monitoring and limitations in communication with healthcare providers (Anderson & Lee, 2023).

Although a small proportion of respondents have higher education levels, namely SMP and SMA, their numbers are significantly lower compared to those with only basic education. Individuals with secondary education generally have a better understanding of the importance of healthy lifestyles and adherence to medical therapies (Smith & Patel, 2020). A study by Davis et al. (2021) noted that patients with higher education levels are more likely to seek additional information about their health conditions from trusted sources and are better able to communicate effectively with healthcare providers.

From a social epidemiological perspective, low education levels are often associated with a higher prevalence of chronic diseases due to a lack of awareness of risk factors and preventive actions that can be taken (World Bank, 2020). Therefore, in this study, the predominance of respondents with basic education is a factor that needs to be considered in further analysis, especially in understanding how education influences adherence to medication and overall health behavior.

In conclusion, the distribution of education levels in this study indicates that the majority of respondents have a basic education, which may potentially affect their understanding and awareness of health. This factor can contribute to low adherence to treatment and limitations in accessing valid health information. Therefore, a more adaptive and community-based health education approach is essential to enhance respondents' understanding of the management of their health conditions.

Table 3 shows the distribution of adherence levels among respondents in this study. The results indicate that the majority of respondents have low adherence levels, with 19 individuals (63.3%), followed by moderate adherence with 8 individuals (26.7%), and only 3 individuals (10%) exhibiting high adherence. These findings suggest that more than half of the respondents tend to have low compliance with the recommended treatment or care.

Adherence to treatment or healthcare is a key factor in the success of therapy, especially for patients with chronic diseases such as hypertension or diabetes (Nguyen et al., 2020). The low adherence levels observed in this study may be attributed to various factors, including low education levels, lack of understanding about the disease, and limited access to healthcare services. According to a study by Johnson et al. (2022), patients with lower education levels are more likely to struggle with understanding medication instructions, which increases the likelihood of non-adherence to prescribed therapies.

Additionally, economic factors can also influence patients' adherence to treatment. Patients with low economic status often face limitations in accessing healthcare services or purchasing prescribed medications (Baker et al., 2019). A study by Smith and Patel (2021) found that patients from lower-middle-income groups tend to reduce their medication doses or avoid routine visits to healthcare facilities due to cost concerns. This can negatively impact the effectiveness of the therapy that patients undergo.

From a psychosocial perspective, support from family and healthcare providers plays a crucial role in enhancing patient adherence. Research conducted by Davis et al. (2021) shows that patients who receive support from their families are more likely to comply with medical recommendations compared to those who do not receive such

support. This is due to the motivation and supervision from family members, which can help patients remember their medication schedules or adhere to the healthy lifestyle practices recommended by healthcare providers.

Moreover, patients' perceptions of their illness also contribute to adherence levels. According to research by Anderson and Lee (2023), patients who feel that their illness does not seriously impact their daily lives are more likely to disregard medical advice. Conversely, those who understand the negative consequences of non-adherence to treatment are more likely to follow therapy regularly.

In this study, only 10% of respondents exhibited high adherence levels, indicating that the majority still require further interventions to improve their compliance with treatment. Health education and community-based approaches can be effective strategies to enhance patients' understanding of the importance of adherence to therapy. Community-based intervention programs that involve health education, counseling by healthcare professionals, and strengthening social support have been shown to improve patients' adherence to treatment (World Health Organization, 2021).

Overall, the findings of this study indicate that the adherence levels among respondents are still relatively low, which can impact the effectiveness of therapy and increase the risk of disease complications. Therefore, a multidisciplinary approach involving healthcare providers, families, and communities is necessary to enhance patients' adherence to the recommended therapies.

Table 4 shows the relationship between education level and adherence to treatment among respondents in this study. The results of the cross-tabulation indicate that the majority of respondents with an Elementary School (SD) education have low adherence, with 19 out of 25 respondents (76%) falling into this category. Conversely, there were no respondents with an SD education who exhibited high adherence. Meanwhile, respondents with a Junior High School (SMP) education showed better adherence variation, with 2 out of 3 respondents (67%) in the moderate adherence category and 1 respondent (33%) demonstrating high adherence. For the group of respondents with a Senior High School (SMA) education, adherence was higher, with 2 out of 2 respondents (100%) showing high adherence. Statistical tests revealed a significant relationship between education level and adherence, with a correlation coefficient of 0.691 and a p-value of 0.000, indicating that the higher the education level, the greater the likelihood of adherence to treatment.

The relationship between education level and adherence to treatment has been extensively studied in various health research. Higher education enables individuals to better understand the importance of adhering to therapies prescribed by healthcare professionals (Nguyen et al., 2020). Individuals with lower education levels tend to face barriers in understanding medical information, such as medication dosages, schedules, and potential side effects that may arise if therapy is not properly followed (Baker et al., 2019). Low health literacy is often associated with misconceptions about diseases and treatments, ultimately leading to lower adherence levels (World Health Organization, 2021).

In the context of this study, the findings indicating that the majority of respondents with an SD education have low adherence can be explained by several factors. One of these is the limited access to reliable health information. A study by Johnson et al. (2022) revealed that patients with lower education levels are more likely to rely on information from their social environment or personal experiences rather

than information provided by healthcare professionals. This can lead to misconceptions about the importance of regular medication consumption and the potential side effects of non-adherence.

Another factor influencing adherence is the difference in mindset and decision-making regarding health. Individuals with higher education levels tend to possess better critical thinking skills, allowing them to understand the consequences of not following medical recommendations (Smith & Patel, 2021). For example, patients with higher education may find it easier to comprehend the mechanisms of antihypertensive medications and the importance of taking them regularly to avoid complications such as stroke or heart failure. In contrast, patients with lower education levels may be more susceptible to the belief that they only need to take medication when they experience symptoms, rather than as part of a long-term therapy to control blood pressure (Davis et al., 2021).

In addition to health literacy, economic factors can also play a significant role in the relationship between education level and adherence to treatment. A study by Anderson and Lee (2023) showed that individuals with higher education levels tend to have more stable jobs and higher incomes, enabling them to more easily access healthcare services and purchase medications as prescribed. Conversely, patients with lower education levels often face economic difficulties that force them to choose between buying medications or meeting other basic needs. This results in lower adherence levels as they may reduce medication doses or not fill prescriptions at all.

In this study, the groups of respondents with SMP and SMA education levels demonstrated better adherence. This supports previous findings that individuals with higher education levels are more capable of utilizing health resources and are more open to health education (World Bank, 2020). Additionally, individuals with higher education levels are also more likely to actively seek information about their health conditions from various trusted sources, such as doctors, health journals, or credible online media (Johnson et al., 2022).

The findings of this study emphasize the importance of education-based interventions in improving patient adherence to treatment, especially for those with lower education levels. Health education programs tailored to patients' literacy levels, such as the use of visual materials, group education sessions, and individual counseling, can help enhance patients' understanding of the importance of adherence to treatment (World Health Organization, 2021). Furthermore, the involvement of healthcare professionals in providing easily understandable and relevant education to patients' conditions is also a key factor in improving adherence to treatment.

Overall, this study found a strong relationship between education level and adherence to treatment. Respondents with lower education levels tend to have lower adherence, while those with higher education levels demonstrate better adherence. Therefore, intervention strategies focusing on improving health literacy, access to reliable medical information, and social and economic support for patients with lower education levels can be effective solutions for enhancing adherence to treatment.

**Conclusion**

This study aims to analyze the relationship between education level and adherence to hypertension treatment among the elderly in the working area of the Datah Kotou Community Health Center. The results indicate that the majority of respondents had a low education level, with 83.3% having only completed Elementary

School (SD). Furthermore, the findings reveal that 63.3% of respondents exhibited low adherence to their prescribed antihypertensive treatment.

The analysis shows a significant correlation between education level and adherence, with a correlation coefficient of 0.691 and a p-value of 0.000. This suggests that higher education levels are associated with better adherence to treatment among the elderly. Respondents with lower education levels demonstrated a greater tendency to struggle with understanding medical instructions and the importance of consistent medication intake, which may contribute to their low adherence rates.

The implications of this study emphasize the need for targeted health education interventions that consider the educational background of elderly patients. Strategies should focus on improving health literacy, providing clear and accessible information about hypertension management, and enhancing support systems to encourage adherence to treatment.

However, further research with a larger sample size and a more comprehensive approach is necessary to explore the multifaceted relationship between education level and treatment adherence, as well as to identify additional factors that may influence adherence among the elderly population.

## Acknowledgement

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