FACTORS INFLUENCING MEDICATION BELIEFS AMONG HYPERTENSIVE PATIENTS AT NGEMPLAK BOYOLALI COMMUNITY HEALTH CENTER IN 2026

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ABSTRACT

Hypertension requires long-term treatment to control blood pressure and prevent complications. Adherence to this therapy is influenced by medication beliefs—specifically, patients' perceptions regarding the necessity of the medication and concerns about its use. Given that these perceptions impact quality of life, it is important to analyze the factors influencing the medication beliefs of hypertensive patients at the Ngemplak Boyolali Community Health Center in 2026. Objective: This study aimed to analyze the factors influencing medication beliefs among patients with hypertension at Ngemplak Public Health Center, Boyolali, in 2026. Methods: This cross-sectional, quantitative analytical observational study evaluated 92 hypertensive patients meeting the inclusion criteria at Ngemplak Public Health Center, Boyolali, in 2026. The Beliefs about Medicines Questionnaire (BMQ) assessed medication beliefs, while a structured questionnaire recorded potential influencing factors. Statistical relationships were examined via the Chi-Square test (α = 0.05). Results: The results showed that most respondents were aged 36–55 years (75.0%), female (64.1%), educated up to elementary school (59.8%), others therapy (94.6%), and had hypertension for less than 5 years (73.9%). Statistical analysis revealed no significant relationships between medication beliefs and age (p = 0.614), gender (p = 0.680), education level (p = 0.737), or disease duration (p = 0.815). Conversely, others therapy was identified as a significant factor associated with medication beliefs (p = 0.020). Conclusion: Among evaluated factors, others therapy significantly influenced medication beliefs in hypertensive patients at Ngemplak Community Health Center in 2026. Tailored counseling, healthcare provider

support, and family engagement are recommended to optimize patient adherence.

KEYWORDS Medication beliefs, Hypertension, Influencing factors, BMQ

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INTRODUCTION

According to the American Heart Association (2025), hypertension is defined as a systolic blood pressure of ≥ 120 mmHg and a diastolic blood pressure of ≥ 80 mmHg. Blood pressure readings exceeding 120/80 mmHg can damage blood vessels and increase the risk of heart disease. Prevention and control measures must begin early, as hypertension is known as "The Silent Killer" and impacts patients' quality of life (Honestly et al., 2025). According to the World Health Organization (2025), the prevalence of hypertension varies across regions and income levels. The Eastern Mediterranean Region has the highest prevalence at 38%, while the Western Pacific Region has the lowest at 29%. The number of adults with hypertension rose from 650 million in 1990 to 1.4 billion in 2024. The 2023 Indonesian Health Survey recorded that 10.7% of individuals aged 18–24 and 17.4% of those aged 25–34 suffered from hypertension (Indonesian Ministry of Health). In Central Java, 26.9% of the population aged over 15 years had hypertension in 2024, while in Boyolali, hypertension accounted for 89.1% of all non-communicable diseases.

Given the rising prevalence of hypertension, successful disease management also depends on patient behavior. One key factor is "Medication Beliefs"—patients' convictions regarding their treatment—which have been identified as significant predictors of treatment adherence and warrant consideration (Otenyo & Kereri, 2021). Research indicates that patients with fewer concerns about hypertension medication demonstrate higher levels of adherence. The results show that the majority of participants expressed greater concern regarding their medication (mean specific-concerns score of 15.58), followed by a strong perceived need for the medication (mean specific-necessity score of 13.39). They also demonstrated very low levels of concern regarding medication overuse (mean General Overuse score of 10.18) (Otenyo et al., 2021). Furthermore, previous studies indicate that 81.5% of participants were convinced of the importance of antihypertensive medication, while 14.2% harbored serious concerns, and 4.3% held neutral views (Akinola et al., 2025).

For hypertensive patients, clinical outcomes are measured using a blood pressure monitor. Controlling blood pressure can prevent complications such as stroke, heart disease, and kidney failure. Regarding therapeutic outcomes, 75 respondents failed to achieve the desired results; 41 demonstrated low adherence, 28 showed moderate adherence, and 6 showed high adherence. These findings suggest that despite low to moderate adherence levels, clinical outcomes were not achieved—a situation evidenced by the fact that many patients forgot to take their medication (Husnawati et al., 2025). Evidence suggests that medication beliefs may be more predictive of adherence than demographicor clinical characteristics, accounting for nearly 20% of the variability in adherence behaviours (AlGhurair et al., 2012; Barry et al., 2023; Gatti et al., 2009; Percival et al., 2012,). The Necessity–Concern Framework provides a theoretical basis for understanding this relationship, proposing that patients continuously weigh their perceived need for medication against concerns about potential adverse effects. Adherence is more likely when necessity beliefs outweigh concerns (Dias et al., 2014; Phillips et al., 2014; Wei et al., 2017, Yasin et al., 2024). Beyond adherence, medication

beliefs are increasingly recognized as underlying determinants that shape treatment engagement and long-term outcomes.

RESEARCH METHOD

This study is quantitative, employing an analytical observational design with a cross-sectional approach. This study was conducted from May 2026 to June 2026 at the Ngempak Boyolali Community Health Center. The population consists of the totality of variables related to the issue under study. The population in this study comprises all hypertensive patients at the Ngemplak Boyolali Community Health Center (Puskesmas) totaling 1,093 individuals. The sample consists of subjects drawn from the entire group under study and is considered representative of the whole population. The sample size for this study was in a total of 92 individuals. The inclusion criteria for this study were: patients or their family members willing to participate as respondents; patients aged over 18 years; patients who could read and write; patients with hypertension who had attended at least two outpatient follow-up appointments (one during the study period and one in the two months prior); patients diagnosed with hypertension; and patients with blood pressure data recorded in their medical records. The exclusion criterion was failure to complete the questionnaire fully.

The research employed a respondent characteristics questionnaire to outline the demographic and clinical profiles of the hypertensive patients participating in the study—specifically their age, gender, education level, occupation, and other medications being taken. The Beliefs about Medicines Questionnaire (BMQ) was used to measure the patients' beliefs regarding their treatment. This study utilized a questionnaire comprising 10 items covering two primary dimensions: beliefs about necessity and beliefs about concerns. Additionally, medical record data regarding other therapies administered to the patients were utilized. The variables examined in this study were patient characteristics (as the independent variable) and medication beliefs (as the dependent variable). These variables were analyzed using the Chi-Square test to determine the relationship between them, with data processing performed using IBM SPSS Statistics 26.

RESULT AND DISCUSSION

Respondent Characteristics

Age is a key respondent characteristic in hypertension research, as it is associated with the risk of developing hypertension, beliefs regarding treatment, and patients' quality of life. The age distribution of hypertension patients at the Ngemplak Boyolali Community Health Center (Puskesmas) is presented in Table 1. below.

Table 1. Characteristics of respondents based on age

Age	Frequency	Percentage (%)
26-35	10	10.9
26-55	69	75.0
>56	13	14.1
Total	92	100.0

Table .1 shows that the respondents in this study fell into the following age groups: 26–35 years (10 individuals; 10.9%), 36–55 years (69 individuals; 75%), and over 56 years (13 individuals; 14.1%). These results indicate that the hypertensive patients in this study were predominantly from the middle-aged to elderly groups. The results of this study align

with research by Makmun (2025) at the Jumpandang Baru Community Health Center, which found that the 46–55 age group constituted the largest segment, comprising 47 respondents (43.1%). That study concluded that the risk of developing hypertension increases with age due to degenerative processes in the cardiovascular system (Makmun, 2025). These findings are also consistent with research by Immanuela (2023) at the Arjasa Community Health Center in Jember Regency, which showed that 63 respondents (58.3%) fell into the age group of ≥45 years. That study concluded that individuals in late adulthood and the elderly are the groups most affected by hypertension, owing to degenerative changes in the cardiovascular system (Immanuela et al., 2023).

Gender is a significant demographic characteristic in hypertension research, as it can influence the incidence of hypertension, responses to antihypertensive therapy, and patient quality of life. The distribution of gender among hypertensive patients at the Ngemplak Boyolali Community Health Center (Puskesmas) is presented in Table 2. below.

Table 2. Characteristics of respondents based on gender

Gender	Frequency	Percentage (%)
Man	33	35.9
Woman	59	64.1
Total	92	100.0

Table 2. shows the gender distribution of the respondents in this study: 33 males (35.9%) and 59 females (64.1%). The results of this study align with research conducted at the Jumpandang Baru Community Health Center, which showed that 71 respondents (65.1%) were female, while 38 respondents (34.9%) were male. That study concluded that women experience hypertension more frequently than men—particularly in the menopausal age group—due to reduced levels of estrogen, a hormone that protects the cardiovascular system (Makmun, 2025).

Education level is a factor influencing patients' understanding of hypertension, their beliefs regarding antihypertensive therapy (medication beliefs), and their quality of life. The distribution of the highest education level among hypertensive patients undergoing antihypertensive therapy at the Ngemplak Boyolali Community Health Center (Puskesmas) is presented in Table 3 below.

Table 3. Characteristics of respondents based on education

Education	Frequency	Percentage (%)
Elementary School	55	59.8
Junior High School	13	14.1
Senior High School	17	18.5
College	7	7.6
Total	92	100.0

The table shows that the respondents' highest level of education was as follows: 55 individuals (59.8%) completed elementary school, 13 (14.1%) completed junior high school, 17 (18.5%) completed senior high or vocational school, and 7 (7.6%) completed higher education. The results of this study align with research conducted by Baringbing (2023), indicating that a low level of education can limit the understanding of health information, thereby influencing healthy lifestyle behaviors, treatment adherence, and blood pressure control.

Data regarding other therapies among the study respondents are presented to provide an overview of respondent characteristics based on the use of therapies other than antihypertensive treatment.

Table 4. Characteristics of respondents based on others therapy

Others Therapy	Frequency	Percentage (%)
There are other therapies.	87	94.6
no other therapy	5	5.4
Total	92	100.0

Table 4. shows that the majority of respondents—87 individuals (94.6%)—were undergoing other therapies, while 5 respondents (5.4%) were not. These results indicate that the majority of respondents were receiving therapies in addition to antihypertensive treatment. These results indicate that nearly all hypertensive patients in this study received adjunctive therapy alongside antihypertensive medication. The findings align with the study by Septiani (2023), which noted that hypertensive patients with comorbidities often receive multiple medications concurrently, necessitating monitoring for potential drug interactions and adherence to medication regimens. The use of adjunctive therapy is part of the comprehensive management of hypertensive patients, particularly those with other chronic conditions (Septiani et al., 2023).

Data regarding the duration of hypertension among the respondents in this study are presented to provide an overview of respondent characteristics based on the length of time they have lived with the condition. The distribution of the duration of hypertension among patients at the Ngemplak Boyolali Community Health Center (Puskesmas) is shown in Table 5. below.

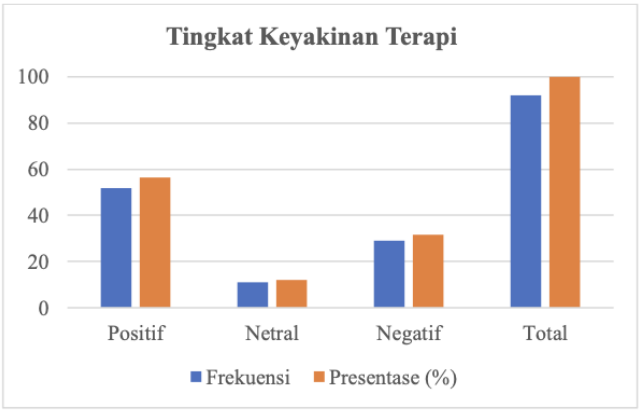
Table 5. Characteristics of respondents based on duration of illness

Duration of illness	Frequency	Percentage (%)
< 5 years	68	73.9
≥5 years	24	26.1
Total	92	100.0

Based on Table 5. it can be seen that the majority of respondents fell into the <5 years category, totaling 68 individuals (73.9%). Meanwhile, there were 24 respondents (26.1%) who had suffered from hypertension for ≥5 years. These results indicate that the majority of respondents in this study had been living with hypertension for a considerable period. The results of this study align with research conducted by Nilawati (2023) at the Cilacap Selatan II Community Health Center, which showed that 82.1% of respondents had been living with hypertension for 1–5 years, while only 17.9% had suffered from the condition for a longer period. That study explained that the majority of patients were in the early stages of the disease, thereby retaining a good opportunity to maintain their quality of life through blood pressure control (Nilawati et al., 2023).

Medication Beliefs

Grafik 1. shows that the majority of respondents held positive beliefs regarding medication, specifically 52 respondents (56.5%). Meanwhile, 29 respondents (31.5%) held negative beliefs, and 11 respondents (12.0%) held neutral beliefs. These results indicate that the majority of respondents held positive beliefs regarding medication use.



Sumber: data yang diolah,2026

The findings of this study align with research by Otenyo and Kereri (2021), which indicates that hypertensive patients with positive beliefs about their medication tend to demonstrate better adherence to antihypertensive treatment. That study explains that when patients perceive the benefits of medication use as outweighing concerns regarding side effects or long-term use, they are more motivated to adhere to their treatment regimen consistently. Conversely, significant concerns about the medication can act as a barrier to treatment adherence (Otenyo & Kereri, 2021). Thus, the results of this study demonstrate that the majority of respondents hold positive beliefs regarding their therapy; specifically, they have confidence in the benefits of antihypertensive medication, a factor that supports treatment adherence and successful blood pressure control.

The Relationship Between Medication Beliefs and Respondent Characteristics

Table 5. Characteristics of respondents based on duration of illness

Variabel		Positif	Netral	Negatif	Total	p-value
Age	26-35	6	1	3	10	0.614
	36-55	41	7	21	69	
	>56	5	3	5	13	
	Total	52	11	29	92	
Gender	Man	18	3	12	33	0.680
	Woman	34	8	17	39	
	Total	52	11	17	59	
Education	Elementary School	33	7	15	55	0.737
	Junior High School	5	1	7	13	
	Senior High School	10	2	5	17	
	College	4	12	7	13	
	Total	52	11	29	92	
Others therapy	Ada	50	8	29	92	0.02
	Tidak ada	2	3	0	5	
	Total	52	11	29	92	
Duration of illness	<5 tahun	38	9	21	68	0.815
	≥5 tahun	14	2	8	24	
	Total	52	11	29	92	

Chi-Square test results indicate no association between age and medication beliefs among hypertensive patients (p=0.614). This suggests that differences in age groups within

this study did not translate into differences in patients' beliefs regarding the use of antihypertensive medication. The absence of a relationship between age and medication beliefs may stem from the fact that such beliefs are influenced not only by demographic factors but also by how patients perceive the benefits of treatment, the necessity of medication use, and concerns regarding the effects of the drugs they take. Medication beliefs among hypertensive patients are linked to their perceptions of the antihypertensive therapy they are undergoing—specifically, the balance between the belief that the medication is necessary and concerns regarding its use (Hermansson Borrebaeck et al., 2023). Patient experiences during therapy and interactions with healthcare professionals can also shape perceptions of treatment. Consequently, patients of different ages may hold relatively similar levels of medication beliefs if they receive similar information and share comparable treatment experiences.

The Chi-Square test results indicate no association between medication beliefs and gender ($p=0.680$; $p>0.05$). This suggests that both male and female patients hold relatively similar beliefs regarding the use of antihypertensive medication; gender does not drive differences in patient beliefs about using these drugs. Beliefs about medication are more closely linked to how patients perceive the benefits of therapy, the necessity of the medication, and their experiences during treatment.

The absence of an association may be attributed to the fact that medication beliefs are individual perceptions shaped by experiences with medication use, understanding of the disease, and information acquired during the treatment process. Gender differences do not necessarily lead to differences in how patients evaluate the benefits or risks of antihypertensive therapy. These findings align with Otenyo and Kereri (2021), who explain that treatment beliefs among hypertensive patients are associated with their perceptions of the therapy's benefits and concerns. Factors such as patient experience and understanding of the treatment play a more significant role than demographic characteristics in shaping medication beliefs (Otenyo & Kereri, 2021).

The Chi-Square test results indicate no significant association between education level and medication beliefs among hypertensive patients ($p=0.737$; $p>0.05$). The findings demonstrate that variations in respondents' education levels do not result in differences regarding their beliefs about the use of antihypertensive medication.

The absence of a relationship between education and medication beliefs suggests that a patient's formal education level does not necessarily determine their beliefs regarding antihypertensive medication use. This may be because medication-related beliefs are more strongly influenced by experiences during treatment, understanding of the medication's benefits, and concerns about perceived side effects. Patients with either low or high levels of education can hold either positive or negative beliefs about the medication, depending on the information and experiences acquired during the course of treatment.

These findings align with the study by Otenyo and Kereri (2021), which explains that medication beliefs among hypertensive patients are more closely linked to how patients evaluate the benefits, necessity, and concerns associated with the medication they take. Medication beliefs are shaped by experiences with medication use and perceptions of the treatment received, rather than being determined solely by education level (Otenyo & Kereri, 2021).

Chi-square test results indicate no significant association between employment status and medication beliefs among hypertensive patients ($p=0.348$; $p>0.05$). These findings suggest that differences in respondents' employment status do not lead to

differences in beliefs regarding the use of antihypertensive medication. The lack of an association between employment and medication beliefs is likely because patients' beliefs about medication are more closely linked to personal treatment experiences, perceptions of the need for medication, and concerns regarding side effects than to employment status. Patients—whether employed or unemployed—share an equal likelihood of forming positive, neutral, or negative beliefs about antihypertensive medication. This study aligns with the research by Otenyo and Kereri (2021), which indicates that sociodemographic factors—including occupation—are not significantly associated with adherence to antihypertensive medication. This suggests that sociodemographic characteristics are not always the primary determinants of patient behavior regarding therapy. Patients' beliefs about treatment continue to be influenced by their individual perceptions and experiences with the therapy they are undergoing (Otenyo & Kereri, 2021).

The Chi-Square test yielded a p-value of 0.020 ($p < 0.05$), indicating a significant association between the use of additional therapies and medication beliefs among hypertensive patients. This association may stem from the more complex treatment experiences of patients receiving additional medications. The use of multiple medications can reinforce a patient's belief that treatment is necessary to manage their health condition; however, it can simultaneously heighten concerns regarding side effects, drug-drug interactions, and long-term medication use. These factors can influence the balance between beliefs regarding necessity and concerns, resulting in differences in medication belief categories between patients receiving additional therapies and those who are not.

These findings are supported by research conducted by Rafhi et al. (2025), which identified a moderate positive association between necessity beliefs and polypharmacy. Their results suggest that patients using a greater number of medications tend to hold stronger beliefs regarding the necessity of treatment. However, while the study by Rafhi et al. (2025) focused specifically on the relationship between polypharmacy and the "necessity" component of medication beliefs, the present study examined the association between the use of additional therapies and medication beliefs across all categories.

Chi-square test results indicate no significant association between the duration of hypertension and medication beliefs ($p=0.815$; $p>0.05$). These results suggest that there is no significant difference in beliefs regarding antihypertensive medication use between patients who have had hypertension for less than five years and those who have had it for five years or longer. The absence of such an association may be attributed to the fact that the duration of the condition does not necessarily result in uniform experiences or assessments regarding treatment. Patients undergoing long-term therapy may become increasingly convinced of the medication's importance after experiencing its benefits, yet they may also develop heightened concerns regarding long-term use. Conversely, patients with a shorter history of hypertension may still hold positive beliefs if they understand that medication is necessary to control blood pressure. These results align with research by Abdullah (2026), which found that the duration since diagnosis was not associated with "necessity beliefs" but was associated with "concern beliefs." Such findings suggest that the duration of the disease may relate only to specific belief components rather than to the category of medication beliefs as a whole.

CONCLUSION

Based on the study results involving 92 hypertensive patients at the Ngemplak Boyolali Community Health Center, it can be concluded that the respondents' sociodemographic characteristics were dominated by the 36–55 age group (69 respondents; 75.0%), females (59 respondents; 64.1%), those with primary school education as their highest level of schooling (55 respondents; 59.8%), those with a history of other therapies (87 respondents; 94.6%), and those who had suffered from the condition for less than 5 years (68 respondents; 73.9%). The majority of respondents held positive medication beliefs (52 respondents; 56.5%), while 29 respondents (31.5%) held negative beliefs and 11 respondents (12.0%) held neutral beliefs. There is a significant association between medication beliefs and the use of other therapies among hypertensive patients at the Ngemplak Boyolali Community Health Center (Puskesmas), with a p-value of 0.020 ($p < 0.05$). This indicates that differences in medication belief categories are accompanied by statistically significant differences regarding the use of other therapies.

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