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Relationship Between Knowledge and Blood Pressure Among Hypertensive Prolanis Patients at Seto Hasbadi 01 Clinic

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ABSTRACT

Hypertension remains a critical global health burden and is frequently termed the "silent killer" because it is often asymptomatic. In Indonesia, the Chronic Disease Management Program (Prolanis) is implemented to support patients in controlling chronic conditions such as hypertension. Theoretically, higher patient knowledge should be associated with better disease management; however, the gap between awareness and clinical outcomes remains a challenge. This study aimed to determine the relationship between knowledge level and blood pressure control among hypertensive patients enrolled in the Prolanis programme at Seto Hasbadi 01 Clinic. A quantitative cross-sectional design was employed. Using purposive sampling, 133 hypertensive Prolanis patients were recruited between February and April 2025. Knowledge of hypertension was measured using a structured questionnaire that had undergone validity and reliability testing, while blood pressure control was determined from clinic records using JNC VIII criteria. Data were analysed with descriptive statistics and Spearman's Rho correlation. Most respondents had a good level of knowledge (n = 83, 62.4%), yet 70 respondents (52.6%) still had uncontrolled blood pressure. The correlation analysis yielded an r value of 0.017 with a p-value of 0.846 ($p > 0.05$), indicating no statistically significant relationship between knowledge level and blood pressure control. These findings suggest that knowledge alone is insufficient to ensure blood pressure control and highlight the need to address additional factors such as medication adherence and lifestyle modification to improve clinical outcomes in hypertensive Prolanis patients.

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1. Introduction

Non-Communicable Diseases (NCDs), also known as chronic diseases, result from a combination of genetic, physiological, environmental, and behavioral factors [1]. According to the World Health Organization (WHO), hypertension is the leading cause of death globally, affecting approximately 1.28 billion adults. Due to its often

asymptomatic nature, it is frequently termed the "Silent Killer" [2],[3]. In Indonesia, hypertension remains a critical health burden, accounting for 10.2% of deaths [4].

While the 2023 Indonesian Health Survey (SKI) indicated a national prevalence decrease to 30.8%, a significant gap exists in the "cascade of care." Data reveals that only a small percentage of diagnosed patients—both in productive (18–59 years) and elderly age groups—adhere to regular medication and follow-up visits [1]. This gap is critical to the study's framework; it suggests that even if patient knowledge is high, breakdowns in the diagnosis-treatment-adherence chain may weaken the direct relationship between knowledge and blood pressure control.

Patient knowledge is theoretically a fundamental factor in hypertension management, as adequate understanding encourages treatment adherence and lifestyle modifications [5],[6]. However, regional data indicates that high prevalence persists despite existing programs; for instance, West Java reported a prevalence of 39.6% in 2018 [7], and Bekasi City has reported significant fluctuations in case numbers with many patients remaining undiagnosed [8]. This disconnect implies that while knowledge is necessary, it may not be sufficient on its own to ensure clinical stability.

Previous empirical studies, such as those conducted at RSUD Pangkalan Bun [5] and Puskesmas Garuda Bandung [9], have consistently demonstrated a significant correlation between higher knowledge levels and better blood pressure control. However, at Klinik Seto Hasbadi 01, the implementation of the Chronic Disease Management Program (*Prolanis*) was disrupted by the COVID-19 pandemic, resulting in a decline in routine counseling and patient education. Currently, no specific research has assessed the status of patient knowledge and clinical outcomes in this facility post-pandemic. Therefore, this study aims to determine the relationship between knowledge levels and blood pressure among hypertensive Prolanis patients at Klinik Seto Hasbadi 01.

2. Methods

Methodology

This study employs a quantitative research method with a correlational design aimed at determining the relationship between knowledge levels and blood pressure among hypertensive Prolanis patients at Seto Hasbadi 01 Clinic.

Preparation phase

The research process begins with administrative protocols, including obtaining a formal research permit from STIKes IKIFA and securing approval from Seto Hasbadi 01 Clinic. Subsequently, the researcher applies for and obtains Ethical Clearance from the STIKes IKIFA Research Ethics Committee to ensure compliance with ethical standards.

Implementation phase

Data collection targeted respondents meeting the specific inclusion criteria. The primary instrument used was a structured questionnaire designed to assess hypertension knowledge, which underwent a pilot test with 25 respondents to ensure validity and reliability prior to the main study.

Data processing

Collected data underwent a systematic four-step process comprising editing, coding, tabulating, and entry into SPSS. For each respondent, systolic and diastolic blood pressures from the last three Prolanis visits were extracted from medical records. These values were then classified as controlled or uncontrolled according to age-specific

thresholds based on the JNC VIII guidelines. The blood pressure categories and corresponding cut-off values used in this study are summarised in **Table 1**.

Table 1. Blood pressure categorization based on JNC VIII guidelines.

Name	Age	Blood Pressure			Guidelines	Category	Comorbidity
		Feb	Mar	Apr			
NI	55	140/90	120/80	150/90	<140/90	Uncontrolled	None
RB	69	180/90	162/77	148/81	<150/90	Uncontrolled	None
SW	74	167/90	120/70	159/73	<140/90	Uncontrolled	DM
AGS	79	140/100	130/70	140/90	<140/90	Uncontrolled	Renal Failure

Validity and reliability testing

The instrument is tested using SPSS software. Validity is assessed using Bivariate Correlation (Pearson), where items are considered valid if $r_{count} > r_{table}$ or the p-value < 0.05. Following validity testing, a reliability analysis is conducted using the Scale Reliability Analysis function in SPSS.

Population and sample

The population for this study comprises 200 hypertensive patients currently enrolled in the Prolanis program at Seto Hasbadi 01 Clinic. Participants were selected using a purposive sampling technique based on specific inclusion criteria, which required respondents to have participated in the program for at least three consecutive months, possess the ability to communicate effectively, and complete the provided questionnaire in full. To determine the appropriate sample size, Slovin's formula was applied with a margin of error set at 5%. Consequently, from the total population, a final sample of 133 respondents was established for this research. While this formula offers a practical heuristic for sample estimation, it is acknowledged that future studies would benefit from a formal power analysis to optimize statistical sensitivity for correlational testing.

Data analysis

The data collected in this study were processed and analysed using SPSS version 25. Descriptive statistics (frequencies and percentages) were used to summarise respondents' sociodemographic characteristics, knowledge levels, and blood pressure categories. The relationship between knowledge level (poor, fair, good) and blood pressure control (controlled vs uncontrolled) was examined using Spearman's Rho correlation, because both variables were ordinal and did not fulfil the assumption of normality. The strength and direction of the correlation coefficient r were interpreted according to standard categories ranging from "no correlation" to "perfect correlation", as presented in **Table 2**.

Table 2. Correlation coefficient value

No	Interval Value	Strength of Correlation
1	$r = 0,00$	**No correlation**
2	$0,00 < r \leq 0,20$	Very weak
3	$0,20 < r \leq 0,40$	Weak
4	$0,40 < r \leq 0,70$	Moderate
5	$0,70 < r \leq 0,90$	Strong
6	$0,90 < r \leq 1,00$	Very Strong
7	$r = 1,00$	Perfect

Ethical considerations

This study was reviewed and approved by the Research Ethics Committee of STIKes IKIFA, Jakarta, Indonesia (Approval No. 001146/Komite Etik Penelitian STIKes IKIFA/2025).

3. Results and Discussion

This research was conducted at Seto Hasbadi 01 Clinic from March to April 2025. The sample comprised 133 hypertensive Prolanis patients, selected using a purposive sampling technique based on inclusion criteria; the sample size was determined using Slovin's formula. Data collection was integrated into the Prolanis program schedule, occurring during routine patient check-ups or the clinic's Sunday morning exercise sessions. During these sessions, respondents completed the research questionnaire, followed by routine blood pressure and blood glucose screenings, which are standard procedures managed by the clinic prior to the exercise.

Validity test

A questionnaire, consisting of 25 statements regarding hypertension-related knowledge, was distributed to 50 respondents for validity and reliability testing (**Table 3**). The purpose of the validity test was to ensure that the questionnaire could accurately measure the respondents' knowledge of hypertension. An item was declared valid if its calculated r-value was greater than the r-table value (0.279). The results of the validity test indicated that 20 statements were valid and 5 statements were invalid.

Table 3. Questionnaire validity test result

Question	r-value	r-table	Result	Question	r-value	r-table	Result
1	0,202	0,279	Invalid	14	0,190	0,279	Invalid
2	0,935	0,279	Valid	15	0,599	0,279	Valid
3	0,714	0,279	Valid	16	0,391	0,279	Valid
4	0,575	0,279	Valid	17	0,112	0,279	Invalid
5	0,758	0,279	Valid	18	0,541	0,279	Valid
6	0,571	0,279	Valid	19	0,788	0,279	Valid
7	0,691	0,279	Valid	20	0,493	0,279	Valid
8	0,401	0,279	Valid	21	0,215	0,279	Invalid
9	0,627	0,279	Valid	22	0,563	0,279	Valid
10	0,559	0,279	Valid	23	0,366	0,279	Valid
11	0,541	0,279	Valid	24	0,613	0,279	Valid
12	0,313	0,279	Valid	25	0,637	0,279	Valid
13	0,225	0,279	Invalid				

Reliability test

A reliability test was then conducted by inputting the data from the valid items into SPSS version 25. The instrument is considered reliable if the Cronbach's Alpha value is greater than 0.60. The result was shown in **Table 4**. Reliability Test Result

Table 4. Reliability test result of the hypertension knowledge questionnaire

Cronbach's alpha	Number of items
0.904	20

Respondent characteristics

Table 5 presents the sociodemographic and clinical profiles of the 133 respondents involved in this study. This overview encompasses key demographic

variables, including gender, age distribution, educational background, and occupational status. Furthermore, clinical characteristics—specifically the duration of hypertension and the presence of comorbidities—are detailed to provide a comprehensive description of the Prolanis patient population at Seto Hasbadi 01 Clinic.

Table 5. Sociodemographic and Clinical Characteristics of Respondents (n = 133)

Characteristic	Frequency	Percentage (%)
Gender		
Male	41	30,8
Female	92	69,2
Age		
18-59 Years Old	62	46,6
> 60 Years Old	71	53,4
Occupation		
Private Employee	6	4,5
Entrepreneur	6	4,5
Retired	22	16,5
Not Working	99	74,4
Education		
Elementary School	2	1,5
Junior High School	11	8,3
Senior High School	107	80,5
Diploma	5	3,8
Bachelor	8	6,0
Duration of Illness		
≤ 5 Years	79	59,4
≥ 5 Years	54	40,6
Comorbidities		
Diabetes Mellitus	26	19,5
Renal Failure	3	2,3
Heart Disease	10	7,5
Cholesterol	3	2,3
Osteoarthritis	1	0,8
None	90	67,7

Respondent characteristics by gender

The gender distribution as in **Table 5** indicates that females constituted the majority of respondents, with 92 individuals (69.2%). The high prevalence of hypertension among women is often associated with menopause. Before entering menopause, women experience a gradual loss of the estrogen hormone. This hormonal change, besides signifying advancing age, can trigger weight gain and cause blood pressure to become more reactive. Therefore, menopause is considered a factor that influences hypertension. [10]

Respondent characteristics by age

Regarding age characteristics, the data as in **Table 5** shows that 62 respondents (46.6%) were in the adult category (18-59 years), while 71 respondents (53.4%) were in the elderly category (> 60 years). The mean age was 61 years, the median age was 60 years, and the modal age was 55 years.

Age is a significant factor in the development of hypertension. As an individual ages, physiological changes occur in the body. In the elderly, peripheral resistance and sympathetic activity tend to increase. Furthermore, advanced age affects cardiac activity, blood vessels, and hormonal balance. This state of aging alters the performance of several bodily organs. The cardiac arteries, for example, lose their elasticity, causing blood vessels to become stiff and narrow[10].

Respondent characteristics by occupation

Regarding occupational characteristics, the data as in **Table 5** shows that respondents who were "not working" constituted the largest group, with 99 respondents (74.4%). According to previous research, individuals who are employed tend to have broader knowledge than those who are not, as work provides opportunities to gain more experience and information [5]. Furthermore, working may help prevent hypertension, as it involves physical activity which is beneficial for blood circulation [5].

Respondent characteristics by education

Regarding educational characteristics as shown in **Table 5**, the majority of respondents had a High School (SMA) education, accounting for 107 respondents (80.5%). An individual's educational level is often correlated with their knowledge. It is presumed that higher educational attainment broadens an individual's knowledge base and enhances their interpretive capacity compared to those with lower education levels. This, in turn, can foster greater motivation to improve health, control blood pressure, and cultivate an awareness of utilizing healthcare services to seek hypertension-related information [5].

Respondent characteristics by duration of illness

In this study, the majority of respondents as shown in **Table 5**, 79 individuals (59.4%), were in the duration of illness category of ≤ 5 years. It is possible that patients who have experienced hypertension for 3-5 years may be more adherent to treatment and blood pressure control compared to those with a duration of ≥ 5 years.

The duration of hypertension is a primary risk factor for cerebrovascular disease and is associated with reduced cerebral blood flow, metabolism, and function. Hypertension requires special attention because if it is not promptly managed or if it has been experienced for a prolonged period, it can lead to more severe complications [11].

Respondent characteristics by comorbidities

In the comorbidity category, the results shown in **Table 5** indicated that the majority of patients, 90 respondents (67.7%), had "no comorbidities," while "diabetes mellitus" was the most common comorbidity, present in 26 respondents (19.5%).

Hypertension is closely linked to other conditions, particularly diabetes mellitus, as the two diseases are often interrelated and occur concurrently. Hypertension can exacerbate the dangers of diabetes, while diabetes can make hypertension more difficult to manage. These conditions influence each other through several mechanisms: diabetes can increase the body's fluid volume, thereby raising blood pressure; it can reduce the elasticity of blood vessels; and high blood pressure may impair insulin secretion from the pancreas, triggering a rise in blood sugar.

Furthermore, 10 respondents (7.5%) had "heart disease" as a comorbidity. Hypertension is a known cause of heart disease, as high blood pressure forces the cardiac

muscle to work harder to pump blood. This excessive workload leads to an enlargement of the heart (cardiac hypertrophy), and eventually, the heart's oxygen supply may become insufficient, leading to oxygen flow disruption and a heart attack [12].

Knowledge level of respondents

The data in **Table 6** show that the majority of respondents had a good level of knowledge about hypertension (83 respondents, 62.4%), followed by a fair level of knowledge (41 respondents, 30.8%) and a poor level of knowledge (9 respondents, 6.8%). Knowledge is the result of a "knowing" process that arises after an individual perceives and interprets information about a particular object [13]. Without adequate knowledge, individuals have limited basis for making decisions and choosing appropriate actions in response to health problems they face. When individuals possess good knowledge and receive accurate information, hypertensive patients are expected to be better equipped to adopt healthy lifestyles and reduce their risk of complications [6].

Table 6. Distribution of respondents by knowledge level

Knowledge Level Category	Frequency	Percentage (%)
Good	83	62,4
Moderate	41	30,8
Poor	9	6,8
Total	133	100

Item-level analysis of questionnaire responses

The overall pattern of correct and incorrect responses to the hypertension knowledge questionnaire items is presented in **Figure 1**.

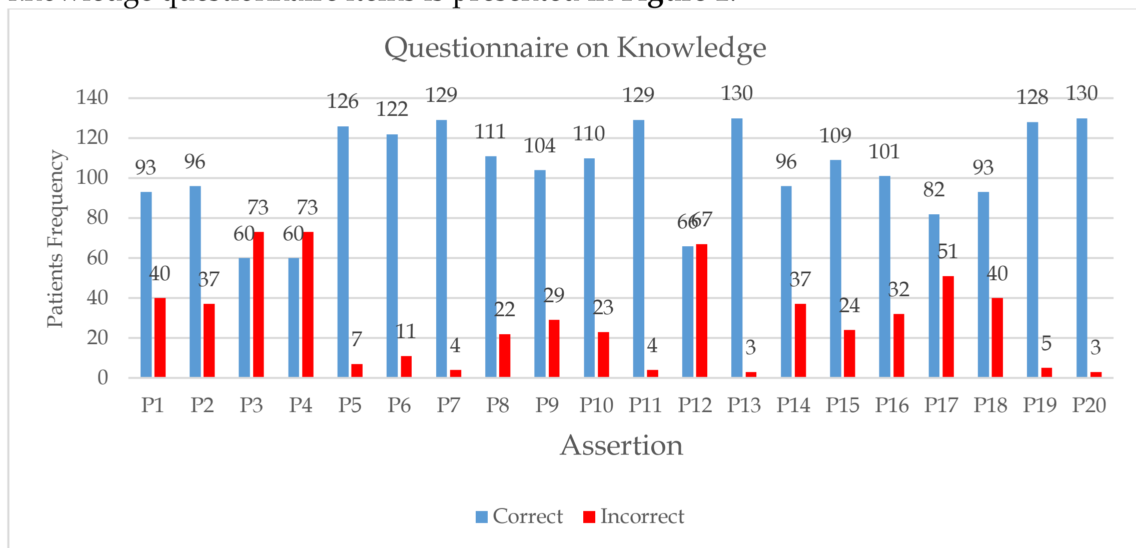

Figure 1. Distribution of correct and incorrect responses to the hypertension knowledge questionnaire

As shown in **Figure 1**, several items revealed specific misconceptions that are important for programme planning. For Questionnaire Item 3 ("Noni fruit is good for lowering blood pressure"), 73 respondents (54.88%) answered incorrectly. This indicates a substantial knowledge gap regarding the role of herbal remedies in hypertension management. The literature notes that noni (*Morinda citrifolia*) contains selenium (an antioxidant), terpenoids, scolopetin (an anti-inflammatory agent), and xeronine, which

contribute to cell regulation and exhibit antibacterial properties [12]; however, these properties do not necessarily translate directly into proven antihypertensive efficacy in clinical practice.

Similarly, for Questionnaire Item 4 ("Fish oil capsules have benefits for people with hypertension"), 73 respondents (54.88%) answered incorrectly. This finding suggests that many respondents are unaware that omega-3 fatty acids, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) contained in fish oil, have been associated with blood pressure reduction and cardiovascular risk lowering in several studies [14].

For Questionnaire Item 12 ("High blood pressure medication may be taken with tea"), 67 respondents (50.37%) answered incorrectly, indicating confusion about drug–food interactions. Taking antihypertensive medications together with tea, coffee, or milk is not recommended because these beverages may interfere with drug absorption or pharmacodynamic effects, thereby reducing therapeutic efficacy [15].

In contrast, respondents demonstrated very good understanding on some basic safety and lifestyle principles. For Questionnaire Items 13 ("Do not consume medication in excess of the prescribed dose") and 20 ("A low-fat diet is good for controlling blood pressure"), 97.74% of respondents answered correctly. This indicates strong fundamental knowledge regarding the dangers of overdosing prescribed medication and the importance of a low-fat diet—consistent with the principles of the DASH (Dietary Approaches to Stop Hypertension) diet—in supporting blood pressure control [15],[16].

Relationship between knowledge level and blood pressure by blood pressure

Based on the research findings, the results in **Table 7**. Distribution by Blood Pressure showed that 63 respondents (47.4%) had controlled blood pressure, while 70 respondents (52.6%) had uncontrolled blood pressure. Blood pressure often rises in accordance with an individual's lifestyle modifications; if a person's lifestyle is unhealthy, their blood pressure will tend to increase. Several factors can cause fluctuations in blood pressure. This phenomenon, known as secondary hypertension, can lead to blood pressure increases exceeding those seen in primary hypertension. In such cases, cardiac output increases, blood vessel volume expands, and the amount of blood being pumped also increases, consequently raising blood pressure. Beyond physiological factors, other risk factors contributing to increased blood pressure include unhealthy behavioral changes such as obesity, smoking, alcohol consumption, lack of physical activity/exercise, low potassium intake, and excessive sodium consumption [17].

Table 7. Distribution by Blood Pressure

Blood Pressure	Frequency	Percentage (%)
Controlled	63	47,4
Uncontrolled	70	52,6
Total	133	100

Cross-tabulation of knowledge level and gender

Based on the data in **Table 8**, the distribution of knowledge level by gender shows that knowledge among hypertensive Prolanis patients is predominantly contributed by female respondents. Overall, 92 respondents (69.2%) were female and 41 (30.8%) were male. Among the female respondents, 56 (42.1% of all respondents) had a

good level of knowledge, whereas among males 27 respondents (20.3% of all respondents) had good knowledge. This pattern indicates that, within this Prolanis cohort, women not only constitute the majority of participants but also more frequently demonstrate good knowledge about hypertension.

Table 8. Cross-tabulation of knowledge level and gender

Gender	Knowledge level	Good	Fair	Poor	Total
Male	Count	27	8	6	41
	% of total	20.3%	6.0%	4.5%	30.8%
Female	Count	56	33	3	92
	% of total	42.1%	24.8%	2.3%	69.2%
Total	Count	83	41	9	133
	% of total	62.4%	30.8%	6.8%	100.0%

Cross-tabulation of knowledge level and age

Based on the cross-tabulation in **Table 9**, good knowledge about hypertension was more prevalent in the older age group (> 60 years). Among respondents aged 18–59 years, 36 individuals (27.1% of all respondents) had good knowledge, 20 (15.0%) had fair knowledge, and 6 (4.5%) had poor knowledge. In comparison, among respondents aged ≥ 60 years, 47 individuals (35.3%) had good knowledge, 21 (15.8%) had fair knowledge, and 3 (2.3%) had poor knowledge. Overall, these findings indicate that good knowledge was slightly more dominant in the elderly group than in the younger group.

Table 9. Cross-tabulation of knowledge level and age

Age group (years)	Knowledge level	Good	Fair	Poor	Total
18–59	Count	36	20	6	62
	% of total	27.1%	15.0%	4.5%	46.6%
≥ 60	Count	47	21	3	71
	% of total	35.3%	15.8%	2.3%	53.4%
Total	Count	83	41	9	133
	% of total	62.4%	30.8%	6.8%	100.0%

Cross-tabulation of blood pressure and gender

Based on the cross-tabulation in **Table 10**, female respondents were more frequently represented in the uncontrolled blood pressure category. Overall, 92 respondents (69.2%) were female and 41 (30.8%) were male. Among females, 48 respondents (36.1% of all respondents) had uncontrolled blood pressure, compared with 22 males (16.5% of all respondents). This pattern reflects that, within this Prolanis cohort, women not only constitute the majority of participants but also contribute the largest number of cases with uncontrolled blood pressure.

Table 10. Cross-tabulation of blood pressure and gender

Gender	Blood pressure	Controlled	Uncontrolled	Total
Male	Count	19	22	41
	% of total	14.3%	16.5%	30.8%
Female	Count	44	48	92
	% of total	33.1%	36.1%	69.2%
Total	Count	63	70	133
	% of total	47.4%	52.6%	100.0%

Cross-tabulation of blood pressure and age

Based on the cross-tabulation in **Table 11**, uncontrolled blood pressure was slightly more frequent in the elderly group (≥ 60 years) than in the younger group (18–59 years). Among respondents aged 18–59 years, 30 individuals (22.6% of all respondents) had controlled blood pressure, while 32 (24.1%) had uncontrolled blood pressure. In the ≥ 60-year group, 33 respondents (24.8%) had controlled blood pressure and 38 (28.6%) had uncontrolled blood pressure. Overall, these findings show that more than half of all respondents (52.6%) had uncontrolled blood pressure, with a somewhat higher proportion among older adults.

Table 11. Cross-tabulation of blood pressure and age

Age group (years)	Blood pressure	Controlled	Uncontrolled	Total
18–59	Count	30	32	62
	% of total	22.6%	24.1%	46.6%
≥ 60	Count	33	38	71
	% of total	24.8%	28.6%	53.4%
Total	Count	63	70	133
	% of total	47.4%	52.6%	100.0%

Cross-tabulation of knowledge level and blood pressure

Based on the cross-tabulation in **Table 12**, more than half of respondents with good knowledge still had uncontrolled blood pressure. Among respondents with good knowledge, 39 (47.0%) had controlled blood pressure, whereas 44 (53.0%) had uncontrolled blood pressure. In the fair-knowledge group, 22 respondents (53.7%) had controlled and 19 (46.3%) had uncontrolled blood pressure. In the poor-knowledge group, only 2 respondents (22.2%) had controlled blood pressure, while 7 (77.8%) had uncontrolled blood pressure. Overall, these descriptive findings show that uncontrolled blood pressure remains common across all knowledge categories and support the correlation analysis result that knowledge level alone is not strongly associated with blood pressure control.

Table 12. Cross-tabulation of knowledge level and blood pressure

Knowledge level	Blood pressure	Controlled	Uncontrolled	Total
Good	Count	39	44	83
	% within level	47.0%	53.0%	100.0%
Fair	Count	22	19	41
	% within level	53.7%	46.3%	100.0%
Poor	Count	2	7	9
	% within level	22.2%	77.8%	100.0%
Total	Count	63	70	133
	% within level	47.4%	52.6%	100.0%

Correlation between knowledge level and blood pressure

Based on the correlation analysis summarised in **Table 13**, the relationship between knowledge level and blood pressure control among hypertensive Prolanis patients at Seto Hasbadi Clinic was examined using Spearman's rho in SPSS 22.0 for Windows. The test yielded a correlation coefficient r of 0.017 with a p-value of 0.846 ($p > 0.05$). This near-zero coefficient indicates the absence of a meaningful monotonic association between knowledge level and blood pressure control; statistically, there was no significant correlation between the two variables, so the null hypothesis is not

rejected.

Table 13. Spearman's rho correlation between knowledge level and blood pressure control

Variables	Correlation coefficient (r)	p-value (2-tailed)	n
Knowledge level vs blood pressure control	0.017	0.846	133

This result, where a generally good knowledge profile does not translate into better clinical outcomes, can be interpreted through the Knowledge–Attitude–Practice (KAP) model [18]. The KAP framework emphasises that knowledge is an important prerequisite for health behaviour change but is not sufficient on its own. A gap often exists between "knowing" what should be done and "doing" it consistently in daily life. The descriptive findings in the previous tables support this: although most respondents had good knowledge, more than half still had uncontrolled blood pressure.

Qualitative information from brief interviews with Prolanis staff and patients further illustrates this knowledge–practice gap. Respondents reported that many patients discontinue antihypertensive medication when they "no longer feel sick" because hypertension is largely asymptomatic. This behaviour reflects poor medication adherence, a key element of the "practice" component in the KAP model, and contributes directly to uncontrolled blood pressure. In addition, several patients were reported to have difficulty maintaining recommended lifestyle changes, such as restricting sodium intake and attending regular follow-up visits at the health facility. These barriers suggest that future Prolanis interventions should not only strengthen patient education, but also focus on supporting adherence and sustainable lifestyle modification to improve blood pressure control.

Limitations of the Study

The researcher acknowledges several limitations in this study. First, the use of a cross-sectional design captures data at a single point in time, which precludes the determination of causal relationships between knowledge acquisition and blood pressure changes. Second, the study was conducted at a single healthcare facility (Seto Hasbadi 01 Clinic) using a purposive sampling technique. While this provided focused insights into the specific Prolanis cohort, it may limit the generalizability of the findings to broader hypertensive populations in other regions. Third, the reliance on self-reported questionnaires for knowledge assessment carries the potential for social desirability bias, where respondents may select answers they perceive as "correct" rather than reflecting their actual understanding or behavior. Finally, while this study focused on the relationship between knowledge and clinical outcomes, it did not statistically control for other significant confounding variables—such as genetic predisposition, precise daily sodium intake, stress levels, or medication adherence—which significantly influence blood pressure control.

4. Conclusion

This study demonstrated that there was no statistically significant relationship between knowledge level and blood pressure control among hypertensive Prolanis patients at Seto Hasbadi 01 Clinic (r = 0.017; p = 0.846). A paradoxical pattern was observed: although most respondents had a good level of knowledge (62.4%), more than

half (52.6%) still had uncontrolled blood pressure. These findings indicate that knowledge is a necessary but not sufficient condition for achieving clinical stability. Interventions within the Prolanis programme therefore need to go beyond health education alone and place stronger emphasis on promoting medication adherence, supporting lifestyle modification, and sustaining patient engagement in order to bridge the gap between "knowing" and "doing".

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Conflicts of Interest:
The authors declare no conflict of interest regarding the publication of this paper.

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