

Research Article

OVERVIEW OF TOTAL CHOLESTEROL LEVELS IN PROLANIS HYPERTENSIVE PATIENTS AT THE KELAPA DUA COMMUNITY HEALTH CENTER

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KEYWORDS

Prolanis
Hypertension
Total cholesterol

ABSTRACT

Hypertension is one of the non-communicable diseases whose prevalence continues to increase each year and contributes substantially to the risk of cardiovascular disease, especially when accompanied by elevated total cholesterol levels. This study aimed to describe total cholesterol levels among hypertensive patients participating in the Chronic Disease Management Program (Prolanis) at the Kelapa Dua Community Health Center, Tangerang Regency. This study employed a descriptive design with a cross-sectional approach, and the sample consisted of 25 hypertensive patients enrolled in the Prolanis program at the Kelapa Dua Community Health Center. Total cholesterol levels were measured using the CHOD-PAP method. The results showed that borderline-high total cholesterol levels were most common in the middle-aged group (45–59 years), with 7 respondents (64%), while high cholesterol levels were found in 4 respondents (80%). Based on sex, high total cholesterol levels were observed in 10 female respondents (91%) and 1 male respondent (9%). Based on the classification of total cholesterol levels by hypertension category, high total cholesterol was most frequently found in patients with grade 1 hypertension, accounting for 5 respondents (63%), while borderline-high cholesterol levels were found in 3 respondents (33%).

ABSTRAK

Hipertensi merupakan salah satu penyakit tidak menular yang prevalensinya terus meningkat setiap tahun dan berkontribusi secara signifikan terhadap risiko penyakit kardiovaskular, terutama apabila disertai dengan peningkatan kadar kolesterol total. Penelitian ini bertujuan untuk menggambarkan kadar kolesterol total pada pasien hipertensi yang mengikuti Program Pengelolaan Penyakit Kronis (Prolanis) di Puskesmas Kelapa Dua, Kabupaten Tangerang. Penelitian ini menggunakan desain deskriptif dengan pendekatan cross-sectional, dan sampel terdiri dari 25 pasien hipertensi yang terdaftar dalam program Prolanis di Puskesmas Kelapa Dua. Kadar kolesterol total diukur menggunakan metode CHOD-PAP. Hasil penelitian menunjukkan bahwa kadar kolesterol total kategori borderline-high paling banyak ditemukan pada kelompok usia paruh baya (45–59 tahun), yaitu sebanyak 7 responden (64%), sedangkan kadar kolesterol tinggi ditemukan pada 4 responden (80%). Berdasarkan jenis kelamin, kadar kolesterol total tinggi ditemukan pada 10 responden perempuan (91%) dan 1 responden laki-laki (9%). Berdasarkan klasifikasi kadar kolesterol total menurut kategori hipertensi, kadar kolesterol total tinggi paling banyak ditemukan pada pasien dengan hipertensi derajat 1, yaitu sebanyak 5 responden (63%), sedangkan kategori borderline-high ditemukan pada 3 responden (33%).

Kata Kunci

Prolanis
Hipertensi
Kolesterol total

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INTRODUCTION

Non-communicable diseases (NCDs) are conditions that are not transmitted through direct contact and do not spread from one individual to another. One example of an NCD is hypertension, which is influenced by

elevated cholesterol levels in the blood (Rahayu et al., 2021). Hypertension is defined as a condition in which a person has blood pressure above 140/90 mmHg (Ekasari et al., 2021).

Data from the World Health Organization (WHO) show that in 2023, the global prevalence of hypertension among adults aged 30–79 years reached approximately 1.28 billion people. Meanwhile, data from the 2023 Indonesian Health Survey (SKI) indicate that hypertension is more prevalent in women (11.2%) and is most commonly found in individuals aged 55–75 years in Indonesia. In Banten Province, the prevalence of hypertension is reported at 9.5% (SKI, 2023). In 2020, hypertension cases at Sukamulya Community Health Center, Tangerang Regency, reached 5,738 cases (Apriyanto et al., 2023), while in 2021, cases at Curug Community Health Center increased to 32,618.

Hypertension is one of the main conditions managed through the Chronic Disease Management Program (Prolanis), a healthcare support system involving the Social Security Administering Body for Health (BPJS Kesehatan), healthcare facilities, and patients (Utami & Lubis, 2021). Hypertension occurs when blood pressure exceeds 140/90 mmHg, primarily due to an increase in systolic pressure (Wulandari & Cusmariah, 2024). One of the contributing factors to hypertension is elevated cholesterol levels in the blood.

Cholesterol is a type of fat required by the body in appropriate amounts. However, excessive cholesterol intake can lead to fat accumulation, which may deposit on blood vessel walls, causing narrowing and hardening of the vessels. This condition results in increased blood cholesterol levels, known as hypercholesterolemia (Permatasari, Suriani, & Kurniawan, 2022).

A study conducted by Nuswantoro, Aprillia, and Cristyaningsih (2023) found that 120 out of 172 hypertensive patients (69.76%) had hypercholesterolemia, and 145 patients (84.30%) had high LDL cholesterol levels. These findings indicate that the risk of cardiovascular disease (CVD) remains high and continues to be a major concern in clinical management, particularly because most hypertensive patients with hypercholesterolemia and elevated LDL cholesterol were in the vulnerable age group of 61–70 years.

MATERIALS AND METHODS

Instruments, Materials, and Samples

This study employed a descriptive-analytic design with a cross-sectional approach to describe total cholesterol levels among hypertensive patients enrolled in the Prolanis program at the Kelapa Dua Community Health Center.

RESULT AND DISCUSSION

This study was conducted at the Kelapa Dua Community Health Center in April 2025, involving 25 hypertensive patients enrolled in the Prolanis program. Secondary data were obtained from the Community Health Center’s medical records. The characteristics of respondents based on sex and age are presented in Table 1. The classification of hypertension according to JNC VIII is presented in Table 2, while the distribution of total cholesterol levels among hypertensive patients is shown in Table 3.

Table 1. Characteristics of Respondent Classification by Sex and Age

Variable	n	%
Sex		
Female	20	80%
Male	5	20%
Total	25	100%
Age		
Middle age (45-59 years)	15	60%
Older adults (60-74 years)	10	40%
Variable	n	%

Based on Table 1, most respondents were female, accounting for 20 respondents (80%). The results also show that the majority were in the middle-aged group, with 15 respondents (60%), while 10 respondents (40%) were older adults.

Table 2. Characteristics of Hypertensive Patients Classified According to JNC VIII

Hypertension Category	n	%
Normal	2	8%
Pre-hypertension	8	32%
Grade 1 hypertension	9	36%
Grade 2 hypertension	6	24%
Total	25	100%

Based on Table 2, grade 1 hypertension was the most common classification among Prolanis patients, accounting for 9 respondents (36%), while grade 2 hypertension was the least common, with 6 respondents (24%).

Table 3. Total Cholesterol Levels in Hypertensive Patients

Total Cholesterol Category	n	%
Normal	9	36%
Borderline high	11	44%
High	5	20%
Total	25	100%

Based on Table 3, 5 Prolanis patients (20%) had high total cholesterol levels, 11 patients (44%) had borderline-high levels, and 9 patients (36%) had normal cholesterol levels. Further analysis of total cholesterol levels was conducted based on respondent characteristics, including age (Table 4), sex (Table 5), and hypertension category (Table 6).

Table 4. Total Cholesterol Levels by Age

Age group	Norm n	Norm %	Border n	Border %	High n	High %	Total
Middle age (45-59 years)	4	27%	7	46%	4	27%	100%
Older adults (60-74 years)	5	50%	4	40%	1	10%	100%

The results in Table 4 show that the highest total cholesterol levels among Prolanis patients were observed in the middle-aged group (45–59 years), with 7 respondents (46%) in the borderline-high category and 4 respondents (27%) in the high category. In contrast, among older adults (60–74 years), high total cholesterol levels were found in 4 respondents (40%), while borderline-high levels were observed in 1 respondent (10%).

Table 5. Total Cholesterol Levels by Sex

Sex	Norm n	Norm %	Border n	Border %	High n	High %	Total
Female	6	30%	10	50%	4	20%	100%
Male	3	60%	1	20%	1	20%	100%

The results in Table 5 show that the borderline-high total cholesterol category was most common among female Prolanis patients, accounting for 10 respondents (50%). Meanwhile, high total cholesterol levels were observed in 4 respondents (20%).

Table 6. Total Cholesterol Levels by Hypertension Category

Hypertension class	Norm n	Norm %	Border n	Border %	High n	High %	Total
Normal	1	50%	1	50%	0	0%	100%
Pre-hypertension	3	37.5%	2	25%	3	37.5%	100%
Grade 1 hypertension	1	12%	4	44%	4	44%	100%

The results in Table 6 show that the highest total cholesterol levels among Prolanis patients were most commonly observed in those with grade 1 hypertension, with 4 respondents (44%) in the borderline-high category and 4 respondents (44%) in the high category. In contrast, among patients with grade 2 hypertension, 3 respondents (50%) had borderline-high cholesterol levels, while 1 respondent (17%) had high cholesterol levels.

This study was conducted at the Kelapa Dua Community Health Center with a total of 25 respondents, consisting of 20 women (80%) and 5 men (20%). These findings are consistent with a study by Rais, Aziz, and Surdianah (2024), which reported that women more frequently had high cholesterol levels (58%) than men (42%).

According to the World Health Organization (WHO), age is classified into middle age (45–59 years) and older age (60–74 years) (Friska et al., 2020). This is in line with the study by [Fahreza et al. \(2020\)](#), which found that the largest proportion of respondents were in the 45–55-year age group, totaling 10 respondents (37%).

The results of this study indicate that total cholesterol levels were most commonly elevated in the middle-aged group (45–59 years), with 7 respondents (46%) in the borderline-high category and 4 respondents (27%) in the high category. In contrast, among older adults (60–74 years), 4 respondents (40%) had borderline-high cholesterol levels and 1 respondent (10%) had high cholesterol levels.

Based on hypertension categories, respondents in the pre-hypertension group had high cholesterol levels in 3 respondents (37.5%) and borderline-high levels in 2 respondents (25%). Among patients with grade 1 hypertension, both borderline-high and high cholesterol levels were found in 4 respondents each (44%). Meanwhile, in the grade 2 hypertension group, 3 respondents (50%) had borderline-high cholesterol levels and 1 respondent (17%) had high cholesterol levels.

These findings indicate that patients with hypertension tend to have elevated total cholesterol levels, which may be influenced by dietary patterns and insufficient physical activity. The highest cholesterol levels were observed in patients with grade 1 hypertension. This finding is consistent with the study by Tri Cahyaningsih (2022), which also reported the highest cholesterol levels in the grade 1 hypertension group.

Hypertension is associated with multiple risk factors, one of which is elevated cholesterol levels. The accumulation of fat in blood vessel walls can lead to plaque formation, resulting in narrowing and stiffening of the vessels (atherosclerosis). This condition impairs blood flow and increases the workload on the heart. Consequently, higher blood cholesterol levels are associated with an increased risk of elevated blood pressure ([Nurizky, 2023](#)).

CONCLUSION

Normal, borderline-high, and high total cholesterol levels were identified in this study. A total of 9 patients (36%) had normal cholesterol levels, 11 patients (44%) had borderline-high levels, and 5 patients (20%) had high cholesterol levels.

Based on age, the highest proportion of borderline-high cholesterol levels was found in the middle-aged group (45–59 years), with 7 patients (64%), while high cholesterol levels were observed in 4 patients (80%). Based on sex, the majority of cases were found in women, with 10 patients (91%) in the borderline-high category and 4 patients (80%) in the high cholesterol category.

Based on hypertension classification, in the pre-hypertension group, 3 patients (37.5%) had high cholesterol levels. In the grade 1 hypertension group, 4 patients (44%) had borderline-high cholesterol levels

and 4 patients (44%) had high cholesterol levels. In the grade 2 hypertension group, 3 patients (50%) had borderline-high cholesterol levels.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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