

KNOWLEDGE ENHANCEMENT REGARDING HYPERCHOLESTEROLEMIA THROUGH EDUCATION IN THE CIKUPA COMMUNITY HEALTH CENTER WORKING AREA

Shalisha Marvela Vantya¹, Zita Atzmardina^{2*}

¹Mahasiswa Keaniteraan Ilmu Kesehatan Masyarakat, Fakultas Kedokteran, Universitas Tarumanagara, Jakarta, Indonesia

²Departemen Ilmu Kesehatan Masyarakat, Fakultas Kedokteran, Universitas Tarumanagara, Jakarta, Indonesia

ARTICLE INFO

***Corresponding Author**

Zita Atzmardina
Departemen Ilmu Kesehatan
Masyarakat, Fakultas
Kedokteran, Universitas
Tarumanagara
Jakarta, Indonesia

Email:

zitaa@fk.untar.ac.id

Kata kunci:

Hiperkolesterolemia
Paradigma Blum
Delphi
Diagram Fishbone

Keywords:

Hypercholesterolemia
Blum Paradigm
Delphi
Fishbone Diagram

Original Submission:

October 23, 2023;

Accepted:

March 14, 2024;

Published:

April 20, 2024;

ABSTRAK

Hiperkolesterolemia merupakan kondisi kadar kolesterol dalam darah yang tinggi. Kasus hiperkolesterolemia di Puskesmas Cikupa dilaporkan mengalami peningkatan dari bulan Januari-Juni 2022 dari 147 kasus menjadi 283 kasus pada periode Januari- Juni 2023. Upaya yang dilakukan yaitu dengan memberikan penyuluhan mengenai hiperkolesterolemia. Pengumpulan data menggunakan mini survey dan identifikasi sumber masalah menggunakan paradigma Blum. Prioritas masalah ditentukan menggunakan metode non-scoring Delphi. Identifikasi akar penyebab masalah dengan diagram *fishbone*. Intervensi yang dilakukan adalah penyuluhan mengenai hiperkolesterolemia kepada warga di Desa Cikupa. Penyuluhan dimulai dengan membagikan lembar pre-test untuk diisi oleh responden, kemudian setelah penyuluhan dilakukan tanya jawab sebelum mengisi post-test. Hasil penelitian menunjukkan adanya keberhasilan penyuluhan dilihat dari nilai pre-test dan post-test. Data dianalisis dengan uji t berpasangan dan hasil penelitian menunjukkan adanya perbedaan rata-rata yang signifikan ($P < 0.002$) dengan nilai *mean difference* sebesar 12,85. Berdasarkan hasil tersebut dapat disimpulkan penyuluhan ini berhasil.

ABSTRACT

Knowledge Enhancement Regarding Hypercholesterolemia Through An Education In The Cikupa Community Health Center Working Area.

Hypercholesterolemia is a risk factor for cardiovascular, cerebrovascular, and peripheral blood vessel diseases. Hypercholesterolemia cases at the Cikupa Community Health Center were reported to have increased from January-June 2022 from 147 cases to 283 cases in the January-June 2023 period. The invention aims to increase public knowledge about hypercholesterolemia. Data was collected using a mini survey and identification of the source of the problem using the Blum Paradigm. Problem priority is determined using the Delphi non-scoring method. Identify the root cause of the problem with a fishbone diagram. The activity begins by distributing pre-test sheets for respondents to fill out, then after the counseling there is a question and answer session before filling in the post-test. The successful results of counseling can be seen from the pre-test and post-test scores. The research results showed that there was success in counseling seen from the pre-test and post-test scores. The data were analyzed using the paired T test and the results showed that there was a significant mean difference ($P < 0.002$) with a mean difference value of 12.85. Based on these results, it can be concluded that this counseling was successful.

INTRODUCTION

Hypercholesterolemia is defined as an increase in cholesterol levels in the blood and is a risk factor for cardiovascular, cerebrovascular and peripheral blood vessel diseases. Hypercholesterolemia can be caused by primary (genetic or familial) or secondary (acquired) causes.¹ The number of disability-adjusted life years (DALYs) in 2019 due to high non-HDL cholesterol reached 98.6 million. This also caused the death of around 4.4 million people.² According to 2018 Basic Health Research (Riskesdas) data, the prevalence of hypercholesterolemia in the population aged ≥ 15 years was recorded at 20.5%.³

Factors that can increase the risk of hypercholesterolemia include genetics, age, gender, obesity, smoking, and food.¹ The causes of hypercholesterolemia are divided into genetic and acquired. A common genetic disorder is familial hypercholesterolemia which is caused by mutations in the LDL gene receptor so that LDL cholesterol levels are >190 mg/dL in heterozygotes and >450 mg/dL in homozygotes.⁴ The diagnosis of hypercholesterolemia is made based on the results of a blood cholesterol examination.⁵ Normal levels of total cholesterol in human blood are <200 mg/dL.⁶ Patients are at risk of experiencing hypercholesterolemia if cholesterol levels range from 200 – 239 mg/dL and hypercholesterolemia is confirmed if cholesterol levels reach >240 mg/dL.⁷ High cholesterol if not treated immediately can cause complications in the form of atherosclerotic cardiovascular disease caused by a buildup of cholesterol in the blood. in blood.^{8,9} Apart from that, very high cholesterol levels in the blood can clog arteries and if it occurs in the brain it can cause stroke.¹⁰ Peripheral artery disease is also a complication that can occur due to the narrowing of the arteries, which can reduce blood flow from the heart to other organs.¹¹ Hypercholesterolemia can be treated comprehensively and has a good prognosis. Most patients respond well to drug therapy, but lifestyle changes and modification of nutritional intake play an important role.¹² Prevention of hypercholesterolemia can be done by modifying lifestyle which includes adopting a healthy diet by limiting foods that contain high cholesterol, losing excess weight, exercising regularly 3-5 times a week for 30-60 minutes, and stopping smoking.¹³

Hypercholesterolemia began to enter the top ten diseases at the Cikupa Community Health Center in January 2023. The number of patient visits with hypercholesterolemia was 95 patients in January 2023 and increased to 140 patients in June 2023. The number of hypercholesterolemia cases from January to June 2022 was as many as 147 cases and experienced an increase from January to June 2023 to 283 cases. According to epidemiological data at the Cikupa Community Health Center in June 2023, hypercholesterolemia is one of the diseases most frequently encountered at the Cikupa Community Health Center and is ranked 8th out of the 10 most frequently encountered cases. The highest number of hypercholesterolemia cases was found in Cikupa Village, namely 56 cases. Increasing cholesterol levels in the blood is a problem that cannot be underestimated considering the complications it can cause, so education is carried out in the Cikupa Health Center Working Area, Tangerang Regency as an effort to increase knowledge about hypercholesterolemia in a promotive and preventive manner.

METHOD

The steps taken in conducting education include:

- i. Preparation stage
- ii. Implementation stage

iii. Evaluation stage

Preparation Stage

The first step taken was to analyze what problems existed at the Cikupa Community Health Center. Cikupa Health Center is located in Jl. Raya Autonomous Cikupa- Pasar Kemis, Talagasari Village RT 001 RW 001, Cikupa District, Tangerang Regency 15710. The working area of the Cikupa Health Center covers nine villages and one sub-district, namely Cikupa Village, Sukamulya Village, Talaga Village, Talagasari Village, Cibadak Village, Sukanagara Village, Bojong Village, Budi Mulya Village, Dukuh Village and Bitung Jaya Village.

Next, identification of the causes of the problem is carried out using the Blum Paradigm which identifies problems from the perspective of genetics, health services, lifestyle and the environment. The problem identification process was carried out using the Blum Paradigm approach by collecting data through a mini survey of visitors to the Cikupa Health Center.

Determining problem priorities was carried out using the Delphi non-scoring technique. The discussion was carried out by interviewing people in the working area of the Cikupa Community Health Center, namely the head of the community health center, doctors and the head of the person in charge of the PTM program who was in charge of the Cikupa Community Health Center. Then, identify the root cause of the problem using a fishbone diagram. Based on the results of the fishbone diagram, the root cause of the problem was found to be a lack of education regarding hypercholesterolemia. Several alternatives were then planned as problem solutions for cases of hypercholesterolemia in the Cikupa Community Health Center working area, which included education about hypercholesterolemia (definition, causes, signs and symptoms, prevention and complications) to the community in Cikupa Village and demonstrations on how to serve healthy food.

Implementation Stage

The activity begins with preparing the tools that will be used for education and then continues with gathering participants for the outreach activities. The activity began with an opening greeting and self-introduction of young doctors, then distribution and filling in of pre-test sheets. The pre-test was carried to find out how much knowledge the participants had before the material was presented. After the pre-test was carried out and collected, the activity continued with the presentation of hypercholesterolemia material using poster media containing definitions, epidemiology in Indonesia, causes, signs and symptoms, dangers or complications, prognosis, and ways to prevent hypercholesterolemia. After the presentation of the material was complete, a question and answer session was opened to find out what material the public still wanted to ask about hypercholesterolemia. The next activity was distributing and filling in post-test sheets to find out the extent of the increase in participants' knowledge after the education was carried out. Apart from that, the presentation of the material continued by explaining the presentation of healthy food using poster media containing T-plates, foods that should be consumed and other activities that can support public health. After the presentation of the material was complete, a question and answer session was opened to find out what material the public still wanted to ask about regarding serving healthy food. The next activity is that three participants are randomly selected to ask the participants about the material that has just been presented.

Data was collected by looking at the pre-test and post-test scores before and after being given counseling. Data analysis used paired t-test.

Evaluation Stage

The obstacles faced during the counseling process were that the participants who came did not meet the target and several participants had blurry vision and difficulty hearing so they had to be picked up and accompanied in filling out the pre-test and post-test sheets. However, the activities carried out can still run well even though there are several obstacles.

Monitoring is carried out during the activity and after the activity takes place intending to evaluate the activity. A systems approach is used to evaluate intervention activities that have been carried out for the Cikupa Village community. Based on the evaluation results, it was found that there were no significant gaps so it could be said that this activity had been successfully implemented well.

RESULTS

Based on the results of the mini survey, it was found that there is still a lack of public knowledge regarding hypercholesterolemia. The results of the mini survey also show that the public has shown an attitude of approval towards measures to prevent hypercholesterolemia, but some people still behave oppositely. Based on the results of the pre-test and post-test that have been carried out, data is obtained and entered into the Microsoft Excel application manually for processing. Increasing knowledge about hypercholesterolemia is the main indicator in assessing activities by seeing the results of post-test scores reaching $\geq 80\%$ in $\geq 80\%$ of participants. Data is loaded in table 1.

Table 1. Respondent Characteristics

Variable	Proportion n= 21 (%)	Mean	Range
Background			
Age (years)	-	45.67	28-65
Sex			
Men	3		
Women	18		
Knowledge			
Pre-test		70.48%	
< 80%	12 (57.1%)		
$\geq 80\%$	9 (42.9%)		
Post-test		83.33%	
< 80%	4 (19%)		
$\geq 80\%$	17 (81%)		

The intervention was attended by 21 participants. There were 9 participants (42.9%) who received a pre-test score $\geq 80\%$. Post-test results after counseling showed that 17 participants (81%) managed to get a score $> 80\%$.

The results of 21 respondents were analyzed using the paired t-test method. The average pre-test result was 70.47 and the post-test result increased to 83.33. Based on data processing shown in table 2, it was found that there was a significant average difference ($p < 0.002$) between the pre-test and post-test scores with a mean difference value of 12.85 (SD 10.07). These results indicate that the education carried out can increase public knowledge about hypercholesterolemia. This is in line with research conducted by Karyani et al which proves the effect of health education on the level of knowledge regarding hypercholesterol and eating behavior patterns seen from post-test scores which are higher than pre-test scores.¹⁴ The results of research conducted showed a significant increase in pre-test and post-test scores through counseling conducted at the heart community at the Sultan Agung Islamic Hospital, Semarang.¹⁵

Tabel 2. Bivariat Data Analyses Results

	Pre-test (mean, standar deviation)	Post- test (mean, standar deviation)	p- value	Mean difference (95% CI)
Scor Value	70.47 (12.85)	83.33 (10.16)	<0.002	12.85 (8.27- 17.44)

After completing the post-test, the pre-test and post-test scores are calculated to determine the highest score. Then the event closed by giving prizes to participants with the highest pre-test and post-test scores as well as 3 random participants who could explain how to serve healthy food. The figure 1 is a graph of the pre-test and post-test of the counseling participants followed by photos (Figure 2) during the counseling event in Cikupa Village. The situation after completing pre-test and post-test can be shown in Figure 3.



Figure 1. Comparison Chart of Pre-test and Post-test Results



Figure 2. Photo of Outreach Activity



Figure 3. Completing the Pre-test and Post-test

DISCUSSION

After discussion, it was found that lifestyle factors were chosen as priority problems. Lifestyle was chosen to be the main problem because of the lack of public knowledge about hypercholesterolemia (definition, symptoms, causal factors, dangers, prevention, and how to diagnose and cure). It is hoped that the interventions carried out can change people's attitudes and behavior to prevent the occurrence of hypercholesterolemia, thereby reducing the incidence of hypercholesterolemia cases.¹⁴ Based on the results of identifying the root cause of the problem using a fishbone diagram, the intervention was carried out by providing education about hypercholesterolemia, demonstrations on how to serve healthy food, and posters about hypercholesterolemia.¹⁵

CONCLUSION

Based on the research results, it can be concluded that there has been an increase in knowledge with a significant value ($P < 0.002$). The case of hypercholesterolemia is a case that needs attention because this disease is a non-communicable disease that can be prevented. It is hoped that the outreach carried out can increase knowledge, and change people's attitudes and behavior and can be disseminated to residents so that they can prevent hypercholesterolemia. It is recommended that the Cikupa Community Health Center should carry out activities to reduce cases of hypercholesterolemia periodically by determining the person in charge and program holder for hypercholesterolemia.

REFERENCES

1. Jisha Vijayan SSA, NJ, NMR, BM and SR V. Hypercholesterolemia. *European Journal of Biomedical and Pharmaceutical Sciences*. 2018;5(9):115–23.
2. Murray CJL, Aravkin AY, Zheng P, Abbafati C, Abbas KM, Abbasi-Kangevari M, et al. Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet*. 2020 Oct;396(10258):1223–49.
3. Badan Penelitian dan Pengembangan Kesehatan KKRI. Hasil Utama Riser Kesehatan Dasar [Internet]. https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-risikesdas-2018_1274.pdf. 2018 [cited 2024 Feb 1]. Available from: https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-risikesdas-2018_1274.pdf
4. Ibrahim MA, Asuka E, Jialal I, Corcione J. Hypercholesterolemia (Nursing). In: StatPearls [Internet]. StatPearls Publishing; 2023.
5. Varghese MJ. Familial hypercholesterolemia: A review. *Ann Pediatr Cardiol*. 2014;7(2):107–17.
6. Ricky D Turgeon ARBGJP. Familial hypercholesterolemia: Review of diagnosis, screening, and treatment. *Canadian Family Physician*. 2016;62(1):32–7.
7. Health NI of. National Cholesterol Education Program, ATP III Guidelines At-A-Galance Quick Desk Reference. Bethesda, MD National Heart. Lung and Blood Institute. 2001;
8. American Heart Association. CONSEQUENCES OF HIGH CHOLESTEROL. <https://www.heart.org/-/media/Files/Health-Topics/Cholesterol/Consequences-of-high-cholesterol.pdf>. 2022;
9. Watts GF, Catapano AL, Masana L, Zambon A, Pirillo A, Tokgözoğlu L. Hypercholesterolemia and cardiovascular disease: Focus on high cardiovascular risk patients. *Atheroscler Suppl*. 2020 Dec;42:e30–4.
10. Alloubani A, Nimer R, Samara R. Relationship between Hyperlipidemia, Cardiovascular Disease and Stroke: A Systematic Review. *Curr Cardiol Rev*. 2021 Nov;17(6).
11. Aday AW, Everett BM. Dyslipidemia Profiles in Patients with Peripheral Artery Disease. *Curr Cardiol Rep*. 2019 Jun 22;21(6):42.
12. Hapsari DI, Yufiana E. Perilaku Pencegahan Hipertensi pada Usia Produktif dalam Germas di Puskesmas Manggala Kecamatan Pinoh Selatan. *SEHATMAS: Jurnal Ilmiah Kesehatan Masyarakat*. 2023;2(3):720–7.
13. Soran H, Adam S, Mohammad JB, Ho JH, Schofield JD, Siahmansur T, et al. Hypercholesterolaemia—practical information for non-specialists. *Archives of medical science*.

2018;14(1):1–21.

14. Karyani RB, Anisa R, Sulistyowati E. Perbedaan Tingkat Pengetahuan Dan Pola Perilaku Pencegahan Hiperkolesterolemia Setelah Penyuluhan Pola Makan Pada Pendidik Dan Tenaga Kependidikan Perguruan Tinggi Di Malang. *Jurnal Kesehatan Islam : Islamic Health Journal*. 2020 Sep 24;8(2):66.
15. Pertiwi D, Sampurna S, Nisa M. Pengecekan Kadar Asam Urat dan Kolesterol serta Penyuluhan Mengenai Hiperurisemia dan Hiperkolesterol pada Komunitas Jantung Rumah Sakit Islam Sultan Agung Semarang. *Jurnal ABDIMAS-KU: Jurnal Pengabdian Masyarakat Kedokteran*. 2023;2(2):43.