The Effect of Health Education on Low Fat Diets through Video Media on Knowledge Level in Cholesterol Sufferers

Merlina Retnosari, Wachidah Yuniartika[*]
Faculty of Health Sciences, Universitas Muhammadiyah Surakarta, Sukoharjo, Indonesia

ARTICLE INFO

ABSTRACT

Hypercholesterolemia is still a health problem that can lead to complications such as hypertension, coronary heart disease, and stroke, but it can be controlled by modifying lifestyle. Health education in the form of video media counseling can be done to increase knowledge and awareness to change one's behavior. This study aimed to determine the effect of health education on a low-fat diet through video media on the level of knowledge. This study used a quasi-experiment with a one-group pre and post-test design. The sample used was 33 respondents using the purposive sampling technique. The research was conducted from June to July 2024. Using the Dyslipidemia Dietary Knowledge Questionnaire (DDKQ), which was developed, the results of corrected item-total correction >0.632 with Cronbach's alpha >0.60, namely 0.941. Inclusion criteria are the results of checking cholesterol levels before giving intervention (200mg/dl), willingness to be a respondent, the category of knowledge is less and enough, can do activities independently, and has a cellphone. Exclusion criteria have comorbidities and do not follow the flow of research until the end. Data analysis using univariate analysis and the Wilcoxon signed rank test. Based on the Wilcoxon Signed Ranks test results, the p-value is 0.001, which is <0.05. There is an effect of health education on a low-fat diet through videos on the level of knowledge in cholesterol sufferers.

Corresponding author:

Wachidah Yuniartika
Departement of Nursing, Faculty of Health Sciences, Universitas Muhammadiyah Surakarta, Sukoharjo, Indonesia.
Email: wachidah.yuniartika@ums.ac.id

INTRODUCTION

In this era of globalization, the development of technology and the food industry is growing. In addition to providing positive impacts, it also has negative consequences, namely the shift in people's lifestyles for the worse. Destructive lifestyles such as fast food (junk food), fried foods, and a lack of physical activity and exercise will hurt health conditions. One of these impacts is high cholesterol levels (Ibrahim et al., 2023).

Cholesterol is a fat found in the bloodstream that is needed to form cell walls. Cholesterol comes from foods high in saturated fat (Hasibuan et al., 2022). Fat is a heterogeneous organic compound found in the body and insoluble in water (Ridayani et al., 2018). Fat is the primary energy source for the body's metabolic processes, mainly to produce energy needed by the body and as a carrier of fat-soluble vitamins (Diana, 2022). High levels of cholesterol in the blood can trigger complications

such as hypertension, heart problems (coronary heart disease), and stroke (Prameswari, 2021). Several risk factors can be associated with hypercholesterolemia, including smoking habits, hypertension, obesity, and diabetes mellitus (Al-Raddadi et al., 2019). According to the World Health Organization (WHO), the prevalence of hypercholesterolemia in the world in 2019 was around 45%, in Southeast Asia around 30%, and in Indonesia around 35%. Based on data Riskesdas (2018), the highest number of hypercholesterolemia sufferers were in the age range of 55 years to 64 years, amounting to 12.6%. The results of a preliminary study conducted on February 13, 2024, stated that the population of hypercholesterolemia sufferers at the Baki Health Center was 50 people (Ministry of Health Republic Indonesia, 2018).

The urgency of this study raises a problem that occurs in Jetis Village, Baki, Sukoharjo, namely hypercholesterolemia, which will later be followed up on. Previous studies have shown that there are limitations to health education methods,

namely the lecture method, which is considered less effective in conveying information in an engaging and easy-to-understand way, and the material provided is limited to general knowledge about cholesterol and its dangers. In this study, modifying the media, namely, video media with a visual and interactive format, can improve understanding and motivate respondents. The material presented focuses on a low-fat diet to reduce high cholesterol levels to become a new insight into how to convey health information more precisely because a low-fat diet is the most significant factor in lowering cholesterol levels; therefore, it is hoped that it can change a person's diet and lifestyle to be healthier.

METHOD

This study used a quantitative method with a pre-experimental design and a one-group pre-test and post-test design. The purposeful sampling technique was used to take samples, collect primary data using a structured questionnaire to determine respondents' characteristics and level of knowledge and measure total cholesterol levels using the Easy Touch GCU tool. Data collection was carried out from June to July 2024.

The research location was in Jetis Village, Baki District, Sukoharjo. Based on the results of a preliminary study conducted on February 13, 2024, the population in this study was 50 people with above-normal cholesterol levels in Jetis Village, Baki, Sukoharjo. The number of samples was determined based on calculations using the Slovin formula, which obtained the results of 33 respondents. This number is based on the statement that the minimum number of samples for quantitative research is 30 respondents (Soegiyono, 2018).

The tool used in this study was a questionnaire about knowledge of a low-fat diet adopted from the Indonesian version of the Questionnaire on Dyslipidemia Dietary Knowledge, which has been developed and tested, with the test results being corrected item-total correction>0.632 with Alpha Cronbach's>0.60, which is 0.941. The questionnaire is divided into two criteria, namely, the characteristics of respondents in terms of demographics and the level of respondent knowledge. Video media is also a tool in this study; this video method includes understanding cholesterol, types of cholesterol, factors that influence high total cholesterol levels, signs and symptoms of hypercholesterolemia, foods to avoid, recommended foods, how to process food, and examples of recommended breakfast, lunch, and dinner menus (Setiawan, 2022).

The data in this study were obtained from distributing questionnaires. The questionnaire used by researchers to collect data related to the dependent variable (knowledge) is the Indonesian version of the Dyslipidemia Dietary Knowledge Questionnaire, which has been developed and tested with the test results being all statements valid and reliable (Liang et al., 2019). The questionnaire distribution activity aims to obtain data on the characteristics and knowledge of a low-fat diet in statements with the answer choices "true" or "false," totaling 15 statement items. Scoring using the Guttman scale if the correct answer is worth 1 if the wrong is worth 0, the categorization of the level of knowledge to obtain an overview of the degree of community knowledge according to Arikunto (2019) is good if the score is ≥76-100%, sufficient if the score is 60-75%, and lacking if the score is ≤60%. Data analysis was done using univariate and bivariate analysis with the Wilcoxon signed ranks test.

The study began by collecting all respondents to check their cholesterol levels, giving a pre-test questionnaire, and providing health education about a low-fat diet through video media. Respondents who meet the criteria will be included in the WhatsApp group to be monitored regarding food consumed at breakfast, lunch, dinner, and snacks allowed and not allowed by the research team for 30 days. If respondents are not active in the group, they will be reminded by the research team via private chat to participate optimally in the study. After the 30th day, the questionnaire was given again as a post-test of knowledge.

The implementation of this study received ethical approval from the Health Research Ethics Commission of Dr. Moewardi Hospital, with number 1.397/V /HREC/2024, on June 6, 2024.

RESULTS

Table 1 shows that the average age of respondents is 49.67, with a standard deviation of 11.57 and an age range of 20 to 60.

Table 1. Distribution of respondents' age characteristics

Mean	SD	Min	Max
49.67	11.57	20	60

Based on Table 2, the majority of respondents in this study were female, namely 31

respondents (93.9%). The respondents' education level in Jetis Village, Baki District, Sukoharjo Regency was mainly an elementary school, namely 16 respondents (48.5%). The type of work of respondents in Jetis Village, Baki District, Sukoharjo Regency was mostly housewives (IRT), namely 26 respondents (78.8%).

Table 2. Distribution of respondent characteristics based on gender, education, and occupation

	Variable	f	%
Gender	Female	31	93.9
	Male	2	6.1
Education	No School	3	9.1
	Elementary School	16	48.5
	Junior High School	9	27.3
	High School	4	12.1
	College	1	3
Occupation	Housewife	26	78.8
	Farmer	1	3
	Laborer	4	12.1
	Self-employed	2	6.1

Table 3 shows the respondent's knowledge before and after being given health education. Before being given health education, respondents with the category of less knowledge numbered 24 (71.1%), respondents with the category of sufficient knowledge numbered 9 (27.3%) respondents, and respondents with the category of good knowledge numbered 0 respondents. After being given health education, there was an increase in respondents' knowledge, which can be seen in the category of less knowledge, numbering 0 respondents, respondents with the category of sufficient knowledge, numbering 6 (18.2%) respondents, and respondents with the category of good knowledge numbering 27 (81.8%) respondents.

Table 3. Distribution of respondents' knowledge levels before and after being given health education

Pre-Post Test	f	%	f	%
Less	24	71.1	0	0
Enough	9	27.3	6	18.2
Good	0	0	27	81.8
Amount	33	100	33	100

Before conducting bivariate analysis, it is necessary to conduct a normality test on the pre-test and post-test knowledge data given health education to determine the type of bivariate analysis to be used. Both pre-test and post-test knowledge variables have been tested for normality and have a p-value<0.05, so it can be concluded that the two variables are not normally distributed, so for bivariate analysis using Wilcoxon signed rank analysis. Based on the Wilcoxon Signed Ranks statistical test results from Table 5, it shows a significance value (p-value) of 0.001, which is <0.05. Health education about low-fat diets through video media affects the level of knowledge of cholesterol sufferers in Jetis Village, Baki District, and Sukoharjo Regency.

Table 4. Results of the Wilcoxon Signed Ranks Test on the effect of health education about a low-fat diet through video media on the level of knowledge of cholesterol sufferers

Variable	Z	*p-value*
The effect of health education about low-fat diets through video media on the level of knowledge in cholesterol sufferers	-5,052	0,001

DISCUSSION

The results of the analysis showed that the majority of respondents' knowledge increased after being given health education. Before being given health education, the category of respondents' knowledge level was only lacking and sufficient, but after being given health education, it increased to sufficient and good.

The respondents in this study were mostly 51 to 60 years old. The age of respondents is included in the elderly category, where health decline is typical due to the degeneration process. Degeneration is characterized by decreased function of the five senses, psychological shifts, and the emergence of several diseases, including hypercholesterolemia. The elderly are one of the groups most vulnerable to the dangers of disease (Yuniartika et al., 2023). The reason why high cholesterol often occurs in the elderly is because as we age, the organs of the body will experience decreased function and cannot work optimally, thus disrupting the body's metabolism. In addition, as we age, a person's activity level will decrease, which also affects the body's metabolism, including cholesterol metabolism, and consuming fatty foods more often will increase cholesterol levels (Lasanuddin et al., 2022)

The gender of the respondents was mostly female. This is possible because women have more free time to read or exchange ideas with people around them and have a better understanding than men (Sabarudin et al., 2020).

The highest level of education of respondents is elementary school. A person's level of education can affect their ability to modify daily habits to improve health (Notoatmodjo, 2018). A person can generally absorb knowledge more easily if they are more educated. The low level of education of respondents results in low knowledge about healthy eating patterns and avoiding foods that contain high cholesterol; the level of education is an effort to share insights to establish a positive attitude (Anggraini & Yuniartika, 2023).

Another characteristic of respondents is the type of work. Most are housewives. This is related to the background of respondents who have a lot of elementary school education and who find it difficult to get a job and end up becoming housewives. Judging from the type of work that often interacts with other people, they are exposed to more information or knowledge compared to people without interaction with other people. This is in line with Shrestha et al.'s (2015) research, which states that work is one of the things that influence knowledge.

The Wilcoxon signed rank test results show that the p-value is 0.001. There is an effect of health education about a low-fat diet through video media on the level of knowledge in people with cholesterol. The results of this study align with the results of research from Renityas (2019), which states that providing health education increases knowledge in the elderly. Health education using the video method can increase the elderly's understanding of the material presented, and then changes occur because of the awareness of individuals or groups to learn it. The process of behavioral change and the main success factor in controlling disease is when patients are motivated and gain good knowledge (Yuniartika & Hidayati, 2021). The results of this study are also in line with research from Oktaviana (2020), which concluded that health education on low-fat and low-cholesterol diet intake can improve respondents' understanding (Permatasari & Muhlishoh, 2020).

Knowledge is influenced by two factors, namely internal (education, motivation, and perception) and external (social, cultural, and environmental) (Yani et al., 2019). A high level of education or life experience obtained, high motivation to improve family health, positive perceptions of health services, good socio-culture, and a good supporting environment will encourage families to make decisions regarding appropriate health actions for sick family members and vice versa (Notoatmodjo, 2018). In this study, the main focus of health education is health promotion, which is important to foster interest and motivation in the elderly in preventing increased cholesterol levels. Health education is interesting and educational, where the content of health education is motivating to maintain cholesterol levels within normal limits, explaining the recommended diet menu and those that need to be avoided, as well as the many benefits for the elderly in their daily lives.

Health education will be more effective before hypercholesterolemia complications appear. The strategy for behavioral change is to provide sufficient information on how to avoid disease and increase public knowledge; then, with this knowledge, it can raise awareness among the public. They can modify lifestyle behaviors such as limiting fatty food intake, quitting smoking, reducing stress, being active, and maintaining an ideal body weight so that cholesterol levels do not increase.

High blood cholesterol levels are influenced by nutrient intake, namely from foods that are fat sources. Increasing fat consumption by 100mg/day can increase total cholesterol by 2-3mg/dl. Treatment is needed to control blood cholesterol levels and prevent further impacts of hypercholesterolemia. One of the treatments that can be done is Therapeutic Lifestyle Changes (TLC), which includes reducing saturated fat and cholesterol intake, choosing foods that can lower cholesterol levels, and regular physical activity. Changes to a healthier lifestyle are greatly influenced by self-motivation and the environment (Renityas, 2019).

CONCLUSION

Based on the study's results related to the influence of health education about low-fat diets through video media on the level of knowledge in cholesterol sufferers, it can be concluded that the characteristics of the majority of respondents are aged 20-60 years with an average of 49.67 years. Most respondents are female, have an elementary school education, and are housewives. There appears to be a difference in the level of knowledge before and after being given health education; namely, the category of good knowledge increased, and the category of poor knowledge decreased after education through video media. So, it can be concluded that health

education through video media significantly influences the level of knowledge of cholesterol sufferers in Jetis Village, Baki, Sukoharjo.

It is hoped that the related health facilities, namely the health center, can provide intensive guidance to the community so that knowledge about low-fat diets for cholesterol sufferers that are already good can be maintained. Suggestions for further researchers are that the results of this study can be used as Evidence-Based Nursing (EBN) and basic information when conducting analysis. In conducting further research, a better analysis using a larger sample is expected to be carried out to see the influence of health education on knowledge and the community's attitudes and actions in efforts to prevent complications due to hypercholesterolemia.

CREDIT AUTHOR STATEMENT

MR: Writing the manuscript, visualization, conceptualization; **WY:** Supervising (lead), validating (equal), reviewing, and editing.

REFERENCES

Al-Raddadi, R., Alwafi, O., Shabouni, O., Akbar, N., Alkhalawi, M., Ibrahim, A., Hussain, R., Alzahrani, M., Al Helal, M., & Assiri, A. (2019). Seroprevalence of dengue fever and the associated sociodemographic, clinical, and environmental factors in Makkah, Madinah, Jeddah, and Jizan, Kingdom of Saudi Arabia. *Acta Tropica* (Vol. 189). Elsevier B.V. https://doi.org/10.1016/j.actatropica.2018.09.009

Anggraini, R., & Yuniartika, W. (2023). Cognitive Behavior Therapy (CBT) sebagai Terapi Tingkat Depresi pada Lansia. *Journal of Telenursing (JOTING)*, *5*(1), 416–429. https://doi.org/10.31539/joting.v5i1.5421

Arikunto, S. (2019). *Prosedur Penelitian suatu Pendekatan Praktik.* Jakarta: Rineka Cipta.

Diana, A. (2022). Hubungan Tingkat Pengetahuan Dan Perilaku Penggunaan Daun Kelor Sebagai Anti Hiperkolesterolemia Di Kecamatan Gondanglegi Kabupaten Malang. *Universitas Islam Negeri Maulana Malik Ibrahim Malang.* http://etheses.uin-malang.ac.id/37410/2/18930007.pdf

Hasibuan, N. K., Dur, S., & Husein, I. (2022). Faktor Penyebab Penyakit Diabetes Melitus dengan Metode Regresi Logistik. *G-Tech: Jurnal Teknologi Terapan*, *6*(2), 257–264. https://doi.org/10.33379/gtech.v6i2.1696

Ibrahim, M. A., Asuka, E., Jialal, I., & Corcione, J. (2023). *Hypercholesterolemia (Nursing)*. StatPearls Publishing.

Lasanuddin, H. V., Ilham, R., & Umani, R. P. (2022). Hubungan Pola Makan Dengan Peningkatan Kadar Kolesterol Lansia Di Desa Tenggela Kecamatan Tilango. *Jurnal Ilmu Kedokteran Dan Kesehatan Indonesia*, *2*(1), 22-34. . https://doi.org/10.55606/jikki.v2i1.566

Liang, N., Zhao, Q., He, Y., Li, J., & Yang, L. (2019). Development and validity of a questionnaire on dyslipidemia dietary knowledge. *BioMed Research International*, *2019*. https://doi.org/10.1155/2019/5382130

Ministry of Health Republic Indonesia. (2018). *Laporan Nasional Riskesdas 2018.* Badan Penelitian dan Pengembangan Kesehatan.

Notoatmodjo, S. (2018). *Metodologi Penelitian Kesehatan.* Jakarta: Rineka Cipta.

Permatasari, O., & Muhlishoh, A. (2020). Pendidikan Kesehatan Tentang Asupan Diet Rendah Lemak Dan Kolesterol Di Wilayah Di Puskesmas Gambirsari Surakarta. *Indonesian Journal of Community Empowerment (Ijce)*, *2*(1). https://doi.org/10.35473/ijce.v2i1.522

Prameswari, D. C. (2021). Konsumsi Pisang dalam Menurunkan Kadar Kolesterol Darah. *Jurnal Penelitian Perawat Profesional*, *3*(3), 511–518. https://doi.org/10.37287/jppp.v3i3.537

Renityas, N. N. (2019). Pendidikan Kesehatan Tentang Kolesterol Efektif Meningkatkan Pengetahuan Lansia Dalam Pencegahan Kolesterol. *Jurnal Penelitian Kesehatan*, *9*, 82–88. https://journal.stikvinc.ac.id/index.php/jpk/article/view/178

Ridayani, N., Santri, N. F., & Naim, R. (2018). Gambaran Hasil Pemeriksaan Kadar High Density Lipoprotein(HDL) dan Low Density Lipoprotein(LDL) pada Penderita Obesitas di Rumah Sakit Umum Daerah Syekh Yusuf Kabupaten Gowa. *Jurnal Media Laboran*, *8*(1), 16. https://jurnal.uit.ac.id/MedLAb/article/view/382

Sabarudin, Mahmudah, R., Ruslin, Aba, L., Nggawu, L. O., Syahbudin, Nirmala, F., Saputri, A. I., & Hasyim, M. S. (2020). Efektivitas Pemberian Edukasi secara Online melalui Media Video dan Leaflet terhadap Tingkat Pengetahuan Pencegahan Covid-19 di Kota Baubau. *Jurnal Farmasi Galenika (Galenika Journal of Pharmacy) (e-Journal)*, *6*(2), 309–318. https://doi.org/10.22487/j24428744.2020.v6.i2.15253

Setiawan, K. W. (2022). *Ultimate Diet Guide: Kolesterol*. e-book. https://www.verywellhealth.com/low-cholesterol-diet-7571212

Soegiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: CV. Alfabeta.

Shrestha, N., Yadav, S. B., Joshi, A. M., Patel, B. D. P., Shrestha, J., & Bharkher, D. L. (2015). Diabetes knowledge and associated factors among diabetes patients in Central Nepal. *International Journal of Collaborative Research on Internal Medicine & Public Health*, *7*(5), 82.

Yani, D. I., Juniarti, N., & Lukman, M. (2019). Pendidikan Kesehatan Tuberkulosis untuk Kader Kesehatan. *Media Karya Kesehatan*, *2*(1). https://doi.org/10.24198/mkk.v2i1.22038

Yuniartika, W., & Hidayati, D. A. N. (2021). Improving knowledge of diabetes mellitus patients using booklet. *Journal of Medicinal and Chemical Sciences*, *4*(3), 238–245. https://doi.org/10.26655/JMCHEMSCI.2021.3.4

Yuniartika, W., Nofandrilla, N., Mangifera, L., Musalamah, S., Damayanti, S., & Ajie, A. B. (2023). Pelatihan Aktivitas Sosial pada Lansia untuk Mendukung Kemandirian Kesehatan. *Poltekita: Jurnal Pengabdian Masyarakat*, *4*(1), 113–122. https://doi.org/10.33860/pjpm.v4i1.1393