

Rational education on the use of drugs and self-examination of cholesterol levels for the people of Makassar City

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ABSTRACT

Health problems due to high cholesterol levels in the blood are a big challenge for the people of Indonesia, especially in urban areas such as Makassar. High cholesterol is closely related to an increased risk of cardiovascular disease, stroke, and other metabolic complications. On the other hand, the public's understanding of the rational use of drugs is still limited, so it has the potential to cause side effects, drug resistance, and decreased therapy effectiveness. The method of implementing the activity consisted of educational counselling related to the classification of drugs, how to use, store, and dispose of drugs correctly, as well as demonstrations of the use of cholesterol checkers (Easy Touch) using the Point of Care Testing (POCT) method. In addition, participants were given insight into the risk factors for high cholesterol and their control strategies, such as a healthy diet, exercise, and regular check-ups. The activity results showed high enthusiasm and participation of participants in the discussion and practice sessions. Brief evaluations through question-and-answer methods indicated increased participants' understanding of the importance of rational medication use and initial skills in independent cholesterol examination. This activity not only fosters health awareness but also strengthens the function of the Tri Dharma of Higher Education in community service. Thus, this activity contributes to increasing public health literacy and encouraging a healthy lifestyle to reduce the prevalence of non-communicable diseases in urban areas.

Keywords: Cholesterol, community service, health education, Point of Care Testing.



INTRODUCTION

Non-communicable diseases (NCDs) such as dyslipidemia and cardiovascular disease are increasing in prevalence in Indonesia, especially in urban areas. One of the main factors causing it is high cholesterol, which occurs when total cholesterol levels, especially LDL (Low-Density Lipoprotein), exceed normal limits in the blood. Cholesterol is an essential compound that the body needs to form hormones, cell membranes, and vitamin D. However, excess cholesterol in the blood can cause plaque buildup in blood vessels, leading to clogged arteries and the risk of coronary heart disease and stroke. Data from the Indonesian Ministry of Health (2023) shows that around 28% of Indonesians have high cholesterol levels, and this figure has the potential to continue to increase along with lifestyle changes. The change in the lifestyle of the Indonesian people towards a diet high in saturated fat, a lack of physical activity, and the consumption of addictive substances such as cigarettes and alcohol has further aggravated this condition [1]. In addition, the high rate of urbanisation, work stress, and lack of health literacy also support the upward trend of metabolic diseases such as hypercholesterolemia. Therefore, a holistic approach is needed that includes continuous health education to the public about a healthy lifestyle, independent monitoring of cholesterol levels, and the wise and rational use of drugs [2].

Health education is important in preventive and promotive efforts to increase public awareness and knowledge of health issues. In the context of cholesterol, education not only discusses the definition and risk of high cholesterol but also how to manage it through diet, exercise, and pharmacological control [3]. One of the significant challenges faced is the low public understanding of the rational use of drugs. Many individuals still do self-medication without the guidance of health professionals, including the use of statins (cholesterol-lowering drugs) without a laboratory examination first or stopping treatment when they feel "cured." This practice has the risk of causing drug resistance, side effects, and fatal events due to unknown drug interactions [4]. The rational use of medicine emphasises that each patient should receive treatment appropriate for their clinical needs, in the right dose, within the right timeframe, and at an affordable cost to individuals and communities. This principle must continue to be socialised at the community level through a community service approach by higher education institutions [5]. Service activities such as counselling, training, and demonstrations of independent health practices effectively bridge the information gap between medical personnel and the general public [6].

One of the technologies that supports increasing public awareness and independent ability is Point of Care Testing (POCT). POCT is a diagnostic examination method that can be done in a primary health care setting or even at home [7]. Regarding cholesterol, POCT allows individuals to quickly and easily find the total cholesterol level with just a fingertip blood sample [8]. The main advantages of POCT are ease of use, fast results, and the fact that it does not require extensive laboratory facilities. This aligns with modern health services' principles prioritising accessibility, effectiveness, and community empowerment [9]. Higher education institutions have a strategic role in conveying scientific knowledge and health technology to the public. Through community service programs, lecturers and students can become agents of change that bring evidence-based information to the community level. A participatory, communicative, and contextual approach is essential to ensure the local community can understand, accept, and apply the education provided [10].

Against this background, counselling and cholesterol screening activities through a community-based health education approach are relevant and needed. This activity aims not only to improve knowledge but also to improve people's skills in managing their health independently. Counselling on the rational use of drugs and the practice of independent cholesterol checking using POCT tools is a tangible manifestation of educational institutions' contribution in improving public health. This increase in health literacy is expected to impact the reduction of metabolic diseases and their complications in the future. In addition, this activity is a form of actualisation of the Tri Dharma of Higher Education, especially in community service, based on solutions and real community needs.

METHOD

This community service activity uses an educational-participatory approach with counselling, demonstration, and direct evaluation methods. The main objective of the activity is to increase public understanding of the rational use of drugs and the skills of self-examination of blood cholesterol levels using Point of Care Testing (POCT) tools. This approach was chosen to create active participant involvement and applicable knowledge transfer. Location and Time of Implementation The activity was held at: Nur Ichsan Clinic, Rappocini District, Makassar City. Day/Date: Saturday, May 18, 2024 Time: 09.00 WITA until finished. Participants of the activity A total of 50 members of the general public from around the Nur Ichsan Clinic participated in this activity. Participants are people of productive age to the elderly, with diverse educational backgrounds and health understandings.

Activity Implementer

The implementation of the activity involves: Lecturers of the D3 Pharmacy Study Program, Sandi Karsa Polytechnic, as many as 2 people. Students of the D3 Pharmacy Study Program, as many as 2 people. All activities are facilitated and accompanied by the implementation team, who have compiled educational materials according to academic literature standards and sources from the Ministry of Health of the Republic of Indonesia.

Stages of Activity

The activity is carried out in the following stages: Health Education Counselling. The material defines cholesterol and its types (HDL, LDL, and triglycerides). Risk factors and impact of high cholesterol. The principle of correct and rational use of drugs (types of drugs, how to use, storage, and safe disposal). Prevention of high cholesterol through a healthy lifestyle and exercise. Cholesterol Screening Demonstration. Participants were trained to use POCT (Easy Touch brand) tools to check blood cholesterol levels independently. Capillary blood samples were taken from the fingertips of willing participants as demonstration examples. The explanation was carried out directly on how to read the results and the basic interpretation of the cholesterol level category.

Discussion and Q&A

After the counselling and demonstration sessions, interactive discussions were held to answer questions from participants and strengthen understanding. Resource persons from the service team responded to participants' questions.

Evaluation and Reflection

Evaluation was carried out informally through observation of participant participation, as well as a question-and-answer session to measure the level of understanding. In addition, reflections were delivered by local community leaders as a form of feedback.

Source of Tools and Materials

POCT measuring total cholesterol (Easy Touch). Blood cholesterol strips, alcohol swabs, and lancets for capillary blood collection. Educational media: leaflets, banners, and visual presentations. A short questionnaire for early identification of participant knowledge (if required in advanced development)

Ethics and Permits

This activity has received permission and support from the Nur Ichsan Clinic and local community leaders. All participants voluntarily consent to participate, including during cholesterol screening demonstrations.

RESULT

This community service activity was successfully carried out with the participation of 50 residents from the surrounding area of Nur Ichsan Clinic, Makassar City. Participants came from diverse age groups, educational backgrounds, and health literacy levels. The activity focused on two main topics: rational drug use education and hands-on training in self-monitoring blood cholesterol using Point of Care Testing (POCT).

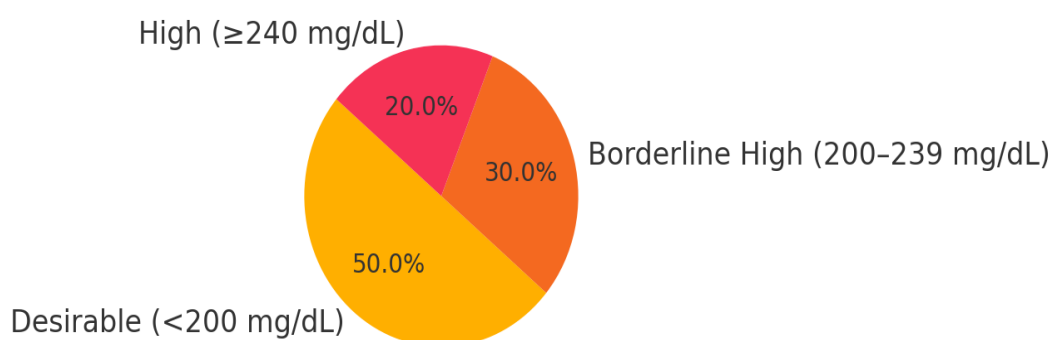


Chart 1. Distribution Of Total Cholesterol Levels Among Participants

Improved Understanding of Rational Drug Use. During the educational session, participants gained comprehensive knowledge on: Types of medications (over-the-counter, limited OTC, prescription-only, and pharmacy-compounded drugs) and how to use them correctly. Consequences of irrational drug use include antibiotic resistance, side effects, and ineffective therapy. Proper techniques for medication administration, such as oral, topical, inhalation, and self-injection routes. Safe storage and disposal practices to maintain drug efficacy and prevent misuse or environmental harm. Participants demonstrated high enthusiasm and actively engaged in Q&A sessions. Questions included the concurrent use of herbal and prescription drugs, insulin storage, and the long-term effects of statin medications.

Training in Self-Monitoring Cholesterol with POCT. The second part of the activity introduced participants to Point of Care Testing (POCT) devices using the Easy Touch

brand. A live demonstration was conducted with volunteer participants, following this procedure: Capillary blood was collected from the fingertip using a sterile lancet. Blood was applied to the test strip and analysed using the POCT device. Results were interpreted using cholesterol classification guidelines (normal, borderline, high). Many participants expressed strong interest in owning such devices for home monitoring. This practical training emphasised the importance of early detection and proactive management of high cholesterol: community Response and Participation. Participants showed active involvement, as evidenced by: Engaged discussion and willingness to share insights. They expressed an intention to disseminate information to their families and communities. Suggestions for regular and broader outreach of similar programs. Local community leaders and representatives expressed appreciation and support, recognising the relevance of this activity in promoting public health and awareness of safe medicine use and lifestyle modification. Although no formal quantitative instruments (e.g., pre-tests or post-tests) were used, qualitative evaluation through direct observation and open discussions showed noticeable improvement in participants' understanding. This was evident through reflective questions and the ability to confidently repeat the cholesterol test procedure.

DISCUSSION

Non-communicable diseases such as hypercholesterolemia, hypertension, and coronary heart disease have become the leading causes of morbidity and mortality in Indonesia. High blood cholesterol levels are among the most significant factors in developing the disease. Based on the 2018 Basic Health Research (Riskesdas) and various recent reports from the Ministry of Health of the Republic of Indonesia, the prevalence of high cholesterol has increased significantly in the last decade, especially in the productive age group. Therefore, educating the public about the importance of cholesterol control and rational use of drugs is increasingly crucial in promotive and preventive efforts in public health.

Improving Health Literacy through Community Education. The results of the service activities showed that counselling on the correct use of drugs and independent cholesterol checks succeeded in increasing participants' understanding of basic health topics. Most of the participants had previously not understood the types of drugs, the differences between over-the-counter and prescription drugs, and the dangers of using drugs without the supervision of medical personnel [11]. This activity succeeded in bridging the information gap. Community-based health education is one of the strategies WHO recommends in expanding the reach of health information, especially in populations with limited access to formal health services [12]. In this regard, collaboration between higher education institutions and the community can create effective synergies in positively changing public health behaviours [13].

Awareness of Rational Use of Drugs. Many Indonesians still practice self-medication inappropriately, such as buying antibiotics without a prescription, stopping treatment prematurely, or mixing chemical drugs with traditional medicines without sufficient knowledge. This is at risk of causing drug resistance, adverse drug interactions, and therapy failure. This activity emphasises the importance of rational use of drugs, namely using drugs according to medical indications, the right dose, the right time, and the appropriate duration and method [14]. WHO has long called for strengthening rational drug use education programs at the primary level, and activities like this are a real implementation of that agenda [15]. Furthermore, this education also introduces basic principles such as recognising drug labels, reading the rules for use, understanding proper

storage, and recognising signs of side effects or contraindications. A smart medicine consumer will contribute to increasing the effectiveness of the overall health care system [16].

Benefits of Self-Cholesterol Screening Using POCT. Demonstrating using point-of-care testing (POCT) tools in this activity is a huge added value. POCT is a diagnostic innovation that allows examinations to be carried out in primary care settings, even at home [17]. This tool facilitates access to personal health information and accelerates the early detection of metabolic disorders such as hypercholesterolemia. Participants quickly understood how to use the tool, the interpretation of the results, and the limits of normal cholesterol values [18]. This ability is particularly beneficial because most of the participants are elderly or high-risk individuals who have never previously conducted a laboratory test independently [19]. Recent research shows that using POCT in the community can help identify cases of high cholesterol more quickly than waiting for the results of conventional laboratory tests. POCT also encourages people to be more concerned about their health conditions and make decisions based on the data they have directly [20].

The Relationship of Lifestyle and Cholesterol Levels. During the discussion session, many participants realised that diet, stress, and physical activity greatly affect cholesterol levels. Consumption of foods high in saturated fat, lack of fibre intake, and sedentary lifestyle are the main risk factors for increasing LDL and decreasing HDL. Data from various studies show that dietary changes and increased physical activity can consistently lower total cholesterol levels by 15-25% without drug intervention. Therefore, this counselling also emphasises the importance of a balanced diet, regular exercise, and the cessation of bad habits such as smoking and alcohol consumption [21]. One of the indicators of the success of this activity is the high participation and interaction during the education and demonstration sessions. Participants listen and actively ask questions, discuss their health conditions, and show interest in passing this information on to their families and surrounding neighbourhoods. This indicates that the community can receive a hands-on approach with simple language and contextual material. This reinforces that successful community service must prioritise participation, not just one-way counselling [22].

CONCLUSIONS

Community service activities in the form of counselling on the rational use of drugs and self-examination of cholesterol levels using Point of Care Testing (POCT) tools have been successfully carried out and received a positive response from the community. This counselling has been proven to increase participants' knowledge and awareness of the importance of using drugs appropriately, as well as basic skills in conducting independent cholesterol monitoring. Participants were able to understand the types of drugs, how to use and store them, and the potential dangers of using inappropriate drugs. In addition, the POCT tool demonstration provides a hands-on experience that encourages participants to be more concerned about their health conditions. This activity also shows that the educational-participatory approach carried out directly in the community effectively bridges the gap in health information, especially in community groups with limited access to health services.

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