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Evaluation of Health Promotion Programs for Changes in Clean and Healthy Living Behavior (PHBS)

Dewi Agustina[1*], Fadillahdwiputri[2], Dhea Darsanti Eka Putri[3], Ibnaty Salsabila Salsabila[4], Sri Wahyuni Siregar[5], Sastra Putri Wisati Gulo[6], Tika Zahra Claudya[7], Airin Raudhatul Jannah[8], Nayla Azzahra[9], Maysyarah Tanjung[10], Sayla Ramadani[11], Selviani[11], Anindya Sabrina[13]
[1-13]S1 Ilmu Kesehatan Masyarakat, Fakultas Kesehatan Masyarakat, Universitas Islam Negeri Sumatera Utara

*Email: dewiagustina@uinsu.ac.id

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ABSTRACT

Introduction: Clean and Healthy Living Behavior (PHBS) is an important indicator in improving the degree of public health. However, the implementation of PHBS at the household and school levels still faces various obstacles, such as low knowledge and lack of public awareness. Health promotion programs are designed to encourage behavior change through education and empowerment. This study aims to evaluate the effectiveness of health promotion programs on changes in PHBS behavior in the community.

Methods: This study used a quantitative design with a quasi-experimental approach through a pretest-posttest without control group design. The research population is the community in the work area of the health center, with a sample of 60 respondents selected using the purposive sampling technique. The independent variable is the health promotion program, while the dependent variable is the change in PHBS behavior. Data were collected using structured questionnaires and observation sheets, then analyzed using a paired t-test with a significance level of 0.05.

Results: The results showed an increase in the average score of PHBS behavior after the health promotion intervention. Statistical analysis showed a significant difference between pretest and posttest scores ($p < 0.05$), which showed that health promotion programs had an effect on changes in respondents' behavior.

Conclusion: Health promotion programs have proven to be effective in improving clean and healthy living behaviors of the community. Continuous program implementation and periodic evaluation are needed to maintain and increase positive behavior changes.

INTRODUCTION

Clean and Healthy Living Behavior (PHBS) is one of the main strategies in public health development that aims to increase the awareness, willingness, and ability of individuals to live a healthy life so that optimal health levels are achieved (Ministry of Health of the Republic of Indonesia, 2016). PHBS includes a series of behavioral indicators at the level of households, schools, workplaces, and health care facilities that play an important role in the prevention of infectious and non-communicable diseases (World Health Organization, 2018). Consistent implementation of PHBS has been proven to contribute to reducing the number of illnesses, improving environmental quality, and strengthening public health resilience (Ministry of Health of the Republic of Indonesia, 2019).

Although various health promotion programs have been implemented, the achievement of PHBS indicators in several regions still shows suboptimal results, especially in the aspects of washing hands with soap, using healthy latrines, and managing household waste (Ministry of Health of the Republic of Indonesia, 2020). The low level of knowledge, attitudes, and practices of the community towards healthy behavior is one of the factors that affect the effectiveness of health promotion programs (World Health Organization, 2017). Health promotion as an effort to change behavior through educational, persuasive, and community empowerment approaches requires systematic evaluation to ensure the success of the interventions carried out (World Health Organization, 1986).

Program evaluation is an important process to assess the extent to which program objectives are being achieved, identify obstacles to implementation, and provide a basis for future policy improvements (Centers for Disease Control and Prevention, 1999). Without a structured evaluation, the effectiveness of health promotion programs in encouraging PHBS behavior change is difficult to measure objectively and sustainably (World Health Organization, 2018). Therefore, research is needed that specifically evaluates the impact of health promotion programs on PHBS behavior changes in the community as a form of accountability and improving the quality of health services (Ministry of Health of the Republic of Indonesia, 2019).

Based on this description, the core problem in this study is that PHBS behavior change has not been optimal even though health promotion programs have been implemented in the community (Ministry of Health of the Republic of Indonesia, 2020). This study aims to evaluate the effectiveness of health promotion programs on changes in clean and healthy living behaviors (PHBS) in order to provide evidence-based recommendations for improving the quality of public health interventions (World Health Organization, 2018).

METHODS

This study uses a quantitative design with a quasi-experimental approach through a pretest–posttest without control group design to assess behavioral changes before and after intervention in the same group (Research Design, 2014). Quasi-experimental design is used when researchers do not allow full randomization but still want to test the influence of an intervention systematically (Research Methods in Health, 2014). The research was carried out in the work area of the health center in Medan City, North Sumatra Province, from January to March 2026, taking into account the principles of community-based public health research (World Health Organization, 2018).

The population in this study is all heads of families domiciled in the work area of the health center as many as 245 heads of families, which are determined based on the concept of the target population in quantitative research (Health Research Methodology, 2018). The research sample amounted to 60 respondents who met the inclusion and exclusion criteria, in accordance with the principle of determining the sample in the intervention design (Research Methods in Health, 2014). The sampling technique uses purposive sampling, which is a respondent selection technique based on the consideration of certain characteristics that are relevant to the research objectives (Health Research Methodology, 2018).

The independent variable in this study is the health promotion program provided through counseling, group discussions, leaflets, and demonstrations of PHBS practices, which is the main strategy in health promotion based on community empowerment (World Health Organization, 1986). Dependent variables are changes in PHBS behavior as measured based on healthy household indicators according to national guidelines (Ministry of Health of the Republic of Indonesia, 2016).

Data collection was carried out using structured questionnaires and observation sheets that have been tested for validity and reliability to ensure the quality of research instruments (Health Research Methodology, 2018). The validity test was carried out with Pearson correlation and the reliability test used Cronbach's alpha ≥ 0.70 as the internal consistency standard of the instrument (Discovering Statistics Using SPSS, 2009). Measurements were taken twice, namely before the intervention (pretest) and four weeks after the intervention (posttest) to assess comparative behavioral changes (Research Design, 2014).

Data analysis was carried out univariate to describe the frequency distribution and characteristics of respondents, as well as bivariate analysis using paired t-test to determine the difference in average scores before and after intervention in the same group (Discovering Statistics Using SPSS, 2009). The significance level used is 0.05 as the threshold for hypothesis acceptance in health research (Research Methods in Health, 2014).

This research has obtained ethical approval from the Health Research Ethics Committee, Faculty of Public Health, University of North Sumatra with Ethics Certificate Number: 012/KEPK-FKM/2026, in accordance with the principles of research ethics which include respect for persons, beneficence, and justice in health research (World Medical Association, 2013). All respondents signed an informed consent sheet before the study was carried out as a form of protection of participants' rights (World Medical Association, 2013).

RESULTS

Respondent Characteristics

This study involved 60 respondents who participated in a series of health promotion activities and pretest and posttest measurements. Based on age distribution, the majority of respondents were in the age group of 30–39 years. Most of the respondents were female and had a secondary education. The average score of clean and healthy living behavior (PHBS) before the intervention was 62.4 (SD = 8.5), while after the intervention it increased to 78.9 (SD = 7.2).

The results of the univariate analysis showed an increase in the proportion of respondents with the PHBS behavior category both after the implementation of the health promotion program. In the initial measurement (pretest), most of the respondents were in the adequate category, while in the final measurement (posttest) the majority of respondents were in the good category.

Changes in PHBS Scores Before and After Intervention

The measurement of behavior change was carried out through a comparison of pretest and posttest scores using a paired t-test. The results of the analysis showed a calculated t-value of 12.36 with a value of $p = 0.000$ ($p < 0.05$). This shows that there is a significant difference between PHBS scores before and after health promotion program interventions.

In detail, the highest increase was seen in the indicators of hand washing habits with soap and household waste management. All PHBS indicators showed an increase in the average score after the implementation of the intervention.

Distribution of PHBS Category Changes

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Table 1. Distribution of PHBS Category of Respondents Before and After Intervention (TNR 11)

Category PHBS	Pretest (n)	Pretest (%)	Posttest (n)	Posttest (%)
Good	12	20,0	38	63,3
Enough	34	56,7	18	30,0
Less	14	23,3	4	6,7
Total	60	100	60	100

DISCUSSION

This study shows that health promotion programs have a significant influence on improving clean and healthy living behaviors (PHBS) in the community. The increase in the average PHBS score after the intervention as well as the shift in the behavior category from adequate to good indicates that the educational and empowerment strategies implemented are able to encourage real behavior change. These findings confirm that structured health promotion interventions can be an effective instrument in improving household-based health practices.

The results of this study are in line with the health promotion approach based on community empowerment as emphasized in the Ottawa Charter for Health Promotion by the World Health Organization (1986), which states that increasing individual control over health determinants is the key to behavior change. An increase in indicators such as soap handwashing habits and household waste management shows that education-based interventions and hands-on practical demonstrations can strengthen respondents' understanding and skills in implementing PHBS.

These findings are also consistent with previous research that states that health counseling with participatory methods has a significant influence on changes in knowledge and attitudes which then have an impact on daily health practices (Health Research Methodology, 2018). In addition, a report by the Ministry of Health of the Republic of Indonesia (2016) emphasizes that the success of the implementation of PHBS is greatly influenced by the intensity of health promotion, environmental support, and active community involvement. Thus, the increase in PHBS scores in this study can be understood as a result of a combination of educational, motivational, and social support factors provided during the intervention.

Theoretically, changes in health behavior are not only influenced by increased knowledge, but also by the formation of supportive social attitudes and norms (World Health Organization, 2018). Therefore, the success of the program in this study shows that health communication strategies carried out repeatedly and contextually are able to strengthen the process of adopting healthy behaviors. This shows the importance of program design that is not only informative, but also applicable and relevant to the socio-cultural conditions of the local community.

The contribution of this research to the development of public health science and technology lies in strengthening the empirical evidence that quantitative evaluation of programs can be the basis for improving health promotion policies at the primary service level. These results can serve as a reference in designing a more measurable and sustainable community-based PHBS intervention model, as well as supporting the transformation of promotive and preventive health services. Thus, this study not only provides an overview of the effectiveness of the program, but also enriches adaptive and evidence-based health promotion implementation strategies to improve people's quality of life.

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