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Pocket Book Education to Improve the Knowledge and Attitudes of Housewives toward COVID-19 Prevention in RT 2 RW 3, Gurun Laweh Subdistrict, Nanggalo, Padang City

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Article Information

Received: 22 July 2026
Revised: 31 August 2026
Accepted: 13 September 2026
Available online: 30 September 2026

Keywords

pocket book, health education media, COVID-19, knowledge, attitude, housewives

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ABSTRACT

Coronavirus disease 2019 (COVID-19) continued to spread in Indonesia in early 2021, and its prevention depends largely on households adopting protective practices such as handwashing with soap, wearing masks, and keeping physical distance. Housewives manage daily routines at home and are therefore strategic targets for health education; however, portable, attractive, and needs-based educational media were still limited in RT 2 RW 3, Gurun Laweh Subdistrict, Nanggalo, Padang City, West Sumatra. This community-based health promotion program aimed to develop a COVID-19 pocket book that matches community needs and to assess its effectiveness in improving housewives' knowledge and attitudes. A mixed-methods approach was used between 28 April and 22 May 2021. The pocket book was designed through the P-Process, informed by in-depth interviews with a language expert, a graphic design expert, a health promotion officer, and a COVID-19 task force officer of Nanggalo Public Health Center. It was then given to 47 housewives aged 26–45 years (total sampling) in a one-group pre-test–post-test design. Knowledge (nine items) and attitude (14 Likert items) were measured by questionnaire and compared using a paired t-test ($\alpha = 0.05$). The mean knowledge score increased from 5.45 ± 1.457 to 8.36 ± 0.792 (relative increase 53.4%; $p < 0.001$), and the mean attitude score increased from 47.32 ± 2.012 to 50.38 ± 1.208 ($p < 0.001$). The experts recommended clear language, bright colors, medium-sized text, selective illustrations, and prevention-focused content drawn from credible sources. Supporting factors included the novelty of the medium and the cooperation

DOI:

https://doi.org/10.35730/vemwrz72

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of local stakeholders, whereas low formal education and limited handwashing facilities were the main constraints. These findings indicate that a needs-based pocket book is an effective and low-cost medium for improving COVID-19 knowledge and attitudes among housewives, although a controlled design is required to confirm the effect.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by the novel coronavirus SARS-CoV-2. On 30 January 2020 the World Health Organization declared it a public health emergency of international concern, and the disease has since spread rapidly between countries. It is transmitted mainly through respiratory droplets released when an infected person coughs or sneezes, so people in close contact with a patient, including those who care for the patient, are at the greatest risk. Older adults and people with underlying conditions such as diabetes, heart, liver, or kidney disease and stroke are especially vulnerable (Ministry of Health, 2020a).

As of 13 January 2021, the World Health Organization had recorded 90,054,813 confirmed cases and 1,945,610 deaths worldwide (WHO, 2021), while Indonesia had reported 858,043 confirmed cases and 24,951 deaths (COVID-19 Task Force, 2021). Data for 2021 show 24,599 confirmed cases and 555 deaths in West Sumatra (Provincial Government of West Sumatra, 2021) and 12,872 positive cases and 262 deaths across the 78 subdistricts of Padang City, including 65 cases in Gurun Laweh Subdistrict, Nanggalo (Padang City Health Office, 2021).

At the community level, prevention relies on behavior: washing hands frequently with soap, wearing a mask when ill or when in public places, keeping distance and avoiding crowds, bathing and changing clothes immediately after arriving home, and strengthening immunity through balanced nutrition, adequate rest, and physical activity (Ministry of Health, 2020b). The government repeatedly asked the public to wash hands with soap, wear masks, and keep a distance, yet these measures were not always applied. Community perception surveys also showed that many people assumed the pandemic would end quickly, that mask wearing was the most common preventive practice, and that worry about family health, fear of infection, and exposure to disturbing information were major sources of stress (Arriani et al., 2020). Under such conditions, clear, credible, and easily accessible health information is an essential public health tool.

From a health promotion perspective, health efforts cover promotive, preventive, curative, and rehabilitative aspects (Notoatmodjo, 2014). Because the number of cases recorded in Gurun Laweh Subdistrict was relatively limited, promotive and preventive efforts were considered the most appropriate role for health promotion workers, with the aim of maintaining health and preventing further transmission. According to Lawrence Green's theory, knowledge and attitude

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are predisposing factors that shape health behavior (Notoatmodjo, 2010), and knowledge, as the cognitive domain, is an important foundation for overt action (Notoatmodjo, 2014). Health education media help deliver messages, arouse interest, and reduce barriers to understanding (Notoatmodjo, 2014). A pocket book is a small book of text and pictures that can be carried, stored, and read at any time; when presented attractively it can increase readers' interest and help messages to be accepted and understood (Afandi & Siregar, 2019). Pocket books have improved knowledge and attitudes on topics ranging from personal protective equipment to school hygiene behavior and gouty arthritis (Hanif, 2020; Ranti, 2012; Ridwansyah, 2017), and online education through video and leaflets has been shown to raise COVID-19 prevention knowledge (Sabarudin et al., 2020).

Needs analysis through interviews with officers of Nanggalo Public Health Center revealed three priority problems. First, community compliance with health protocols remained low, so officers advised that educational messages should emphasize prevention. Second, the educational media previously given to the community were mostly leaflets, and no pocket book on COVID-19 had been provided. Third, materials needed to come from clear and reliable sources, such as the Ministry of Health, and to be packaged attractively and in a portable form. Housewives, who manage daily household routines such as hygiene, food, and family care, are a strategic group for family-level prevention, yet media tailored to their needs were limited in RT 2 RW 3.

To address these problems, the program was built on four components. First, a needs analysis through in-depth interviews with a language expert, a graphic design expert, and health workers, followed by the development of a pocket book using the P-Process (Directorate of Health Promotion and Community Empowerment, 2017). Second, distribution of the pocket book to housewives, accompanied by a short counseling session. Third, measurement of knowledge and attitudes before and after the intervention using a validated questionnaire. Fourth, statistical analysis and the formulation of recommendations for local stakeholders.

The intended outputs were as follows. First, a COVID-19 pocket book designed according to community needs. Second, an increase in the knowledge of housewives about COVID-19, measured by pre-test and post-test scores. Third, an improvement in their attitudes toward COVID-19 prevention. Fourth, an identification of the factors that support and constrain the use of the pocket book, as a basis for follow-up recommendations to the neighborhood authorities and health workers.

METHODS AND IMPLEMENTATION

This health promotion activity was carried out in RT 2 RW 3, Gurun Laweh Subdistrict, Nanggalo District, Padang City, West Sumatra Province, from January to May 2021, with field activities between 28 April and 22 May 2021. Gurun Laweh was established in 1981 and has three neighborhood units (RT), approximately 1,609 residents (836 men and 773 women) in about 388 households, and one auxiliary health center that supports Nanggalo Public Health

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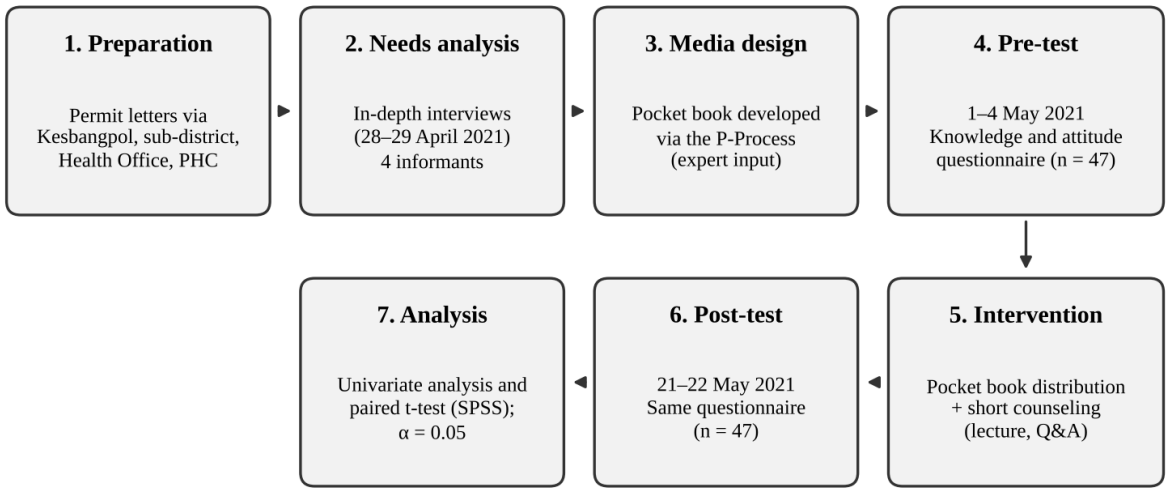
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Center. A mixed-methods approach was used (Sugiyono, 2017). The qualitative component, consisting of in-depth interviews, informed the design of the medium. The quantitative component used a quasi-experimental one-group pre-test–post-test design, chosen because a control group was difficult to obtain in practice.

The population consisted of 92 households with adult members aged 26–45 years in RT 2 RW 3. Participants were housewives in this age range who met the inclusion criteria (able to read, resident in RT 2 RW 3, and willing to sign an informed consent form). All eligible housewives were included through total sampling, giving 47 participants. Informants for the qualitative component were selected purposively: a graphic design expert, a language expert, a COVID-19 task force officer of Nanggalo Public Health Center, and a health promotion officer of the same center.

The implementation consisted of several stages (Figure 1). The first stage was preparation, in which permit letters were obtained from the study program and submitted to the Padang City National Unity and Politics Agency (Kesbangpol), which forwarded them to the district office and the subdistrict head, and to the Padang City Health Office, which forwarded them to Nanggalo Public Health Center; the subdistrict head then informed the neighborhood head (RT). The second stage was a needs analysis through in-depth interviews on 28 and 29 April 2021 concerning the content, language, and design of the medium. The third stage was the development of the pocket book using the P-Process, which comprises analysis of the health problem and target group, media design, message development with pretesting and production, implementation and monitoring, and evaluation and redesign (Directorate of Health Promotion and Community Empowerment, 2017). The fourth stage was the pre-test on 1–4 May 2021, in which participants completed the questionnaire after giving informed consent. The fifth stage was the intervention: each participant received the pocket book, which was also used as the medium for a short counseling session (about 10 minutes of lecture and question-and-answer) guided by a counseling plan covering the definition of COVID-19, its transmission, signs and symptoms, and prevention, including handwashing, correct mask use, and the groups most at risk. The sixth stage was the post-test on 21–22 May 2021 using the same questionnaire. The seventh stage was data processing and analysis.

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[Figure 1. Flow of the program: preparation, needs analysis, pocket book development, pre-test, intervention, post-test, and data analysis]

Data were collected with a questionnaire adapted from a previous COVID-19 study. The knowledge section contained nine multiple-choice questions on transmission, entry of the virus into the body, incubation period, effects on the body, symptoms, situations to avoid during an outbreak, case fatality, risk groups, and prevention; correct answers scored 1 and incorrect answers 0, giving a possible range of 0–9. The attitude section contained 14 statements on a five-point Likert scale (strongly agree to strongly disagree), with favorable statements scored 5 to 1 and unfavorable statements scored in reverse, giving a possible range of 14–70 (Sugiyono, 2017). Validity testing produced calculated r values of 0.689–0.721, above the table value of 0.553, and reliability by Cronbach's alpha was 0.688 (Rizki Risya, 2018). An interview guide, field notes, and photographic documentation supported the qualitative component.

Data were edited, coded, entered into a master table in Microsoft Excel, cleaned, and analyzed with SPSS. Univariate analysis described the age and education of participants and the mean, standard deviation, minimum, and maximum of the scores. A paired t-test compared pre-test and post-test scores at the 95% confidence level ($\alpha = 0.05$), with $p < 0.05$ interpreted as evidence that the pocket book was effective. For knowledge, the normalized gain (N-gain) was additionally calculated from the group means (Hake, 1998). Qualitative data were analyzed through data reduction, data display, and conclusion drawing, using source triangulation. All participants gave written informed consent, and their identities were kept confidential.

RESULTS AND DISCUSSION

The program produced outcomes that can be grouped into five aspects: the development of a pocket book based on community needs, the characteristics of participants, the improvement in

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knowledge, the improvement in attitudes, and the supporting and constraining factors. Each is described in the following subsections.

Development of the Pocket Book Based on Community Needs

The pocket book was developed through the P-Process and refined according to the in-depth interviews with four informants. Table 1 summarizes their input and how it was translated into design decisions.

Table 1. Summary of Informants' Input and Resulting Pocket Book Design Decisions

Informant	Main input	Design decision
Language expert	Use clear, precise, and unambiguous language; avoid unnecessary word repetition; draw material from clear and reliable sources	Short, clear sentences without repeated wording; content based on reliable sources
Graphic design expert	Use brighter colors, because the initial colors were unsuitable; keep text size moderate; select illustrations carefully	Bright color scheme; medium font size; only illustrations that support the text
Health promotion officer, Nanggalo Public Health Center	Consider the target group; use sources such as the Ministry of Health; emphasize prevention; use bright colors; limit images; prepare a counseling plan	Prevention-focused content; fewer images; counseling plan prepared
COVID-19 task force officer, Nanggalo Public Health Center	The size is suitable to be carried anywhere; use clear sources; emphasize prevention because health protocols are still hard to apply	Pocket size retained; prevention emphasized

Source: In-depth interviews, 28–29 April 2021

Several recommendations were repeated across informants. Three of the four informants stressed that material should come from clear and reliable sources such as the Ministry of Health; the health promotion officer and the task force officer both asked that prevention be emphasized because adherence to health protocols was still difficult to achieve; and the graphic design expert and the health promotion officer both advised bright colors, a moderate text size, and a limited number of images. The final pocket book is small enough to be carried everywhere. It contains the definition of COVID-19, how it is transmitted, how to prevent it, how to face it, what to do during the pandemic, and motivational messages. The text is short and clear, supported by a few illustrations related to the material, and the book includes blank pages on which readers can write additional information. These decisions correspond to the pretesting criteria of the P-Process,

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namely attraction, comprehension, acceptability, personal involvement, and persuasion (Directorate of Health Promotion and Community Empowerment, 2017), particularly attraction and comprehension.

Characteristics of Participants

A total of 47 housewives participated. As shown in Table 2, most participants (74.5%) were in early adulthood (26–35 years) and 25.5% were in late adulthood (36–45 years). In terms of education, 29.8% had no schooling, 57.4% had completed only basic education (elementary or junior high school), and 12.8% had completed senior high school. Overall, 87.2% of participants had no schooling or only basic education.

Table 2. Distribution of Participants by Age and Education (n = 47)

Characteristic	Category	f	%
Age	26–35 years (early adulthood)	35	74.5
	36–45 years (late adulthood)	12	25.5
Education	No schooling	14	29.8
	Basic (elementary and junior high school)	27	57.4
	Secondary (senior high school)	6	12.8
Total (each characteristic)		**47**	**100.0**

Source: Primary data from the participant questionnaire, 2021

Improvement in Knowledge

Before the intervention, the mean knowledge score was 5.45 ± 1.457 out of a maximum of 9 (minimum 2, maximum 9), or about 61% of the maximum, indicating that many housewives still had limited knowledge about COVID-19. After the pocket book was given, the mean score rose to 8.36 ± 0.792 (minimum 6, maximum 9), or about 93% of the maximum. The mean difference of 2.91 points corresponds to a relative increase of 53.4% and an N-gain of 0.82 (high category), and it was statistically significant (paired t-test, $p < 0.001$; Table 3 and Figure 2). The lowest score rose from 2 to 6 and the standard deviation fell by almost half, indicating that the gain was shared broadly across participants rather than being confined to a few individuals.

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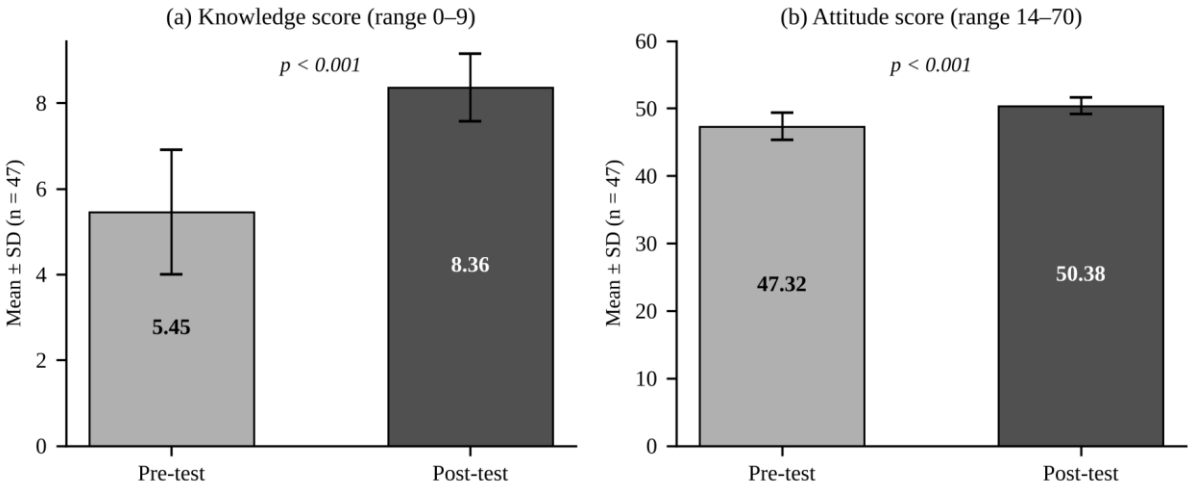
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Table 3. Knowledge and Attitude Scores of Housewives before and after the Pocket Book Intervention (n = 47)

Variable (possible range)	Measurement	Mean	SD	Min–Max	Mean difference	p-value
Knowledge (0–9)	Pre-test	5.45	1.457	2–9	+2.91	< 0.001
	Post-test	8.36	0.792	6–9		
Attitude (14–70)	Pre-test	47.32	2.012	41–50	+3.06	< 0.001
	Post-test	50.38	1.208	47–52		

Source: Primary data from pre-test and post-test questionnaires, 2021 (paired t-test)



[Figure 2. Mean scores (± standard deviation) of (a) knowledge and (b) attitude before and after the pocket book intervention]

Several features of the medium probably contributed to this improvement. The pocket book was developed through the P-Process and expert input, so its content and design matched the needs of the target group. Bright colors increased its attractiveness, its small size allowed housewives to carry it anywhere, and its short, clear text was supported by illustrations that clarified the health messages. The participants had never received a pocket book before, which aroused their curiosity and interest in reading it, and the blank pages allowed them to record information not yet included in the book. In the framework of Bloom as described by Notoatmodjo (2014), knowledge is the result of "knowing" that occurs after a person senses a particular object; health promotion therefore adds to knowledge through the senses, and visual media are especially helpful because the eyes channel most of the information that reaches the brain.

DOI:

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The low baseline score is also consistent with the educational background of the participants, 87.2% of whom had no schooling or only basic education, which may limit their access to formal information about COVID-19. Education influences thinking ability and the capacity to capture new information, including the description of new problems. A medium with short sentences and supporting illustrations may therefore be particularly suitable for such an audience. The finding agrees with earlier studies reporting significant gains in knowledge and attitude after pocket book interventions on personal protective equipment among construction workers (Ridwansyah, 2017), school hygiene behavior among elementary school children (Hanif, 2020), and gouty arthritis among outpatients (Ranti, 2012), and with the finding that a nutrition pocket book improved the knowledge of athletes (Afandi & Siregar, 2019).

Improvement in Attitudes

The mean attitude score increased from 47.32 ± 2.012 (minimum 41, maximum 50) to 50.38 ± 1.208 (minimum 47, maximum 52), a mean difference of 3.06 points (relative increase 6.5%), which was statistically significant (paired t-test, $p < 0.001$; Table 3). The relative change was much smaller than that of knowledge, which may partly reflect the narrower spread of the attitude scores and the fact that attitudes are more closed and stable reactions than knowledge.

Attitude is a readiness or willingness to act and a predisposition toward behavior rather than the behavior itself; it remains a closed reaction to an object in the environment (Notoatmodjo, 2014). In this program, the change in attitude followed the gain in knowledge: after reading the pocket book, the housewives could form opinions about how COVID-19 is transmitted and prevented, and they expressed readiness to apply health protocols in daily life. During the counseling session they paid attention to the information and responded by asking questions about COVID-19, behaviors that correspond to the receiving and responding levels of attitude (Notoatmodjo, 2014). This is also in line with the stimulus–organism theory, which holds that behavior changes when the stimulus is of sufficient quality and convincing for the organism (Notoatmodjo, 2014); here the stimulus was a credible, attractive message that was designed with the target group in mind.

Perspectives of Health Workers on the Pocket Book as a Medium

According to the health promotion officer of Nanggalo Public Health Center, a pocket book is a suitable channel for delivering health information to housewives because it can hold a lot of information and, being small, can be carried anywhere and consulted whenever information is needed. The officer also noted that the educational media previously given to the community had been limited to flyers or leaflets, so the pocket book was a new innovation that made it easier for the target group to receive health messages and a first step in COVID-19 prevention efforts in the area.

DOI:

https://doi.org/10.35730/vemwrz72

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Supporting and Constraining Factors

Several factors supported the program: the novelty of the pocket book, which attracted the curiosity of participants; its attractive design, portable size, and clear content, which were shaped by expert input; the active attention and questions of housewives during the counseling session; the guidance of officers of Nanggalo Public Health Center; and the permission and cooperation of the subdistrict and neighborhood authorities. On the other hand, several constraints warrant attention: the low level of formal education among participants, which required simple language and illustrations; the continuing difficulty of applying health protocols in the community, as reported by the health workers; the lack of handwashing facilities and other COVID-19 prevention facilities in the neighborhood, which led the authors to recommend that the neighborhood authorities provide them; and the design limitations described below.

Overall, the results show that a pocket book developed from community needs and expert input can produce measurable improvements in knowledge and attitudes among housewives. Several limitations should be acknowledged. The one-group design had no control group, and the pocket book was accompanied by a short counseling session, so the observed changes cannot be attributed to the book alone. Other sources of COVID-19 information during the interval of about three weeks between pre-test and post-test, and the repeated use of the same questionnaire, may also have influenced the scores. The reliability coefficient of the questionnaire (0.688) was slightly below the conventional threshold of 0.70, the data were self-reported, and the study covered only one neighborhood. Finally, practice was not measured, so improvements in knowledge and attitude cannot be assumed to translate into protective behavior. These aspects should be addressed in follow-up studies.

CONCLUSION

This health promotion activity on pocket book education about COVID-19 for housewives in RT 2 RW 3, Gurun Laweh Subdistrict, Nanggalo, Padang City, was successfully implemented. The pocket book was developed through the P-Process and in-depth interviews with a language expert, a graphic design expert, and health workers, and was designed according to community needs. Among 47 housewives, the mean knowledge score increased from 5.45 to 8.36 and the mean attitude score increased from 47.32 to 50.38, both statistically significant ($p < 0.001$). The main supporting factors were the novelty and attractive design of the medium and the cooperation of local stakeholders, whereas the main constraints were low formal education, limited handwashing facilities, and the limitations of the study design. It is recommended that the neighborhood authorities of RT 2 RW 3 provide handwashing facilities and other facilities that support COVID-19 prevention, that health workers consider pocket books as a complement to leaflets in health education, and that future studies use a control group, longer follow-up, and measures of preventive practice.

DOI:

https://doi.org/10.35730/vemwrz72

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ACKNOWLEDGEMENTS

The authors would like to express their gratitude to Politeknik Kesehatan Kemenkes Padang, especially the Applied Undergraduate Program in Health Promotion, for the guidance and facilitation of this activity. Appreciation is also extended to the head of Gurun Laweh Subdistrict and all housewives of RT 2 RW 3 for their participation, as well as to the language expert, the graphic design expert, and the officers of Nanggalo Public Health Center who served as informants.

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