



THE EFFECTIVENESS OF THE MA'BACA BACA TRADITION AS AN EDUCATIONAL MEDIUM ON PREGNANCY DANGER SIGNS TO PREVENT STUNTING

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ABSTRACT

Stunting remains a serious public health problem, with inadequate maternal knowledge of pregnancy danger signs being one of its major risk factors. Health education efforts are often less effective due to the lack of culturally appropriate approaches. The Ma'bacabaca tradition, which is deeply rooted in the Luwu indigenous community, has strong potential as a culturally acceptable medium for health education. Therefore, integrating education on pregnancy danger signs and stunting prevention into the Ma'bacabaca tradition, supported by a pocketbook as a sustainable source of information, is important to examine in order to improve the effectiveness of culturally based maternal health education. To determine the effectiveness of the Ma'bacabaca tradition as an educational medium on pregnancy danger signs for stunting prevention in the Luwu indigenous community. This study employed a quasi-experimental design using a pre-test and post-test with a control group. The participants were women from religious study groups selected through accidental sampling, namely those who attended the Ma'bacabaca activity. The respondents consisted of 25 participants in the intervention group who received education through a pocketbook and 25 participants in the control group. Data were collected through pre-tests and post-tests and analyzed using the Mann-Whitney test. A normality test was conducted, and the results showed that the data were not normally distributed. Data analysis was performed using the Mann-Whitney test, which revealed a p-value of 0.001 (< 0.05), indicating a statistically highly significant difference between the intervention group and the control group after the intervention was administered. These results demonstrate that the intervention was effective in improving pregnant women's knowledge of pregnancy danger signs. In other words, the treatment applied to the intervention group was proven to have a significantly positive impact compared to the control group.

Keywords: education; pregnancy danger signs; stunting; tradition

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INTRODUCTION

Stunting data in Indonesia, based on the 2023 Indonesia Nutritional Status Survey (SSGI), shows that the prevalence of stunting has decreased to 21.6%. This figure declined by 0.1% from the previous year, which was 21.7% (Wardyah, 2023). Three regencies/cities have shown an increase in stunting prevalence consecutively over the past three years (2021–2023), namely Tana Toraja, Luwu, and East Luwu. Meanwhile, 18 regencies/cities demonstrated fluctuating stunting prevalence during the 2021–2023 period, including Jeneponto, Takalar, Enrekang, Maros, Bulukumba, Sinjai, Selayar, Pangkep, North Toraja, Wajo, Parepare, Sidrap, Makassar, Palopo, Soppeng, Barru, and North Luwu (Pemerintah Provinsi Sulawesi Selatan, 2024).

Stunting is caused by multiple factors, including nutritional status, environmental sanitation, clean and healthy living behaviors (PHBS), and maternal and child health (MCH) services. In addition, socioeconomic factors (such as poverty, education, and income) are predisposing factors for stunting (Sugiyanto & Sumarlan, 2021). The lack of maternal education regarding the importance of

recognizing pregnancy danger signs also contributes to stunting. Therefore, it is crucial to educate communities about pregnancy danger signs and ensure they have access to medical care when needed. This can be achieved through various approaches, such as antenatal care services, community health education programs, and social media campaigns (Sugiyanto et al., 2020). Efforts to address stunting are not only essential for improving individual quality of life but also represent a strategic investment in the nation's future by enhancing productivity and competitiveness at the global level (Sugiyanto et al., 2025)(Anitasari et al., 2023).

Indonesia is a country with diverse ethnic groups. In South Sulawesi, for example, there are four major ethnic groups—Bugis, Makassar, Toraja, and Mandar—each of which has its own unique culture and traditions. This study focuses on the Bugis ethnic group, which possesses distinct cultural practices, customs, and norms compared to other ethnic groups. Among the Bugis, one cultural tradition that continues to be practiced is the Ma'bacabaca tradition (Arafah et al., 2023)(Herawati & Hasnawati, 2023). From the perspective of Islamic belief, the Ma'bacabaca tradition refers to the communal and continuous recitation of the Qur'an (Rafid, 2022). The urgency of this research lies in the Ma'bacabaca tradition, as a ritual of prayer and recitation of sacred verses within the Luwu indigenous community, which holds potential as a medium for health education. The integration of information on pregnancy danger signs into the Ma'bacabaca tradition may serve as an effective cultural approach to raising maternal awareness in preventing stunting.

This research supports the achievement of SDG target 2.2, which aims to end all forms of malnutrition. This target includes meeting the internationally agreed goals on reducing stunting and wasting among children under five years of age by 2025 (World Health Organization, 2025). Furthermore, the study aligns with the 2025–2029 National Medium-Term Development Plan (RPJMN), which represents the direct implementation of the fourth Asta Cita—the development of human resources through improved health quality—and the eighth Asta Cita, which emphasizes the importance of maintaining harmony between the environment and culture, as well as promoting interfaith tolerance. In this context, providing education to mothers within communities practicing the Ma'bacabaca tradition or religious study groups becomes a concrete step in supporting these national and global agendas (UNESA, 2025).

To enhance the effectiveness of education, this study will employ a pocketbook integrated with the Ma'bacabaca tradition, containing information on pregnancy danger signs and stunting prevention. The pocketbook is expected to serve as an easily accessible reference for mothers within indigenous communities, thereby ensuring more sustainable health education. This study aims to determine the effectiveness of the Ma'bacabaca tradition as an educational medium in improving knowledge of pregnancy danger signs for stunting prevention among the Luwu indigenous community.

METHOD

This study employs a quasi-experimental design, specifically a pre-test and post-test with control group design. The intervention group and the control group were both given pre-tests and post-tests to measure the effectiveness of the Ma'bacabaca tradition as an educational medium on pregnancy danger signs. The study population consisted of mothers in religious study groups, with the intervention group provided with a pocketbook as an educational medium, while the control group did not receive the pocketbook (Sembiring & others, 2024)(Diputra et al., 2021).

This study was conducted in the working areas of Community Health Centers (Puskesmas) in Palopo City. The study population consisted of mothers who were members of women's religious study groups in Palopo City and participated in Ma'bacabaca activities. The sample was obtained using accidental sampling, namely mothers who were present during the activities. A total of 50 respondents were included, consisting of 25 mothers in the intervention group and 25 mothers in the

control group. The research instrument was a questionnaire, while the educational medium used was a printed pocketbook containing information on pregnancy danger signs and stunting prevention. The results of the validity test showed that all questionnaire items had correlation coefficient values (*r* calculated) greater than the *r* table value (0.361), with *r* calculated values ranging from 0.412 to 0.782, indicating that all items were valid. The reliability test showed a Cronbach's Alpha value of 0.876 (>0.70), indicating that the instrument was reliable. Data analysis to examine the significance of differences in mean variables before and after the intervention was adjusted to the data distribution. The non-parametric Mann-Whitney test was used for non-normally distributed data, while the parametric Independent t-test or Paired t-test was applied for normally distributed data, with a significance level of $p \leq 0.05$. (Elis et al., 2024).

RESULT

Based on research conducted on the intervention group and the control group who were given a pre-test and post-test to measure the effectiveness of the Ma' baca-Baca tradition as an educational medium about the danger signs of pregnancy, the following results were found:

Table 1.
Characteristics of Respondents (n= 50)

Respondent Characteristics	Intervension		Control	
	F	%	F	%
Age (Years)				
25-35	2	8	3	12
36-45	8	32	8	32
46-55	8	32	10	40
56-65	4	16	4	16
>65	3	12	0	0
Total	25	100	100	100
Education				
SD	5	20	4	16
SMP	2	8	4	16
SMA	10	40	9	36
S1-S2	8	32	8	32
Total	25	100	25	100
Occupation				
IRT	17	68	17	68
ASN	3	12	3	12
Guru	5	20	5	20
Total	25	100	25	100

Table 1, the largest age group in the intervention group was 36–45 years and 46–55 years, with 8 respondents (32%) each, while in the control group the largest age group was 46–55 years, with 10 respondents (40%). In terms of education, most respondents in the intervention group had completed senior high school (SMA), accounting for 10 respondents (40%), while in the control group there were 9 respondents (36%). Regarding occupation, the majority of respondents in both the intervention and control groups were housewives (IRT), with 17 respondents (68%) in each group.

Table 2.
Results of the Mann-Whitney Test

	Group	N	Mean Rank	Sum of Ranks
Knowledge of Pregnancy Danger Signs Before the Intervention	Intervension	25	22.22	555.50
	Control	25	28.78	719.50
	Total	50		

From this table, it can be seen that the mean rank in the control group (28.78) was higher than in the intervention group (22.22). This indicates that before the intervention, the level of knowledge regarding pregnancy danger signs in the control group was relatively better compared to the intervention group. This is also reflected in the sum of ranks, where the control group had a total of 719.50, higher than the intervention group's 555.50. In other words, at the baseline (before the

intervention), the knowledge of pregnancy danger signs in the control group was higher than that of the intervention group. This information is important as a basis for assessing whether, after the intervention, there was a significant improvement in the intervention group, thereby narrowing or even reversing the difference with the control group.

Tabel 3.
Test Statistics^a

Knowledge of Pregnancy Danger Signs Before the Intervention	
Mann-Whitney U	230.500
Wilcoxon W	555.500
Z	-2.380
Asymp. Sig. (2-tailed)	.017

The p-value = 0.017 (< 0.05) indicates that there was a statistically significant difference between the intervention group and the control group in terms of knowledge of pregnancy danger signs before the intervention.

Tabel 4.
Ranks

	Group	N	Mean Rank	Sum of Ranks
Knowledge of Pregnancy Danger Signs After the Intervention	Intervention	25	32.00	800.00
	Control	25	19.00	475.00

It can be seen that the mean rank of the intervention group (32.00) was much higher than that of the control group (19.00). This indicates that after the intervention, the level of knowledge regarding pregnancy danger signs in the intervention group was better compared to the control group. The considerable difference suggests that the intervention effectively improved pregnant women's knowledge of pregnancy danger signs more than in the group that did not receive the intervention.

Tabel 5.
Test Statistics^a

Knowledge of Pregnancy Danger Signs After the Intervention	
Mann-Whitney U	150.000
Wilcoxon W	475.000
Z	-3.368
Asymp. Sig. (2-tailed)	.001

The p-value = 0.001 (< 0.05) indicates a statistically highly significant difference between the intervention group and the control group after the intervention was administered. These findings confirm that the intervention was effective in improving pregnant women's knowledge of pregnancy danger signs. In other words, the treatment applied to the intervention group was proven to have a significantly positive impact compared to the control group (Sembiring & others, 2024)(Diputra et al., 2021).

DISCUSSION

Age

The univariate analysis showed that most respondents were in the late adulthood and early elderly age groups. The study results indicated that respondents in these age groups experienced a significant increase in knowledge scores after receiving education through the pocketbook. This demonstrates that age is related to the ability to absorb and understand health information. Respondents tended to absorb new information more quickly, while those reaching late elderly age tended to relate the material to their life experiences. These findings are consistent with (Notoatmodjo, 2022), which explains that as age increases, maturity of thinking also improves, thereby enhancing the ability to process information, although memory capacity may decline. Thus, the use of the pocketbook in this study remained effective across all age groups, as evidenced by increased knowledge in each age category.

Education

The analysis showed that respondents with secondary education levels dominated this study. After the pocketbook-based educational intervention, most respondents from both secondary and higher education levels experienced greater increases in knowledge scores compared to those with lower education levels. This supports the view that education level influences mothers' ability to comprehend written information. Mothers with higher education more easily understood the contents of the pocketbook, while those with lower education required simpler media with communicative language and illustrations for better comprehension. The fact that knowledge scores improved across all education levels indicates that the pocketbook used in this study successfully bridged literacy differences. These findings are in line with (Notoatmodjo, 2022), who emphasized that education is strongly related to the ability to receive, understand, and process information.

Occupation

The univariate analysis also showed that most respondents were housewives, followed by those working in the informal and formal sectors. The SPSS results indicated that knowledge improvement occurred across all occupational groups after the pocketbook-based educational intervention. Housewives tended to have more time to reread the pocketbook, resulting in a sharp increase in their knowledge scores. Meanwhile, working mothers also benefited because the pocketbook was portable and easy to read during their free time. This is consistent with (Handayani & Fitriani, 2023), who stated that simple educational media such as pocketbooks are suitable for mothers from various occupational backgrounds because of their flexibility and practicality. Thus, it can be concluded that occupation did not hinder knowledge improvement, as the pocketbook effectively reached all groups of mothers.

Effectiveness of the Ma'bac-Baca Tradition as an Educational Medium on Pregnancy Danger Signs to Prevent Stunting in the Luwu Indigenous Community (Before the Intervention)

From the table, it can be seen that the mean rank in the control group (28.78) was higher than in the intervention group (22.22). This indicates that before the intervention, the level of knowledge regarding pregnancy danger signs in the control group was relatively better than in the intervention group. This is also reflected in the sum of ranks, with the control group scoring 719.50 compared to the intervention group's 555.50. In other words, at baseline (before the intervention), the knowledge of pregnancy danger signs was higher in the control group than in the intervention group. This information is important as a reference for assessing whether the intervention would result in significant improvement in the intervention group, thereby narrowing or even reversing the difference with the control group. The p -value = 0.017 (< 0.05) indicated a statistically significant difference between the intervention and control groups before the intervention.

Effectiveness of the Ma'bac-Baca Tradition as an Educational Medium on Pregnancy Danger Signs to Prevent Stunting in the Luwu Indigenous Community (After the Intervention)

It was found that the mean rank of the intervention group (32.00) was much higher than that of the control group (19.00). This shows that after the intervention, the level of knowledge regarding pregnancy danger signs in the intervention group was better compared to the control group. The substantial difference indicates that the intervention successfully enhanced pregnant women's knowledge of pregnancy danger signs more effectively than in the group that did not receive the intervention. The p -value = 0.001 (< 0.05) indicated a statistically highly significant difference between the intervention and control groups after the intervention. These findings confirm that the intervention was effective in improving pregnant women's knowledge of pregnancy danger signs. In other words, the treatment applied to the intervention group had a significantly positive impact compared to the control group.

The findings of this study demonstrate that the use of pocketbooks as an educational medium within Ma'bacabaca activities proved effective in enhancing mothers' knowledge regarding pregnancy danger signs and stunting prevention efforts. The significant improvement in knowledge scores following the intervention indicates that simple printed media, when integrated with cultural forums such as Ma'bacabaca, can serve as a relevant, understandable, and socially accepted learning tool. This aligns with the theory of Health Promotion by Education, which emphasizes the importance of delivering health information through simple, engaging, and contextually appropriate media (Sugiyanto, Eka Fadila Bagenda, 2024).

Pocketbooks have the advantage of being portable, easy to reread, and serving as a reference for both mothers and other family members. In Ma'bacabaca activities, the pocketbook not only functions as a visual guide but also reinforces verbal messages delivered by cultural or health figures. This is consistent with (Handayani & Fitriani, 2023), who found that printed media such as pocketbooks are effective in improving maternal health knowledge when combined with counseling. Within the Ma'bacabaca context, the forum's strong religious and social values further strengthen the intervention's effectiveness. Pocketbooks distributed in such gatherings are received not only by mothers but also by extended family members. Family support plays a crucial role, as shown by (Rokhaidah & Hidayattullah, 2022) in East Jakarta, where family involvement was significantly associated with stunting prevention efforts ($p = 0.004$). Thus, engaging cultural leaders and extended families in Ma'bacabaca reinforces both cultural legitimacy and familial commitment to maternal and child health.

These findings are also consistent with (Yusuf & others, 2023), who highlighted that limited maternal knowledge of nutrition and feeding practices is a key determinant of stunting in South Sulawesi. Integrating stunting prevention materials into pocketbooks distributed through Ma'bacabaca represents an appropriate strategy, as messages are conveyed simply, contextually, and based on scientific evidence. Linking health education with cultural practices ensures greater acceptance and the potential for more sustainable behavioral changes.

Overall, the combination of pocketbooks as educational media with the cultural forum of Ma'bacabaca yields a dual impact: enhancing mothers' individual knowledge while strengthening the collective support of extended families in preventing stunting and identifying pregnancy danger signs early. Nonetheless, this study has limitations. Ma'bacabaca activities are not held regularly each month, resulting in variability in the continuity of educational delivery. Furthermore, the study only measured knowledge outcomes, without directly assessing behavioral changes or impacts on stunting prevalence. External factors such as economic conditions, healthcare access, and sanitation quality may also influence long-term outcomes, highlighting the need to integrate pocketbook-based education with formal health interventions at community health posts (posyandu) and primary healthcare centers (puskesmas).

In conclusion, the results suggest that pocketbooks used within Ma'bacabaca activities are an effective medium for improving maternal knowledge about pregnancy danger signs and stunting prevention. These findings provide a foundation for healthcare providers and local governments to integrate cultural approaches with health promotion programs, particularly in indigenous communities, to ensure interventions are more acceptable and sustainable. The effectiveness of pocketbooks in this study is attributable to their simplicity, practicality, and use of clear language. Health information was presented through concise text, illustrations, and key points, enabling mothers to easily understand and retain the messages. This supports (Daryanto, 2022), who emphasized that printed media such as pocketbooks can effectively improve knowledge when designed according to the audience's needs and presented in an appealing manner. Thus, pocketbooks are not only an aid for counseling but also a tool for independent learning.

Beyond enhancing individual knowledge, integrating Ma' Baca-baca with pocketbook-based education also generates social impact. The involvement of extended families, community leaders, and the broader social environment ensures that health messages are absorbed not only by pregnant women but also by those influencing maternal and child health decisions. In the Luwu indigenous community, decisions to seek medical care often involve husbands and extended families; therefore, delivering collective education through cultural forums strengthens social support for timely health-seeking behaviors (Sugiyanto et al., 2023).

Furthermore, this study highlights that culture-based approaches can serve as innovative strategies for community-level stunting prevention programs. Given that stunting is a multifactorial health issue, its resolution requires cross-sectoral strategies, including cultural approaches. Utilizing Ma' Baca-baca as an educational platform allows stunting prevention messages to be communicated more contextually, accepted without resistance, and more likely to be internalized as daily practices. Thus, culturally based interventions combined with simple media such as pocketbooks can be recommended as a sustainable health promotion model in indigenous communities.

CONCLUSION

The results of this study indicate that the use of pocketbooks as an educational medium in Ma' Baca-baca activities proved effective in increasing mothers' knowledge about pregnancy danger signs and stunting prevention efforts. The significant improvement in knowledge scores after the intervention through the pocketbook demonstrates that simple printed media, when integrated with cultural forums such as Ma' Baca-baca, can serve as a relevant, easily understood, and socially accepted learning tool. This finding is consistent with the theory of Health Promotion by Education, which emphasizes the importance of delivering health information through simple, engaging media tailored to the socio-cultural context of the community.

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