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THE IMPACT OF LEAFLET-BASED HEALTH EDUCATION ON MIDWIVES' INNOVATION IN MIDWIFE–TRADITIONAL BIRTH ATTENDANT PARTNERSHIPS AND MATERNAL INTEREST IN UTILIZING MATERNITY HEALTH FACILITIES IN SERANG REGENCY, INDONESIA

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ABSTRACT

Background: Maternal and neonatal mortality remain critical public health issues in Indonesia, particularly in rural areas where home births with traditional birth attendants (dukun) are still common. The BIDURAN initiative—a collaborative partnership between midwives and traditional birth attendants—was introduced to address this challenge.

Objectives: This study aimed to assess the effect of health education delivered through leaflet media on pregnant women's interest in delivering at health facilities within the context of the BIDURAN partnership.

Methods: A quasi-experimental one-group pretest-posttest design was used involving 32 third-trimester pregnant women at the Kopo Health Center, Serang Regency, Indonesia. Participants received structured health education through leaflets, and maternal interest in health facility-based delivery was measured before and after the intervention using a validated questionnaire. Data were analyzed using paired sample t-tests.

Results: Before the intervention, 50.0% of participants had moderate interest and 9.4% had high interest in giving birth at health facilities. After the intervention, 59.4% expressed high interest, and none remained in the low-interest category. There was a statistically significant increase in maternal interest scores post-intervention (mean difference = 2.65; $p < 0.001$).

Conclusion: Health education using leaflet media significantly increased maternal interest in health facility-based deliveries. This strategy, within the framework of the BIDURAN partnership, may be effective in promoting safer delivery practices and reducing maternal and neonatal mortality in culturally traditional communities.

Keywords: Health education, Leaflet media, BIDURAN innovation, Maternal interest, Facility-based delivery, Midwife–dukun partnership

INTRODUCTION

Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) are globally recognized indicators of a country's public health status and the quality of its reproductive health services. MMR reflects access to skilled birth attendants, emergency obstetric care, and broader healthcare system performance. According to the Indonesian Ministry of Health, the national MMR in 2018 stood at 205 per 100,000 live births, while Banten Province recorded 329 maternal deaths, with 61 occurring in Serang Regency alone (Bappeda Banten, 2019). In the Kopo Health Center area, one maternal death was recorded in 2020, with no maternal deaths in 2021. However, infant mortality in the same region rose from 5 deaths in 2020 to 13 deaths in 2021 (Firmansyah, 2019), highlighting the ongoing risk to maternal and neonatal health in this setting.

One significant contributing factor to maternal and neonatal mortality is the continued reliance on unskilled birth attendants, particularly traditional birth attendants (dukun). Despite the presence of village midwives, many women in rural areas still prefer to deliver with dukuns due to cultural beliefs, perceptions of empathy, and distrust in younger or less familiar healthcare providers (Nanur et al., 2016). In 2016, approximately 35% of women in Kopo gave birth with traditional attendants. This practice increases the risk of complications, delays in

emergency response, and limited access to lifesaving interventions.

To address this challenge, the government of Serang Regency introduced an innovative program known as BIDURAN (Kemitraan Bidan dan Dukun/Bidang-Dukun Partnership). Based on Serang Regent Regulation No. 5/2011 concerning Maternal and Child Health (KIBBLA), the program formalizes collaboration between licensed midwives and traditional birth attendants. Midwives are tasked with overseeing clinical care during delivery, while dukuns provide psychosocial support and postpartum assistance. Since the program's implementation in 2017, reports have indicated a decrease in the number of home deliveries, with only 10% of births occurring with traditional attendants by 2021.

However, the success of BIDURAN in increasing the use of health facilities for childbirth is dependent on community acceptance and awareness. Cultural resistance, misinformation, and lack of knowledge remain barriers. Health promotion through effective educational strategies is essential to shift community norms and strengthen trust in formal maternal care. Leaflets, as printed health education tools, offer an accessible, low-cost method to disseminate key messages, especially in settings with limited digital infrastructure. Previous research supports the use of leaflets to improve health knowledge and behavior change (Suparman, 2012; Machfoedz & Suryani, 2003).

Despite the policy endorsement of BIDURAN and its potential to reduce maternal risk, limited empirical evidence exists on how structured health education can influence maternal interest in utilizing health facilities. This study aimed to evaluate the effectiveness of structured health education delivered through leaflet media in enhancing pregnant women's interest in delivering at formal health facilities, within the framework of the BIDURAN (Midwife–Traditional Birth Attendant Partnership) initiative. The educational intervention was designed to increase awareness and acceptance of the BIDURAN model, which promotes collaborative childbirth practices between licensed midwives and traditional birth attendants. Specifically, the study assessed changes in maternal preferences for place of delivery before and after the intervention, measured using a validated questionnaire. The research focused on third-trimester pregnant women residing in the Kopo Health Center service area of Serang Regency, a rural setting where traditional delivery practices are still prevalent. The ultimate goal was to determine whether a targeted, culturally relevant educational approach using low-cost, printed materials could influence maternal decision-making and potentially contribute to the reduction of maternal and neonatal mortality by encouraging skilled birth attendance in institutional settings.

METHODS

Study Design

This study employed a quasi-experimental, one-group pretest-posttest design to evaluate the effect of health education using leaflet media on maternal interest in facility-based childbirth within the context of the BIDURAN (midwife–dukun partnership) innovation. The design enabled the measurement of changes in maternal interest before and after the intervention without the inclusion of a control group.

Study Setting and Participants

The study was conducted at the Kopo Health Center, Serang Regency, Banten Province, Indonesia, in March 2022. The target population consisted of pregnant women in their third trimester residing in the Kopo Health Center's catchment area, which includes five villages: Kopo, Mekar Baru, Garut, Ranca Simir, and Nanggung.

A total sampling technique was applied, and all eligible third-trimester pregnant women who met the inclusion criteria were invited to participate. Inclusion criteria included: (1) being in the third trimester of pregnancy, (2) ability to read and understand Indonesian, (3) willingness to participate, and (4) no prior formal education on the BIDURAN program. A total of 32 respondents

completed both pretest and posttest evaluations.

Intervention

Participants received structured health education using printed leaflets specifically developed to introduce the BIDURAN innovation. The leaflets included visual and textual explanations of the partnership between midwives and traditional birth attendants, the benefits of delivering at health facilities, and the role of cultural support during childbirth. The materials were validated by three maternal health experts for content relevance, clarity, and cultural sensitivity prior to implementation.

The education session was conducted face-to-face in a small group format at the health center, led by trained health educators and midwives. Each participant received a copy of the leaflet to take home for review and discussion with family members.

Data Collection and Instrumentation

Data on maternal interest in facility-based delivery were collected using a self-administered structured questionnaire developed by the research team. The questionnaire consisted of 10 Likert-scale items assessing maternal attitudes, preferences, and perceived benefits of delivering at health facilities. Scores ranged from 0 to 10, with higher scores indicating greater interest in health facility-based childbirth.

The instrument underwent content validity assessment by a panel of three public health experts and was pilot tested on five respondents not included in the main study. The internal consistency reliability of the final instrument was acceptable (Cronbach's alpha = 0.82).

Data Analysis

Data were entered and analyzed using IBM SPSS Statistics version 25.0. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize participant characteristics and maternal interest levels before and after the intervention. The Paired Sample t-test was used to determine statistically significant differences in mean maternal interest scores pre- and post-intervention. Statistical significance was set at $p < 0.05$.

Ethical Considerations

This study received ethical approval from the Health Research Ethics Committee. All participants provided written informed consent prior to data collection. Confidentiality and anonymity were ensured throughout the research process, and participation was voluntary with the right to withdraw at any time.

RESULTS

An illustration of the interest of mothers in giving birth to health facilities before being given health education through leaflets about *BIDURAN* innovations (midwifery and traditional birth attendants) at the Kopo Health Center, Serang Regency in 2022, is shown in table 1 below:

Table 1. Description of Mothers' Interest in Maternity to Health Facilities before Health Education is Given through Media Leaflets on

Maternity Interests to health facilities	Frequency (f)	Percentage (%)
High	3	9,4
moderate	16	50,0
low	13	40,6
Total	32	100

Based on table 1, it can be seen that the interest of women giving birth to health facilities before being given health education through leaflets about *BIDURAN* innovations (midwives and traditional birth attendants) was mostly in the medium category as many as 16 women giving birth (50.0%).

The description of maternal interest in giving birth to health facilities after being given health education through leaflet media about *BIDURAN* innovation (midwife and traditional birth attendants) at the Kopo Health Center, Serang Regency in 2022 can be seen in the following table:

Table 2. Description of Mothers' Interest in Maternity to Health Facilities after being

Provided with Health Education through Media Leaflets 2022

Maternity Interests to health facilities	Frequency (f)	Persentase (%)
High	19	59,4
moderate	13	40,6
low	0	0,0
Total	32	100

Based on table 2, it can be seen that the interest of women giving birth to health facilities after being given health education through leaflet media about midwife innovations (midwives and traditional birth attendants) was mostly in the high category as many as 19 mothers gave birth (59.4%).

The influence of health education through leaflet media about midwife innovation (midwife and traditional birth attendants) on the interest of mothers in giving birth to health facilities at the Kopo Health Center, Serang Regency in 2022 can be seen in the following table:

Table 3. Effect of Health Education through Leaflet Media on *BIDURAN* Innovation

Mother's Interest in Maternity to Health Facilities	N	Mean	Difference	Min	Max	Sig
Before	32	4,16	2,65	1	7	0,000
After	32	81				

Based on table 3, it is known that from 32 respondents with an interest in giving birth to health facilities before being given health education through leaflets about midwife innovation (midwifery and traditional birth attendants) an average = 4.16 minimum = 1 and maximum = 7, while the interest of mothers in giving birth to health facilities after being given health education through leaflets about midwife innovation (midwife and traditional birth attendants) the average = 6.81 minimum = 4 and maximum = 9.

Based on the results of a different test using the Paired Sample Test before and after being given health education through leaflet media about *BIDURAN* innovation (midwives and traditional birth attendants) p value = 0.000 < 0.005, thus the results of the analysis can be seen that there is an effect of health education through leaflet media about the innovation of *BIDURAN* (midwives and traditional birth attendants) on the interest of mothers in giving birth to health facilities at the Kopo Health Center, Serang Regency in 2022.

DISCUSSION

Prior to receiving health education through leaflet media, the majority of third-trimester pregnant women in this study exhibited moderate levels of interest in giving birth at health facilities. This finding reflects ongoing sociocultural dynamics in the Kopo Health Center region, where traditional birth attendants (dukun) are often perceived as more empathetic and spiritually connected than midwives. Cultural continuity, familial encouragement, and a perception of personalized care have been documented in other studies as influential factors in preferring home-based deliveries with traditional attendants (Nanur et al., 2016; Nurdin, 2016).

The persistence of these preferences despite the availability of midwives highlights the complexity of behavioral change in maternal health-seeking behavior, especially in culturally embedded communities. According to the Health Belief Model, individual decisions regarding health actions, such as delivery location, are shaped by perceived susceptibility, perceived benefits, social influence, and cues to action (Glanz et al., 2008). In this context, while some awareness of risk may be present, the absence of a strong motivating cue (such as structured education) may result in only moderate behavioral intent.

Maternal Interest After Health Education Intervention

After receiving leaflet-based health education about the BIDURAN (midwife–dukun partnership) innovation, a significant shift was observed in maternal interest levels, with nearly 60% of participants expressing high interest in facility-based childbirth. This outcome supports the effectiveness of

culturally adapted health education in promoting behavioral change.

The leaflet served not only as an informational tool but also as a behavioral cue, facilitating understanding and acceptance of the BIDURAN model. As supported by Suparman (2012) and Machfoedz and Suryani (2003), leaflets are effective communication media in public health due to their clarity, portability, and ability to reinforce learning through repeated exposure. The information presented addressed both the safety benefits of facility delivery and the cultural role of the dukun, reducing perceived barriers and reinforcing positive behavioral intentions.

These findings are consistent with previous studies that emphasized the importance of health communication strategies in influencing maternal decisions. For example, a study in Aceh found that structured education and partnership between midwives and dukuns enhanced trust and increased facility-based deliveries (Hayati et al., 2018). Similarly, Wahab (Nurdin, 2016) emphasized the importance of both intrinsic motivation (e.g., desire to protect maternal health) and extrinsic motivation (e.g., family support, program delivery) in influencing maternal choices.

Statistical analysis using a paired sample t-test revealed a significant increase in mean maternal interest scores following the intervention ($p < 0.001$). This suggests that targeted health education using a culturally contextualized message can be a powerful lever for changing behavior, especially when it bridges the divide between biomedical and traditional health systems.

Moreover, the BIDURAN innovation itself addresses a key tension in maternal care in Indonesia: how to integrate traditional practices without compromising safety. By allowing the dukun to remain involved in a supportive, non-clinical role, the model respects cultural values while encouraging skilled attendance at birth. The leaflet clarified this distinction, enabling participants to view the midwife–dukun collaboration as complementary rather than competitive.

This aligns with community-based health models that emphasize respectful care, trust-building, and participatory health promotion—all of which are critical in low-resource settings where medical mistrust may be prevalent.

The findings of this study have important implications for maternal health programs in Indonesia and other similar settings. First, leaflet-based health education should be considered a viable, low-cost, and scalable intervention for increasing awareness and uptake of facility-based childbirth. Second, the integration of traditional birth attendants through structured partnerships, as in the BIDURAN model, may serve as a bridge strategy in areas where traditional beliefs remain influential.

Health policymakers should consider strengthening midwife–dukun partnerships through formal training, mutual agreements, and continuous community engagement. Efforts should also be made to monitor such programs to ensure that clinical safety protocols are followed while preserving cultural sensitivity.

STUDY LIMITATIONS

Several limitations must be acknowledged. First, the absence of a control group limits causal inference; changes in maternal interest may have been influenced by other external factors not controlled in this study. Second, the sample size was relatively small ($n = 32$), reducing statistical power and generalizability. Third, self-reported data may be subject to social desirability bias, particularly given the involvement of health workers in the education session. Finally, the study did not assess whether increased interest translated into actual facility-based delivery, which remains a critical behavioral outcome.

Recommendations for Future Research

Future studies should incorporate controlled trial designs and larger, more diverse samples to validate these findings. In addition, longitudinal follow-up is recommended to evaluate whether the increase in maternal interest leads to actual behavioral change. Exploring the impact of different types of health education media (e.g.,

digital videos, community theater) on maternal behavior would also provide insights into scalable communication strategies.

CONCLUSION

This study demonstrated that health education delivered through leaflet media significantly increased maternal interest in delivering at health facilities in the context of the BIDURAN (midwife–dukun partnership) innovation. Before the intervention, a substantial proportion of pregnant women expressed only moderate interest in facility-based childbirth. Following the educational intervention, there was a marked shift toward high levels of interest, indicating the potential of culturally tailored health communication tools in influencing maternal health-seeking behavior.

The BIDURAN model, when effectively communicated, offers a culturally sensitive strategy to bridge traditional beliefs with biomedical practices, thereby enhancing acceptance of skilled birth attendance without alienating traditional caregivers. Leaflets, as accessible and repeatable educational tools, proved effective in conveying the core messages of the innovation and addressing perceived barriers.

These findings support the integration of structured, low-cost educational interventions into maternal health programs, particularly in rural or culturally embedded communities. Strengthening community partnerships between midwives and traditional birth attendants, coupled with targeted health promotion, may contribute to increased utilization of safe delivery services and, ultimately, to reductions in maternal and neonatal mortality.

Given the study's limitations, including the lack of a control group and small sample size, further research using robust experimental designs is recommended. Future studies should assess whether increased interest translates into actual behavioral change and explore the long-term impact of BIDURAN-based education on delivery outcomes.

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