

Improving Newborn Care Knowledge and Practices through Training for Mothers and Posyandu Cadres in Rural Areas

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ABSTRACT

Background. Inappropriate newborn care practices (NBW) contribute significantly to neonatal morbidity and mortality. This study aims to evaluate the effectiveness of training in improving knowledge and practice of newborn care among mothers and Posyandu cadres in rural areas. Methods. A quasi-experimental design with a pre-test and post-test approach without a control group was used. Data were collected through structured questionnaires and observation sheets, which had been validated by experts and tested for reliability before use. Results. The results of the study indicate that a two-day intensive training has proven effective in improving mothers' and cadres' knowledge and practices regarding newborn care. The training, which was designed interactively and applicatively, was able to encourage significant improvements, especially in the aspects of Kangaroo Mother Care (KMC) and the ability to recognize neonatal danger signs. Conclusion. The findings suggest that simple yet structured interventions can be a potential strategy in supporting efforts to reduce newborn mortality in areas with limited access to professional health services.

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INTRODUCTION

Neonatal mortality remains a serious challenge in global health systems, especially in rural areas of developing countries. According to WHO data, inappropriate newborn care practices (NBW) contribute significantly to neonatal morbidity and mortality. In many rural areas, limited access to health information and professional services means that incorrect traditional practices are still common.

Newborn care is a crucial aspect of maternal and child health. In Indonesia, especially in rural areas, the role of Posyandu cadres as agents of change is vital in improving knowledge and practice of newborn care. Effective training can strengthen the capacity of cadres and mothers to provide optimal care, thereby reducing infant mortality and improving children's quality of life (Muslimin et al., 2024). However, challenges such as lack of quality training and limited resources



often hamper these efforts. Therefore, it is important to develop comprehensive and sustainable training programs for Posyandu cadres and mothers in rural areas.

Several studies have suggested that improving the knowledge of mothers and Posyandu cadres through training can be an effective intervention to improve the quality of neonatal care. In Nigeria, postpartum maternal training was shown to improve knowledge and practices of newborn care, including umbilical cord hygiene, early initiation of breastfeeding, and neonatal danger signs (Akamike et al., 2022).

Studies in Ethiopia showed that training cadres and health workers with postnatal visit cards significantly increased home visit coverage and infant care practices, including recognition of danger signs, early breastfeeding and skin-to-skin care. As evidenced in an intervention study in Enugu, Nigeria, training combined with educational video screenings also proved highly effective in increasing mothers' awareness of LBW danger signs and increasing their willingness to seek medical help early (Ekwochi et al., 2021; Tesfau et al., 2022).

However, other studies still note low knowledge and practices of newborn care in rural communities, especially in aspects such as umbilical cord care, exclusive breastfeeding, and maintaining the baby's body temperature. In Uttar Pradesh, India, harmful practices such as the use of traditional substances on the umbilical cord and pre-lactation feeding are still common (Pathak et al., 2021).

Only 33.5% of mothers in rural Ethiopia had good knowledge of LBW care. The level of antenatal visits and place of delivery were associated with this figure (Getachew et al., 2022). In India, health cadres such as ASHAs (Accredited Social Health Activists) play an important role in disseminating health information. Studies show that repeated ASHA training improves their knowledge and skills on newborn care, such as Kangaroo Mother Care (KMC) practices, breastfeeding, and identifying hypothermia. (Devi et al., 2023).

However, there is still a discrepancy between existing knowledge and practice on the ground. Few mothers and health cadres in Punjab, India, understood the importance of correct breastfeeding positions and neonatal danger signs, despite relatively high rates of home visits (Gupta et al., 2025). Particularly in Indonesia, posyandu plays an important role in empowering village communities, and training mothers and cadres can have a major impact on improving LBW care practices. A study in Nigeria showed that training nurses at Puskesmas also improved their competence in important aspects of infant care such as vitamin K administration, cord care, and early breastfeeding (Eze et al., 2023).

Considering these findings, structured training for mothers and posyandu cadres in rural areas is expected to reduce unsafe practices, increase awareness of proper neonatal care, and ultimately contribute to reducing the neonatal mortality rate in Indonesia.

METHODS

This study used a quasi-experimental design with a pre-test and post-test approach without a control group to evaluate the effectiveness of training in improving knowledge and practice of newborn care in mothers and Posyandu cadres in rural areas. The location of the study was determined purposively in villages that have active Posyandu but the level of knowledge and practice of neonatal care is still low based on data from the local Health Center. The subjects of the study were mothers who have babies aged 0–6 months and active Posyandu cadres, with the number of samples determined using the Slovin formula and purposive sampling techniques. Data were

collected through structured questionnaires and observation sheets, which had been validated by experts and tested for reliability before use.

The questionnaire instrument covers aspects of knowledge about newborn care (such as early initiation of breastfeeding, umbilical cord care, neonatal danger signs, and KMC), while the observation sheet is used to assess the actual practices carried out by the respondents. The intervention was in the form of intensive training for two days using lecture methods, group discussions, educational video screenings, and practice simulations. The training materials were prepared based on WHO and Indonesian Ministry of Health guidelines on basic neonatal care.

The pre-test measurement was conducted one day before the training, while the post-test was conducted seven days after the training to measure changes in knowledge and practices. Data were analysed quantitatively using the paired t-test statistical test with the significance level set at $p < 0.05$. In addition, descriptive analysis was conducted to describe the characteristics of respondents and the distribution of knowledge and practice scores before and after the intervention.

To improve internal validity, all trainings were conducted by the same team of facilitators and followed established standard procedures. Meanwhile, to maintain external validity, the results of this study were only generalized to the population of mothers and Posyandu cadres with similar characteristics in rural areas. Research ethics were maintained by including written informed consent from all participants, as well as approval from the relevant institutional health research ethics committee.

RESULTS

This study aims to evaluate the effectiveness of training in improving knowledge and practice of newborn care in mothers and Posyandu cadres in rural areas. Measurements were made through pre-test and post-test on two main variables, namely knowledge and practice, which were each assessed through questionnaire instruments and observation sheets. Analysis was carried out descriptively to describe the distribution of data, and paired t-test statistical tests were used to test for significant differences between before and after the intervention.

Table 1. Descriptive Statistics of Knowledge Scores of Mothers and Cadres Before and After Training (n = 50)

Statistics	Pre-Test (Mean $\pm$ SD)	Post-Test (Mean $\pm$ SD)	Δ Score (Average Increase)
Total Knowledge	58.4 $\pm$ 10.2	82.6 $\pm$ 8.4	+24.2
Early Initiation of Breastfeeding (IMD)	12.3 $\pm$ 2.1	16.8 $\pm$ 1.5	+4.5
Umbilical Cord Care	14.5 $\pm$ 2.6	19.2 $\pm$ 1.9	+4.7
Neonatal Danger Signs	16.2 $\pm$ 3.0	23.1 $\pm$ 2.5	+6.9
Kangaroo Mother Care(KMC)	15.4 $\pm$ 2.5	23.5 $\pm$ 2.2	+8.1

1. Results of Respondents' Knowledge Description



The results of the descriptive analysis showed a significant increase in the average knowledge score after the training. Before the intervention, the average knowledge score of respondents was 58.4 with a standard deviation of 10.2. After the training, the value increased to 82.6 with a standard deviation of 8.4, indicating an average increase of +24.2 points.

In more detail, the highest score increase occurred in the Kangaroo Mother Care (KMC) aspect, namely from 15.4 to 23.5 (+8.1 points). Knowledge of neonatal danger signs increased from 16.2 to 23.1 (+6.9 points), while the aspects of umbilical cord care and early breastfeeding initiation increased by +4.7 and +4.5 points, respectively. These findings indicate that the training methods used, namely a combination of lectures, discussions, educational videos, and practical simulations, are effective in improving mothers' and cadres' understanding of the important components of newborn care.

Table 2. Descriptive Statistics of Newborn Baby Care Practice Scores Before and After Training

Statistics	Pre-Test (Mean $\pm$ SD)	Post-Test (Mean $\pm$ SD)	Δ Score (Average Increase)
Total Practice	54.2 $\pm$ 11.8	79.7 $\pm$ 9.6	+25.5
IMD Practice	10.5 $\pm$ 2.8	15.6 $\pm$ 2.2	+5.1
Umbilical Cord Care	11.4 $\pm$ 2.9	16.9 $\pm$ 2.3	+5.5
KMC Practice	12.7 $\pm$ 3.2	20.1 $\pm$ 2.6	+7.4
Response to Danger Signs	19.6 $\pm$ 3.8	27.1 $\pm$ 2.9	+7.5

2. Results of Description of Newborn Care Practices

Referring to Table 2, significant improvements were also seen in the aspect of newborn care practices. Before the training, the average score of practices performed by respondents was 54.2 with a standard deviation of 11.8. After the training, the score increased to 79.7 with a standard deviation of 9.6, indicating an average increase of +25.5 points.

The highest increase was recorded in the practice of response to neonatal danger signs by +7.5 points, followed by the practice of Kangaroo Mother Care (KMC) with an increase of +7.4 points. Meanwhile, cord care practices increased from 11.4 to 16.9 (+5.5 points), and early breastfeeding initiation (IMD) practices increased from 10.5 to 15.6 (+5.1 points).

These data reinforce the finding that hands-on practice-based training can promote positive behaviour change in neonatal care, particularly in aspects that require technical skills and alertness to risky conditions.

3. Implications of the Results

Overall, the results of the study indicate that a two-day training provided in a structured and interactive manner has proven effective in improving knowledge and practices of newborn care among groups of mothers and Posyandu cadres in rural areas. All components measured showed significant improvements in terms of both understanding and implementation in the field. These findings support previous literature that community training can be an effective intervention strategy in reducing the risk of neonatal morbidity and mortality through improving care practices at the family and community levels.

DISCUSSION

1. Knowledge of Mothers and Cadres Before and After Training

The results showed that there was a significant increase in the knowledge of mothers and Posyandu cadres regarding newborn care after training. Before training, the average score of participants' knowledge was 58.4 ± 10.2 , which was categorized as moderate. However, after two days of interactive training, the score increased to 82.6 ± 8.4 , reflecting an increase of 24.2 points. The aspect with the highest increase was Kangaroo Mother Care (KMC), followed by knowledge of neonatal danger signs, umbilical cord care, and early initiation of breastfeeding.

This improvement reflects the effectiveness of active experiential training strategies, which support constructivist theory in education, that knowledge is built through direct involvement and reflection. The training methods used – interactive lectures, group discussions, educational videos, and simulations – facilitate better understanding by participants (Rais & Aryani, 2019).

These findings are consistent with a study by Michalak et al. (2022), which evaluated the training of midwives and community health workers in Papua New Guinea and found that participants' knowledge significantly improved after a two-week training program combined with simulation and group discussions (Michalak et al., 2022). Similarly, clinical training for health workers in Uganda by Baumgartner et al. (2021) was shown to significantly improve knowledge and adherence to neonatal care standards, such as delayed cord clamping and use of the APGAR score (Baumgartner et al., 2021). These results are also consistent with a study by Bibi et al. (2024) which also showed that educational interventions directly had a positive impact on improving mothers' knowledge in rural areas regarding newborn care (Bibi et al., 2024).

The researcher's assumption that training can improve participants' knowledge is proven correct. This shows that training that is tailored to local needs and equipped with visual and practical approaches is very influential in improving community understanding of safe and appropriate neonatal care. Thus, this training has been proven to be able to fill critical knowledge gaps in mothers and Posyandu cadres, especially in safe and evidence-based newborn care.

2. Newborn Care Practices Before and After Training

In addition to knowledge, newborn care practices carried out by mothers and Posyandu cadres also experienced significant improvements after the training. The average practice score increased from 54.2 ± 11.8 to 79.7 ± 9.6 , indicating an increase of 25.5 points. The highest increase was seen in the practice of responding to neonatal danger signs (+7.5 points) and Kangaroo Mother Care practices (+7.4 points), followed by umbilical cord care (+5.5 points) and early initiation of breastfeeding (+5.1 points). These results indicate that the two-day training not only strengthened theoretical understanding, but also improved participants' application skills.

This improvement in practice can be explained through the Planned Behavior theory developed by Ajzen, which states that behavioral change occurs through the formation of intentions based on attitudes, subjective norms, and perceptions of self-control (Lubis et al., 2024). In this context, training plays an important role in changing participants' perceptions and beliefs about the importance of proper infant care practices, resulting in real behavioral changes in the field.

A study by Kashyap et al. (2022) supports these findings, where postpartum family training conducted in a public hospital in India resulted in significant improvements in care practices such



as dry cord care and skin-to-skin contact, as well as decreased neonatal complications and hospital readmission rates (Kashyap et al., 2022). In addition, a study by Devi et al. (2022) on ASHA cadre training and empowerment in India also showed that care practices such as avoiding prelactational feeding and maintaining infant body temperature increased significantly after regular training and direct education in the field (Devi et al., 2023).

The researchers assumed that practical skills are more effectively improved through an active, experiential training approach, rather than just delivering theory. This assumption was proven in the results, where participants were able to apply the practice more appropriately after the training. This shows that the two-day training was successful in improving not only cognitive understanding but also applicative skills in neonatal care. Thus, practical, repetitive, and contextual training is very effective in encouraging positive behavioral changes related to newborn care practices in rural communities. This reinforces the importance of training-based interventions as a primary strategy in improving the quality of community-based neonatal care.

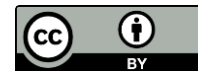
CONCLUSIONS

The results of this study indicate that two-day intensive training has proven effective in improving knowledge and practice of newborn care among mothers and Posyandu cadres in rural areas. The training, which was designed interactively and applicatively, was able to encourage significant improvements, especially in the aspects of Kangaroo Mother Care (KMC) and the ability to recognize neonatal danger signs. This indicates that a training approach that not only delivers theoretical information but also involves direct practice can really empower participants to provide safe, appropriate, and evidence-based neonatal care. This effectiveness suggests that simple yet structured interventions can be a potential strategy in supporting efforts to reduce newborn mortality in areas with limited access to professional health services.

Based on these findings, it is recommended that similar training can be implemented periodically as part of a capacity building program for mothers and Posyandu cadres, in order to maintain and develop their competence in neonatal care. Training materials should be designed contextually, taking into account traditional practices that still apply in the local community, so that the education process can be carried out adaptively and not contradictory to local culture. In addition, a continuous monitoring and evaluation system is needed to assess the effectiveness of training in the long term and its impact on changes in behavior and real practices in the community. Close collaboration with local health institutions, such as Puskesmas and regional health offices, is also an important aspect to ensure the sustainability of the program and its integration into the community-based health service system.

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