

Development and Validation of A Community-Based Prenatal Breastfeeding Mentoring Model Using Dasawisma Cadres in Indonesia

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Abstract. Stunting is primarily a consequence of an environmental setback in childhood, often due to malnutrition, which has become a major public health problem in Indonesia and highly correlated with less than optimal breastfeeding behaviour. Maternal readiness during pregnancy is a key determinant of breastfeeding initiation and continuation of breastfeeding. Breastfeeding promotion in Indonesia, however, is still mainly facility-based and has not optimized community resources. This study aimed to design and assess a structured community-based prenatal breastfeeding mentoring model with dasawisma cadres. This study used a research and development design based on the Seels and Richey model, which includes analysis, design, development, validation, and implementation stages. The model and complementary materials were assessed via expert reviews as well as through a cadre and small group try-out with cadres and third-trimester pregnant women patients. All individual components of the intervention showed a high feasibility with mean scores greater than 4.21 (out of 5). The mentoring model received at least 4.67 as an average score and educational media were in the range of 4.70-4.85. This small group try-out indicated that implementation was feasible (75%), and acceptance of use among pregnant women (mean = 4.45) and cadres (mean = 4.84) was high. This model is feasible, acceptable, and appropriate for implementation at community level; Incorporating systematic prenatal mentoring into existing community structures like dasawisma represents a promising, scalable approach to improve maternal breastfeeding readiness. Further research is needed to evaluate its effectiveness on breastfeeding outcomes.

Keywords: Breastfeeding; Prenatal Mentoring; Community-Based Intervention; Maternal Readiness; Dasawisma

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INTRODUCTION

Malnutrition in toddlers, more specifically stunting, is still a major public health problem faced by low- and middle-income countries (LMICs), including the Republic of Indonesia (Victoria et al., 2016) Evidence indicates that infants are at an increased risk of stunting if they are not exclusively breastfed or those who do not receive early initiation to breastfeeding (Rizal Permadi, Hanim, & Dono Indarto, 2016) The initial 1–2 months following delivery marks a crucial “window

of vulnerability,” beyond which increasing numbers of mothers fail to sustain exclusive breastfeeding (EBF).

In early postpartum, there are numerous challenges that mothers often face, such as bad positioning and latch (Odom, Li, Scanlon, Perrine, & Grummer-Strawn, 2013), lack of support, difficulty reading infant cues (Howard, Lanphear, Lanphear, Eberly, & Lawrence, 2006; Wasser et al., 2011) breast pain, sore nipples mastitis (Suglo, Kpekura, & Yiryuo, 2024) fatigue (Meedya, Fahy, & Kable, 2010) and perceptions of low milk supply. These challenges often cause mothers to introduce breast milk substitutes too early (Paramashanti, Dibley, Huda, & Alam, 2022) Most breastfeeding problems occur in the early postpartum period, making this phase critical for determining whether breastfeeding practices will continue. So, mothers need to be prepared well enough during pregnancy to provide herself with relevant information and skills, as well as the confidence she requires to overcome early challenges of breastfeeding (Gianni et al., 2019; Lojander, Axelin, & Niela-Vilén, 2024; Meedya et al., 2010)

Maternal readiness to breastfeed is singled out as an important driver of exclusive breastfeeding. Exclusive breastfeeding practice is successful among mothers who are knowledgeable and practically skilled (Lentina, Etika, & Budiono, 2021) Breastfeeding preparation Ideally starts in pregnancy with promotive and supportive activities such as detailing breastfeeding benefits, techniques in antenatal care. These interventions and relevant systems have been shown to improve breastfeeding initiation, exclusivity, and duration (Gao et al., 2022; Özkara, Fidancı, Yıldız, & Kaymakamgil, 2016) In addition, physical preparation such as breast care and examination, as well as continuous support from health workers who are also educated in the procedures for breastfeeding can consolidate maternal confidence which will help mothers overcome difficulties in breastfeeding (Mertasari, Duarsa, Seri Ani, Kusuma, & Bakta, 2024; Rossman & Ayoola, 2012) Ongoing professional and peer support is also associated with improved breastfeeding outcomes through increased maternal knowledge, skills, and self-efficacy (Kaunonen, Hannula, & Tarkka, 2012)

Community-based strategies are increasingly being recognized as effective interventions to improve breastfeeding practices. Evidence suggests that community and peer support can dramatically improve rates of early initiation and exclusive breastfeeding, especially where access to continuous professional care is limited (Sutianingsih, Nugraheni, Rahfiludin, & Darmawan, 2026) Dasawisma cadres community-based women’s groups for 10–20 households in Indonesia have the power to provide sustained peer support on account of their close social ties and community influence (Direktorat Jenderal Bina Pemerintahan Desa Kementerian Dalam Negeri dan Tim Penggerak PKK Pusat, 2021; Nankunda, Tumwine, Nankabirwa, & Tylleskär, 2010).

Despite this, breastfeeding promotion is still largely facility-based and postpartum-focused in Indonesia, with little use of the antenatal period as an important window for breastfeeding preparation (Nabilah & Trisnaningtyas, 2024; Sukmawati, Wijaya, & Hilmanto, 2024) Antenatal education is also often given briefly and in one-way communication, while attendance at pregnancy classes remains low, especially in Banten Province (Badan Kebijakan Pembangunan Kesehatan Kemenkes RI, 2025; Dirjen Kesehatan Masyarakat Kemenkes RI, 2024) Moreover, availability of community volunteer structure such as dasawisma in prenatal breastfeeding preparation has not been studied widely.

These challenges demonstrate a need for innovative, structured and community-based approaches to incorporate local social systems into breastfeeding promotion. A prenatal mentoring model utilizing community volunteers (community-based participatory models) that offer ongoing culturally appropriate support may enhance maternal preparedness and promote breastfeeding behaviors. Thus, this study was conducted to develop and validate a community-based prenatal breastfeeding mentoring model using dasawisma cadres in Lebak Regency, Indonesia.

METHODS

Study Design

This study used a research and development (R&D) design to develop and validate a community-based prenatal breastfeeding mentoring model using dasawisma cadres. The intervention followed the Seels and Richey framework consisting of analysis, design, development, implementation, and evaluation stages (Seels & Richey, 1994). This article reports phase two of a larger study focusing on the design, development, and formative evaluation of the intervention model. Phase one involved a needs assessment among pregnant women, cadres, and maternal health providers in Lebak Regency, which identified limited breastfeeding knowledge, low antenatal education participation, insufficient breastfeeding support, and underutilization of community-based resources. These findings informed the mentoring structure, educational content, and delivery strategies used in the intervention.

Study Setting And Participants

The study was conducted in Lebak Regency, Banten Province, Indonesia. Participants included expert reviewers, stakeholders, and end users. Six experts were purposively selected based on their expertise in maternal health, lactation counseling, instructional design, and health promotion. Three stakeholders, including two doctoral-level academics and one maternal and child health (MCH) officer, validated the overall model. The small group try-out involved five dasawisma cadres and five third-trimester pregnant women selected purposively to represent intervention implementers and users. Cadres were active community volunteers involved in maternal health activities, while pregnant women were selected based on trimester status and willingness to participate. The sample size was considered adequate for formative usability and feasibility evaluation.

Development of the Intervention Model

The intervention was developed through analysis, design, and development stages adapted from the Seels and Richey model. The analysis stage used findings from the previous needs assessment to identify gaps in breastfeeding preparedness and support systems. During the design stage, mentoring objectives, session flow, educational strategies, and delivery methods were determined.

The developed intervention package included a maternal handbook, cadre guideline, leaflets, educational videos, standard operating procedures (SOPs), and monitoring forms. Educational content covered exclusive breastfeeding, breastfeeding techniques, management of common breastfeeding problems, maternal preparation, and family support. The mentoring model was designed as a structured community-based prenatal mentoring program delivered by trained dasawisma cadres through face-to-face sessions using printed and audiovisual media. Each session lasted approximately 45–60 minutes and included education, discussion, demonstration, and question-and-answer activities.

Validation And Evaluation Procedures

The intervention underwent expert validation and small group formative evaluation. Experts assessed content relevance, clarity, design quality, communication effectiveness, and feasibility using a 5-point Likert scale and qualitative feedback forms. The small group try-out was conducted in a community setting. Before implementation, cadres received orientation regarding mentoring procedures and educational materials. Cadres then conducted simulated mentoring sessions with pregnant women under researcher observation. The simulation included introduction, educational delivery, interactive discussion, breastfeeding demonstrations, and evaluation. Researcher observations focused on mentoring flow, participant engagement, media utilization, and adherence to SOPs. Implementation feasibility was assessed based on completion of mentoring activities during the simulation.

Data Collection

Data were collected using expert validation questionnaires, user evaluation forms, participant feedback forms, and structured observation checklists. Expert validation generated quantitative scores and qualitative recommendations, while user evaluations assessed clarity, usability, relevance, and acceptability of the intervention materials and mentoring process.

Data Analysis

Quantitative data were analyzed descriptively using mean scores and percentages to determine feasibility levels. Qualitative feedback from experts, stakeholders, cadres, and pregnant women was analyzed thematically to refine the intervention model and educational materials.

RESULTS AND DISCUSSION

Expert Validation

Expert validation involved six multidisciplinary experts and three stakeholders who assessed the intervention based on content relevance, clarity, cultural appropriateness, visual design, usability, and implementation feasibility. Overall, all components achieved high feasibility scores (>4.21 on a 5-point scale), indicating that the intervention was considered appropriate for preliminary community implementation.

Table 1. Expert Validation Results of the Prenatal Breastfeeding Mentoring Model

Component	Mean Score	Interpretation
Maternal Handbook	4.85	Very Appropriate
Cadre Guideline	4.85	Very Appropriate
Educational Materials	4.72	Very Appropriate
Educational Videos	4.71–4.85	Very Appropriate
Mentoring Model (overall)	4.67	Very Appropriate
Overall Mean Score	>4.21	High Feasibility

Note: Scores were measured using a 5-point Likert scale (1 = not appropriate, 5 = very appropriate).

Experts rated the maternal handbook and cadre guideline highest because the materials were considered clear, practical, and easy to use during mentoring activities. Educational videos were also positively evaluated for helping explain breastfeeding techniques and common breastfeeding barriers. However, experts suggested several revisions related to font size, layout consistency, introductory explanations, and simplification of several educational messages to improve readability and participant comprehension. Although the validation scores were high, these findings should be interpreted as evidence of preliminary feasibility and acceptability rather than intervention effectiveness. The relatively small number of validators and the possibility of positive rating bias should also be considered when interpreting the results.

Printed Educational Materials

Printed materials were the most feasible component and were classified as “very appropriate”. The maternal handbook and cadre guideline obtained the highest mean (4.85: excellent) scores attributed to actual content quality, clarity of communication materials and quality of design/output graphically (Table 2). Some minor changes were recommended, mainly concerning the font size to aid readability.

Educational Videos

The video-based material scored well on feasibility (4.71 - 4.85) as reported in table 2. The breastfeeding barriers video was given the highest score (mean = 4.85). The suggested changes were few, most aimed at inserting introductory sections to provide context.

Mentoring Model Validation

The mean score for the overall prenatal mentoring model was 4.67, which falls in the category of “very appropriate.” All evaluated aspects (including feasibility, contextual relevance, effectiveness and sustainability) were greater than the pre-defined feasibility cut-off(s). Most of the critical comments were not related to content, but rather some minor tuning and improvement of technical aspects.

Small Group Try-Out

The small group try-out assessed implementation feasibility, usability, and user acceptance among five dasawisma cadres and five third-trimester pregnant women.

Table 2. Results of Small Group Try-out for Feasibility and User Acceptance

Variable	Result	Interpretation
Implementation	75%	Feasible
Cadre usability	4.75	Very Appropriate
Cadre acceptance	4.84	Very Appropriate
Pregnant women acceptance score	4.45	Very Appropriate

Note: Acceptance and usability were assessed using a 5-point Likert scale.

Implementation Feasibility

The overall implementation feasibility was 75%, stating that most of the model components were effectively implemented during simulation. Educational materials were easy to use by cadres during their mentoring session (Mean 4.75).

User Acceptance

The intervention was well accepted by users. Dasawisma cadres scored an average score of 4.84, while the average score among pregnant women was 4.45, both in the “very appropriate” category. The materials were easy to read and applicable for possible home-based mentoring activities, Based on participants’ evaluations.

Final Model Refinement

Minor technical modifications were made to the instrument based on expert validation and small group try-out findings, including improvements in layout consistency across items as well as document formatting. These modifications did not change the fundamental design or content of the intervention. We developed a holistic prenatal mentoring package that includes a caregiver handbook, cadre guidelines, brochures, short educational videos, standard operating procedures and supportive tools. All components fulfilled the feasibility criteria defined a priori, indicating that they can be implemented in the next step of this study.

The feasibility, acceptability, and implementation of a community-based prenatal mentoring activity using dasawisma cadres in this study indicates the potential of such an effective strategy as a solution to improve breastfeeding promotion. Expert validation indicating high feasibility scores reflects that the developed materials and mentoring structure appropriately in terms of content, design, and communication. Our finding is in agreement with studies which have also demonstrated that combined breastfeeding education and support interventions are more effective than singlecomponent approaches being used significantly to improve breastfeeding outcomes (Isara & Ekwo, 2025; Kodariyah & Anggorowati, 2023; Lentina et al., 2021).

This emphasizes the potential impact of structured and accessible educational materials on improving maternal preparedness, as evidenced by the pronounced effect of the maternal handbook and cadre guidelines on outcome measures. Previous studies have found that pregnant women who have adequate knowledge and are more exposed to breastfeeding information have increased confidence levels which also influences the duration of breastfeeding in mothers

(Blitman, Biderman, Yehoshua, & Adler, 2022; Frota, Lopes, Lima, Sales, & da Silva, 2016). On the other hand, lack of knowledge and contradictory information can lower self-efficacy and cause early breastfeeding termination (Alnasser et al., 2018; Blitman et al., 2022; Frota et al., 2016; Galipeau, Baillet, Trottier, & Lemire, 2018; Vila-Candel et al., 2024). Providing clear and relevant information about breastfeeding in well pregnancy seems to help mothers prepare for and deal with early breastfeeding challenges (Fok, Chang, Meng, & Ng, 2022).

The results also highlight the importance of anticipatory guidance during pregnancy. Common barriers to exclusive breastfeeding are early postpartum challenges, such as breast pain, poor attachment and perceived insufficient milk supply. Structured education on antenatal care, infant feeding knowledge and skills as well as integrated antenatal support programs have been shown to translate into substantial improvements in maternal breastfeeding knowledge, confidence, and breastfeeding outcomes (Blixt, Axelsson, Enskär, & Funkquist, 2026; Nabulsi et al., 2014; Oggero, Rozmus, & LoBiondo-Wood, 2024). Such interventions increase the likelihood that women will maintain exclusive breastfeeding and demonstrate greater breast-feeding satisfaction (Gong et al., 2024; Tello, Hernández, Dueñas-Espín, & Tejera, 2025).

The small group try-out confirmed further the feasibility and acceptability of the model. Dasawisma cadres were able to deliver the intervention effectively, indicating high usability scores. This aligns with evidence that peer support interventions, in addition to improving maternal confidence and psychological readiness, also have an impact on breastfeeding duration (Blixt et al., 2026; Cauble et al., 2021). Higher acceptance among cadres might relate to increased empowerment through training, which lends support for capability development contributing to the sustainability of community-based health interventions. Trainings for community health workers and peer supports have previously been shown to significantly improve breastfeeding outcomes and maternal self-efficacy (Coutinho et al., 2014; Lilleston, Nhim, & Rutledge, 2015; Lok et al., 2025; MacArthur et al., 2009), whilst participatory and peer-led interventions improve behavioral change through social support mechanism (Nair, Tripathy, Costello, & Prost, 2012; Robinson, Kaushal, & Drazdzewska, 2026; Verma et al., 2024).

With an implementation feasibility score of 75%, and with only small changes identified through formative evaluation, the model is largely generalizable. This underscores findings from existing literature, reinforcing the need for an iterative process of adaptation within community based interventions to make them contextually important and effective (Ijumba et al., 2015; Kang, Song, Hyun, & Kim, 2005). Structured programs with successive contacts have also demonstrated improvements in breastfeeding practices (Ijumba et al., 2015; Kaunonen et al., 2012). Maternal readiness attitude for breastfeeding is a multidimensional construct encompassing knowledge, technical skills and psychological preparedness from a conceptual perspective (Kodariyah & Anggorowati, 2023; Lentina et al., 2021). The structured mentoring approach developed in this study incorporates all of these components simultaneously, and as such underlies a holistic breastfeeding preparatory approach. As barriers to breastfeeding operate at individual, interpersonal and community levels, multilevel approaches are needed to tackle these challenges (Bellad et al., 2023; Snyder et al., 2021).

Moreover, this study underlines the need to reorient breastfeeding promotion strategies away from their current focus on facilitating worksites and postpartum activities towards community-based measures delivered antenatally and early postpartum. Current evidence suggests that antenatal breastfeeding education is frequently inadequate (Nabilah & Trisnaningtyas, 2024). The application of dasawisma as a community-level forum is a contextually appropriate innovation, given that in previous plant-based exclusive breastfeeding interventions the presence of a community network has shown impact if done at scale (Gavine et al., 2022; Short et al., 2022). From a public health perspective, this model has substantial potential to be incorporated into existing maternal and child health programs, especially in areas with high stunting prevalence and low coverage of exclusive breastfeeding.

Strengthening antenatal breastfeeding preparation through community engagement could fill in some of the gaps in knowledge, support, and early infant feeding practices. However, this study has some limitations. The assessment that was done in a feasibility stage revealed small scale sample size which could not be generalised. Moreover, long-term outcomes such as exclusive breastfeeding rates and duration were not evaluated. Further research is needed to assess the effectiveness of this model.

CONCLUSION

The dasawisma based prenatal mentoring model is feasible and acceptable for community use and improves maternal readiness to breastfeed. It encourages a movement towards antenatal and community-based breastfeeding promotion. Additional studies must be conducted to investigate its effectiveness on breastfeeding outcomes.

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