



RESEARCH ARTICLE

Effect of a Need-Based Maternal and Child Health Module on Breastfeeding Knowledge, Attitudes and Practices among Pregnant Women in Rural Maharashtra: A Pre-Post Interventional Study

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ABSTRACT

Background: The World Health Organization recommends initiation of breastfeeding within one hour of birth and exclusive breastfeeding for the first six months, yet adherence in rural India remains suboptimal. This study assessed the effect of a need-based maternal and child health (MCH) module on breastfeeding knowledge, attitudes and practices among rural women in Maharashtra. **Methods:** A pre-post interventional study was conducted among 250 pregnant women in six sub-centres of a Primary Health Centre in rural Maharashtra from October 2020 to December 2022. Baseline knowledge, attitudes and practices (KAP) were assessed using a structured, interviewer-administered questionnaire. A need-based educational module was delivered over two weeks through sessions led by PHC staff and ASHAs. The same questionnaire was re-administered three months after the intervention. Pre- and post-intervention proportions were compared using the chi-square test. **Results:** Early initiation of breastfeeding increased from 26.4% to 43.2% ($p < 0.001$) and exclusive breastfeeding from 38.4% to 52.8% ($p < 0.01$). Knowledge of breastfeeding benefits rose from 60.3% to 78.1%, awareness of the exclusive breastfeeding recommendation from 55.5% to 72.0%, and awareness of common breastfeeding challenges from 32.0% to 48.0% (all $p < 0.001$). The proportion of women receiving breastfeeding support increased from 30.0% to 54.0% ($p < 0.001$). **Conclusion:** A need-based MCH module delivered through the existing PHC and ASHA network significantly improved breastfeeding knowledge, attitudes and practices among rural women. Integrating such modules into routine antenatal care may help sustain these gains.

Keywords: Breastfeeding; Early initiation; Exclusive breastfeeding; Health education; Maternal and child health; Rural India.

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INTRODUCTION

Breastfeeding is universally acknowledged as a critical practice that contributes significantly to infant health and survival. The World Health Organization (WHO) recommends initiating breastfeeding within the first hour of life and continuing exclusive breastfeeding for the first six months to ensure optimal growth and development [1]. Breast milk provides essential nutrients, promotes healthy growth and strengthens the immune system, thereby reducing the risk of infections in infancy and of chronic diseases later in life [2].

Despite these recommendations, breastfeeding practices in many developing countries, including India, remain suboptimal. According to the National Family Health Survey (NFHS-5, 2019–21), only 41.8% of children in India were breastfed within one hour of birth, and 63.7% of infants under six months were exclusively breastfed [3]. Rural areas often show lower adherence because of socio-cultural, economic and educational factors.

In Maharashtra, maternal and child health (MCH) programmes have been established to promote

breastfeeding; however, significant challenges persist. These include limited access to health services, lack of awareness about the benefits of breastfeeding, and deep-rooted cultural practices such as prelacteal feeding and delayed initiation, which influence maternal behaviour [3, 4]. Women in rural settings frequently lack adequate support from health providers and family members and hold misconceptions about breastfeeding [4].

Addressing these gaps is critical for improving maternal and child health outcomes. Studies of postnatal mothers in India have shown important gaps in breastfeeding knowledge and practice and have recommended targeted education [5]. Systematic reviews have shown that breastfeeding education and counselling significantly improve early initiation and exclusive breastfeeding, particularly when delivered through community and health-system channels [6, 7].

Recognising the need for effective, context-specific educational strategies, this study evaluated the impact of a need-based MCH module on breastfeeding knowledge, attitudes and practices among rural women in Maharashtra.

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AIMS AND OBJECTIVES

Aim: To evaluate the effectiveness of a need-based maternal and child health module on breastfeeding practices in rural Maharashtra.

Objectives:

1. To describe the socio-demographic profile of the study participants.
2. To assess baseline breastfeeding knowledge, attitudes and practices (KAP) among pregnant women in the study area.
3. To implement a need-based module on maternal and child health with a focus on breastfeeding.
4. To evaluate changes in breastfeeding KAP following the intervention.

MATERIALS AND METHODS

Study Design

A pre-post (before-and-after) interventional study without a control group was conducted.

Study Setting and Duration

The study was conducted from October 2020 to December 2022 in six sub-centres of a Primary Health Centre (PHC) in rural Maharashtra, serving a total population of 46,701.

Study Population

All pregnant women residing in the PHC catchment area who gave informed consent were included (universal sampling). A total of 250 women were enrolled.

Sample Size

Bala *et al.*, (2020) reported that 20% of mothers initiated breastfeeding within the first hour of birth in a community hospital-based study in Jammu, India (8). Using this prevalence ($p = 0.20$), a 95% confidence level ($Z = 1.96$) and an absolute precision (d) of 0.05, the minimum sample size was calculated as:

$$n = Z^2 \times p \times (1 - p) / d^2 = (1.96)^2 \times 0.20 \times 0.80 / (0.05)^2 = 245.86 \approx 246$$

Since all eligible pregnant women in the area were included, 250 women were enrolled, exceeding the minimum required sample.

Inclusion Criteria

- Pregnant women residing in the study area.
- Willing to participate and providing informed consent.

Exclusion Criteria

- Pregnant women unwilling to provide consent.
- Migrant population.

Pre-intervention Data Collection

Baseline data were collected by trained health workers through face-to-face interviews at the six sub-centres using a structured questionnaire covering:

- Socio-demographic characteristics.
- Knowledge of the benefits of breastfeeding.
- Attitudes towards breastfeeding, particularly early initiation and exclusive breastfeeding.
- Breastfeeding practices, including initiation within the first hour of birth and exclusive breastfeeding for the first six months.

Socio-economic status was classified using a Modified B.G. Prasad classification (updated for 2021) socio-economic scale.

Intervention

- A need-based MCH module was developed to address the gaps identified at baseline. It focused on:
- Promoting early initiation of breastfeeding.
- Emphasising exclusive breastfeeding for the first six months.
- Practical advice on overcoming common breastfeeding challenges, such as latching difficulties and misconceptions about insufficient milk.

The intervention was delivered over two weeks, with multiple sessions to ensure that all participants were reached. Special ASHA meetings were organised in which PHC health providers and Accredited Social Health

Activists (ASHAs) conducted the sessions using visual aids, demonstrations and group discussions.

Post-intervention Follow-up

Three months after the intervention, the same structured questionnaire was re-administered to the participants to allow direct comparison with baseline. This interval was chosen to give participants sufficient time to apply the practices taught in the module.

Ethical Considerations

The study was approved by the Institutional Ethics Committee of written informed consent was

obtained from all participants, and the study was conducted in accordance with the Declaration of Helsinki.

Statistical Analysis

Data were entered and analysed using SPSS software. Descriptive statistics (frequencies and percentages) were used to summarise socio-demographic characteristics and KAP. Pre- and post-intervention proportions were compared using the chi-square test. A p-value < 0.05 was considered statistically significant.

RESULTS

Table 1: Socio-Demographic Characteristics of Participants

Characteristic	Frequency (n)	Percentage (%)
Age (Years)		
15-25	91	36.4
26-35	156	62.4
36-45	3	1.2
Total	250	100

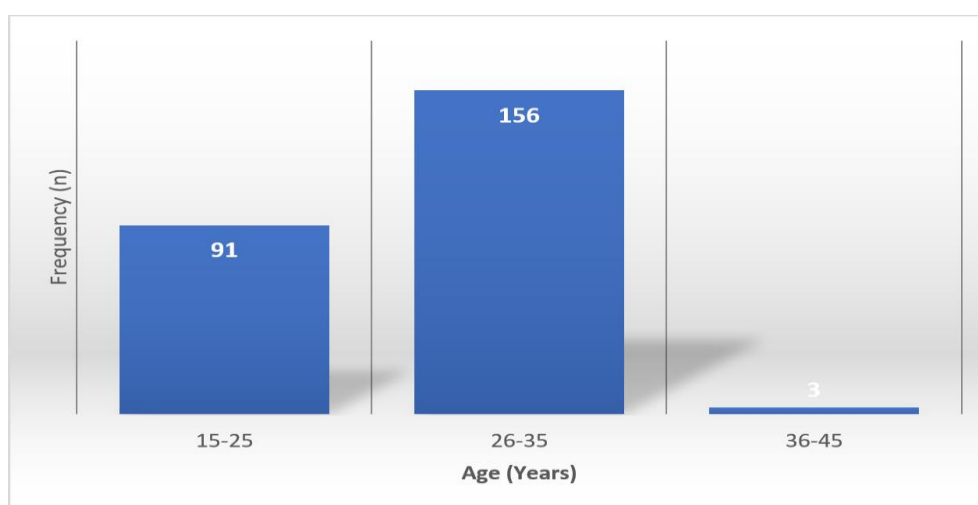


Fig 1: Socio-Demographic Characteristics of Participants

The age distribution of participants shows that the majority, 62.4% (156 participants), were between 26-35 years, followed by 36.4% (91 participants) in the 15-25 years age group. Only 1.2% (3 participants) were aged 36-45 years. This indicates that most participants were

younger mothers, with a significant portion in their late twenties to early thirties.

Education Level:

Table 1a: Education level

Education Level	Frequency (n)	Percentage (%)
Primary Education	61	24.4
Higher Secondary	97	38.8
Graduation	81	32.4
Uneducated	11	4.4
Total	250	100

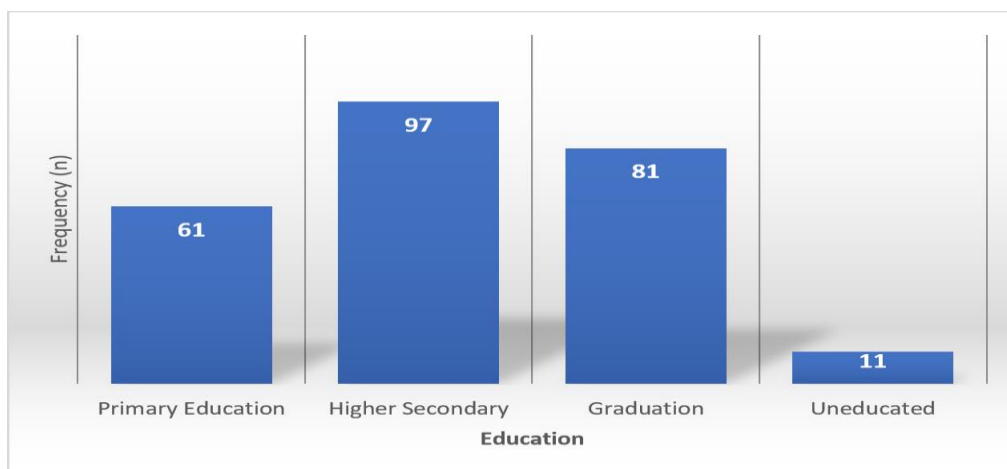


Fig 2: Education level and frequency

The education level of participants shows that the largest group, 38.8% (97 participants), had completed higher secondary education, followed by 32.4% (81 participants) who had graduated. 24.4% (61 participants) had primary education, and 4.4% (11 participants) were

uneducated. This indicates a relatively well-educated population, with a small percentage lacking formal education.

Occupation:

Table 1b: Occupation

Occupation	Frequency (n)	Percentage (%)
Working	60	24
Housewife	190	76
Total	250	100

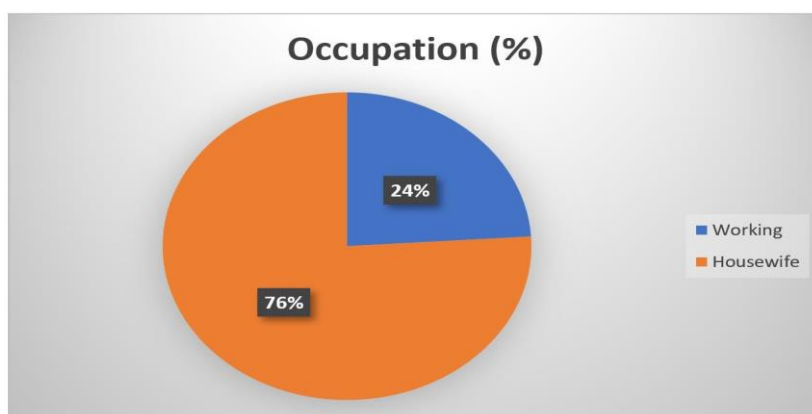


Fig 3: Occupation

The occupation distribution shows that the majority of participants, 76% (190 participants), were housewives, while 24% (60 participants) were working. This indicates that most participants were not engaged in formal employment outside the home.

Religion:

Table 1c:Religion and related parameters

Religion	Frequency (n)	Percentage (%)
Hindu	175	70
Muslim	52	20.8
Others	23	9.2
Total	250	100

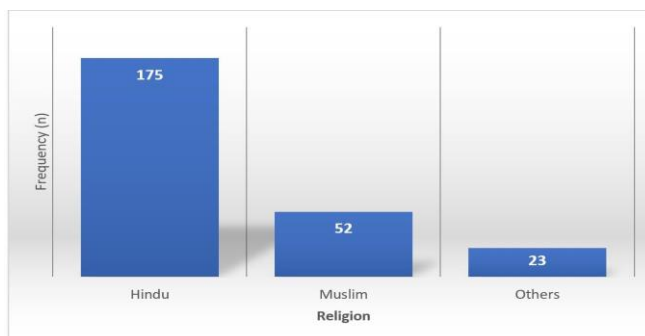


Fig 4: Religion and related parameters

The majority of participants, 70% (175 participants), were Hindu, followed by 20.8% (52

participants) who were Muslim, and 9.2% (23 participants) belonged to other religions.

Socioeconomic Status (SES):

Table 1d:Socioeconomic status

SES	Frequency (n)	Percentage (%)
Class III	10	4
Class IV	124	49.6
Class V	116	46.4
Total	250	100

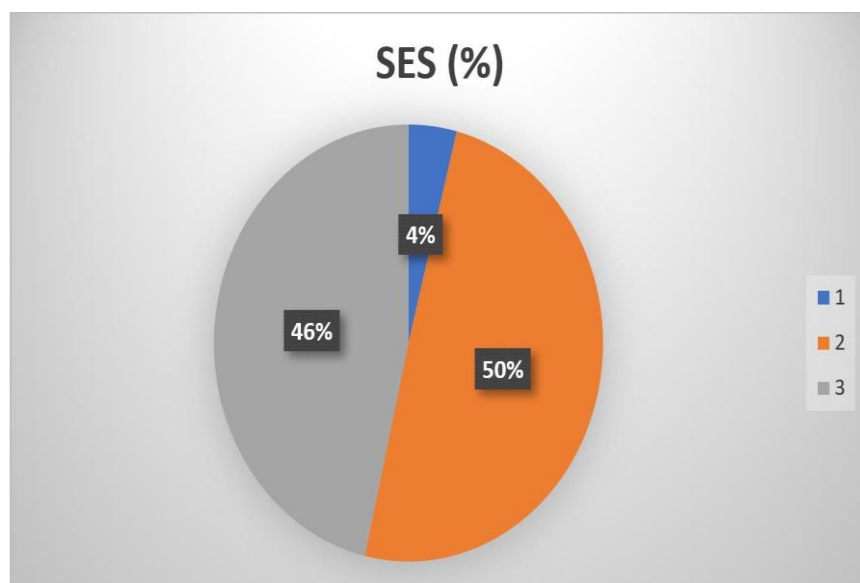


Fig 5:Socioeconomic status

The socioeconomic status (SES) of participants shows that 49.6% (124 participants) belonged to Class IV, and 46.4% (116 participants) were in Class V, indicating

that the majority of the participants were from lower socioeconomic backgrounds. A small percentage, 4% (10 participants), were in Class III.

Table 2: Knowledge, Attitude, and Practice (KAP) Regarding Breastfeeding Pre- and Post-Intervention

KAP Variable	Pre-Intervention (%)	Post-Intervention (%)
Knowledge of breastfeeding benefits	60.30%	78.10%
Awareness of exclusive breastfeeding recommendation	55.50%	72.00%
Belief in the importance of early initiation	48.00%	66.50%
Practice of initiating breastfeeding within 1 hour	26.40%	43.20%

The table shows significant improvements in breastfeeding knowledge, attitudes, and practices following the intervention. Knowledge of breastfeeding benefits increased from 60.3% to 78.1%, awareness of exclusive breastfeeding from 55.5% to 72%, and belief in

early initiation from 48% to 66.5%. The practice of initiating breastfeeding within 1 hour also improved, rising from 26.4% to 43.2%. This highlights the positive impact of the intervention on both awareness and breastfeeding practices.

Table 3: Breastfeeding Practices Pre- and Post-Intervention

Breastfeeding Practice	Pre-Intervention (n)	Post-Intervention (n)
Initiated breastfeeding within 1 hour	66	108
Exclusively breastfed for the first 6 months	96	132
Received breastfeeding support	75	135
Awareness of common breastfeeding challenges	80	120

The table shows marked improvements in breastfeeding practices post-intervention. The number of mothers who initiated breastfeeding within 1 hour increased from 66 to 108, while those who exclusively breastfed for the first 6 months rose from 96 to 132.

Additionally, mothers who received breastfeeding support increased from 75 to 135, and awareness of common breastfeeding challenges grew from 80 to 120. These results reflect the intervention's success in enhancing breastfeeding practices and support.

Table 4: Significant Statistical Improvements in Breastfeeding Practices

Breastfeeding Variable	Pre-Intervention (%)	Post-Intervention (%)	p-value
Early initiation (within 1 hour)	26.40%	43.20%	<0.001
Exclusive breastfeeding for 6 months	38.50%	52.70%	<0.01
Knowledge of breastfeeding benefits	60.30%	78.10%	<0.001
Awareness of breastfeeding challenges	45.00%	71.00%	<0.01

The results of this study highlight the significant positive impact of the need-based maternal and child health module on breastfeeding practices among rural women in Maharashtra. The increase in the initiation of breastfeeding within the first hour from 26.4% to 43.2% ($p < 0.001$) and the rise in exclusive breastfeeding rates from 38.5% to 52.7% ($p < 0.01$) demonstrate the effectiveness of targeted educational interventions. These findings align with previous research that indicates structured educational programs can effectively enhance breastfeeding practices among new mothers.

DISCUSSION

This study shows that a need-based MCH module delivered through the existing PHC and ASHA network produced significant improvements in breastfeeding knowledge, attitudes and practices among rural women in Maharashtra. Baseline early initiation in our population (26.4%) was considerably lower than the

national NFHS-5 estimate of 41.8% [3], underlining the need for focused interventions in such settings.

Impact of Educational Interventions on Breastfeeding Practices

A systematic review by Haroon *et al.*, (2013) found that breastfeeding education and promotion interventions significantly increased rates of early initiation and exclusive breastfeeding, especially in low- and middle-income countries [6]. Our findings are consistent with this: knowledge of breastfeeding benefits rose from 60.3% to 78.1% and early initiation from 26.4% to 43.2% after the intervention. Mothers who understand the health benefits of breastfeeding are more likely to adopt recommended practices [5].

Kumar *et al.*, (2015) reported that awareness and positive attitudes are key determinants of breastfeeding practices among mothers in southern India [9]. In our

study, belief in the importance of early initiation increased from 48.0% to 66.5% ($p < 0.001$). This change may be attributed to the module's combined focus on the benefits of breastfeeding and on common misconceptions.

Socio-cultural Factors and Support

Traditional beliefs and practices, such as discarding colostrum and giving prelacteal feeds, are well-documented barriers to early and exclusive breastfeeding in rural India [4]. The module specifically addressed these practices through demonstrations and group discussion. A meta-analysis by Sinha *et al.*, (2015) showed that counselling and support delivered by health workers, family and community are among the most effective ways to improve breastfeeding outcomes [7]. In our study, the proportion of women receiving breastfeeding support nearly doubled, from 30.0% to 54.0%, reflecting the role of ASHAs and PHC staff in providing practical support.

Barriers to Successful Breastfeeding

Although awareness of common breastfeeding challenges improved (32.0% to 48.0%), more than half of the women were still unaware of them after the intervention. Perceived insufficient milk supply, latching difficulties and family pressure to follow traditional practices are common reasons for early cessation of breastfeeding [10]. Educational sessions therefore need to be complemented by continued, hands-on support in the postnatal period.

Long-term Implications

Improved breastfeeding rates are associated with lower infant morbidity and mortality and with long-term benefits for maternal health, including reduced risk of breast and ovarian cancer and type 2 diabetes [2, 11]. Educational interventions that improve breastfeeding therefore contribute to both immediate and long-term health gains for mothers and children.

Strengths and Limitations

The study used the existing PHC and ASHA network, which makes the intervention feasible to scale. However, it has several limitations. The absence of a control group means that the improvements cannot be attributed to the intervention alone, as secular trends or other programmes may have contributed. Practices were self-reported and may be subject to recall and social desirability bias. The three-month follow-up does not capture the sustainability of the changes, and the study was confined to one PHC area, which limits generalisability.

CONCLUSION AND RECOMMENDATIONS

A need-based maternal and child health module significantly improved breastfeeding knowledge, attitudes and practices among rural women in Maharashtra, including early initiation and exclusive breastfeeding. Such modules should be integrated into routine antenatal and postnatal care, with ASHAs and health providers trained to offer continued support. Future studies with a control group and longer follow-up are recommended to confirm these findings and assess their sustainability.

REFERENCES

1. World Health Organization. Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003.
2. Victora CG, Bahl R, Barros AJD, Franca GVA, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016;387(10017):475-90.
3. International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), 2019–21: India. Mumbai: IIPS; 2021.
4. Mahmood SE, Srivastava A, Shrotriya VP, Mishra P. Infant feeding practices in the rural population of north India. *J Family Community Med*. 2012;19(2):130-5.
5. Vijayalakshmi P, Susheela T, Mythili D. Knowledge, attitudes, and breast feeding practices of postnatal mothers: a cross sectional survey. *Int J Health Sci (Qassim)*. 2015;9(4):364-74.
6. Haroon S, Das JK, Salam RA, Imdad A, Bhutta ZA. Breastfeeding promotion interventions and breastfeeding practices: a systematic review. *BMC Public Health*. 2013;13(Suppl 3):S20.
7. Sinha B, Chowdhury R, Sankar MJ, Martinez J, Taneja S, Mazumder S, et al. Interventions to improve breastfeeding outcomes: a systematic review and meta-analysis. *Acta Paediatr*. 2015;104(467):114-34. doi:10.1111/apa.13127.
8. Bala K, Sahni B, Bavoria S, Narangyal A. Knowledge, attitude, and breast-feeding practices of postnatal mothers in Jammu: a community hospital based cross-sectional study. *J Family Med Prim Care*. 2020;9(7):3433-7. doi:10.4103/jfmpc.jfmpc_333_20.
9. Kumar A, Unnikrishnan B, Rekha T, Mithra P, Kumar N, Kulkarni V, et al. Awareness and attitude regarding breastfeeding and immunization practices among primigravida attending a tertiary care hospital in southern India. *J Clin Diagn Res*. 2015;9(3):1-10.
10. Gatti L. Maternal perceptions of insufficient milk supply in breastfeeding. *J Nurs Scholarsh*. 2008;40(4):355-63.
11. Chowdhury R, Sinha B, Sankar MJ, Taneja S, Bhandari N, Rollins N, et al. Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. *Acta Paediatr*. 2015;104(467):96-113.