



Original Research Article

Awareness of Pediatric Home-Based Child Health Programs Among Primi Mothers: A Cross-Sectional Study

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Abstract: Pediatric home-based child health programs are integral to improving maternal and child health outcomes; however, their effectiveness depends largely on mother's awareness and understanding of program components, particularly among primi mothers. Objectives: To assess the level of awareness regarding pediatric home-based child health programs among primi mothers and to determine the association between awareness and selected demographic variables. Material and Methods: A quantitative, non-experimental, cross-sectional study was conducted among 200 primi mothers residing in selected urban areas of Bhopal, Madhya Pradesh. Participants were selected using a non-probability purposive sampling technique. Data were collected using a structured, validated, bilingual questionnaire assessing demographic characteristics and awareness of pediatric home-based child health programs. Results: Among the participants, 59% demonstrated good awareness, 31% had moderate awareness, and 10% had poor awareness of pediatric home-based child health programs. Awareness was significantly associated with maternal educational level ($p = 0.018$), primary source of health care ($p = 0.031$), and source of health-related information ($p = 0.042$). No significant associations were observed with maternal age, monthly income, religion, or family type. Conclusion: Although awareness of pediatric home-based child health programs among primi mothers was generally satisfactory, notable gaps persist. Educational attainment and exposure to formal health-care and information sources play a critical role in shaping awareness. Strengthening nurse-led counseling, reinforcing key messages through repeated health-system contact, and tailoring communication strategies to mother's educational backgrounds may enhance program effectiveness and maternal engagement.

Keywords: Pediatric home-based care; maternal awareness; primi mothers; child health programs; community health nursing.

INTRODUCTION

Early childhood continues to be a vulnerable period, with a significant proportion of child morbidity and mortality occurring within the first two years of life ¹. According to recent national estimates, India's Neonatal Mortality Rate (NMR) is 20 per 1,000 live births, while the Infant Mortality Rate (IMR) stands at 28 per 1,000 live births ². Neonatal deaths alone contribute to nearly two-thirds of infant deaths, with leading causes including prematurity, birth asphyxia, infections, and feeding-related problems. These conditions are largely preventable through timely care, appropriate feeding practices, and early identification of danger signs at the household level ³.

Although institutional deliveries in India have exceeded 88%, evidence indicates that postnatal follow-up and continuity of care at home remain inconsistent ⁴. National surveys, including National Family Health Survey (NFHS-5, 2019–21), report gaps in early initiation of breastfeeding, exclusive breastfeeding, completion of home visits, and caregiver counseling during the postnatal period. Inadequate utilization of community-based services contributes to preventable illness episodes such as neonatal sepsis, acute respiratory infections, diarrhea, and undernutrition during infancy and early childhood ⁵.

To address these challenges, pediatric home-based child health programs—namely Home-Based Newborn Care (HBNC), Home-Based Young Child Care (HBYC), and Infant and Young Child Feeding (IYCF)—have been implemented to strengthen household-level care through scheduled home visits by frontline health workers. These programs emphasize newborn and young child assessment, feeding counseling, immunization follow-up, growth monitoring, and early referral^{6,7}. Program monitoring reports suggest that regular home visits are associated with improved breastfeeding practices, timely care-seeking, and reduction in preventable complications when services are adequately delivered and utilized⁸.

Primi mothers represent a key beneficiary group for these programs, as first-time motherhood is often associated with limited caregiving experience and increased dependence on health workers for guidance. Their level of awareness directly affect the continuity and effectiveness of pediatric home-based child health programs, particularly in urban settings where service delivery and utilization patterns may vary.

Need of the Study

Evidence from recent Indian studies indicates that maternal awareness of key components of pediatric home-based child health services remains uneven, even when general knowledge appears satisfactory. A study from Maharashtra reported that although 90.1% of mothers were aware that breast milk should be the first feed and 87.9% knew the meaning of exclusive breastfeeding, only 25% demonstrated overall good infant and young child feeding practices, highlighting a clear gap between awareness and effective understanding of recommended practices⁹. Similarly, a 2024 study from South India found that while 88% of mothers had good breastfeeding knowledge and 96% showed a positive attitude, actual optimal practices were observed in only 32% of mothers, suggesting that awareness is not uniformly comprehensive or actionable across populations¹⁰. Further evidence from Madhya Pradesh strengthens the need for focused assessment of maternal awareness in relation to background characteristics. An evaluation of the Home-Based Care for Young Child (HBYC) program across aspirational districts of Madhya Pradesh revealed that although 85% of mothers were aware of exclusive breastfeeding, only 40% had correct knowledge regarding timely initiation of complementary feeding, and just 34% could identify at least two danger signs requiring referral. The study also demonstrated variations in maternal knowledge linked to service exposure and socio-demographic factors, emphasizing the importance of examining demographic associations¹¹. These findings underline the need to systematically assess awareness regarding pediatric home-based child health programs among primi mothers and to determine how selected

demographic variables influence awareness levels.

Objectives of the Study

The objectives of the present study were to assess the level of awareness regarding pediatric home-based child health programs among primi mothers and to determine the association between selected demographic variables and the findings related to awareness.

Material and Methods

Study Strategy and Variables

The study adopted a quantitative, non-experimental, descriptive cross-sectional design to assess awareness regarding pediatric home-based child health programs among primi mothers. The research variable was the level of awareness regarding pediatric home-based child health programs. The sociodemographic variables included selected demographic characteristics such as age, education, occupation, family type, income, religion, primary health care source and source of health care related information.

Sampling

The sample size was calculated using Cochran's formula for estimating a single population proportion in a cross-sectional study¹². The expected prevalence ($p = 0.89$) was derived from a study conducted by the National Health Mission, Madhya Pradesh, in collaboration with the Norway India Partnership Initiative (2023), which reported that 89% of mothers utilized the Mother and Child Protection (MCP) card, a key component of pediatric home-based care services in Madhya Pradesh¹¹. With a 95% confidence level ($Z = 1.96$) and 5% absolute precision ($d = 0.05$), the minimum required sample size was calculated as 151. To account for potential non-response and incomplete data, a 25% attrition margin was added, resulting in a final sample size of 200 primi mothers. The study included primi mothers aged 18–35 years who had a single child aged between 6 months and below 3 years, were able to read and understand English or Hindi, and were willing to participate by providing informed consent. Mothers who were critically ill or had any physical or psychological condition that limited participation, as well as those who declined participation or were unavailable during the data collection period, were excluded from the study.

Research Tool

Data were collected using a structured, validated questionnaire developed by the investigator based on an extensive review of literature and national guidelines related to Home-Based Newborn Care (HBNC), Home-Based Young Child Care (HBYC), and Infant and Young Child Feeding (IYCF) programs. The tool was reviewed by 11 subject experts to establish content validity and was prepared in both

English and Hindi to ensure clarity and accurate responses from the participants. The tool consisted of two sections. Section I assessed the demographic profile of primi mothers, including age, educational status, occupation, monthly family income, religion, age at marriage, type of family, type of health-care access, and sources of information related to pediatric health services. Section II comprised 24 structured Yes/No questions designed to assess awareness regarding pediatric home-based child health programs, covering aspects such as program objectives, services provided, home visits, immunization, growth monitoring, feeding practices, and parental guidance. Each correct response was scored as 1 and each incorrect response as 0, with a possible score range of 0–24. Awareness levels were categorized as poor (0–11), moderate (12–17), and good (18–24), with higher scores indicating greater awareness of pediatric home-based child health programs. This classification was based on Bloom’s cutoff point approach, which is widely used in health and nursing research to categorize knowledge levels into meaningful interpretive groups and facilitate comparison across studies¹³. The reliability of the tool was assessed using Cronbach’s alpha. The coefficient obtained was $\alpha = 0.78$, which exceeds the recommended threshold of 0.70 and indicates acceptable internal consistency.

Data Collection and Data Analysis

Data collection was conducted between August 2024 and November 2024. All participants were fully informed about the purpose of the study and provided written informed consent prior to participation. Data were collected using the structured questionnaire and entered into Microsoft Excel for data management. Statistical analysis was performed using IBM SPSS version 27, and graphical representations were generated using Microsoft Excel. Descriptive statistics, including frequencies and percentage were used to summarize demographic characteristics and awareness scores. Fisher’s exact test was applied to examine the association between selected demographic variables and levels of awareness, as it is appropriate for categorical data with small cell frequencies. The level of statistical significance was set at $p < 0.05$.

Ethical Statement

The study was conducted in accordance with ethical principles for research involving human participants and was approved by the Institutional Ethics Committee of LNCT University, Bhopal, Madhya Pradesh, India.

RESULTS

Demographic Findings

Table no 1 shows a total of 200 primi mothers participated in the study. With regard to maternal age, nearly half of the respondents (46%) belonged to the 23–27 years age group, followed by 31% aged 18–22 years. Mothers aged 28–32 years constituted 17%, while only 6% were in the 33–35 years age category, indicating that the majority of participants were young adults within the optimal reproductive age range.

Table 1 | Demographic findings of the participants

Demographic Variables	f (N-200)	%
Mother's Age	18 to 22	62
	23 to 27	92
	28 to 32	34
	33 to 35	12
Child Age	13-18 Months	45
	19-24 Months	44
	6-12 Months	56
	More than 24 Months	55
Education	Primary	9
	Secondary	19
	Higher Secondary	80
	Diploma / U.G.	83
	P.G. / Ph.D.	9
Occupation	Daily wages / Farmer / Maid	26
	Government Employee	7
	Health Care Employee	8

Monthly Income	Homemaker	136	68%
	Private Employee	23	11.5%
	<10000	19	9.5%
	10001-20000	102	51%
	20001-30000	43	21.5%
	>30000	36	18%

Concerning child age, 28% of the children were aged 6–12 months, followed by 27.5% aged more than 24 months. Children aged 13–18 months and 19–24 months accounted for 22.5% and 22%, respectively, reflecting a relatively uniform distribution across infancy and early toddlerhood. In terms of educational status, most mothers had completed Diploma or undergraduate education (41.5%), followed closely by those with higher secondary education (40%). A smaller proportion had secondary education (9.5%), while primary education and postgraduate/Ph.D. qualifications were reported by 4.5% each, suggesting that the study population was predominantly educated up to at least the higher secondary level. Regarding occupation, the majority of mothers were homemakers (68%). Those engaged in daily wages, farming, or domestic work constituted 13%, while private employment was reported by 11.5%. Employment in the healthcare sector (4%) and government services (3.5%) was comparatively low. With respect to monthly family income, over half of the respondents (51%) reported an income between ₹10,001 and ₹20,000. Approximately 21.5% had a monthly income of ₹20,001–₹30,000, and 18% reported earnings above ₹30,000, while 9.5% belonged to the lowest income category of less than ₹10,000.

Table 2 | Demographic findings of the participants.

Demographic Variables		f (N-200)	%
Religion	Hindu	155	77.5%
	Islam	32	16%
	Christian	2	1%
	Sikh	7	3.5%
	Others	4	2%
Family Type	Extended	42	21%
	Joint	114	57%
	Nuclear	44	22%
Primary Health Care Source	Government Health Facility (CHC / PHC / Sub-Centre)	64	32%
	Private Clinic or Hospital	125	62.5%
	Traditional Healer or Faith-Based Services	11	5.5%
Source of Health Care Related Information	Govt. Health Worker Like ASHA / ANM Nurse	72	36%
	Newspaper / Mass Media / Internet	14	7%
	Private Clinic	114	57%

Table 2 presents the remaining demographic characteristics of the participants. The distribution shows that most participants belonged to the Hindu religion (77.5%), followed by Muslim (16%), reflecting the socio-cultural composition of the study area. In terms of family structure, a majority of primi mothers resided in joint families (57%), while smaller proportions lived in nuclear (22%) or extended (21%) family settings, a factor that may influence maternal decision-making and access to child-care guidance. Regarding health service preferences, private clinics or hospitals (62.5%) were the most commonly utilized source of primary health care, whereas 32% of mothers reported using government health facilities. Similarly, private clinics (57%) and government health workers such as ASHA/ANM (36%) were the main sources of child health-related information. Minimal reliance on traditional or faith-based services (5.5%) suggests a predominant shift toward formal healthcare systems.

Assessment of awareness regarding pediatric home-based child health programs.

Table 3 illustrates the distribution of participants according to their level of awareness regarding pediatric home-based child health programs. A majority of primi mothers (59%) demonstrated good awareness, indicating a relatively strong understanding of program components and related child-care practices.

Table 3 | Frequency and Percentage Distribution of Participants by Level of Awareness

Level of Awareness	Frequency (N-200)	Percentage (%)
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Good Awareness	118	59%
Moderate Awareness	62	31%
Poor Awareness	20	10%
Total	200	100%

However, nearly one-third of the participants (31%) exhibited moderate awareness, suggesting partial knowledge with potential gaps in understanding specific aspects of the programs. A smaller yet notable proportion (10%) had poor awareness, reflecting limited exposure or insufficient comprehension of pediatric home-based child health services.

Association between awareness and selected demographic variables using Fisher’s Exact Test.

Table 4 presents the association between awareness of pediatric home-based child health programs and selected demographic variables among primi mothers using Fisher’s exact test. The analysis revealed a statistically significant association between awareness and maternal education level ($p = 0.018$), indicating that higher educational attainment was associated with better awareness of pediatric home-based child health programs. This finding suggests that education plays a critical role in mother’s ability to comprehend and retain program-related information

Table 4 | Association Between Awareness of Pediatric Home-Based Child Health Programs and Selected Demographic Variables Among Primi Mothers (Fisher’s Exact Test Results)

Demographic Variable	Fisher Exact Value	p-value	95% Confidence Interval	Inference
Mother’s Age	5.007	0.58	[.490, .670]	N.S.
Child’s Age	7.857	0.27	[.189, .351]	N.S.
Education Level	12.846	0.018	[.62, .84]	S.
Occupation	8.448	0.335	[.249, .421]	N.S.
Monthly Income	7.464	0.305	[.221, .389]	N.S.
Religion	8.622	0.315	[.230, .400]	N.S.
Family Type	6.305	0.19	[.119, .261]	N.S.
Primary Health Care Source	11.379	0.031	[.15, .29]	S
Source of Health Care Related Information	10.904	0.042	[.39, .61]	S

A significant association was also observed with the primary health care source ($p = 0.031$), highlighting that the type of health facility accessed by mothers influences their awareness levels. Similarly, the source of health care–related information demonstrated a statistically significant association with awareness ($p = 0.042$), underscoring the importance of information channels—such as health workers and health facilities—in shaping maternal awareness. In contrast, no statistically significant associations were found between awareness and mother’s age, child’s age, occupation, monthly income, religion, or family type ($p > 0.05$). These findings indicate that awareness of pediatric home-based child health programs among primi mothers is more strongly influenced by educational background and health information exposure than by other socio-demographic characteristics.

DISCUSSION

The present study examined awareness of pediatric home-based child health programs among primi mothers and identified factors influencing such awareness. Overall, 59% of mothers demonstrated good awareness, while 31% had moderate awareness and 10% exhibited poor awareness, indicating that although program awareness is generally satisfactory, it is not uniformly distributed. These findings suggest that a considerable proportion of primi mothers still lack comprehensive understanding of program components, despite ongoing implementation efforts. When compared with the findings reported by Das et

al., the present study reflects a comparatively higher level of overall awareness. Das et al. reported uneven knowledge across program elements, with 85% of mothers aware of exclusive breastfeeding, but only 40% knowledgeable about timely complementary feeding and 18% correctly identifying ORS preparation. In contrast, the higher proportion of mothers with good awareness in the present study (59%) may be attributed to improved access to education and health information in an urban setting. While both studies highlight gaps beyond commonly emphasized practices such as breastfeeding, the present study further demonstrates that awareness was significantly associated with maternal education ($p =$

0.018), primary source of health care ($p = 0.031$), and source of health-related information ($p = 0.042$), suggesting that information pathways play a decisive role in shaping maternal awareness 11.

The findings are also consistent with observations reported by Devi et al., who documented high exposure to Home-Based Newborn Care services, with over 87% of mothers receiving newborn care counseling and more than 90% accessing institutional health services. Their study reported high adherence to specific practices such as early initiation of breastfeeding (78%) and exclusive breastfeeding (88%), reflecting the impact of structured counseling and repeated health worker contact. In comparison, although the present study identified a higher proportion of mothers with good awareness (59%), a substantial 41% continued to demonstrate moderate to poor awareness, indicating that initial service contact alone may be insufficient to ensure comprehensive understanding of all program components 14.

Taken together, these findings indicate that while pediatric home-based child health programs have achieved encouraging reach and awareness, significant gaps persist in translating service exposure into uniform and comprehensive maternal understanding. The consistent influence of education and health-system-mediated information across studies underscores the need to strengthen counseling quality, reinforce key messages during repeated contacts, and tailor communication strategies to mother's educational backgrounds. Addressing these gaps may enhance maternal engagement and improve the overall effectiveness of pediatric home-based child health programs, particularly in rapidly urbanizing settings.

Limitations of the Study

This study has certain limitations that should be considered when interpreting the findings. The use of a non-probability purposive sampling technique may limit the representativeness of the sample, thereby restricting the generalizability of the results beyond the selected urban areas of Bhopal. Additionally, awareness was measured using a self-reported questionnaire, which may be subject to recall bias or social desirability bias, leading some participants to overestimate their level of awareness. As the study was conducted in an urban setting, the findings may not fully reflect awareness patterns among primi mothers in rural or tribal areas. Future studies employing probability sampling, longitudinal designs, and broader contextual variables are recommended to provide more comprehensive and generalizable evidence.

Recommendations

Based on the findings of the present study,

future research should adopt probability sampling techniques and include larger and more diverse populations to enhance generalizability. Longitudinal designs are recommended to examine changes in maternal awareness over time and to assess the sustained impact of home-based child health interventions. Given the significant association between awareness and maternal education and sources of health-related information, strengthening structured, repeated counseling during home visits and facility-based contacts is essential. Health education materials should be tailored to mother's educational levels and reinforced through multiple channels, including frontline health workers and health facilities. Additionally, expanding research to rural and semi-urban settings and incorporating qualitative methods may provide deeper insights into barriers affecting awareness and utilization of pediatric home-based child health programs.

Nursing Implications of the Study

The findings of this study highlight the important role of nurses in improving maternal awareness of pediatric home-based child health programs. Nurse-led education and counseling during home visits and facility-based care can address identified gaps in awareness, particularly among primi mothers. Integrating structured, consistent, and culturally appropriate health education into routine nursing practice may enhance mother's understanding of child health services, promote adherence to recommended practices, and strengthen the effectiveness of community-based child health programs. Additionally, incorporating these findings into nursing education and in-service training can better prepare nurses to support maternal and child health outcomes in community and clinical settings.

Conclusion

The present study concludes that awareness of pediatric home-based child health programs among primi mothers is generally satisfactory; however, meaningful gaps persist in achieving uniform and comprehensive understanding of program components. Awareness was influenced predominantly by maternal education and exposure to formal health-care and information sources, rather than by basic socio-demographic characteristics. These findings emphasize that access to education and effective health-system-mediated communication plays a central role in shaping maternal awareness. Strengthening the quality, consistency, and reinforcement of counseling through health workers and health-care facilities may enhance the effectiveness of pediatric home-based child health programs and support improved maternal engagement and child health outcomes, particularly in urban settings.

Relevance to Clinical Practice

This study underscores the importance of nurse-led and health worker-mediated education in improving maternal awareness of pediatric home-based child health programs. The significant association between awareness and maternal education and information sources indicates the need for systematic, repeated counseling during routine home visits and facility contacts. Incorporating standardized, tailored health education into maternal and child health services can enhance mother's understanding of program components, promote timely care-seeking, and strengthen the effectiveness of community-based child health interventions.

Conflict of interest:

None to declare

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