International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Maternal Health Literacy and Perception Patterns in Jhajjar, Haryana: Implications for Post-Pandemic Care

Dr. Sandeep Kumar[1], Dr. Dhirendra Kumar[2], Dr. Anju Bala[3]

[1]PhD Scholar, Department of Public Health, Indian Institute of Health Research Management
[2]Professor and Head of Department, Department of Public Health, Indian Institute of Health Management Research
[3]Conservative and Endodontics, PDM Dental College, Bahadurgarh

Abstract

Background: Adequate maternal knowledge and favorable perceptions are vital to safe motherhood and service utilization. The COVID-19 pandemic disrupted reproductive-health services, particularly in semi-urban and rural India. This study assessed women's knowledge and perceptions regarding maternal care during pregnancy in Jhajjar District, Haryana.

Methods: A cross-sectional, community-based survey was conducted among currently married women aged 15–49 who had been pregnant in the preceding five years. Multistage systematic random sampling selected 677 eligible respondents from six health blocks. A structured questionnaire captured knowledge (antenatal visits, IFA, danger signs, PNC, breastfeeding, hygiene) and perception indicators. Proportions with Wilson 95 % CIs were calculated, and one-sided exact binomial tests compared each proportion against 50 %.

Results: Overall, 97.4 % (95 % CI 95.9–98.4) received advice on any component of maternal care. Knowledge was universal for four-or-more ANC visits, delaying first bath ≥ 2 days, keeping the baby warm, and exclusive breastfeeding for 6 months (≈ 100 %). High knowledge was observed for iron-folic-acid supplementation (87.4 %) and awareness of high-risk symptoms (74.4 %). Moderate knowledge (≈ 74 %) was found for the need for postnatal check-ups and immediate breastfeeding. Only 28.2 % knew the importance of deworming. Doctors were the primary information source for danger signs and breastfeeding, whereas ASHAs and ANMs predominated for ANC and newborn-care topics.

Conclusions: While overall awareness of core maternal-care components was high, significant gaps remained—particularly in deworming, danger-sign recognition, and postnatal-care importance. Strengthened community education and multipronged behavior-change strategies are recommended to consolidate knowledge and shape positive perceptions of maternal care.

Keywords: Maternal care, Knowledge, Perception, Antenatal care, Jhajjar District, Haryana, COVID-19, India

Introduction

Maternal health is a cornerstone of public health and a key determinant of population wellbeing. Globally, the World Health Organization (2020) identified disruption of essential maternal and newborn services as

one of the most pressing indirect impacts of the COVID-19 pandemic [3]. In India, maternal-mortality reduction has been a long-standing policy goal, achieved through successive programmes such as the Child Survival and Safe Motherhood Programme (1992), Reproductive and Child Health Programme (1997) and Janani Suraksha Yojana (2005) [Visaria et al., 1999]. Despite such efforts, knowledge and perceptions of maternal care remain uneven, shaped by social position, education, and healthcare accessibility.

Jhajjar District in Haryana typifies the semi-urban context where maternal-care utilisation is affected by both infrastructure and sociocultural determinants. Research shows that during health crises, women's decision-making autonomy and perceptions toward institutional care often change [Ameyaw et al., 2021]. Understanding women's knowledge and perceptions in this district is thus essential to inform tailored interventions post-pandemic.

Maternal-care knowledge includes awareness of antenatal check-ups, balanced diet, IFA supplementation, tetanus toxoid vaccination, recognition of obstetric danger signs, institutional delivery, and postnatal care. Perception encompasses women's attitudes and beliefs about the necessity, safety, and accessibility of these services. Previous studies across India have reported variable knowledge levels—moderate awareness of ANC components but poor knowledge of government schemes and danger signs [Somu & Narmatha, 2019; Matwaya et al., 2021].

During the COVID-19 lockdowns, fear of infection and service interruptions hindered access to care [Sharma et al., 2023]. These circumstances may have altered community perceptions and trust in formal health systems. This paper, focusing on the first objective of the broader PhD study, assesses women's knowledge and perceptions regarding maternal care during pregnancy in Jhajjar District. Findings provide evidence to guide local maternal-health promotion strategies.

Aim and Objectives

Aim: To assess the knowledge and perceptions of maternal care during pregnancy among women in Jhajjar District, Haryana.

Objectives:

1. To measure women's knowledge of maternal-care practices during pregnancy.
2. To examine women's perceptions and attitudes toward maternal care.
3. To identify socio-demographic correlates of knowledge and perception.

Review of Literature

Empirical research has highlighted wide disparities in women's knowledge of maternal care across India. Behal et al. (2018) in Himachal Pradesh reported mean knowledge scores of 68 % for pregnancy, childbirth, and postpartum care but lower understanding of newborn care [5]. Somu and Narmatha (2019) found that while 82.9 % of prim gravida mothers knew about IFA supplementation, only 12.5 % were aware of the Janani Suraksha Yojana (2). These findings suggest knowledge gaps regarding programme entitlements.

In Haryana, Matwaya et al. (2021) observed that over half of antenatal mothers had poor awareness of birth preparedness and complication readiness, with education and proximity to facilities as key determinants (3). Similarly, Gupta et al. (2023) identified inadequate recognition of neonatal danger signs in rural Gujarat—only 18 % could identify chest in-drawing—revealing that crucial knowledge often remains superficial (6). Kumari and Kumar (2025) noted that awareness of preconception care was as low as 9 % in some Bihar districts (7).

Perception studies reveal that cultural beliefs, family norms, and interactions with health providers profoundly shape maternal-care behaviors [Uberoi 1996; Ram 1998]. Favorable perceptions are linked to improved utilization of services and adherence to recommended ANC visits. During the COVID-19 pandemic, Sharma et al. (2023) documented nationwide challenges in accessing maternal services, including fear of contracting the virus, mobility restrictions, and mistrust in facilities (8). Such shifts underline the need to reassess women's perceptions in post-pandemic contexts.

Collectively, the literature shows that while awareness of core ANC practices has improved, persistent deficits in holistic maternal-health knowledge and perception continue to impede full service utilization. The current study adds evidence from Jhajjar District—an area with mixed rural-urban composition—to fill this research gap.

Methodology

Study design and setting: A cross-sectional community-based study was conducted in Jhajjar District, Haryana. The district has six health blocks, twenty-two PHCs, and six CHCs.

Sampling: Two-stage multistage systematic random sampling was applied. Three health blocks (low, medium, high institutional-delivery performance) were selected. From each, two PHCs and four PSUs (villages or urban enumeration blocks) were chosen randomly. Household listing identified eligible women—currently married, aged 15–49, pregnant within the last five years. From each PSU, 25 households were selected; one eligible woman per household was interviewed. The final analytic sample for Objective 1 comprised **677 respondents** from 695 households.

Data collection: A pre-tested structured questionnaire gathered information on socio-demographic variables, maternal-care knowledge (nine items A–I), perception statements, and sources of information. Data were collected by trained nursing students under the researcher's supervision.

Data analysis: Proportions answering "Yes" were estimated with Wilson 95 % CIs. One-sided exact binomial tests evaluated whether each knowledge proportion exceeded 50 %. Provider distributions were summarized as percentages. Analyses were performed using SPSS v26.

Ethical considerations: Ethical approval was granted by the SIGMA Institute, New Delhi (Ref No. **10044/IRB/24-25**); informed consent was obtained.

Results

Participant characteristics

A total of 695 households were surveyed, resulting in a final analytic sample of 677 women for this objective, yielding a response rate of 97.4%. The socio-demographic profile of the respondents is as follows: The vast majority (97.1%) resided in rural areas, with the remainder in urban settings (2.9%). The sample was predominantly Hindu (98.4%), with a small Muslim representation (1.6%). In terms of caste composition, 62.7% belonged to the General Caste, 23.2% to the Scheduled Caste, and 14.1% to the Other Backward Class.

Household size varied, with the most common being four members (45.3%), followed by five members (22.9%) and three members (28.3%). The majority of houses were classified as pucca (78.1%), and most households (80.7%) reported that all family members used the toilet facility. Essential utilities were widely available; nearly all households (99.9%) used electricity for lighting, and all households used LPG/natural gas as their primary cooking fuel. Ownership of key assets was high, including mobile phones (99.9%), motorcycles/scooters (98.8%), and televisions (99.9%). A significant proportion of families owned

agricultural land (80.0%), and all households reported that at least one member had a bank or post office account.

Regarding the eligible women, their ages ranged from 20 to 40 years, with a mean age of 32.0 years (SD ±3.55). All respondents were currently married. The mean age at first marriage was 26.7 years (SD ±2.14). In the context of fertility, nearly all women (99.9%) had experienced a pregnancy in the last five years, with 24.7% being pregnant at the time of the survey.

Knowledge indicators

Table 1. Knowledge of maternal-care components (n = 677)

Indicator	Yes n (%)	95 % CI	p (one-sided > 0.50)
A. ≥ 4 ANC check-ups	677 (100.0)	99.4–100.0	1.6×10^{-204}
B. Importance of IFA	592 (87.4)	84.7–89.7	1.1×10^{-94}
C. Importance of deworming	191 (28.2)	25.0–31.7	1.00
D. Awareness of high-risk symptoms	504 (74.4)	71.0–77.6	1.1×10^{-38}
E. Need for postnatal check-ups	505 (74.6)	71.2–77.7	3.7×10^{-39}
F. Immediate breastfeeding	505 (74.6)	71.2–77.7	3.7×10^{-39}
G. Delay first bath ≥ 2 days	677 (100.0)	99.4–100.0	1.6×10^{-204}
H. Keep baby warm (KMC/STS)	677 (100.0)	99.4–100.0	1.6×10^{-204}
I. Exclusive breastfeeding 6 months	677 (100.0)	99.4–100.0	1.6×10^{-204}

Overall advice coverage was 97.4 % (95 % CI 95.9–98.4). Knowledge was universal (≈ 100 %) for four indicators (A, G, H, I) and high for two (B and D). Only deworming knowledge (C) remained below 50 %.

Sources of advice

Table 2. Primary advisors for key topics (percent of valid responses)

Topic	ASHA %	ANM/MPHW %	Doctor %	Staff nurse %	Elders/friends %
ANC ≥ 4 visits	53.6	52.0	43.9	12.6	25.4
IFA importance	47.0	24.0	72.0	0.0	14.7
Deworming	100.0	16.2	0.0	0.0	0.0
High-risk symptoms	10.9	6.3	93.8	19.8	0
Postnatal care	37.6	48.5	51.3	0	6.1

(Figure 1 — Proportion "Yes" with 95 % CI; Figure 2 — Advisor composition stacked chart — to be inserted)

Perception summary

Qualitative responses showed that most women considered institutional delivery safe and ANC essential; however, several expressed that postnatal visits were "only needed if problems arise." Perceived barriers included distance to facilities and cost of travel.

Discussion

This study demonstrates very high general awareness of core maternal-care practices among women in Jhajjar District but highlights critical gaps in specific domains such as deworming and recognition of obstetric danger signs. These findings align with prior studies from other Indian states (Somu & Narmatha

2019; Behal et al. 2018) showing high knowledge of ANC but poor understanding of supplementary practices and government schemes.

The extremely high awareness of ANC visits and exclusive breastfeeding likely reflects decades of community-based campaigns through ASHAs and Anganwadi workers. However, the low awareness of deworming underscores the incomplete diffusion of less-promoted messages. Doctors and nurses dominated advice provision for clinical topics, while ASHAs and ANMs played vital roles in basic and newborn-care guidance—consistent with the design of India's health-system hierarchy.

Educational attainment and media exposure, although analyzed here quantitatively, are known predictors of knowledge [Kumari & Kumar 2025]. The educational profile of the women surveyed was notably high. The data reveals that the vast majority of respondents had attained secondary education or higher. Specifically, nearly half (48.5%) of the women were graduates, and a significant proportion (46.8%) held a postgraduate degree. Only a very small fraction of the sample was illiterate (0.6%). This indicates a highly educated cohort of women in the study area.

Media Exposure and Technology Access

Exposure to media and access to information and communication technology (ICT) were widespread among the respondents.

Mobile Phone Access: Almost all women (99.3%) reported having a mobile phone that was exclusively for their use. Among those with phone access, the overwhelming majority (99.6%) used a smartphone.

Internet Access: A high proportion of women (99.0%) reported accessing the internet almost every day. Furthermore, 95.4% of households had an internet connection.

Television Viewing: Television was a common media source, with over a third of women (36.5%) watching it almost every day, and another 26.9% watching at least once a week.

SMS Literacy: Nearly all women with mobile phones (99.6%) were able to read and send SMS messages.

Newspaper Readership: In contrast to electronic media, newspaper readership was lower. More than half of the women (54.7%) did not read a newspaper at all. Only 29.5% read a newspaper almost every day.

Radio Listenership: Radio was the least consumed media form, with 93.8% of women reporting not listening to the radio at all.

Rural–urban differences reported in earlier Haryana studies (Matwaya et al. 2021) likely persist in Jhajjar. Perception data further reveal that while women recognize the importance of ANC, some undervalue postnatal follow-up—an attitude requiring targeted communication.

The COVID-19 pandemic may have indirectly reinforced the importance of preventive care yet also fostered hesitation toward facility visits [Sharma et al. 2023]. Hence, community-level confidence-building and health-literacy reinforcement are critical. Integrating awareness of deworming and danger-signs into ongoing maternal-health campaigns can close residual gaps.

Programmatic implications: Health-education interventions must go beyond information dissemination to address cultural perceptions and structural barriers. Behavior-change communication using peer groups, mobile messaging, and local media can strengthen both knowledge and perception. Continuous training of ASHAs and ANMs on holistic maternal care—including less-emphasized topics—is recommended.

Limitations: Cross-sectional design precludes causality; responses were self-reported and may involve recall or social-desirability bias. Nevertheless, the large sample and rigorous random sampling enhance representativeness.

Conclusion

Women in Jhajjar District possess strong foundational knowledge of maternal care, yet specific information gaps and mixed perceptions persist. Sustained efforts are required to deepen understanding of comprehensive maternal-care practices, especially deworming, postnatal-care significance, and recognition of danger signs. Strengthening community outreach, ensuring continuous training of health workers, and promoting positive maternal-health perceptions will support improved service utilization and contribute to better pregnancy outcomes in Haryana.

References

1. Ameyaw, E. K., Ahinkorah, B. O., Seidu, A. A., et al. (2021). Impact of COVID-19 on maternal healthcare in Africa and the way forward. *Archives of Public Health, 79*(223), 1–9. https://doi.org/10.1186/s13690-021-00746-6
2. Barbara Chmielewska, I., Barratt, I., Townsend, R., et al. (2021). Effects of the COVID-19 pandemic on maternal and perinatal outcomes: A systematic review and meta-analysis. *The Lancet Global Health, 9*(6), e759–e772. https://doi.org/10.1016/S2214-109X(21)00079-6
3. Behal, M., Vinayak, R., & Kumar, A. (2018). Assessment of mothers' knowledge toward pregnancy, childbirth, postpartum, and newborn care in Solan, Himachal Pradesh. *International Journal of Community Medicine and Public Health, 5*(5), 1981–1987. https://doi.org/10.18203/2394-6040.ijcmph20181736
4. Downe, S., Finlayson, K., Walsh, D., & Lavender, T. (2009). "Weighing up and balancing out": A meta-synthesis of barriers to antenatal care for marginalised women in high-income countries. *BJOG: An International Journal of Obstetrics and Gynaecology, 116*(4), 518–529. https://doi.org/10.1111/j.1471-0528.2008.02067.x
5. Floris, L., Irion, O., Bonnet, J., Mercier, M.-P. P., & De Labrusse, C. (2018). Comprehensive maternity support and shared care in Switzerland: Comparison of satisfaction levels. *Women and Birth, 31*(2), 124–133. https://doi.org/10.1016/j.wombi.2017.06.010
6. Gupta, T., Joshi, A., & Patel, R. (2023). Identifying gaps in maternal knowledge and care-seeking for neonatal health: A mixed-methods study in rural Gujarat, India. *BMC Pregnancy and Childbirth, 23*(1), 254. https://doi.org/10.1186/s12884-023-05672-9
7. Jordan, B. (1993). *Birth in four cultures: A cross-cultural investigation of childbirth*. Waveland Press.
8. Kassie, A., Wale, A., & Yismaw, W. (2021). Impact of COVID-19 on utilization and outcome of reproductive, maternal, and newborn health services at governmental facilities in Southwest Ethiopia. *International Journal of Women's Health, 13*, 479–488. https://doi.org/10.2147/IJWH.S302197
9. Kumari, R., & Kumar, R. K. (2025). Awareness of preconception care among married women in West Champaran and Banka districts of Bihar. *International Journal of Community Medicine and Public Health, 12*(2), 441–447. https://doi.org/10.18203/2394-6040.ijcmph20253060
10. Matwaya, S., Malik, K., Kumari, S., Jain, S., & Rohilla, K. (2021). Perceptions among antenatal mothers for birth preparedness and complication readiness in Rohtak, Haryana. *National Journal of Community Medicine, 12*(5), 187–193.
11. Perriman, N., Davis, D. L., & Ferguson, S. (2018). What women value in midwifery continuity of care: A systematic review with meta-synthesis. *Midwifery, 62*, 220–229. https://doi.org/10.1016/j.midw.2018.04.011

12. Sawyer, A., Ayers, S., Abbott, J., Gyte, G., Rabe, H., & Duley, L. (2013). Measures of satisfaction with care during labour and birth: A comparative review. *BMC Pregnancy and Childbirth, 13*, 108. https://doi.org/10.1186/1471-2393-13-108
13. Shapira, G., Ahmed, T., & Rahman, A. E. (2021). Disruptions in maternal and child health service utilization during COVID-19: Analysis from eight sub-Saharan African countries. *Health Policy and Planning, 36*(7), 1140–1151. https://doi.org/10.1093/heapol/czab058
14. Sharma, S., Aggarwal, S., Kulkarni, R., et al. (2023). Challenges in accessing and delivering maternal and child health services during the COVID-19 pandemic: A cross-sectional rapid survey from six states of India. *International Journal of Environmental Research and Public Health, 20*(1), 3984. https://doi.org/10.3390/ijerph20053984
15. Shrivastava, S., Rai, S., & Sivakami, M. (2021). Challenges for pregnant women seeking institutional care during the COVID-19 lockdown in India: A content analysis of online news reports. *Indian Journal of Medical Ethics, VI*(3), 1–24. https://doi.org/10.20529/IJME.2021.004
16. Singh, A. K., Jain, P. K., Singh, N. P., Kumar, S., Bajpai, P. K., Singh, S., & Jha, M. (2021). Impact of the COVID-19 pandemic on maternal and child health services in Uttar Pradesh, India. *Journal of Family Medicine and Primary Care, 10*(1), 509–513. https://doi.org/10.4103/jfmpc.jfmpc_1550_20
17. Somu, P., & Narmatha, D. (2019). Perception about antenatal care among primigravida attending a tertiary care hospital in Chennai. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 8*(12), 4805–4810. https://doi.org/10.18203/2320-1770.ijrcog.20195624
18. Van Hollen, C. (2003). *Birth on the threshold: Childbirth and modernity in South India*. University of California Press.
19. Visaria, L., et al. (1999). Reproductive and Child Health Programme in India: Current status and issues. *Economic and Political Weekly, 34*(22), 1356–1367.
20. World Health Organization. (2020). *Pulse survey on continuity of essential health services during the COVID-19 pandemic: Interim report*. WHO. https://iris.who.int/handle/10665/334048