

Original Research Article

KNOWLEDGE AND PERFORMANCE AMONG ASHA WORKERS IN DELIVERING MATERNAL AND CHILD HEALTH SERVICES : A CROSS-SECTIONAL STUDY FROM BANDA DISTRICT, OF BUNDELKHAND REGION, (U.P.), INDIA

Surendra Kumar¹, Mohd. Maroof², Lal Divaker Singh³, Shailendra Singh Chaudhary⁴, Suneel Kumar Kaushal⁵, Tarnnum⁶

¹3rd year PG Junior Resident, Department of Community Medicine, Rani Durgavati Medical College, Banda, Uttar Pradesh, India.

²Assistant Professor, Department of Community Medicine, Rani Durgavati Medical College, Banda, Uttar Pradesh, India.

³Assistant Professor, Department of Community Medicine, Rani Durgavati Medical College, Banda, Uttar Pradesh, India.

⁴Professor & Head, Department of Community Medicine, Rani Durgavati Medical College, Banda, Uttar Pradesh, India.

⁵Professor, Department of Community Medicine, Rani Durgavati Medical College, Banda, Uttar Pradesh, India.

⁶Assistant Professor, Department of Community Medicine, Rani Durgavati Medical College, Banda, Uttar Pradesh, India.

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Corresponding Author:

Dr. Surendra Kumar,
3rd year PG Junior Resident,
Department of Community Medicine,
Rani Durgavati Medical College,
Banda, Uttar Pradesh, India.
Email:
dr.kumarsurendra90@gmail.com

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ABSTRACT

Background: Accredited Social Health Activists (ASHAs) are key frontline workers under the National Health Mission (NHM), playing a crucial role in improving maternal and child health (MCH) outcomes in rural India. **Aim & Objectives:** To determine the socio-demographic profile of the beneficiaries and to evaluate the knowledge and performance of ASHA workers in delivering maternal and child health services. **Materials and Methods:** A community-based cross-sectional study was conducted in Banda district, Uttar Pradesh (March 2024–September 2025). A total of 40 ASHA workers and 400 beneficiaries were selected using multistage random sampling. Data were collected using a semi-structured questionnaire and analyzed using descriptive statistics. **Results:** Among ASHA workers, 95% were aware of antenatal check-ups, with 89.47% correctly reporting four visits, while 92.5% knew the correct timing of the first ANC visit. Knowledge of IFA supplementation was 90%, but awareness of danger signs during pregnancy was lower (70%). Regarding postnatal care, 92.5% were aware of recommended visits, while knowledge of postnatal danger signs was 72.5%. Overall, ASHAs demonstrated good knowledge, with gaps in identifying critical danger signs and specific care components. **Conclusion:** ASHA workers demonstrated overall satisfactory knowledge and performance in maternal and child health services; however, notable gaps were observed in the identification of danger signs. Strengthening targeted training and supportive supervision is essential to enhance service quality and improve health outcomes. **Keywords:** ASHA workers, Maternal and Child Health, ANC, PNC, Rural Health.

INTRODUCTION

Mothers and children's health is a key indicator of a nation's socio-economic development. Accredited Social Health Activists (ASHAs), as frontline health workers, play a vital role in improving Maternal and Child Health (MCH) indicators by providing maternal care, newborn care, child health services,

and nutrition support at the community level.^[1] Under the National Rural Health Mission (NRHM), launched in 2005, ASHAs also mobilize communities and facilitate access to essential health services, particularly among vulnerable populations.^[2] Globally, the Sustainable Development Goals (SDGs) aim to reduce the maternal mortality ratio (MMR) to below 70 per

100,000 live births and eliminate preventable neonatal and under-five deaths by 2030.^[3] Despite progress, India contributes significantly to global maternal and child mortality, accounting for 19% of maternal deaths and 21% of child deaths.^[4] The MMR in India was 97 per 100,000 live births (2018–2020), while Uttar Pradesh reported a higher rate of 167.^[5] Similarly, the Infant Mortality Rate (IMR) was 30 per 1,000 live births nationally and 41 in Uttar Pradesh.^[6] Although the Millennium Development Goal (MDG) of reducing maternal deaths by two-thirds was not entirely met, India made strides in that direction. Additionally, there were significant state-to-state variations in progress, indicating that certain areas continue to have more difficulties in enhancing health outcomes.^[7] Persistent regional disparities highlight the need for strengthening ASHA performance, especially in rural areas like Banda district.

Aim & Objectives

- To determine the socio-demographic profile of the beneficiaries and to evaluate the knowledge and performance of ASHA workers in delivering maternal and child health services.

MATERIALS AND METHODS

Study design: Community-based cross-sectional study

Study area: Banda district, Uttar Pradesh

Study duration: March 2024 – September 2025

Study subjects:

- ASHA workers.
- Beneficiaries (mother having child up to 1 years of age) who availed services from the ASHA of their village.

Type of Intervention: Nil

Sample Size: Sample size calculation was done by using the formula:

$$N = (Z\alpha/2)^2 PQ/L^2$$

Here, **N** represents the sample size, **Zα/2** was taken as 1.96 at a 95% confidence level, **P** represents the prevalence of antenatal care (ANC) visits facilitated by ASHA workers, which was 54.2% as shown in Ahmad et al,^[8] and **Q** was calculated as 100–P=45.8%. The allowable error (**L**) was considered as 5% (absolute precision). Substituting these values into the formula, the calculated minimum sample size was 381.29. The sample size was rounded off, and a total of **400** participants were included in the present study.

Inclusion & Exclusion Criteria: ASHA workers who were willing to participate were included, while those with less than six months of work experience or who did not provide informed consent were excluded. Beneficiaries residing in the study area and within ≤12 months postpartum at the time of data collection were included. Beneficiaries who were severely ill, had diagnosed mental disorders, or did not provide informed consent were excluded from the study.

Methodology A community-based cross-sectional study was conducted using a multistage random sampling technique in Banda district. In the first stage, one block, Badokhar Khurd, was selected out of eight blocks using the lottery method. In the second stage, 40 villages were randomly selected from a total of 72 villages within the block. In the third stage, one ASHA worker from each selected village was chosen through simple random sampling; if multiple ASHAs were present, then lottery method was applied, resulting in 40 ASHA workers. A total of 400 beneficiaries were included, with equal distribution of 10 beneficiaries per village, selected randomly from ASHA beneficiary lists. Permission was obtained from the Medical Officer In-Charge.

Data collection: Data collection was conducted through home visits of beneficiaries with ASHA workers. Face-to-face interviews were carried out with ASHA workers and Beneficiaries using a predesigned, pretested semi-structured questionnaire. The study tool included sociodemographic details and assessment of ASHA knowledge. Data were compiled and analyzed using Microsoft Excel with appropriate statistical methods.

Ethical approval & Informed consent: Before interview, written informed consent was obtained from all participants. Ethical approval was taken from the institutional ethics committee at Rani Durgavati Medical college, Banda (IEC/RDMC/Cert/17).

RESULTS

Out of 400 beneficiaries, the majority were aged 21–30 years (62.75%). Most participants were Hindu (92.00%), Nearly half belonged to the OBC category (48.25%), followed by SC/ST (39.75%). A higher proportion of beneficiaries lived in joint families (68.00%). The majority mother were unemployed, accounting for 330 (82.50%). The majority belonged to the lower middle socio-economic class, accounting for 252 (63.00%). The father-in-law 262 (65.50%) reported as the primary decision-maker in the family. [Table 1]

The findings revealed Awareness regarding the timing of the first ANC visit was 92.5%, with only 54.05% correctly stating it should occur before 8 weeks. Knowledge of essential components of the first ANC visit was observed in 85%, although only 32.35% could mention at least three components. Early registration of pregnancy was recognized by 92.5%, with 83.78% linking it to better maternal health and safe delivery. Knowledge of IFA supplementation was reported by 90%, with 80.56% correctly stating the recommended dosage. Awareness of danger signs was comparatively lower at 70%. Knowledge regarding appropriate weight gain during Pregnancy was seen in 77.5%. [Table 2 & 2(A)]

The findings revealed A majority (95%) conducted home visits, with 84.21% reporting seven visits and 15.79% reporting six visits. Knowledge of maternal postnatal care components was observed in 82.5% of workers; fewer mentioned breastfeeding (60.61%) and screening for complications (39.39%), with only 60.61% able to identify at least three components. Awareness of newborn assessment was present in 90%, with all (100%) checking temperature and weight, but fewer assessing

dehydration (33.3%) and jaundice (27.7%); 61.11% could identify at least three parameters. Knowledge of postnatal danger signs was reported by 72.5%, with all identifying fever and Vaginal bleeding (100%), while 79.31% recognized abdominal pain; however, only 79.31% could mention at least three danger signs. Overall, ASHA workers demonstrated good knowledge of postnatal care, with gaps in danger sign recognition and detailed newborn assessment. [Table 3 & 3(A)]

Table 1: Sociodemographic Characteristics of Beneficiaries (N = 400)

Demographics	Number (400)	Percentage (100)
AGE (in years)		
<21	3	0.75%
21 - 30	251	62.75%
31 - 40	146	36.50%
Religion		
Hindu	368	92.00%
Muslim	32	8.00%
Caste		
Unreserved	48	12.00%
OBC	193	48.25%
SC/ST	159	39.75%
Type of Family		
Nuclear	128	32.00%
Joint	272	68.00%
Beneficiaries education		
Illiterate	48	12.00%
Primary School	107	26.75%
Middle School	89	22.25%
High School	87	21.75%
Intermediate/Diploma	64	16.00%
Graduate	3	0.75%
Professional Degree/Postgraduate	2	0.50%
Socio-economic class		
Upper	3	0.75%
Upper Middle	9	2.25%
Middle	107	26.75%
Lower Middle	252	63.00%
Lower	29	7.25%
Decision-Maker		
Self	00	0.00%
Husband	128	32.00%
Mother-in-law	10	2.50%
Father-in-law	262	65.50%

Table 2: Knowledge Assessment of ASHA Workers on Antenatal Care Services: (N=40)

Component	Number (ASHA) (40)	Percentage (100)
1. Do you know about antenatal checkups. if yes then how many visit ?		
No	2	5.00%
Yes	38	95.00%
2. Do you know when the first ANC check-up should be done. if yes then specify visit in week or month?		
No	3	7.50%
Yes	37	92.50%
3. Aware of the essential components in first ANC visit? If yes, then name at least three components.		
No	6	15.00%
Yes	34	85.00%
4. Know Importance of early registration of pregnancy. If yes then why is early registration important?		
No	3	7.50%
Yes	37	92.50%
5. vaccines are to be given during pregnancy, If yes then name them ?		
No	0	0.00%
Yes	40	100.00%
6. Know about IFA (Iron and Folic Acid) tablets a pregnant woman If yes, then how many ?		
No	4	10.00%
Yes	36	90.00%
7. Do you Know about Danger signs during pregnancy? If yes, then mention any three danger signs.		

No	12	30.00%
Yes	28	70.00%
8. Do you encourage to attend Village Health and Nutrition Days (VHND).		
No	2	5.00%
Yes	38	95.00%
9. Do you know weight gain during a normal pregnancy. If yes, then what is the recommended range?		
No	9	22.50%
Yes	31	77.50%
10. Keep records of ANC visits.		
No	0	0.00%
Yes	40	100.00%

Table 2(A): Responses of ASHA Workers on Antenatal Care Services

Responses	Number	Percentage
1. Do you know about antenatal checkups. if yes then how many visit ?		
Yes	38	95.00%
3 Visit	4	10.53%
4 Visit	34	89.47%
2. Do you know when the first ANC check-up should be done. if yes then specify visit in week or month?		
Yes	37	92.50%
Before 8 week	20	54.05%
8 to 12 week	6	16.22%
12 week	11	29.73%
3. Aware of the essential components in first ANC visit. If yes, then name at least three components.		
Yes	34	85.00%
Blood Pressure	34	100%
Anemia	34	100%
Abdominal examination	11	32.3 %
Any 2 component	23	67.65%
Any 3 component	11	32.35%
4. Know Importance of early registration of pregnancy. If yes then why is early registration important?		
Yes	37	92.50%
safe Delivery	6	16.22%
good health and safe Delivery	31	83.78%
5. vaccines are to be given during pregnancy, If yes then name them ?		
Yes	40	100.00%
Td-1, Td-2,	3	7.50%
Td-1, Td-2, Booster Td	37	92.50%
6. Know about IFA (Iron and Folic Acid) tablets a pregnant woman If yes, then how many ?		
Yes	36	90.00%
180 tablet, 180 days	29	80.56%
360 tablet, 360 days	7	19.44%
7. Know about Danger signs during pregnancy? If yes, then mention any three danger signs.		
Yes	28	70.00%
Headache and visual changes	28	100%
Swelling in Face and leg	25	89.2%
Persistent Vomiting	15	53.57%
Vaginal bleeding	6	21.4%
Any 2 danger sign	11	39.38%
Any 3 danger sign	17	60.72%
9. Do you know weight gain during a normal pregnancy. If yes, then what is the recommended range?		
Yes	31	77.50%
9 kg	4	12.50%
10 kg	23	71.88%
10-12 kg	5	15.63%

Table 3: Knowledge Assessment of ASHA Workers on Postnatal Care Services: (N=40)

Component	Number (40)	Percentage (100)
1. Do you know how many Postnatal checkups recommended for a mother. If yes, then how many times?		
No	3	7.50%
Yes	37	92.50%
2. Visit the mother and newborn at home. If yes, then how many visits?		
No	2	5.00%
Yes	38	95.00%
3. Know the Key components of a postnatal check-up for the mother. If yes, then mention at least three components ?		
No	7	17.50
Yes	33	82.50
4. Do you Assess the newborn baby. If yes, then what do you check ?		
No	4	10.00%
Yes	36	90.00%
5. Educate mothers about exclusive breastfeeding.		

No	3	7.50%
Yes	37	92.50%
6. Do you know danger signs in the postnatal period? If yes, then mention any three danger signs.		
No	11	27.50
Yes	29	72.50
7. Do you provide counseling on Family planning. If yes, then what methods do you explain?		
No	2	5.00%
Yes	38	95.00%
8. Ensure newborns immunizations.		
No	3	7.50%
Yes	37	92.50%
9. Advise mothers about proper nutrition. If yes, then what kind of dietary advice do you give?		
No	1	2.50
Yes	39	97.50
10. Records of your postnatal visits. If yes, then what kind of register ?		
No	0	0.00%
Yes	40	100.00%

Table 3(A): Responses of ASHA Workers on Postnatal Care Services

Responses	Number	Percentage
1. Do you know how many Postnatal checkups recommended for a mother. If yes, then how many times?		
Yes	37	92.50%
3 times	4	10.81%
4 times	33	89.19%
2. Visit the mother and newborn at home. If yes, then how many visits?		
Yes	38	95.00%
6 Visit	6	15.79%
7 Visit	32	84.21%
3. Know the Key components of a postnatal check-up for the mother. If yes, then mention at least three components ?		
Yes	33	82.50
Vital signs	33	100.00%
screening complications	13	39.39%
breastfeeding	20	60.61%
Any one 2 component	13	39.39%
Any one 3 component	20	60.61%
4. Do you Assess the newborn baby. If yes, then what do you check ?		
Yes	36	90.00%
Temperature	36	100.00%
Weight	36	100.00%
dehydration	12	33.3%
jaundice	10	27.7%
Any one 2 sign	14	38.89%
Any one 3 sign	22	61.11%
6. Do you know danger signs in the postnatal period? If yes, then mention any three danger signs.		
Yes	29	72.50
High fever	29	100.00%
Vaginal bleeding	29	100.00%
Severe abdominal pain	23	79.31%
Any 2 danger signs	6	20.69%
Any 3 danger signs	23	79.31%
7. Do you provide counseling on Family planning. If yes, then what methods do you explain?		
Yes	38	95.00%
Condom	38	100.00%
Cu-T	38	100.00%
Mala-N	38	100.00%
Antara	6	15.78%
Permanent method	28	73.68%
Any one 3 method	4	10.53%
Any one 4 method	6	15.79%
Any one 5 method	28	73.68%

DISCUSSION

In the present study, the majority of beneficiaries belonged to the 21–30 years age group (62.75%). Similar findings have been reported in several Indian studies. Mahajan and Kaur (2021),^[9] reported that 84.3% of mothers were aged 20–30 years, while Pandey et al. (2019),^[10] observed that a majority of mothers were in the 20–29 years age group.

Likewise, Upadhyaya et al. (2016),^[11] found that 64.14% of mothers were aged between 15–24 years, with a mean age of about 23.7 years. With respect to religion, the majority of beneficiaries in the present study were Hindu (92%), while 8% were Muslim. Similar patterns have been reported in other regional studies. For instance, Singh et al. (2019),^[12] in rural Uttar Pradesh reported that the majority of participants belonged to the Hindu religion,

reflecting the dominant population structure of the region. In terms of family structure, the present study revealed that 68% of beneficiaries belonged to joint families, while 32% belonged to nuclear families. Similar findings were reported by Grover et al. (2019),^[13] where 83.3% of mothers lived in joint families, and Mahajan and Kaur (2021),^[9] also reported a higher proportion of women residing in extended family households. Upadhyaya et al. (2016),^[11] reported that most mothers had secondary-level education, with a relatively small proportion having higher education. Likewise, Selvaraj et al. (2021),^[14] observed that the majority of postnatal mothers had completed secondary or middle-level schooling, while only a limited number had attained higher education. In the present study, 65.5% of families reported the father-in-law as the primary decision-maker. Similar observations were reported by Grover et al. (2019),^[13] and Mahajan and Kaur (2021),^[9] where household decisions were mainly taken by elder family members. In the present study, the majority of beneficiaries belonged to the lower middle socio-economic class (63%), followed by the middle class (26.75%). Similar findings were reported by Pandey et al. (2019),^[10] and Upadhyaya et al. (2016),^[11] where a large proportion of mothers were from middle or lower socio-economic backgrounds.

In the present study, About 95% were aware of the recommended number of ANC check-ups, and among them 89.47% correctly mentioned four visits, which is consistent with findings of Saxena et al. (2017),^[15] where around 85–90% of ASHAs had correct knowledge of ANC visits. Awareness regarding the timing of the first ANC visit was 92.5%, similar to the study by Kaur et al. (2022),^[16] where about 88% of ASHAs knew the appropriate timing of the first ANC check-up. Knowledge of essential components of ANC visits was reported by 85% of ASHAs in the present study, which is comparable to Sharma et al. (2022),^[17] who reported 82% awareness of ANC examination components. In addition, 90% of ASHAs knew about iron and folic acid supplementation, which is comparable to Pandit et al. (2016),^[18] who reported about 87% awareness of IFA supplementation during pregnancy. Awareness regarding early registration of pregnancy was 92.5%, which is also similar to findings reported by Grover et al. (2017),^[13] where around 90% of ASHAs encouraged early registration. However, knowledge regarding danger signs during pregnancy was comparatively lower (70%) in the present study. This finding is similar to Kaur et al. (2022),^[16] where only around 65% of ASHA workers were aware of maternal danger signs, indicating that identification of complications remains a weaker area.

In the present study, 89.19% correctly mentioned four recommended postnatal visits, which is comparable to the findings of Grover et al. (2019),^[13] where around 88% of ASHAs had knowledge of recommended PNC visits. Similarly,

95% of ASHA workers reported conducting home visits to mothers and newborns, which is slightly higher than the findings of Garg et al. (2022),^[19] who reported that around 84.3% of ASHAs actively participated in postnatal and newborn care services. Knowledge regarding key components of postnatal check-ups was reported by 82.5% of ASHAs, which is similar to the study by Kaur et al. (2022),^[16] where about 80% of ASHAs were aware of maternal postnatal care practices. Awareness regarding newborn assessment was observed in 90% of ASHAs, which is consistent with Pandit et al. (2016),^[18] who reported that around 85% of ASHAs had knowledge of essential newborn care practices. In addition, 92.5% of ASHAs in the present study promoted exclusive breastfeeding, which is comparable to Rohit et al. (2020),^[20] where 94% of ASHAs were aware of exclusive breastfeeding practices. However, knowledge regarding danger signs during the postnatal period was comparatively lower (72.5%), similar to findings reported by Anuradha et al. (2022),^[21] where around 70–75% of ASHA workers were aware of postnatal danger signs. Awareness regarding family planning methods was 95%, which is consistent with Pal et al. (2019),^[22] who reported that around 90% of ASHAs had knowledge of contraceptive methods.

CONCLUSION

The present study highlights that the majority of beneficiaries were young mothers aged 21–30 years (62.75%), predominantly belonging to Hindu religion (92%) and lower middle socio-economic class (63%), with 68% living in joint families. Decision-making was largely influenced by family elders, particularly father-in-law (65.5%). Knowledge assessment revealed that 95% of ASHA workers were aware of antenatal check-ups, with 89.47% correctly identifying four visits, and 92.5% knew the correct timing of the first ANC visit. 90% knew about IFA supplementation; however, knowledge of danger signs during pregnancy was relatively lower (70%). Regarding postnatal care, 92.5% were aware of recommended visits. knowledge of postnatal danger signs remained suboptimal (72.5%). Overall, ASHA workers showed satisfactory knowledge and performance in delivering maternal and child health services, though gaps persist in identifying critical danger signs.

Recommendations The study recommends strengthening capacity-building initiatives for ASHA workers through regular training and refresher programs, particularly focusing on improving knowledge of antenatal and postnatal danger signs. Supportive supervision and periodic monitoring should be implemented to ensure quality service delivery and correct practices can further improve maternal and child health outcomes.

Relevance of the study

This study is relevant as it identifies critical gaps in the knowledge and performance of ASHA workers in delivering maternal and child health services, particularly in recognizing danger signs.

Authors contribution:

All authors have contributed equally

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