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## Original Research Article

# Based on mother and child protection card, awareness and practices among Mitanins and auxiliary nurse midwife workers about obstetric care: will repeated drilling be the game changer?

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### ABSTRACT

**Background:** More than 70,000 women community health volunteers called the 'Mitanins' and auxiliary nurse midwife (ANM) are working for the improvement of the health care system in the state. The study was undertaken to assess the knowledge and practices among Mitans and ANMs regarding antenatal care including risk identification, purely based on MCP card to help health professionals to make necessary changes in the MCP card, and revise maternal health policies and practices.

**Methods:** It was a cross-sectional questionnaire-based study, conducted from November 2020 to October 2021 in the department of obstetrics and gynecology at government medical college, Rajnandgaon. This was the only government tertiary care hospital in southwest Chhattisgarh of that time. A total of 22 ANMs and 166 Mitans were included and assessed. Based on the MCP card predesigned, pretested questionnaires were made and used. ASPSS 21.0 version software was used to analyze the data.

**Results:** Total 166 Mitans and 22 ANMs were participated in the study. Overall knowledge of participants about antenatal, intra-natal and postnatal care services was poor. None of them were aware of what low-risk or high-risk pregnancy is. Mitans were not familiar with any of the medical terms or obstetric complications mentioned on the MCP card while ANMs were quite aware of it, however the percentage was negligible (<10%). Moreover, knowledge about obstetrics examination and per vaginum examination was very poor (13.6%) among ANMs. Knowledge about danger signs related to obstetric emergencies which are not mentioned on the MCP card for example, ectopic pregnancy, vesicular mole, obstructed labor, impending scar rupture, and uterine rupture was also very low (<15%) among Mitans and ANMs.

**Conclusions:** The language and understandability of the MCP card need to be addressed. The gap between knowledge and practice can be bridged by proper 'training'.

**Keywords:** Awareness, Practices, Risk identification, Drilling

### INTRODUCTION

The maternal mortality ratio (MMR) in India has declined from 254 in 2004-2006 to 130 per 100,000 live births in the 2014-2016 period while in Chhattisgarh MMR has declined from 335 to 173.<sup>1</sup> Currently, as per sample registration system (SRS), the MMR of India is 113 while

in our state it is 159 per 100,000 live birth.<sup>2</sup> This decline is mainly attributed to the Government of India's Reproductive Maternal, Newborn, Child Health+ Adolescent (RMNCH+A) interventions that include many programs such as the promotion of institutional births, comprehensive obstetric care, and tracking of every pregnant woman; antenatal, intra-natal and postnatal.<sup>3-5</sup>

The Mitanin (ASHA) program or a community health volunteer program, initiated by the Chhattisgarh state government in 2002, ran successfully and achieved newer heights. ASHA and ANMs are the backbone of the state health system. However, maternal mortality, which is a measure of women's reproductive health, is still high in the state. Moreover, the reasons observed are delay in the identification of high-risk cases, delay in responding to the onset of complications, and delay in referral.

Although the mother and child protection card (MCP card) which was jointly introduced by government of India (GOI), United Nations international children emergency fund (UNICEF), and national institute of public co-operation and child development (NIPCCD) in 2010-2011 is being used effectively by health workers to early recognize the complications and to keep a record of the service rendered during pregnancy and the post-partum period, despite these efforts, little progress has been achieved in eliminating the disparity that exists in reducing maternal mortality and morbidity among the women belonging to rural areas keeping these facts and figures in mind this study has been planned.<sup>5,6</sup>

The objectives of the study were to assess the knowledge and skills of ANMs and ASHAs on appropriate usage of MCP card.

## METHODS

It was a prospective cross-sectional study, conducted from November 2020 to October 2021 in the department of obstetrics and gynecology at government medical college Rajnandgaon. A total of 22 ANMs and 166 Mitanins were included and assessed. Based on MCP card, a predesigned, pretested questionnaire was made and used after taking written consent from the participant; finally, they were educated in small groups of 10-15, each group for one day, under the guidance of teaching faculties. The purpose of the workshop was to know the status of their current knowledge and practices regarding obstetric care provided by them to the patients, and finally to update and collect data. The mode of teaching used was an audiovisual and hands-on method. Qualitative data were presented as frequencies and percentages by using SPSS version 21.

## RESULTS

### *Demographic characteristics*

The number of ASHAs and ANMs who participated in the study was 166 and 22 respectively. Out of the total 188 participants, the majority (58.5%) belonged to the age group of 30 to 39 years while only 5.3% belonged to <30 years of age. In the study, only 1.5 % of participants were undergraduates while the majority (64%) had completed secondary education. Most of the participants were Hindu, from below the poverty line, and had 5-10 years of work experience (Table 1).

**Table 1: Demographic characteristics of the sample population of women, (n=188).**

Variables	N	Percentages (%)	
<b>Age (Years)</b>	<30	10	5.3
	30-39	110	58.5
	40-49	49	26
	≥50	15	8
<b>Education</b>	Primary	65	34.5
	Secondary	120	64
	Undergraduate	3	1.5
<b>Religion</b>	Hindu	178	95
	Muslim	4	2.1
	Christian	1	0.5
	Others	5	2.7
<b>Family income</b>	APL (Above poverty line)	55	29.2
	BPL (Below poverty line)	130	70
<b>Work experience</b>	< 5	26	14
	5-10	114	61
	≥10	45	24
<b>Population covered by Mitanins</b>	750-900	78	47
	900-1500	83	50
	>1500	24	14
<b>Population covered by ANMs</b>	9000- 9500	10	45.4
	9500-10000	7	32
<b>Training in last 5 years</b>	Nil	5	23

**Table 2: Knowledge about regular checkup in pregnancy, (n=188).**

Variables	Mitanin, (n=166) (%)	ANM, (n=22) (%)	Total, (n=188) (%)
<b>As per the MCP card</b>			
Basics of regular antenatal checkup	63	86	70
<b>Need to add on MCP card</b>			
Identification of low and high-risk pregnancies (Listing)	0	0	0
Correlation between ↑BP and weight gain/ swelling over body	0	0	0
Correlation between urine albumin and ↑BP	0	4.5	0.5
Td, Tdap immunization	0	0	0
Correlation of folic acid with the prevention of NTD	0	4.5	0.5
Preconceptional use of folic Acid	0	0	0

Knowledge of the basics of regular antenatal checkups listed on the MCP card was 70% among participants. Knowledge regarding the identification of low-risk or high-risk pregnancy was nil in the study. Majority were aware of raised blood pressure but were unable to associate it with sudden weight gain or with albumin in urine. It was also very unfortunate that none of the participants were aware of Td, Tdap immunization, or preconceptional intake of Folic acid while only one candidate knew the role of folic acid in prevention of NTD in the pregnancy (Table 2).

**Table 3: Knowledge about ANC care, (n=188).**

Variables	Mitanins, n=166 (%)	ANM, n=22 (%)	Total, n=188 (%)
<b>As per MCP card (Obstetric complication in previous pregnancy)</b>			
APH (Ante-partum hemorrhage)	0	32	3.8
Eclampsia	0	23	2.7
PIH (Pregnancy induced hypertension)	0	0	0
Anaemia/ sickle cell anaemia	69	77	70
Obstructed labor	9	18	10
PPH	0	73	8.5
LSCS* (lower segment caesarian section)	100	100	100
Congenital anomaly	44.5	100	51
Abortion	36	100	44
TB, HT, HD, DM Asthma etc	0	54	6.3
<b>Need to add on MCP card</b>			
Significance of previous MTP/D and C	0	27	3.1
Pre-eclampsia	0	45	0.5
DIC	0	9	1.0
Drug reaction/ allergy	0	68	8
Blood transfusion	0	9	1

\*No pain or prolonged labor pain was the commonest indication for doing cesarean, as told by the participants in the study.

Of the total, none of the mitanins were familiar with the medical terms or obstetric complications mentioned on the MCP card, for example, APH, PIH, eclampsia and PPH etc. while <10% ANMs were quite aware of these medical terminologies (Table 3).

In the present study 59% ANMs didn't know how to do general examination, while 86.3% were neither able to access lie, presentation, nor to perceive fetal movement. Moreover, none of the ANMs knew how to check CPD,

position of the head, to access fetal weight and to do P/V examination (Table 4).

**Table 4: Knowledge about general/ obstetric examination, (ANMs=22).**

Variables	N	Percentages (%)
<b>As per MCP card</b>		
General examination	13	59
Cardiovascular examination	0	0
Respiratory examination	0	0
Lie/ presentation	1	4.5
Fetal movement	2	9
Fetal heart rate with a stethoscope	0	0
P/V	0	0
<b>Need to add on MCP card</b>		
Position of head/engaged head	0	0
CPD	0	0
EFW	0	0

**Table 5: Knowledge about essential/optional investigation/ ultrasound, (n=188).**

Variables	Mitanin, (n=166) (%)	ANM, (n=22) (%)	Total, (n=188) (%)
<b>As per MCP card</b>			
Viral markers	40	77	44.7
TSH	60	82	62.7
Test for GDM	0	0	0
Ultrasonography*	100	100	100
<b>Need to add on MCP card</b>			
HCV test	0	0	0
Confirmation or dating scan	0	0	0
NT scan	0	0	0
Anomaly scan	0	13.6	1.5
Scan for placental localization, adherent placenta scar thickness, etc,	0	0	0

\*Ultrasonography for fetal well being

Most known investigation among participants was USG for fetal well-being, while the least known investigation was test for GDM. None of the participants was aware of terms like dating scan, NT scan/ anomaly scan, or other benefits of USG in the study. HCV test was also not a known investigation among participants in the study (Table 5).

Most of the participants (63%) knew, key danger signs. Knowledge about danger signs related to Obstetric conditions that are not mentioned on the MCP card for example, ectopic pregnancy, vesicular mole, obstructed labor, impending scar rupture, and uterine rupture were

<15% while complications of the trial of labor in patient with previous LSCS were known by only 24% (Table 6).

**Table 6: Knowledge about danger symptoms, (n=188).**

Variables	Mitanin, (n=166) (%)	ANM, (n=22) (%)	Total, (n=188) (%)
<b>As per MCP card</b>			
Key danger signs	60	82	63
<b>Need to add on MCP card</b>			
Ectopic pregnancy (Symptoms /signs)	0	4.5	0.5
Vesicular mole	0	9	1
Correlation between degree of anaemia and breathlessness	0	14	1.6
Sickle cell crises/ ACS	0	4.5	0.5
Correlation between swelling over the body, headache, and blurring of vision with ↑BP in preeclampsia	5	9	5.3
Breathlessness in a pt with preeclampsia	0	0	0
The complication of the trial of labor in a patient with previous LSCS	20	50	24
What happened if obstructed labor is left untreated	0	4.5	0.5
Symptoms*signs of impending uterine rupture in case of previous LSCS	12	18	13
How do you know that uterus is ruptured	2.4	14	4

\*Only symptom known among participants regarding impending uterine rupture was pain on the scar site.

It had also been observed that 1.5% of participants were able to make a correlation between the degree of anemia and breathlessness, while 5.3% had made the correlation between swelling over the body, headache, blurring of vision, with raised BP in preeclampsia. However, none of the participants were aware of the fact why breathlessness occurs in a patient with preeclampsia.

In Table 7 the study 15% of the total Mitaniins were aware of the basics of postpartum care and 75% were aware of contraceptive methods, while 59% of the total ANMs were well aware of the basics of postpartum care and 90% were aware of contraceptive methods. Unfortunately, only 14%

of the total participants were aware of kangaroo mother care. It was observed that the majority had poor knowledge about complaints and conditions which were not mentioned on the MCP card but have practical importance for example what is inverted nipple and how to correct it, early breastfeeding reduces uterine bleeding, etc, (Table 7).

**Table 7: Postpartum care and family planning advise, (n=188).**

Variables	Mitanin (n=166) (%)	ANM, (n=22) (%)	Total, (n=188) (%)
<b>As per MCP card</b>			
Basic postpartum care	15	59	20.2
How to check uterine tenderness	0	0	0
Lochia (healthy/foul)	0	0	0
Any other complications and referral requirements	0	64	
Contraceptive methods	75	90	77.1
Kangaroo mother care	0	14	1.5
<b>Need to add on MCP card</b>			
Inverted nipple(diagnosis/correction)	0	4.5	0.5
Early initiation of breastfeeding reduces vaginal bleeding	3	9	3.7
Lochia discharge (scanty/excessive)	0	0	0
Leg swelling	0	0	0
Lactational amenorrhea method	9	9	9
COCs shouldn't be given before 6 month if the mother is breastfeeding	19.2	41	21.8
Progesterone only pill	0	4.5	0.5
The upper limit of legal MTP	0	18	2.1

Major activities that participants had conducted in the last year include; participation in COVID immunization (100%), advice for home isolation/ management or referral in case of COVID illness (98%), accompanying them for institutional deliveries (62%), newborn care (56%), household visit (31%) (Table 8).

**Table 8: Activities undertaken by Mitanin in the last year, (n=188) (%).**

Activities	N	Percentages (%)
Participation in the COVID immunization program	188	100
Advise for home isolation/management or referral in case of COVID illness	185	98
Accompanying institutional delivery	117	62
Visiting newborn for advice/care	106	56
Conducting household visits	58	31

## DISCUSSION

### Mitanin

The friend in need, a friend indeed, is a female volunteer selected by the community, deployed in her village (1/1000 population) after a short training on community health.<sup>7</sup> They act as health activists in the community, create awareness of health and its determinants, counsel mothers on key healthy behaviors, and mobilize the community towards local health planning and increased utilization. Currently, more than 70,000 and 4000 mitanins are working in Chhattisgarh and Rajnandgaon respectively.<sup>8</sup>

ANM or multipurpose health workers work at health sub-centers. Although over the years with changes in program priorities, the role and capacity of the ANM have changed substantially. Today's multipurpose worker (MPW) is more involved in other works apart from Mother and Child Health services in contrast with ANM of the sixties which was providing delivery and basic curative services.

The MCP card is available at all government health facilities free of cost. It is used to counsel and educate the family, record information on services rendered, and facilitate referral to appropriate health facilities based on danger signs.<sup>9</sup>

Mitanin and ANM are regarded as grass-roots worker in health org pyramid, hence time-to-time assessment of their knowledge are essential as the success of government's health programs in rural areas depends on them.<sup>10,11</sup>

In the present study, majority (58.5%) of the participants were from the age group of 30-39 years, similar as reported by Baishya et al and Annapurna et al.<sup>12,13</sup>

Regarding literacy rate, majority (64%) had completed a secondary level of education, which is slightly better than results showed in studies by Das et al and Baghel et al (37.2%), and (50.1%) respectively.<sup>14,15</sup> A study from Bilaspur showed that 59.8% ASHAs reported having 5-10

years of work experience, similarly in our study also 61% of ASHAs reported having 5-10 years of work experience.<sup>15</sup>

Regarding workload, about 97% of the ASHA workers covered the population up to 1500 (1/1500) and the rest covered more than 1500 population. A similar result was found in the studies conducted by Kari et al and Sugandha et al which clearly shows how much overburdened they are with the other works apart from maternal and child care services.<sup>16,17</sup>

Studies showed that most of the ASHA workers were having very less knowledge regarding intranatal and postnatal care services, similar to our study where knowledge of ASHAs and ANMs about obstetrics care services was poor.<sup>13</sup> Majority of the participants were aware of high blood pressure but they were unable to associate it with albumin in urine, swollen hands/face, blurred vision, headache and convulsion. This could be very well explained by the fact that skill-based training is not provided to ASHA workers which is a hindrance for their knowledge and practice.<sup>13,16</sup>

A current study also revealed that only 9% of ASHAs knew about prolonged or obstructed labor, it was similar to the result (12%) showed in the study by Annapurna et al, whereas a study by Kori et al showed that 88.6% ASHAs were aware of obstructed labor which is just in contrast.<sup>13,18</sup> This could probably be explained by the difference in the behavioral, educational status and clinical exposure among participants.

As regards postpartum contraception, both ANMs, and ASHAs, exhibited a similar level of knowledge, although the overall knowledge of ANMs was better than that of ASHAs about all parameters of MCP cards similar to the study.<sup>19</sup>

It has been observed that incentive provided for them is also negligible compared to their workload which prevails them to promote a particular investigation or practice, to get maximum incentive or commission like institutional deliveries, cesarean section and ultrasound, etc, while rests remain on the lower side irrespective of their clinical importance similar as our study, where knowledge about the test for GTT, ANC and post-natal counseling and care, lactational amenorrhea and POP was very poor.<sup>16,20</sup>

## CONCLUSION

In the present study, knowledge of ASHAs and ANMs about antenatal, intranatal and postnatal care services was poor. None of the mitanins were familiar with the medical terms or obstetric complications mentioned on the MCP card, while knowledge about obstetrics examination and per vaginum examination was also very poor among ANMs. Moreover, participants were unable to correlate signs or symptoms with medical conditions. Hence, the language and understandability of the MCP card need to



be addressed. The tough medical terms can be simplified with the help of Hindi or pictorial explanation. The MCP card needs to be revised, missing points need to be added and all health workers should be sensitized for the importance of adherence to guidelines regarding antenatal and post-natal care. Lastly, the gap between knowledge and practice can be bridged by repeated 'drilling'.

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