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**Original Research Article**

# Knowledge of antenatal care among mothers of infants in rural area of Belagavi: a cross sectional study

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## ABSTRACT

**Background:** Antenatal care (ANC) is the care given to pregnant women for safe pregnancy and healthy babies. It is the most effective health intervention for preventing maternal morbidity and mortality. Health knowledge is an important element which enables women to be aware of their health status and promotes service utilization which further improves the health of the beneficiaries. This study was conducted among mothers of rural area of Belagavi with an objective to determine the level of knowledge related to ANC and the factors associated with the same.
**Methods:** A cross-sectional study was carried out in February-April 2018 among mothers who had delivered within one year from date of study and who had registered and availed antenatal services in field practice area of Department of Community Medicine, BIMS, Belagavi. Sample size was calculated as 161. Mothers were selected using systematic sampling. Data was collected after obtaining an informed, written consent from the participants and was compiled, tabulated and analysed in MS Excel. The results are presented as percentage and proportions and chi square test has been applied.
**Results:** 50% participants had fair knowledge regarding ANC. The level of knowledge was found to be statistically significant with employment status and BPL status.
**Conclusions:** The study found adequate knowledge among majority of mothers.

**Keywords:** Knowledge, Antenatal care, Mothers, Rural, Belagavi

## INTRODUCTION

Antenatal care (ANC) is the care given to pregnant women so that they have safe pregnancy and healthy babies.[1] The objective of ANC is to promote, protect and maintain the health of the mother during the entire period of pregnancy. It helps to detect high risk cases, foresee complications and removes fear and anxiety associated with delivery.[2] It is an opportunity to promote the benefits of skilled attendance at birth and to encourage women to seek postpartum care and counsel them about the benefits of child spacing.[3] It plays an important role in safe motherhood but its utilization varies across the country especially in the rural areas and urban slums.

The WHO estimates that every day, about 830 women die because of the complications during pregnancy and child birth.[4] Maternal mortality ratio (MMR) in India is 130 per 100,000 live births (2014-16), and that of Karnataka is 108 per 100,000 live births (2014-16).[5] This is far below the goal set in SDG-3 to be below 70 per 100,000 live births.[6] To reduce MMR substantially and move towards elimination of preventable causes of maternal death, there should be increased coverage and improved quality care throughout pregnancy. Appropriate ANC is an integral

component of all the initiatives by the World Health Organization and the Government of India towards reduction of morbidity and mortality associated with pregnancy and childbirth.[7] The popularity of ANC services in the rural community has been quite encouraging.[8,9]

The WHO recommends a minimum of four antenatal visits, comprising interventions such as iron, folic acid tablets and tetanus toxoid vaccination, screening and treatment for infections and identification of warning signs during pregnancy.[1] As per data from NFHS-4 (2015-16), 67.3% women had antenatal check-up in first trimester and 70.9% women had at least 4 ANC visits in rural Karnataka. Whereas in rural Belgaum, 78.6% women had antenatal check-up in first trimester and 76% women had at least 4 ANC visits.[10] Even though there is an improvement, it has not yet reached the target set by national health policy 2017, according to which the antenatal care coverage should be sustained above 90% by 2025.[11]

MMR still remains high even with improved access to maternal health care services.[10] High MMR reflects poor coverage of ANC services, poor quality of care and inequity to access to health services.[9]

In order to improve maternal health, barriers that limit access to quality maternal health services must be identified and addressed at all levels of the health system. Knowledge of pregnant mothers may be major factor in determining the extent of antenatal services use.[3] Health knowledge is an important element to enable women to be aware of their health status especially during pregnancy and the importance of appropriate ANC.[7,12] A better informed woman is more likely to make appropriate decisions during obstetric emergencies, but many developing countries have women with poor education which is more prevalent in rural communities.[13]

This study was conducted to determine knowledge of mothers of rural areas of Belagavi regarding components of ANC such as registration of pregnancy, intake of prophylactic iron and folic acid tablets during pregnancy and identification of danger signs during pregnancy. This study was carried out with the objectives to know the awareness of antenatal care among mothers in rural areas of Belagavi and to study the factors associated with knowledge of ANC.

## METHODS

The present cross-sectional study was carried out in February-April 2018, among mothers who had delivered within one year from the date of the study and who had registered and availed ANC services at rural field practice area of Department of Community Medicine, BIMS, Belagavi.

Sample size was estimated by considering the findings by Rani et al on clinical components of quality ANC in south India, the average prevalence of which comes as 88%.[14] By taking absolute error of 5% the sample size was calculated to be 161, using the following formula,

$$n=\frac{Z^2PQ}{L^2}=\frac{1.96\times1.96\times88\times12}{5\times5}=161$$

Where, n=sample size, P=prevalence, Q=100−P, and L=absolute error (5%)

Primary health centre (PHC) in our rural field practice area has 6 subcentres and caters to a population of 43,000. The study population was selected in proportionate to the number of total deliveries in each subcentre in the last 1 year. A list of mothers who had delivered within last 1 year of the commencement of the study was collected from each subcentre and the individual subjects were selected using systematic sampling with 5 as sampling interval. The next participant was selected for interview if the selected participant was not available. Women with psychiatric illness and those not willing to participate in the study were excluded from the study.

After obtaining an informed written consent from the eligible participant, she was interviewed at her residence or the anganwadi centre nearest to her residence using a predesigned and pretested questionnaire to get information on her socio demographic profile, knowledge on antenatal care and danger signs of pregnancy and awareness regarding PMSMA launched by the Government of India.

Every component in the knowledge section was given a score of 1 for the correct knowledge and then the total scoring was done. Those who scored below 50% were classified to have poor knowledge, 51-75% as fair and >75% as good knowledge. The participants who were found to have poor knowledge were informed regarding the right practices so that they would be able to adopt them in their future pregnancies.

The collected data was compiled and tabulated in MS Excel and analysis was done in SPSS 20.0 and MS Excel. The results have been presented as frequency, percentage, proportion and Chi-square test has been applied.

## RESULTS

161 mothers were interviewed during the study period out of which 117 (72.7%) were in the age group of 16-25 years. The majority of the participants, i.e., 153 (95%) were Hindus by religion, 98 (60.9%) belonged to other caste groups, 94.4% of the participants had received education beyond primary school, 152 (94.4%) were housewives and 123 (76.4%) of the participants belonged to joint/3 generation family. Socio economic status classification showed that majority of the participants 62

(38.5%) belonged to class IV socio-economic status according to modified B. G. Prasad classification. Out of 161, 116 (72%) mothers were BPL card holders (Table 1).

**Table 1: Distribution of participants on the basis of socio-demographic variables.**

| Variables | Frequency | % |
|---|---|---|
| **Age (in years)** | | |
| 16-25 | 117 | 72.7 |
| 26-35 | 44 | 27.3 |
| **Religion** | | |
| Hindu | 153 | 95 |
| Muslim | 8 | 5 |
| **Caste** | | |
| SC/ST | 22 | 13.6 |
| OBC | 41 | 25.5 |
| Others | 98 | 60.9 |
| **Educational status** | | |
| Illiterate | 5 | 3.1 |
| Primary | 4 | 2.5 |
| Beyond primary | 152 | 94.4 |
| **Occupation** | | |
| Employed | 9 | 5.6 |
| Unemployed | 152 | 94.4 |
| **Family type** | | |
| Nuclear | 38 | 23.6 |
| Joint/3 generation | 123 | 76.4 |
| **SES** | | |
| 1 | 5 | 3.1 |
| 2 | 26 | 16.1 |
| 3 | 34 | 21.1 |
| 4 | 62 | 38.5 |
| 5 | 34 | 21.1 |
| **BPL card** | | |
| Yes | 116 | 72 |
| No | 45 | 28 |

It was found that the knowledge score was poor in 47 (29%), fair in 81 (50%) and good in 33 (21%) of the participants (Figure 1).

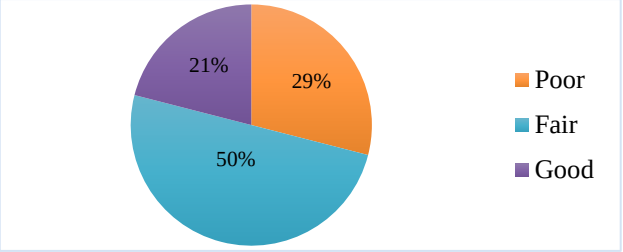


**Figure 1: Antenatal knowledge score of study participants.**

Majority of the participants, 147 (91%) had correct knowledge regarding nutritious requirements during pregnancy while the least, 63 (39%) had correct knowledge regarding the blood tests to be done during pregnancy. 74 (46%) of the participants knew the recommended minimum number of antenatal check-ups. 139 (86%) participants knew that blood pressure (BP) should be checked in every antenatal visit and 142 (88%) knew that weight should be checked during every antenatal visit. 142 (88%) knew that Hb should be tested during pregnancy. Only 64 (40%) study participants knew the minimum number of IFA tablets to be taken during pregnancy and 136 (85%) knew the number of TT injections to be taken during pregnancy. All the study participants were aware of one or the other danger sign/symptom during pregnancy (Table 2).

Knowledge on antenatal care was better in housewives and BPL card holders and this was found to be statistically significant ($p<0.05$). None of the other socio-demographic factors were found to have a significant association with knowledge on ANC (Table 3).

Regarding the correct knowledge about the danger signs during pregnancy, 68 (48%) were aware about bleeding per vaginum, 18 (11%) were aware about fever, 34 (21%) were aware about pedal oedema, 35 (22%) were aware about convulsions, 18 (11%) were aware about unconsciousness, 45 (28%) were aware about pain abdomen and 90 (56%) were aware about rupture of membranes as danger sign during pregnancy and the need to visit health setup during any of these events (Table 4).

**Table 2: Distribution of participants on the basis of correct knowledge.**

| Component | Frequency | % |
|---|---|---|
| **Recommended timing of antenatal registration** | 89 | 55 |
| **Minimum number of antenatal check-ups recommended** | 74 | 46 |
| **Should BP be checked on every visit?** | 139 | 86 |
| **Should weight be checked on every visit?** | 142 | 88 |
| **Danger signs and symptoms of pregnancy** | 161 | 100 |
| **Should Hb be tested during pregnancy?** | 142 | 88 |
| **Awareness regarding other blood tests to be done during pregnancy** | 63 | 39 |
| **Minimum number of IFA tablets to be taken during pregnancy** | 64 | 40 |
| **Number of TT injections to be given during pregnancy** | 136 | 85 |
| **Does one require more nutritious food during pregnancy?** | 147 | 91 |

**Table 3: Factors associated with knowledge on antenatal care.**

| Factors | Score | | | P value |
|---|---|---|---|---|
| | Poor | Fair | Good | |
| **Age (in years)** | | | | |
| <20 | 4 | 12 | 3 | 0.682 |
| 21-30 | 42 | 65 | 29 | |
| >31 | 1 | 4 | 1 | |
| **Religion** | | | | |
| Hindu | 47 | 75 | 31 | 0.169 |
| Muslim | 0 | 6 | 2 | |
| **Caste** | | | | |
| SC/ST/OBC | 17 | 32 | 14 | 0.849 |
| Others | 30 | 49 | 19 | |
| **Educational status** | | | | |
| Illiterate | 2 | 3 | 0 | 0.218 |
| Primary | 3 | 1 | 0 | |
| Beyond primary | 42 | 77 | 33 | |
| **Occupation** | | | | |
| Employed | 2 | 2 | 5 | 0.025 |
| Unemployed | 45 | 79 | 28 | |
| **Family type** | | | | |
| Nuclear | 8 | 21 | 9 | 0.445 |
| Joint/3 generation | 39 | 60 | 24 | |
| **SES** | | | | |
| High | 20 | 28 | 17 | 0.231 |
| Low | 27 | 53 | 16 | |
| **BPL card** | | | | |
| Yes | 38 | 61 | 17 | 0.010 |
| No | 9 | 20 | 16 | |
| **Parity** | | | | |
| Primigravida | 18 | 34 | 17 | 0.488 |
| Multigravida | 29 | 47 | 16 | |
| **Number of ANC visits** | | | | |
| <4 | 3 | 11 | 3 | 0.422 |
| ≥4 | 44 | 70 | 30 | |

**Table 4: Distribution of participants on the basis of correct knowledge regarding danger signs during pregnancy.**

| Component | Frequency | % |
|---|---|---|
| **Bleeding per vaginum** | 68 | 42 |
| **Fever** | 18 | 11 |
| **Pedal oedema** | 34 | 21 |
| **Convulsions** | 35 | 22 |
| **Unconsciousness** | 18 | 11 |
| **Pain abdomen** | 45 | 28 |
| **Bursting of bag (rupture of membranes)** | 90 | 56 |

## DISCUSSION

In this study the knowledge regarding antenatal care was found to be fair in majority (50%) of the study participants. Bej conducted a study in New Delhi in which the knowledge among the pregnant females was found to be inadequate with score being 17%.[2] In a study conducted by Iravva et al in Belagavi, it was found that majority of the respondents, i.e., 296 (77.1%) had moderate knowledge, 66 (17.2%) women had poor knowledge and only 22 (5.7%) had good knowledge regarding birth preparedness and complication readiness.[15]

The recommended timing of antenatal registration was known to 55% mothers in our study as compared to

86.2% as found by Bej.[2] In this study, the recommended number of antenatal check-ups were known to 46% of the study participants. In a study conducted by Gyawali et al, 75% of the participants had correct knowledge regarding the minimum number of antenatal visits required during pregnancy, while Eram et al found it to be 60% among the mothers in their study and Kaur et al concluded it as 89% in their study participants.[16-18]

86% of the mothers in this study were aware about the requirement and importance of BP measurement during antenatal visits as compared to 100% and 97.2% as found by Eram et al and Kaur et al respectively in their studies.[17,18]

In this study, 85% of the mothers had correct knowledge regarding the number of TT injections to be given during pregnancy as compared to 21.7% mothers in study conducted by Kaur et al and 90.7% of study participants as found by Bej.[2,18]

91% of the mothers in this study were aware regarding requirement of more nutritious food during pregnancy as compared to 85% as found by Eram et al and 49% as found by Ade and Sujatha respectively in their studies.[17,19]

In this study 25% of the participants were aware of meat being a rich source of iron and 42% claimed green leafy vegetables to be a good source of iron. In a study conducted by Nivedita et al. it was found that 79.74% knew that green leafy vegetables are good source of iron and 25.9% claimed meat to be good source of iron.[20]

In this study all the participants were aware about one or the other danger signs of pregnancy. Rupture of membranes was the most commonly perceived danger sign similar to the study conducted by Ade et al in which it was found that all of the respondents were aware about common danger signals and the most commonly perceived sign was leakage per vagina.[19] In a study conducted by Elayarani et al, only 84% participants were aware of danger signs and pain abdomen was the most commonly perceived whereas only 2.5% were aware of rupture of membrane.[21] Kaur et al concluded that 60% of mothers in their study were aware of danger signs.[18]

In our study knowledge on antenatal care was found to be significantly associated with occupation and availability of BPL card. In a study conducted by Patel et al, no statistically significant association was found between occupation, family type and awareness on antenatal checkup.[12] Significant relationship was found between qualification and knowledge of women regarding antenatal care in a study conducted by Akhtar et al.[3]

## CONCLUSION

This study found adequate knowledge among majority of mothers (71%). Knowledge on antenatal care was found to be more among BPL card holders and housewives and this association was statistically significant. The gap in knowledge on antenatal care needs to be filled. Education, joint family and more exposure to the healthcare system enhance further knowledge of patients, thereby increasing service utilisation and improving health.

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