

# Study of awareness and utilization pattern of antenatal care services among tribal women of the reproductive age group in Kodagu district, Karnataka

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Received: August 30, 2019; Accepted: October 16, 2019

## ABSTRACT

**Background:** There is a widening contrast between the rich and the poor communities, underserved and marginalized communities like those living in difficult terrains such as hilly and mountain regions with regard to antenatal care (ANC) utilization. **Objectives:** The objectives of the were to assess the level of knowledge and to find out the pattern of ANC services utilization in married tribal women of reproductive age group and the factors affecting them. **Materials and Methods:** A cross-sectional study was done among married tribal women in reproductive age group (15-44 years) living in tribal areas of Kodagu district. The data collected included socio-demographic profile, ANC details such as registration of pregnancy, antenatal visits, and tetanus immunization. **Results:** Among 288 study participants, the majority (38.2%) were in the age group of 25–29 years. One-fifth of the study participants were illiterate, and 58.0% belonged to lower socio-economic status, and 15.3% had married before the age of 18 years. More than two-third (39.2%) had more than two children. Only 66% registered the pregnancy in the first trimester, and it was noted that only 187 (64.9%) pregnant women consumed the required dose of iron and folic tablets. The utilization of various ANC services such as received required tetanus toxoid immunization, at least three visits, and family planning advice is 86.5%, 71.5%, and 90.3%, respectively. Age, literacy of parents, poverty, and age at marriage were significantly associated with adequate ANC utilization ( $P < 0.05$ ). **Conclusion:** From our study, there are incomplete knowledge and utilization of ANC services among studied population.


**KEY WORDS:** Antenatal Care; Tribal Women; Utilization

## INTRODUCTION

One of the most important targets of Millennium Development Goal (MDG) 5, i.e., improve maternal health is the reduction of maternal deaths by 75% (MDG 5a) and universal access to reproductive health by 2015 (MDG 5b). Despite there is significant decline in mortality, the rate is insignificant in the developing countries.<sup>[1]</sup>

The World Health Organization estimates that daily around 830 women died due to causes related to pregnancy and childbirth. The majority of these deaths occur in the developing countries especially in sub-Saharan Africa and South Asia. It also states that there is huge disparity not only between countries and those women in rural and urban areas of these regions. The large portion of maternal deaths in some areas especially those living in tribal regions of the world shows inequality in accessing the health-care services.<sup>[2]</sup>

The application of simple preventive measures could prevent maternal deaths.<sup>[3]</sup> Awareness about the need for care at delivery or to get familiarize with the health facilities for seeking efficient help during crisis can be facilitated by routine antenatal visits.<sup>[4]</sup>

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DOI: 10.5455/ijmsph.2020.0824316102019	

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The main motto of antenatal care (ANC) is to monitor pregnant women for any signs of complications, identify and treating the pre-existing problems of pregnancy, and nutrition, care during delivery and postnatal period, and related issues.<sup>[5]</sup>

The outcome of any pregnancy in the form of a healthy mother and healthy baby depends on the quality of ANC which is unequally distributed in the society.<sup>[6,7]</sup> There is widening rift between the affluent communities and the underserved and marginalized communities like those living in difficult terrains such as hilly and mountain regions. The reasons may be difficult to access, illiteracy, and cultural factors which have a significant influence on maternal and child health.<sup>[8,9]</sup> Analyzing the factors which are responsible for ANC services utilization are necessary for effective implementation of programs which focus on improving maternal and child health. Hence, our study was conducted with the objectives to assess the level of knowledge about antenatal ANC services among tribal women of reproductive age group and to find out the pattern of ANC services utilization in married tribal women and the factors affecting them.

## MATERIALS AND METHODS

### Study Design

This was a community-based cross-sectional study.

### Study Population

Married tribal women in reproductive age group (15-44 years) living in tribal areas of rural area of Kodagu district.

### Place of Study

The study was conducted at tribal units of Suntikoppa Primary Health Centre.

### Study Period

This study period was three months.

### Sample Size

The total population of Madikeri block as per census 2011 is 113,202. The total scheduled tribal population is 7391 (6.53%), of which 3683 are males and 3708 are females.<sup>[10]</sup> As per Sample Registration Report 2016 percentage of married females in the reproductive age group in rural Karnataka is 38.8%<sup>[11]</sup> which amounted to 1438 females. For study purposes, 20% of the total married tribal women which constitute around 288 were included in the study.

Madikeri block has 67 villages, of which two villages do not have a scheduled tribe population. Villages were divided into

three strata, namely, <5% (28 villages), >5–10% (23 villages), and >10% (14 villages) on the basis of the proportion of the scheduled tribes to the total population. From each stratum, two villages were randomly selected for the study.

The study was approved by the Institutional Ethical Committee. The houses in the village were line listed, and houses were selected randomly from one direction. From each house, only one woman was included in the study and the same was repeated until the sample size was covered.

### Inclusion Criteria

Married tribal women in the reproductive age group (15-49 years) were included in the study.

### Exclusion Criteria

Unmarried women, divorced, and widowed and those who are not interested to participate were excluded from the study.

### Data Collection

A pre-tested pro forma was used for data collection which included variables such as socio-demographic profile, ANC details such as registration of pregnancy, antenatal visits, tetanus immunization, iron-folic acid supplementation and awareness about use of contraception, identification of danger signals, exclusive breast breastfeeding, and child immunization. Information regarding the reasons for not utilizing the ANC services was also collected.

### Statistics

Collected data were compiled, coded, and test such as mean, and proportion and other tests were applied to find out the association between utilization of ANC care and variables. If  $P < 0.05$  then it was considered statistically significant.

## RESULTS

Of 288 tribal women, the majority (38.2%) of the participants belonged to the age group of 25–29 years followed by 30–34 years (33.3%) and 35–39 years (17.7%) age group. One-fifth of the study participants (20.1%) were illiterate and only 17.4% had education of secondary level and above. More than half of them (58.0%) belonged to lower socio-economic status and 6.6% belonged to upper socio-economic status. With regard to details about age at marriage 15.3% had married before the age of 18 years. More than two-third (39.2%) had more than two children [Table 1].

### Utilization of ANC

Of 288 participants, only 190 (66%) registered the pregnancy in the first trimester, but it all the pregnant women was

**Table 1:** Distribution of study participants as per socio-demographic factors

Variables	Frequency	Percentage
Age in years		
20–24	23	8.0
25–29	110	38.2
30–34	96	33.3
35–39	51	17.7
40 and above	8	2.8
Educational status of women		
Illiterate	58	20.1
Up to primary level	75	26
Secondary	105	36.5
Above higher secondary level	50	17.4
Socio-economic status (BG Prasad)		
Class I	19	6.6
Class II	47	16.3
Class III	55	19.1
Class IV	70	24.3
Class V	97	33.7
Husband’s educational status		
Illiterate	76	26.4
Up to primary level	66	22.9
Secondary	97	33.7
Above higher secondary level	49	17
Age at marriage (years)		
<18	44	15.3
>18	244	84.7
Mean age at marriage	21.82±3.5	
Number of parity		
One	48	16.7
Two	127	44.1
More than two	113	39.2
Average number of children	2.35±0.95	

**Table 2:** Antenatal care utilization during pregnancy by study participants

Variables	Frequency	Percentage
ANC registration in first trimester	190	66
Received required TT injections	249	86.5
Received iron-folic acid tablets	218	75.7
Consumed all received tablets	187	64.9
Paid at least three visits to health centers	206	71.5
Received advice regarding family planning methods	260	90.3
ICDS beneficiary	137	33.5

ICDS: Integrated child development services, ANC: Antenatal care, TT: Tetanus toxoid

**Table 3:** Distribution of the study participants according to their knowledge about ANC services

Variables	Number	Percentage
Knowledge about ideal timing of ANC registration	49	17.1
Knowledge about the minimum number of ANC visits	41	14.3
Knowledge about IFA supplementation	256	88.9
Knowledge about two TT injection doses	181	62.9
Knowledge regarding spacing between pregnancies	183	63.6

ANC: Antenatal care, TT: Tetanus toxoid

**Table 4:** Distribution of deliveries according to the place of delivery

Place of delivery	Frequency	Percentage
Government	244	84.7
Private	35	12.2
Home	9	3.1
Total	288	100

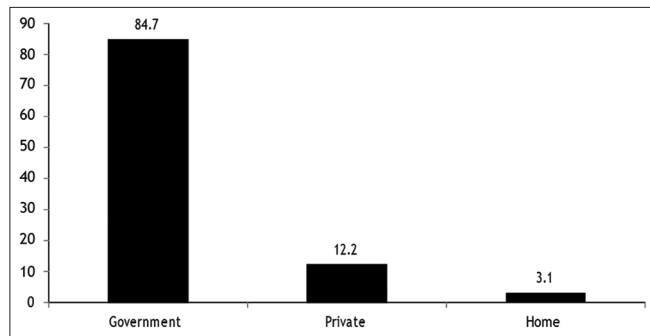
registered if the time of registration is ignored. It was noted that only 187 (64.9%) pregnant women consumed the required dose of iron and folic tablets. The percentage of ANC utilization services such as received required tetanus toxoid (TT) immunization, at least three visits to health center, and family planning advice was 86.5%, 71.5%, and 90.3%, respectively. Only 33.5% women received benefits from Anganwadi/Integrated Child Development Services center during their pregnancy in the form of supplementary nutrition, health checkups, and health and nutrition education [Table 2].

Only 167 (58.0%) of the tribal women had utilized the minimum desired ANC services, which indicates that the inadequate utilization rate was 42%.

Information about knowledge regarding ANC services was collected from the study participants, as shown in Table 3. Only 17.1% of respondents knew about the ideal time for pregnancy registration and 14.3% were aware of minimum three ANC visits to health center. More than 80% of the subjects had knowledge about iron-folic acid supplementation and 62.9% about desired doses of TT immunization.

The majority of the deliveries (96.9%) were conducted at either government or private health institutions, and the percentage of home deliveries was only around 3.1% [Table 4 and Figure 1].

With respect to the association between various socio-demographic factors and adequacy of utilization of



**Figure 1:** Distribution of the study subjects according to the place of delivery

ANC services [Table 5], age, literacy and socio-economic status, and age at marriage were significantly associated with adequate ANC utilization ( $P < 0.05$ ). However, it was not significantly associated with type of family ( $P > 0.05$ ). Unawareness (9.2%), transport issues (10.8%), and financial matters (9.8%) were the main reasons for incomplete ANC services utilization.

### DISCUSSION

In our study, 288 married tribal women participated and majority (38.2%) of them belonged to the age group of 25–29 years. One-fifth of the study participants were illiterate, and 58.0% belonged to lower socio-economic status, and 15.3% had married before the age of 18 years. More than two-third (39.2%) had more than two children. Only 66% registered the pregnancy in the first trimester, and it was noted that only 187 (64.9%) pregnant women consumed the required dose of iron and folic tablets. The ANC utilization rates for services such as received required TT immunization, at least three visits, and family planning advice were 86.5%, 71.5%, and 90.3%, respectively. There was statistically significant association between age, literacy rate, socio-economic status, and age at marriage, and adequate ANC utilization.

The quality of ANC definitely will determine the outcome of each and every pregnancy and is essential to reduce the adverse outcome of the pregnancy. Our study found out that the mean age at marriage of respondents was  $21.82 \pm 3.5$ , which is similar to findings by Pathania *et al.*<sup>[12]</sup> (2008) among Gaddis, Bhots, and Kinnauras of Himachal Pradesh, where it was mostly between the age of 19 and 21 years, but it was higher than the findings reported by Hamid *et al.*<sup>[13]</sup> (2017) in a study done among tribal women of Kashmir where the age at marriage was  $17.18 \pm 3.24$ . This difference might be due to illiteracy and orthodox traditions. Over 79.9% of the participants were literate which is higher than study done by Mumbare and Rege<sup>[14]</sup> (2011) among tribal women in Maharashtra, where it was 58.9% and study by Hamid *et al.*<sup>[13]</sup> (2017), in which literacy rate was around

**Table 5:** Socio-demographic factors affecting adequate ANC services utilization (minimum four services)

Socio-demographic variable	ANC utilization		$\chi^2$ P value
	Adequate No. (%)	Inadequate No. (%)	
<b>Age</b>			
20–24	15 (35.7)	27 (64.3)	26.8 <0.001
25–29	72 (75.8)	23 (24.2)	
30–34	52 (54.2)	44 (45.8)	
35–39	17 (42.5)	23 (57.5)	
40 and above	11 (73.3)	4 (26.7)	
<b>Education</b>			
Illiterate	18 (31.0)	40 (69.0)	24.7 <0.001
Up to primary level	47 (62.7)	28 (37.3)	
Secondary	74 (70.5)	31 (29.5)	
Above higher secondary level	28 (56.0)	22 (44.0)	
<b>Education of the husband</b>			
Illiterate	29 (38.2)	47 (61.8)	27.8 <0.001
Up to primary level	33 (50.0)	33 (50.0)	
Secondary	74 (76.3)	23 (23.7)	
Above higher secondary level	31 (63.3)	18 (36.7)	
<b>Socio-economic status</b>			
Class I	12 (63.2)	7 (36.8)	16.2 <0.05
Class II	29 (61.7)	18 (38.3)	
Class III	35 (63.6)	20 (36.4)	
Class IV	50 (71.4)	20 (28.6)	
Class V	41 (42.3)	56 (57.7)	
<b>Type of family</b>			
Nuclear	138 (56.6)	106 (43.4)	1.34 >0.05
Joint/Three generation	29 (65.9)	15 (34.1)	
<b>Age at marriage</b>			
<18	19 (43.2)	25 (56.8)	4.6 <0.05
>18	148 (60.7)	96 (39.3)	

ANC: Antenatal care

52.94%. This might be due to overall differences in literacy rates among various states. In our study, the adequate utilization of ANC services was about 58% which is lower than the study reported by Mumbare and Rege<sup>[14]</sup> (2011), Jose *et al.*<sup>[15]</sup> (2015), and by Kumar and Goel<sup>[16]</sup> (2016), where it was around 64%, 85.7%, and 71.8%, respectively. However, it was higher than the findings reported by Hamid *et al.*<sup>[13]</sup> (2017), in which it was around 42.8% and National Family Health Survey (NFHS)-4 survey<sup>[17]</sup> (2015–2016), in which the full ANC utilization among rural women in Karnataka was around 31% and among it was only 15% among tribal women across India. With regard to, utilization rates for ANC services such as pregnancy registration in first trimester (66%), consumption of iron-folic acid tablets



(64.9%), TT injections (86.5%), and a minimum of three visits to health center (71.5%) which were similar to findings by Mumbare and Rege<sup>[14]</sup> (2011) in the rates were 63.8%, 86.7%, 82.4%, and 72.9%, respectively, and by NFHS-4<sup>[17]</sup> survey (2015–2016) which showed similar utilization rates of 65.9%, 45.9%, 88.1%, and 70.1%, respectively, among rural women in Karnataka state. However, study done by Hamid *et al.*<sup>[13]</sup> (2017) reported utilization rates for TT injection (57.8%) and iron-folic acid tablet consumption (31.1%), which were comparatively lower with our study. This shows a clear improvement in ANC services in this tribal area when compared with other parts of the country where significant tribal population exists. Our study reported a significant association between adequate ANC utilization and factors such as literacy levels of both mother and father, socio-economic status, and age at marriage, which are similar to findings reported by Mumbare and Rege<sup>[14]</sup> (2011), Hamid *et al.*<sup>[13]</sup> (2017), Negi *et al.*<sup>[18]</sup> (2010), and by Javali *et al.*<sup>[19]</sup> (2014). This strengthens the influence of various socio-demographic factors on of health-care services utilization. Higher proportion of institutional deliveries (96.9%) was reported in our study when compared with NFHS-4<sup>[17]</sup> survey (79%) and study by Varma *et al.*<sup>[20]</sup> (2011) who reported the percentage of institutional deliveries among tribal women in Andhra Pradesh around 81.7% which emphasizes the healthcare workers importance in facilitating the beneficiaries in utilizing the health-care services.

Our study made an attempt to the assessment of the knowledge and utilization pattern of ANC services in one of the remote places of South India, where there are significant population resides. The sample size was limited due to issues like difficulty in accessing the areas during monsoon season. Conducting focused group discussions could have thrown more light on reasons for not utilizing the services.

## CONCLUSION

Our study concludes that there are incomplete awareness and utilization of ANC services among the studied population. This can be mainly attributed to various socio-demographic factors such as literacy status, income level, age at marriage, and husband's educational status. Further, in-depth studies on assessing the awareness and ANC services utilization in tribal women in remote areas will throw a light on health-care infrastructure, accessibility, and services for the special groups like tribal population. Therefore, our study emphasizes strengthening health-care services especially in tribal areas in the form of conducting health awareness campaigns, which would substantially assist in improving the reproductive health status of the most vulnerable group in the community.

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**How to cite this article:** Udayar S, Parveen M. Study of awareness and utilization pattern of antenatal care services among tribal women of the reproductive age group in Kodagu district, Karnataka. *Int J Med Sci Public Health* 2020;9(1):1-6.

**Source of Support:** Nil, **Conflicts of Interest:** None declared.