

# Knowledge and Attitude of Antenatal Women towards Routine Ultrasound Screening in Pregnancy at a Tertiary Institution in Bengaluru

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## ABSTRACT

**Introduction:** Due to advances in technology, there has been increased medicalization of pregnancy globally. While obstetric sonography is vital in situations where it is indicated, its routine use remains contentious. Knowing the attitude of women towards ultrasound will then guide the policy makers in designing health messages which will persuade them to change these beliefs.

**Aim:** To explore knowledge, attitude and perceptions of pregnant women regarding antenatal ultrasound.

**Materials and Methods:** A prospective study was conducted during the period between January 2016 to April 2016 in the antenatal clinics attached to the Department of Radiodiagnosis, Bowring and Lady Curzon Hospital attached to Bangalore Medical College, in which pretested Questionnaire was administered before and after conducting ultrasound examination to 200 consecutive volunteers. Data was analyzed using SPSS software for calculating the means, cross tabulations and chi square

test in which the level of significance was kept at  $p < 0.05$ .

**Results:** The questionnaires were administered to 191 consented antenatal patients. The mean age was 23 years. More than 40% patients were not educated beyond 7<sup>th</sup> class. The knowledge of pregnant women about utility of ultrasound in assessing gestational age, date of delivery and abnormalities of the baby was sound (>70%). But the same for assessing presentation, liquor status and abnormalities of uterus was only 30-40%. The awareness was least for placental position (25%). About 30% expressed that repeated scans were harmful and 109 patients (60%) said that the ultrasound done in our setup was as good as private clinics.

**Conclusion:** This study shows that the knowledge and attitude of antenatal patients coming to our hospital was fairly good. Improved awareness is needed regarding safety and utility of ultrasound in Obstetrics and Gynaecology Department. Improving the literacy rate will go a long way in solving most of these problems.

**Keywords:** Awareness, Questionnaire, Obstetrics

## INTRODUCTION

Ultrasound was introduced in Obstetrics by Prof. Donald in 1958. Routine obstetric ultrasound is playing an important role in improving the antenatal care and outcome of pregnancy worldwide. Ultrasound is non-invasive, safe and less expensive with real time imaging capabilities and it gives parents the image of the fetus [1]. Prenatal diagnosis has improved the ability to deal with congenital anomalies and to treat them. Fetal sex determination can be done as early as 13 to 14 weeks and the genitalia can be predicted successfully (83.5%) of the time between 16-20 weeks.

However, innovative medical technologies often raise social, ethical and economic dilemmas for both health workers and

recipients [2]. Several studies have shown that women's awareness and attitude towards antenatal Ultrasonography is very important and that it affects their psyche, hence research in the same area is warranted. This is more apparent where ultrasound has been newly introduced.

Nigenda et al., concluded that pregnant women attending antenatal ultrasound have got several expectations most of which are about knowing about the sex of the fetus, viability, expected due date and reassurance that the baby is fine [3].

Conversely Tautz et al., found that sometimes the expectations may not be met during scanning which is more likely to be encountered in women with higher levels of formal education [4].

Majority of women in developed countries no longer have fears regarding the safety of ultrasound and go for it uncritically.

The paucity of literature in a developing nation like India, where the literature levels of women are modest and prenatal sex determination is banned warrants attention. The society, culture and the way of life in which pregnant women reside affect and influence their awareness, opinion and expectations from the antenatal scan.

By listening to women talk, most problems can be addressed and policies can be created in an appropriate way. The aim of the current study was to identify and assess the awareness and expectations of expectant mothers from antenatal ultrasonography.

## MATERIALS AND METHODS

This descriptive study was undertaken between the period of January and March, 2016 in the Radiology Department of Bowring and Lady Curzon Hospital, Bangalore Medical College and Research Institute. Total 191 consenting pregnant women referred to the Department of Radio-Diagnosis, for obstetric ultrasound were included in the study. All pregnant females referred (who gave consent) during the study period were included in the study irrespective of their socioeconomic, religious or literary background. Similarly, all pregnant women irrespective of their parity or gravid status and prior knowledge or exposure to the ultrasound were included in the study. Those who denied consent for the study were excluded. This study was approved by the Institutional Ethical Review committee, Bangalore Medical College and Research Institute.

### Methodology

Structured pretested Questionnaire containing questions regarding demographics, antenatal history, knowledge and awareness before and after conducting ultrasound examination and feedback were provided to all the patients. They were explained in their own language and asked to fill the form without bias. The distributed questionnaires were filled up and were returned to the authors.

## STATISTICAL ANALYSIS

Data was analyzed using SPSS software (latest version) for calculating the means, cross tabulations and chi square test in which the level of significance was kept at  $p < 0.05$ . Before collecting the data, subjects were informed regarding the objectives of the study, benefit of the study findings and informed verbal consent was taken prior to the administration of the questionnaire.

## RESULTS

The questionnaires were administered to 191 consented antenatal patients who came for ultrasound. The age distribution ranged from 18 to 38 years with a mean age of

23 years as shown in [Table/Fig-1]. About 79 (41.3%) patients were not educated beyond 7<sup>th</sup> class and only 17(9%) of the patient's spouses had a college degree [Table/Fig-2].

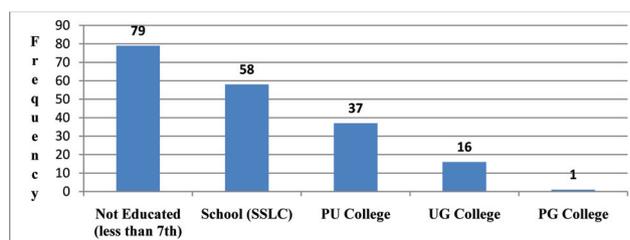
More than 90% of the patients came to know about ultrasound only through their doctors and the scans were referred by the antenatal clinicians [Table/Fig-3].

Only 16 patients were primigravida whereas the rest were multigravida of which almost 93 percent of them got a scan done in their previous pregnancy [Table/Fig-4]. Around 60% of them have got it done 3-4 times in their previous pregnancy.

The knowledge of pregnant women about the use of ultrasound in assessing the gestational age, estimate date of delivery and to see abnormalities of the baby was sound (>70%). Only 30-40% patients knew that ultrasound can give information about presentation, liquor status and abnormalities of uterus. The awareness was least for assessing placental position [Table/Fig-5].

Age (in Years)	No.	Percentage (%)
≤ 20	49	25.7
21-25	89	46.6
26-30	42	22.0
>30	11	5.8
Mean ± SD	23.7 ± 4.0	
Range	18-38	

**[Table/Fig-1]:** Distribution of study subjects according to their age (N = 191).



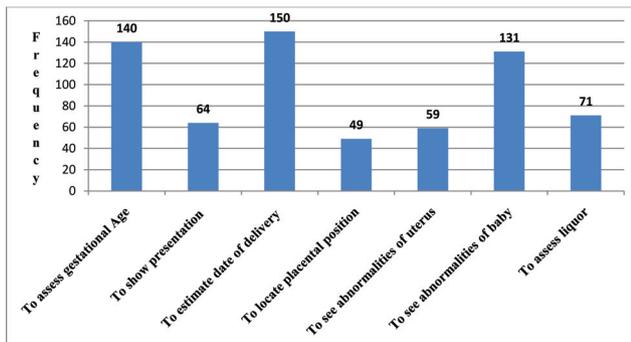
**[Table/Fig-2]:** Distribution of study subjects according to the educational qualification of spouse.

Where did they first hear about antenatal ultrasound	No.	Percentage (%)
TV/Media	3	1.6
Doctor	188	98.4

**[Table/Fig-3]:** Distribution of study subjects according to where did they first hear about antenatal ultrasound (N = 191).

Whether antenatal ultrasound was done in previous pregnancy	No.	Percentage (%)
Yes	163	93.2
No	12	6.8

**[Table/Fig-4]:** Distribution of study subjects according to whether antenatal ultrasound was done in previous pregnancy (N = 175 multigravida).



**[Table/Fig-5]:** Knowledge of uses & Indication of USG in pregnancy (YES).

Regarding our Government hospital setup, almost 96% of the patients felt that response of the radiologist was friendly, were satisfied by the scan done and wished to undergo more scans here while recommending to others. About 90% patients opined that private centres are more costly. 109 patients (60%) said that the ultrasound done in our setup was as good as the private setup while most of them responded that they will be discouraged if they are charged for scans here.

## DISCUSSION

As mentioned earlier, routine obstetric ultrasound has an important role in improving the antenatal care. It is non-invasive, safe and less expensive with real time imaging capabilities. In our study, 191 consented antenatal patients were administered the pretested questionnaires. The mean age recorded was 23 years which is lesser when compared to studies made in developed countries like United Kingdom [5]. This is probably related to the fact that in our country, females marry early when compared to developed countries. Part of that is explained by the literacy rate. 87 (45.5%) patients were not educated beyond 7<sup>th</sup> class and only 9% of their spouses had a college degree. Also, more than 50% of the patients had annual household income between 5000 – 10000 Rs. [Table/Fig-6]. This must be due to the fact that ours was a Government Hospital and all antenatal investigations were done free of cost under the “JANANI SHISHU SURAKSHA KARYAKRAM (JSSK)” National Programme. Formal education and socio-economic status has an impact on the patient's knowledge and attitude towards the reasons and benefit of obstetric ultrasound. Patients who have had college education

Monthly Household Income (Rupees)	No.	Percentage (%)
2000-5000	16	8.4
5001-10000	105	55.0
>10000	70	36.6

**[Table/Fig-6]:** Distribution of study subjects according to their monthly household income (N = 191).

(PU and more) knew the uses, indications and limitations of ultrasound much better.

More than 90% of the patients came to know about ultrasound only through their doctors [Table/Fig-3]. This is similar to studies made by Oche et al., at Sokoto, Nigeria [6] where main source of information was from health workers while in contrast to the findings from studies in Tanzania [7] and Uganda [8] where commonest source of information was family, friends and mass media. Information from friends usually lacks a scientific basis while those from media are generalized. Most of the scans were referred by the antenatal clinicians. This relates to the low literacy rate in patients attending our hospital since they had no intentions to get a scan done unless their doctors wanted it.

About 93 percent of the multigravida got a scan done in their previous pregnancy [Table/Fig-4]. Around 60% of them have got it done 3-4 times in their previous pregnancy. This (93%) is much more when compared to a study by Enakpene et al., in Ibadan, South west of Nigeria [9] which is 58%. This is probably due to a result of wide availability of ultrasound facilities since ours in a tertiary care hospital in a state capital. More than 70% of the patients had a good knowledge regarding certain uses of ultrasound like to assess gestational age, to estimate date of delivery and to see abnormalities of the baby [Table/Fig-6]. This probably relates to the fact our hospital is situated in a state capital and most of the patients had already got scans in previous pregnancies which added to their experience. Secondly, the source of information regarding ultrasound was usually from doctors which clearly avoided unnecessary misconceptions. Only 30-40% patients knew that ultrasound can give information about presentation, liquor status and abnormalities of uterus. The awareness was least for assessing placental position. This is probably because of the complexity of understanding the particular information like placenta, uterine abnormalities etc., since most of the patients and their spouses lacked proper literacy.

Fifty eight patients (30%) expressed that repeated ultrasound scans were harmful [Table/Fig-7]. Level of education and awareness is lacking in this issue. This underscores the need for including information regarding the safety of ultrasound in health talks between the clinician and patient. This problem is similar to studies in Tanzania [7] and Uganda [8] where patients were anxious about the safety of repeated ultrasound exposures.

Whether USG is harmful for baby/mother	No.	Percentage (%)
Yes	58	30.4
No	133	69.6

**[Table/Fig-7]:** Distribution of study subjects according to their knowledge regarding whether USG is harmful for baby/mother (N = 191).

96% of the patients felt that response of the radiologist was friendly, and they were not only satisfied by the scan done but also wished to undergo more scans here while recommending this centre to others. They expressed that private centres are more expensive than the Government Centres. Being financially cheap was not the only reason patients came to our hospital, but 60% think that the ultrasound done in our setup was as good as the private centres. Overall, they are happy with the quality of our setup which is done free of cost under the JSSK scheme. While most of them responded that they will be discouraged if they are charged for scans here.

## LIMITATIONS

This study reflects the perception of women attending the antenatal clinics in Government hospitals only. Hence, the results of the study cannot be extrapolated to the entire community due to differences in literacy rate and socio-economic status of patients attending private clinics both of which transform into better awareness. The study also excludes the husbands and close relatives who also make important decision and determine the perceptions of the pregnant women.

## CONCLUSION

Ultrasonography has been become a vital part of pre-natal care. Most women want it and opt to undergo this non invasive diagnostic test. If performed early, the ultrasonographic detection of intrauterine pregnancy plays a vital role in framing protocols for additional testing and management in the pregnancy. This study shows that the attitude of antenatal patients coming to our hospital was fairly good. There are certain areas which need to be addressed through health talks like the safety of ultrasound and utility of ultrasound

in Obstetrics and Gynaecology to avoid misuse and make them prepare better for the upcoming labour. Improving the literacy rate will go a long way in solving most of the remaining problems. While most people are happy with the scans done in our setup, we would like to improve on our shortcomings and give better quality of healthcare.

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