

## Original Research Article

DOI: <http://dx.doi.org/10.18203/2320-6012.ijrms20172457>

# Ultrasonography awareness among pregnant women attending medical college hospital in Kolhapur District of Maharashtra, India

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Received: 03 April 2017

Accepted: 28 April 2017

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## ABSTRACT

**Background:** Globally there has been increased medicalization of pregnancy due to advances in technology. Ultrasonography examination during pregnancy has become an integral part of antenatal care throughout the world with advanced health care services.

**Methods:** The cross-sectional study was conducted in pregnant women attending the ANC clinic of Obstetric department of D. Y. Patil Medical College Hospital, Kolhapur, Maharashtra, India for routine check up to know the awareness about ultrasonography among them. The study included 290 pregnant women. All were explained the purpose of study and assured confidentiality. Data has been collected from willing participants using pre-tested questionnaire in June-August 2015.

**Results:** The study shows literacy was 87.6%, pregnancy above 20 years age 98.97% and most of them unskilled (83.4%), majority of middle social class (89%). Many (72.41%) pregnant women considered USG use to detect fetal anomalies while 27.93% considered for sex detection. Majority (93.1%) done USG in this pregnancy, of that more (43.45 %) in second trimester and mainly advised by doctors (91.03%). Nearly half of them (50.69%) considered its expensive procedure, 69.31% spent 200/- to 500/- rupees per USG, in spite 94.83% of them would recommend other pregnant women to undergo USG in pregnancy. 50.69% of them opined it should be done twice in pregnancy. Almost 94.83% considered USG as safe and beneficial.

**Conclusions:** Awareness regarding the uses of Ultrasonography during pregnancy and attitude towards it was found to be average. There is need to create more awareness in community about PCPNT act and its provisions. Also there is need of counselling about the safety, utility and frequency of USG during pregnancy to avoid misuse.

**Keywords:** Awareness, Pregnant women, USG

## INTRODUCTION

Ultrasound is non-invasive, safe and less expensive with real time imaging capabilities and it gives parents the image of the fetus.<sup>1</sup> Globally there has been increased medicalization of pregnancy due to advances in technology. Ultrasonography examination during pregnancy has become an integral part of antenatal care throughout the world with advanced health care services. There is a role of ultrasound in reducing infant mortality rate by early detections of fetal anomalies like cardiac

anomalies, neural tube defect and various other developmental effects, complication of pregnancy, detect high risk pregnancy, presentation of fetus, various syndrome related to genetic abnormalities like down syndrome.<sup>2</sup> This technology is an important tool for the obstetricians, to reassure their patients regarding the well-being of their fetus in utero. For a pregnant mother, ultrasound is a source of connecting with her baby and there is a belief that it initiates bonding with the baby.<sup>3</sup> For many expectant parents in India, ultrasound is only a tool for sex determination. In spite of media coverage, the

knowledge regarding PNDT act among antenatal women in studies from Rajasthan and Mumbai, India were found to be only 52.4% and 34.3% of their study population. With the wide availability of ultrasound, the expectation of the general public towards ultrasound has dramatically increased but the actual knowledge regarding its use and its limitations are lacking in them.<sup>4,5</sup> WHO TRS 875 (1998) supports that ultrasound is harmless: "Diagnostic ultrasound is recognized as a safe, effective, and highly flexible imaging modality capable of providing clinically relevant information about most parts of the body in a rapid and cost-effective fashion".<sup>6</sup>

Presently the decline in national child sex ratio has been often criticism for the use of modern technologies in Indian setup. 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.<sup>7</sup> Hence the present study has been planned in pregnant women to know their awareness, attitude regarding ultrasonography in pregnant women attending to Medical College Hospital of Kolhapur, Maharashtra, India.

## METHODS

The present Cross-Sectional study was conducted at Medical College Hospital of D. Y. Patil University, Kolhapur, Maharashtra, India. The study population were the pregnant women attending to the ANC clinic of Obstetric department for routine checkup. 290 pregnant women had participated in the study. The study subjects were selected randomly and explained the purpose of the study and assured confidentiality. Those willing were only included in the study after obtaining the informed consent. Those pregnant women with acute pain in abdomen or unwilling to participate were excluded from study. The data has been collected during the period of June to August 2015. The pre-tested questionnaire was used to collect the data from all participants. The detailed information was collected about socio-demographic profile, obstetric history and thirteen questions related to know the awareness, attitude, expectations and experiences regarding ultrasonography use especially during pregnancy, etc. The collected data was tabulated and analysed for descriptive statistics.

## RESULTS

The present study comprises 290 pregnant women attending ANC clinic of Obstetric department of D. Y. Patil Medical College Hospital, Kolhapur, Maharashtra, India for routine checkup. The demographic distribution of the study subjects (Table 1) represents most of pregnant women (53.1%) belong to 25-30 years age group, 29.3%

above 30 years, 16.6% from 20-25 years and 03 women below 20 years were pregnant. The literacy was found 87.6%, while 26.6% were graduate, 42.4% completed primary education. Only few (3.1%) engaged in skilled work, majority (83.4%) were unskilled and 13.4% semiskilled work. Majority (89%) belong to middle social class while 14.48% were from lower social class as per modified Kuppuswami scale for socio-economic status. Primigravid women were 49.31% and 50.69% multigravid women.

**Table 1: Socio-demographic distribution of pregnant women.**

Socio-demography	Number (N=290)	Percentage (%)
<b>Age (completed years)</b>		
<20	03	1.03
20-25	48	16.6
25-30	154	53.1
>30	85	29.3
<b>Education</b>		
Illiterate	36	12.4
Primary	123	42.4
High school	54	18.6
Graduate	77	26.6
<b>Occupation</b>		
Skilled	09	3.1
Semi-skilled	39	13.4
Unskilled	242	83.4
<b>Socio-economic status</b>		
Upper middle	123	42.4
Lower middle	135	46.6
Upper lower	27	9.31
Lower	15	5.17
<b>Parity</b>		
Primigravid	143	49.31
Multigravid	147	50.69

The awareness regarding ultrasonography use and indications in pregnancy is found to be average in present study. Table 2 shows that most of the pregnant women (94.83%) responded USG is not only beneficial procedure for them but also experienced it as very safe procedure. Inquiry about the expenses towards USG revealed mix responses. Almost fifty percent expressed that USG was expensive test for them while remaining 49.39% found not much expensive. In spite of that 94.83% of pregnant women opined that, they would like to advice other women for USG procedure during pregnancy. Their family views about USG in pregnancy revealed, majority (81.72%) of them replied for knowing growth of baby, while 71.38% for identifying fetal anomalies, 37.24% to know the age of fetus. 15.52 % of family members were considering USG utility for sex determination of fetus and 8.28% thinking it as expensive and money-making business.

**Table 2: Awareness of pregnant women about ultrasonography (N=290).**

Response	Yes	No
Is USG beneficial?	275 (94.83)	15 (5.17)
Is USG safe procedure?	275 (94.83)	15 (5.17)
Was USG expensive?	147 (50.69)	143 (49.31)
Would you advice other pregnant for USG?	275 (94.83)	15 (5.17)
<b>Family views about USG*</b>	<b>Number</b>	<b>%</b>
-Sex determination	45	15.52
-Fetal anomaly	207	71.38
-Growth of baby	237	81.72
-Age of foetus	108	37.24
-Expensive, money making, others	24	8.28

\*Multiple responses.

Table 3 shows the knowledge of indications, frequency and expenses towards ultrasound in during pregnancy. According to pregnant women, most common indication of doing USG in pregnancy was to detect fetal anomalies (72.41%), to know the growth and age of fetus (49.66%), done when complication arises in pregnancy (44.33%), to detect the sex of fetus (27.93%), to confirm pregnancy or presence of multiple pregnancy, etc. (4.14%). Many (97.24%) of pregnant women had done the USG previously. Of that, 63.1% done in previous pregnancy, 43.45% done for abdominal problems, 21.72% for UTI. Only 8 women were experiencing USG for first time. For the current pregnancy, 93.1% had done USG and 6.9% yet not done. Reasons for doing USG were as per advice of doctor (91.03%), self-advice (2.07%) while for not doing USG blamed the doctor for not advising (3.45%), financial and family reason in 3.44% women. Majority had done (43.45%) USG in second trimester, 25.52% in first trimester while 24.14% in third trimester. When enquired about frequency of doing USG, 50.69% opined that be done twice, 31.03% for thrice, 9.31% once and 2.07% told there is no need of USG in pregnancy. It has been reported that, 69.31% spent 200-500/- rupees, 27.93% spent 500-1000/- rupees, 5 women spent >1000/- rupees while 3 has managed with even 100-200/- rupees.

## DISCUSSION

Ultrasound is non-invasive, safe and less expensive procedure with real time imaging capabilities. Routine obstetric ultrasound has an important role in improving the antenatal care. The awareness regarding ultrasonography use and indications in pregnancy is found to be average in present study.

In present study, 72.41% of pregnant women considered detecting fetal anomalies to be the most common indication of ultrasonography in pregnancy. The similar results found in Krishnamoorthy N et al there 70% participants considered its use for detecting defects in baby, while 51.9% considered as per Munim et al.<sup>8,9</sup>

49.66% of present study women considered USG indication for monitoring growth and age of fetus while 88% in Krishnamoorthy N et al and 82.1% in Munim et al, subjects considered monitoring growth of the baby as main indication.

**Table 3: Responses of pregnant women about indications, frequency and expenses towards ultrasonography.**

Response	Number (N=290)	Percentage (%)
<b>Indications for USG according to you? *</b>		
Complication of pregnancy	129	44.33
Fetal anomaly	210	72.41
Growth monitoring and age of foetus	144	49.66
Sex determination	81	27.93
Others- confirm pregnancy, presence multiple pregnancy, etc.	12	4.14
<b>Prior USG done and indications?</b>		
a) Yes	282	97.24
Previous pregnancy	183	63.1
Abdominal problems	126	43.45
UTI	63	21.72
Others	06	2.07
b) No	08	2.76
<b>USG status of current pregnancy</b>		
a) Done	270	93.1
Advised by doctor	264	91.03
Self advice/self knowledge	06	2.07
Which trimester?		
First	74	25.52
Second	126	43.45
Third	70	24.14
b) Not done	20	6.90
Not advised by doctor	10	3.45
Financial constraints	09	3.10
Family problem	01	0.34
<b>How many times USG should be done?</b>		
Once	27	9.31
Twice	147	50.69
Thrice	90	31.03
No need	06	2.07
<b>Amount spent for USG by you? (in Rupees)</b>		
100-200/-	03	1.03
200-500/-	201	69.31
500-1000/-	81	27.93
>1000/-	05	1.72

\*Multiple responses.

In present study, 27.93% of pregnant women considered USG indication to detect the sex of fetus while in 36% of the participants in Krishnamoorthy N et al had the same consideration. While Shidaye PR et al showed that 91.4% females told that sex determination can be done by

sonography and maximum at private hospitals.<sup>5</sup> Sonography as a technique for sex determination was done at private hospital was known to majority, 90% of women, as evident from Chavada M et al.<sup>10</sup> Comparatively lower figures in our study might be associated with some awareness amongst study subjects. But this could not hide lack of awareness about PCPNDT act and its main purpose.

In present study, 63.1% of pregnant women had done the USG in previous pregnancy, but its higher 93.1% for current pregnancy and 50.69% of our study participants done USG twice, 31.03% for thrice during pregnancy. Dasan TA et al about 93% of multigravida got a scan done in their previous pregnancy and around 60% of them have got it done 3-4 times in their previous pregnancy.<sup>7</sup> This increasing trend in present study might be result of wide availability and accessibility of USG facilities in urban areas.

In present study, 91.03% of women had done USG on advice of doctor and majority (43.45%) done it in second trimester. Krishnamoorthy N et al, ultrasound was advised by the treating Obstetricians in 87% and 88% obtained information regarding ultrasound only from their doctors. Doctors are found to be the main source and educator regarding ultrasound for the pregnant women.

In present study, 94.83% responded USG is not only beneficial procedure for them but also experienced it as very safe procedure. 88% of the participants considered ultrasound as safe according to Krishnamoorthy N et al 30% of subjects expressed that repeated ultrasound scans were harmful as per Dasan TA et al. This shows that, doubts' regarding safety of ultrasound is persisting in all societies. Studies have shown that patients considered that too many ultrasound may be harmful to the baby and also had belief that ultrasound could cause cancer.<sup>11</sup> In study from Tanzania, many women believed that ultrasound could cause significant impairment to the mothers or their babies.<sup>12</sup> Similar findings in Uganda studies where patients were anxious about the safety of repeated ultrasound exposures.<sup>13</sup> This underlines the need for health education regarding the safety of ultrasound to be given to patient. In this study, majority (89%) belong to middle social class while 69.31% spent 200-500/- rupees, 27.93% spent 500-1000/- rupees, and 50.69% expressed that USG was expensive for them. More patients (44%) from upper middle social class in Yadav JU et al probably indicates, that owing to inflation and rising costs of commodities, some people from upper middle class can no more afford the costs incurred in private-medical sector and have to therefore seek medical services of a Government hospital.<sup>14</sup>

## CONCLUSION

The observations in present study may not reflect the scenario worldwide has been drawn from a small group

of pregnant women at Medical College Hospital. The awareness regarding ultrasonography use and indications in pregnancy is found to be average in present study. Though it's expensive for some, ultrasonography is not only beneficial procedure for them but also experienced it as very safe procedure. It has been most vital part of antenatal care in maternal and child health. Even though doubts' regarding safety of ultrasound is persisting in community. Few of pregnant women and families considered USG indication to detect the sex of fetus in study group warrants the urgent need for health education of the community regarding PCPNDT act and its provisions as well proper implementation of the same by appropriate authorities. While certain areas need to be addressed through counselling about the safety, utility and frequency of ultrasonography during pregnancy to avoid misuse.

## ACKNOWLEDGEMENTS

Authors express sincere gratitude to 6th Term medical students namely Kaustubh Tare, Vipul Maheshwari, Irshad Tamboli, Rahul Ugale, Akash Shinde for helping in data collection for the study project.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Yadav JU, Yadav DJ.

Ultrasound awareness among pregnant women attending medical college hospital in Kolhapur District of Maharashtra, India. *Int J Res Med Sci* 2017;5:2612-6.