ORIGINAL ARTICLE

Knowledge and Attitude Towards Routine Obstetric Ultrasound Screening & Reproductive Health Act among the Pregnant Women at a Tertiary level Hospital of Nepal

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Abstract

Introduction: Ultrasonography examination during pregnancy forms an integral part of antenatal care throughout the world. The decision of women to undergo an obstetric ultrasound test is influenced by their level of knowledge and attitude toward prenatal procedures.The purpose of the study was to assess knowledge and attitude towards routine obstetric ultrasound screening & reproductive health act among the pregnant women at a tertiary institution of Pokhara.

Methods: A descriptive cross-sectional study was done at the radiology department of Western Regional Hospital. Eligible participants were sampled conveniently (n=110) through an adapted questionnaire. Descriptive methods were used for sociodemographic variables.The data was entered in SPSS and analyzed using descriptive statistics.

Results: The majority of pregnant women (94.5%) had good knowledge about obstetric ultrasonography.The level of positive attitude toward obstetric ultrasound was 71.82 %. Although 88.2% of pregnant women knew about sex determination, only 65.5% were aware of The Right to Safe Motherhood and Reproductive Health Act.

Conclusion: The knowledge and attitude regarding ultrasound use during pregnancy was fairly good but many pregnant women were aware of prenatal sex determination and unaware of The Right to Safe Motherhood and Reproductive Health Act.

Keywords: Attitude, Knowledge, Obstetric Ultrasound Screening, Safe motherhood and Reproductive health Act

Introduction

Ultrasonography examination during pregnancy has become an integral part of advanced antenatal health care services throughout the world.[1] Due to its non-invasiveness, affordability, and real-time imaging capabilities, ultrasonography is the preferred imaging method.[2] Obstetric ultrasound is safe ,cheap,harmless imaging modality and is used worldwide for real time image of fetus[3] In general practice, first trimester ultrasound is done to determine intra or extra uterine gestation, fetal viability, number of fetuses, occurrence of molar pregnancy. Targeted anomaly scan is performed at 18-22 week, including fetal echocardiogram depending upon clinical scenario. Fetal weight estimation, placental localization, amniotic fluid volume, fetal cardiac activity determination are done at second and third trimester.[4]

The Safe Motherhood and Reproductive Health Act, 2075 of Nepal is a landmark legislation aimed at ensuring the rights of women to safe motherhood and reproductive health services. This act guarantees free maternal and newborn care services at public health facilities, protecting women's rights to informed consent and privacy in reproductive health matters. A woman can legally obtain an abortion up to 12 weeks of gestation and, up to 28 weeks in the case of rape or incest, if her life is at risk or the fetus has congenital anomalies. legalized abortion in Nepal

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expressly prohibits sex determination and sex-selective abortion reinforcing ethical practices and addressing gender-based discrimination to promote equity and safeguard reproductive rights in Nepal.[5]

Without intervention, the sex ratio at birth in human population is essentially a biological constant with relatively little variation. Typically, for every 1,000 males born, there are between 950 and 975 females and this should not vary by birth order.[6] In our context, this pattern is similarly observed in the sex ratio of firstborn children, however, for second and third-born children, where the previously born were female, a decline in the sex ratio is observed, potentially indicating the influence of sex-selective abortion.[7] Studies have shown that legalization of abortion in Nepal has further led to the sex selective abortion and activists estimate that around 50,000 unborn babies are aborted in Nepal every year after parents find out through ultrasound scans that they are girls.[8]

There is an underlying influence of traditional ,conservative ,societal beliefs in women's expectation, opinion, awareness from antenatal scan.[9] Even though prenatal sex determination is banned in Nepal,there is not enough literature to address its effective implementation.[5] The decision of women to undergo an obstetric ultrasound test is influenced by their level of knowledge and attitude toward prenatal procedures, and some women's lack of knowledge may lead them to reject prenatal screening and diagnosis. For these reasons, it is important to evaluate the knowledge and attitude of women towards obstetric ultrasound. The findings from this study would be useful to better understand the various factors which influence the decision of women to undergo routine antenatal care and also their views regarding the act would help in planning of reproductive health related policies.

Methods

A descriptive cross-sectional study was done at the Radiology department of Western Regional Hospital among pregnant women of 15-49 years who came for ultrasonography without any maternal complications. Non-probability Convenient sampling technique was used to select the respondents.

The sample size was determined using the Cochran formula (Z^2pq/ e^2)by considering the 93.0% of pregnant women attending a University Hospital had good knowledge.[10] and a 95% confidence interval with 5% margin of error.

$n= Z^2pq/e^2$

Z= 1.96 at 95% Confidence Interval

p=93% (according to literature review)

q=100-p =7%

e= 5%

n=(1.960)2x93x7/52=100

Now adding 10.0% non-response rate in calculated sample size it becomes 110.Therfore the study was carried out among 110 pregnant women from kartik to Chaitra of 2080

Ethical approval was obtained from the Institutional Review Committee (IRC), Pokhara Academy of Health Sciences (Ref no 194/080)& written informed consent was obtained from the respondents after explaining research objectives and process.

Paper-based data collection was done by using an adapted questionnaire.Data were collected through face-to-face interview by the researcher.Data collection tool was adapted after extensive literature review and based on the questionnaires used by other researchers in similar studies[3,10,11]. Questionnaire were translated in nepali by language experts (proficient in English and Nepali languages) whose mother tongue was Nepali and back translation was done and were found to be comparable with original, and was pretested in 10 % sample visiting for routine obstetric ultrasound screening at the radiology department of Western Regional Hospital, leading to adjustments. Internal consistency and reliability were confirmed with a Cronbach's alpha of 0.80.

The questionnaire contained 5 sections, section I comprised details of socio-demographic data including questionnaire regarding the person who suggest for this ultrasonography and number of scans considered ideal during pregnancy,the section II encompasses 17 questions on Knowledge regarding ultrasonography during pregnancy, score of instrument ranged from 0 to 17.Paricipants who scored greater than 50 percent was considered as good and score less than or equal to 50 percent was considered as poor[10]. The section III of questionnaire contains 4 items, about Attitude regarding ultrasonography: The attitude score (AS) was summative score derived from Likert-type scale responses. Participants' responses to each of the attitude questions could range from "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree." Finally, they were dichotomized into positive and negative attitudes by merging neutral, disagree, and strongly disagree into a negative attitude and agree and strongly agree into a positive attitude. The overall attitude was determined by the mean of all 4 attitude-related questions. Participants who scored above or equal to the mean value were determined to have positive attitude while those who scored below the mean were determined to have a negative attitude towards obstetric ultrasound. The section IV and V contains questionnaire regarding Knowledge about reproductive health act(7 items) and Attitude regarding reproductive health act (4 items) respectively.

Data Analysis: Data were entered in Microsoft Excel 2019 and were exported to Statistical Package for Social Sciences (SPPS) version 25. Finally, statistical analysis was carried out using SPSS version 25.

In descriptive statistics for continuous variables mean and standard deviation was calculated while categorical variables were expressed in terms of frequency and percentage.

Results

Out of 110 participants around two-third of the participants were from age group (20 - 30 years) with average age 27.45 ±4.896.(Table 1)

Table 1: Sociodemographic & General Information (n=110)

Characteristics	Category	Frequency (n=110)/	Percentage(%)
Age in years	<20	7	6.4
	20-30	71	64.5
	>30	32	29.1
	Mean age±SD (Max, Min)	27.45 ±4.896 (19,38)	
Mothers Education	Illiterate	2	1.8
	School education	71	64.5
	Graduates	21	19.1
	Post-graduate	16	14.5
Husbands Education	Illiterate	2	1.8
	School education	73	66.4
	Graduates	13	11.8
	Post-graduate	22	20.0
Ethnicity	Brahman/Chhetri	41	37.3
	Janjati	38	34.5
	Dalit	28	25.5
	Madhesi	2	1.8
	Muslim	1	0.9
Occupation	Homemaker	40	36.4
	Service/ Employed	70	63.6
Income in thousands	10-20	21	19.1
	21-30	26	23.6
	31-40	20	18.2
	41-50	12	10.9
	>50	31	28.2
Trimester	1st	17	15.5
	2nd	47	42.7
	3rd	46	41.8
Sex of previous child	Primigravida	47	42.7
	Previous abortion	5	4.5
	>1 live born son	28	25.5
	0 son,1-2 live born daughter	29	26.4
	0 son, ≥ live born daughter	1	0.9
Number of USG you consider is as ideal during pregnancy	<4	28	25.5
	4	37	33.6
	5-7	32	29.1
	≥8	13	11.8

The mean knowledge score was 13.53+ 2.605,(Range min-max=7-17) where majority 104 (94.5%) had good knowledge, and only 6 (5.5%) had poor knowledge (Figure 1).

Majority of the participants were knowledgeable about the use of obstetric ultrasonography for knowing the Fetal Heart rate 99.1%, for confirming the presence of abnormal pregnancy (multiple, ectopic and molar) 94.5%, for determining the sex of the fetus 91.8%, to reduce maternal morbidity and perinatal mortality (90.9%), and to assist with finding the expected date of delivery 90.9%, whereas the questions where majority of the study participants were lacking knowledge was to determine the fetal heart rate in the 6th week(48.2%)(Table 2)

Table 2: Knowledge of participants regarding USG during Pregnancy

S. No	Knowledge of ultrasound	Yes n (%)	No n (%)
1.	Helps in determining the fetal, cord and placenta position	94 (85.5)	16 (14.5)
2.	Assists with finding the expected date of delivery	100 (90.9)	10 (9.1)
3.	Useful with knowing the Sex of the fetus	101 (91.8)	9 (8.2)
4.	Determines the Sex of fetus in the 12th week	60 (54.5)	50 (45.5)
5.	Use to detect any defect or congenital abnormalities during pregnancy	91 (82.7)	19(17.3)
6.	The monitoring of pregnancy complication one of the practices of the (USS) ultrasoundscan	93 (84.5)	17(15.5)
7.	Helps to detect amniotic fluid volume	96 (87.3)	14 (12.7)
8.	Reduce maternal morbidity and perinatal mortality	100 (90.9)	10 (10.1)
9.	The Fetal Heart rate detected by obstetric ultrasonography	109 (99.1)	1(0.9)
10.	Determines the fetal heart rate in the 6th weak	53 (48.2)	57 (51.8)
11.	Predicts the way of delivery (normal? C-section)	98 (89.1)	12(10.9)
12.	Confirms the presence of abnormal pregnancy (multiple, ectopic and molar)	104 (94.5)	6(5.5)
13.	Give accurate information about fetal weight	98 (87.3)	14 (12.7)
14.	Doesn't help in determining the Autism	72 (65.5)	38 (34.5)
15.	Doesn't help in determining the cerebral palsy	56 (50.9)	54 (49.1)
16.	Doesn't help in determining the learning difficulties	69 (62.7)	41 (37.3)
17.	Contributes to the prediction of miscarriage during pregnancy.	96 (87.3)	14(12.7)

The result revealed that majority believed obstetric ultrasonography is safe (95.4) and an essential investigation during pregnancy, (96.4%) respectively and felt comfortable

during ultrasound examination(97.3%),while (83.6%) believed that USG doesn't lead to a congenital anomaly.The mean value for overall attitude related questionnaire was 2.9. More than two third (71.82)of the pregnant women had positive attitude towards obstetrical ultrasound.(Table 3)

Table 3: Attitude towards obstetric ultrasonography scanning (n=110)

Variables	Frequency	
	Yes (n)	%
Obstetric ultrasonography is safe	105	95.4
Ultrasound in an essential investigation during pregnancy	106	96.4
Felt comfortable during ultrasound examination	107	97.3
Obstetric ultrasonography can lead to congenital anomaly	18	16.4
Positive attitude	79	71.82
Negative attitude	31	28.18

Among total participants 88.2% knew about the sex determination,79.1% of the participants responded that sex determination can be done at private hospital, 82.7% of participants answered that sonography is the technique used for sex determination,72.7 % of women know that determining sex of child is a crime and 65.5% of the participants know about Act, among them 59.7% of the women came to know about the act via mass media, on the other hand 41.8% of participants don't know about the legal punishment for determining sex. (Table 4)

Table 4: Assessment of the knowledge about Reproductive Health Act among pregnant women(n=110)

Variables	Response	n (%)
Know about sex determination	Yes	97(88.2)
	No	13(11.8)
Sex determination can be done at	Government Hospital	3 (2.7)
	Private hospital	87 (79.1)
	Don't know	20 (18.2)
Technique used for sex determination	Sonography	91(82.7)
	Don't Know	19(17.3)
Know that determining sex of child is a crime	Yes	80 (72.7)
	No	30(27.3)
Know about Right to safe motherhood & Reproductive Health Act	Yes	72(65.5)
	No	38(34.5)
Source of Knowledge of Act (n=72)	Mass media	43(59.7)
	Health Staff	21(29.2)
	Friends/Relative	8(11.1)
Know about legal punishment for determining sex	Yes	61(55.5)
	No	3(2.7)
	Don't Know	46(41.8)

Two third of the participants thought that sex determination must be punished,94.5% women were willing to motivate people and spread awareness about the act,69.1% of the participants thought that law against sex determination must be strictly enforced. Two third of the participants were of the opinion that person (doctors, staff and relatives) performing sex determination must be punished severely and 40% told that they should not be punished. (Table 5)

Table 5: Assessment of the Attitude about Reproductive Health Act among pregnant women(n=110)

1.	Particulars	Response	N(%)
2.	Do you think sex determination must be punished?	Yes	73(66.4)
		No	37(33.6)
3.	Are you willing to motivate people and spread awareness about act?	Yes	104(94.5)
		No	6(5.5)
4.	Did you think that law against sex determination must be strictly enforced?	Yes	76(69.1)
		No	34(30.9)
5.	Do you feel correct that person (doctors, staff and relatives) performing sex determination must be punished severely?	Yes	66(60)
		No	44(40)

Discussion

In our study finding majority of pregnant women 94.5%had good knowledge about obstetric ultrasonography. Similar findings were reported from the studies done in other part of Asia by Abduljabbar et al. and Yadav et al. which shows that 93% & 94.8% of participants expressed an adequate level of knowledge about obstetric ultrasonography respectively.[10,12]

The highest participants correct responses were regarding that obstetric ultrasonography were useful with knowing the Fetal Heart rate detected by obstetric ultrasonography 99.1%, obstetric ultra sonography confirms the presence of abnormal pregnancy (multiple, ectopic and molar) 94.5%, the Sex of the fetus 91.8%, Reduce maternal morbidity and perinatal mortality 90.9%, and assists with finding the expected date of delivery 90.9% respectively,while the least identified obstetric sonography knowledge was determining the fetal heart rate in the 6th week 48.2%, was doesn't help in determining the cerebral palsy 50.9%, obstetric ultrasonography determines the Sex of fetus in the 12th week" 54.5%. Similar to the finding in a study by Abduljabbar et al. where highest participants correct response were for the fetal heart rate detected by obstetric ultrasonography" (96.7%), "obstetric ultrasonography confirms the presence of abnormal pregnancy" (90.5%),whereas the two least common obstetric sonography-related items were "obstetric ultrasonography determines the sex of fetus in the 10th week" (26.8%) and "doesn't help in determining the cerebral palsy" (37.1%).[10]

A study conducted by Kozuki et. al in one of the rural district of Nepal showed that 3962 (64.1%) of the study participants heard about the USG & it is used mainly for identifying fetal position(72.4%),for baby's health (39.9%),for fetal

sex determination (38.8) and for maternal health 30.9% respectively.[13]
Yadav et al., in India, reported that 81.72% of study participants replied that obstetric sonography was for knowing the growth of the baby and for identifying fetal anomalies (71.38. While the least knowledge was about sex determination of fetus (15.5%) and determining the age of the fetus (37.2%).[12]

Regarding Attitude, study revealed that 71.82% of pregnant women have a positive attitude toward the use of obstetric ultrasound. This result is consistent with a study carried out in public hospital of Ethiopia, that found that 69.5% of the pregnant women had positive attitude.[3] The majority of the participants believed that obstetric ultrasound is safe, and necessary and does not lead to congenital anomaly and almost all felt comfortable during the scan due to ultrasound nature of being noninvasive with no radiation and harmless to the fetus. Krishnamoorthy Net al.reported a similar result, that obstetric ultrasonography is safe (88%) and essential (98%) during pregnancy.[14]

Regarding the knowledge of these women on Act 88.2% of participants knew about sex determination while only 65.5 % women knew about The Right to Safe Motherhood and Reproductive Health Act which is similar to the study done in India by Shrivastava S et al. which revealed that 80% females were aware of prenatal sex determination and 67% unaware of PNDT Act.[15] similar kind of the study was also done in India where 91.4% females told that sex determination can be done by sonography and maximum at private hospitals.[11] In our study, 82.7% of the pregnant women knows that sonography is the technique used for sex determination it is most commonly performed at private health facilities (79.1%) this reflect that ultrasound misuse for sex identification during prenatal scan is very less at government institution like Western regional Hospital.

More than two third of the study participants thought that sex determination must be punished as it is illegal in our country. In study done by Kansal R.et.al 84.5% of respondents were aware that prenatal diagnostic tests are illegal.[16] Two third of the participants were of the opinion that person (doctors, staff and relatives) performing sex determination must be punished severely and 40% told that they should not be punished. Almost all of our study participants were willing to motivate people and spread awareness about Safe Motherhood and Reproductive health Act

Limitation

The results of this study cannot be generalized to the entire population because there is the possibility of under or overestimation. This study included participants from radiology department of a single tertiary center which is a referral center. So, data may not represent a generalized data of population on large scale needed to explore this issue and generalize the findings.

Conclusion

In this study the knowledge and attitude regarding ultrasound use during pregnancy was fairly good. Many pregnant women were aware of prenatal sex determination and unaware of The Right to Safe Motherhood. As Prenatal sex determination is strictly prohibited in our country, every possible route like publicization in the media, providing information during antenatal visit, training of health workers, should be utilized to raise awareness regarding recommendations of the Safe motherhood and Reproductive Health Acts among the public.

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