Original Article

Prenatal ultrasound sex identification: Some factors that influence pregnant women's requests in Enugu, South-East Nigeria

Joseph Okike Ezugworie, Augustine Uchechukwu Agu, Chimdimma Noelyn Onah[1], Johnson Nto Nto, Tochukwu Christopher Okeke[2]

Departments of Anatomy and [2]Obstetrics and Gynecology, College of Medicine, University of Nigeria, Enugu Campus, [1]Department of Statistics, University of Nigeria, Nsukka, Nigeria

Abstract

Background: Mothers have always had cause to worry about the sex of their unborn child, but prenatal sex determination has continued to attract mixed feelings and reactions worldwide. This study was aimed at determining factors that influence pregnant women's requests for ultrasound sex identification of fetuses in Enugu, South-East Nigeria. **Materials and Methods:** A descriptive cross-sectional study of pregnant women attending antenatal clinic at University of Nigeria Teaching Hospital, Enugu, was done. A structured questionnaire was used to obtain information on the factors influencing their willingness to know the sex of their unborn children. **Results:** A total of 416 responses were obtained. Nearly 40.4% of the respondents were interested in knowing the sex of their children. Almost 56.3% preferred to have a male child, 8.7% preferred to have a female child while 25.5% of the respondents were indifferent. Those who had preference for a particular sex were more interested in requesting for prenatal sex determination than those who did not (54.2% vs. 24.0%). Those who had family pressure for a particular sex were more interested than those who were not pressured (65.9% vs. 33.1%). Other factors that influenced their desire to request for the prenatal sex of their children were preference for a male child, desire for more children dependent on the sex of the index fetus, and desire for more children (irrespective of the sex). **Conclusions:** Preference for a particular sex, desire to have more children, and family pressure for a particular sex were found to be the major factors that influence the desire for prenatal sex determination by pregnant women in this study.

Key words: Enugu, pregnant women, prenatal sex identification, ultrasound

Address for correspondence:
Dr. Augustine Uchechukwu Agu,
Department of Anatomy, College of Medicine,
University of Nigeria, Enugu Campus, Nsukka, Nigeria.
E-mail: augustine.agu@unn.edu.ng

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INTRODUCTION

Even before the advent of orthodox antenatal care in Nigeria, mothers have had causes to worry about the sex of the unborn child. Then, the couples sought divine interventions to childbearing and determining a particular sex. Under normal circumstances, the chance of any child being a particular sex is around 50%: typically 102–106 boys are born for every 100 girls (Lamina *et al.*, 2004). Since the introduction of ultrasonography in obstetrics by Ian Donald, its scope of application has expanded greatly that the machine has become a standard equipment in many modern obstetric units worldwide (Lamina *et al.*, 2004; Adekanle *et al.*, 2007). The possibility of establishing the diagnosis of fetal sex by ultrasound was first apparent during the scanning of a fetus with bilateral hydrocele (Okonta *et al.*, 2004). Ultrasound is now the most common method for identifying sex prenatally and is used for medical indications such as sex-linked medical disorders and social reasons such as what wears to buy for the child (Shipp *et al.*, 2004; Ekele *et al.*, 2008). There is a demand for ultrasound sex determination by Nigerian pregnant women as it is in different parts of the world. Sex preference exists (Adekanle *et al.*, 2007) in Nigeria, and the preferred sex among Igbos of South-East Nigeria is male. In some countries where male offspring are more desirable, fetal sexing during ultrasound examinations has been outlawed due to growing concern that large number of fetuses are being terminated (Hazel and Nigel, 2012). However, it is also known that many women want to know the sex either out of curiosity or help to plan for the new arrival (Olatunbosun *et al.*, 1991). It has been argued that identification of fetal gender should not be performed on demand or as a matter of routine in developing countries because of the associated positive and negative parental attitudes (Winestine, 1989; Sjogren, 1988), limited resources, shortage of skilled workforce, and possibility of termination of the unwanted sex. Yet a number of obstetricians and radiographers offer prenatal ultrasound sex identification to their patients (Nzeh, 1996). Ultrasonography is not done routinely for most pregnant women in Nigeria (Lamina *et al.*, 2004). This study was carried out to assess some of the factors that influence the pregnant Nigerian women to request for ultrasound sex identification of their unborn fetuses. This will enable obstetricians and radiologists to have a policy on prenatal ultrasound sex identification in Nigeria.

MATERIALS AND METHODS

A descriptive cross-sectional study of 416 pregnant women attending antenatal clinic at University of Nigeria Teaching Hospital (UNTH), Enugu State, Nigeria, was done. Structured questionnaires were used to obtain biodata and other information on the factors influencing their willingness to know the sex of their unborn children using ultrasound. Descriptive statistics was used, and mean and frequencies were obtained. Test of association was carried out using Chi-square test while bivariate step-wise logistic regression was performed to identify predictors.

Ethics

Approval of the study protocol was obtained from the Ethical and Research Committee of UNTH, Ituku-Ozalla, Enugu. Informed consent was obtained from all the participants.

RESULTS

A total of 416 respondents were enrolled in the study. The mean age was 33 years. One hundred and sixty-eight (40.4%) respondents stated that they were interested in knowing the sex of their children during ultrasonography. One hundred and Sixty-six (39.9%) respondents as seen in Table 1 had preference for a particular sex, 185 (44.47%) did not have preference for a particular sex while 65 (15.63%) neither specified whether they have preference for a particular sex or not. Two hundred and fifty (60.10%) respondents were of the Igbo ethnic group. Three hundred and seventy-nine respondents (91.11%) were Christians. Four hundred and three (96.88%) respondents were married, ten (2.4%) were single, one (0.24%) respondent was separated while the other two (0.48%) were widowed.

One hundred and fifty-five (37.26%) respondents were employed by the government, 53 (12.74%) were homemakers, 91 (21.88%) were self-employed, 24 (8.17%) were employed in private firms, 67 (16.11%) of the respondents were students, 6 (1.44%) were apprentices while the other 10 (2.41%) did not specify. Two hundred and forty-six (59.13%) respondents were nulliparous while 170 (40.84%) were multiparous. Seventy-eight (18.75%) had problem in the index pregnancy; 311 (74.76%) had no problem in the index pregnancy while 27 (6.49%) did not specify. One hundred and thirty-one respondents (43.3%) indicated that having more children was dependent on the sex of the index pregnancy while 189 (45.43%) did not mind and 96 (23.08%) did not specify. Three hundred and twenty-one (77.16%) respondents planned their pregnancy, 73 (17.55%) did not plan their pregnancy while 22 (5.29%) did not specify if they did.

On bivariate analysis in Table 2, there was a significant relationship between interest in knowing fetal sex and some variables. A significant relationship ($P = 0.001$) exists between the variables and the desire to know unborn fetal sex as follows; those who had preference for

Table 1: Socio-Demographic characteristics

	No	Percent
Age GRP (Yrs)		
<15	0	0
15-20	5	1.20
21-25	70	16.83
26-30	131	31.49
31-35	143	34.38
36-40	49	11.78
41-45	12	2.88
46-50	3	0.72
Not Specified	3	0.72
	416	
Marital Status		
Married	403	96.88
Single	10	2.40
Seperated	1	0.24
Wido	2	0.48
	416	
Education		
None	3	0.72
Primary	25	6.01
Secondary	134	32.21
Tertiary	247	59.38
Not specified	7	1.68
	416	
Parity		
Nullipara	246	59.13
Multipara	170	40.87
Occupation		
House wife	53	12.74
Govt employed	155	37.26
Private firm	34	8.17
Self employ	91	21.88
Student	67	16.11
Applentics	6	1.44
Not spesified	10	2.40
	416	
Religion		
Christianity	379	91.11
Not specified	37	8.89
	416	
Ethnicity		
IGBO	250	60.10
Yoruba	4	0.96
Others	6	1.44
Not specified	156	37.50
	416	
Interested in knowing the sex		
No	168	40.38
Yes	210	50.48
Not specified	38	9.13
Preference for Particular sex		
Yes	166	39.90
No	185	44.47
Not specified	65	15.63
	416	

Table 2: Desire to know fetal sex

Variables	Interested (%)	Not interested (%)	df	Pearson chi-square
Pregnancy status			1	0.322
Planned	129 (40.2)	192 (59.8)		
Not planned	27 (28.4)	68 (71.6)		
Problem detected in this preg			1	0.084
Yes	37 (47.4)	41 (52.6)		
No	113 (33.4)	225 (66.6)		
Previous children sex det. by USS			1	0.000
Yes	67 (62.1)	41 (37.9)		
No	54 (17.5)	254 (82.5)		
Having more babies depends on sex of index fetus			1	0.000
Yes	57 (43.5)	74 (56.5)		
No	77 (27.1)	208 (72.9)		
Preference for a sex			1	0.000
Yes	90 (54.2)	76 (45.8)		
No	60 (24.0)	190 (76.0)		
Need more children			1	0.022
Yes	137 (41.5)	193 (58.5)		
No	18 (20.9)	68 (79.1)		

a sex were more interested in knowing the fetal sex than those who did not (54.2% vs. 31.2%). Those whose desire in having more children depended on the sex of the index fetus were more interested than those whose desire was not dependent on the index fetus (43.55% vs. 38.9%). In addition, those who previously determined the sex of their child through ultrasound were more interested than those who did not (62.1% vs. 32.8%). Those who had family pressure for a particular sex were more interested than those who were not pressured (65.9% vs. 33.1%). Those who desired male child were more interested than those who desired female child or no preference to any sex (56.7% vs. 23.7%).

However, there are other variables whose "Pearson's Chi-square" values were greater than the level of significance ($\sim$ =0.001). Therefore, these variables did not have a significant association with knowing the fetal sex; those who planned their pregnancy were more interested than those who did not plan their pregnancy (40.2% vs. 41.1%), those who need more children were more interested than those who did not (41.5% vs. 23.7%), and those who detected problem in their pregnancy were more interested than those who did not (47.4% vs. 38.9%).

DISCUSSION

Obstetricians and sonographers have varied comments/recommendations regarding prenatal ultrasound sex identification (Adekanle *et al.*, 2007; Olatunbosun *et al.*, 1991; Nzeh, 1996; and Eze *et al.*, 2010). The true value of fetal gender determination at present remains uncertain (Olatunbosun *et al.*, 1991), especially in Nigeria where sex-linked diseases are rare. The Society of Obstetricians and Gynecologists of Canada (SOGC) recommends that fetal genitalia be examined as part of the routine second-trimester obstetric ultrasound and

that the examination should be prolonged or repeated if no abnormalities are seen but sex determination is inconclusive (SOGC, 2007).

This study conducted in Enugu, South-East Nigeria, showed that 40.4% of the respondents required prenatal ultrasound sex determination of the fetus. The pregnant women were predominantly of Igbo ethnic group. In similar studies done among Yoruba ethnic group, southwest Nigeria (Enakpene *et al*., 2009), Hausa ethnic group, northern Nigeria (Maaji *et al.*, 2010), and in America (Thomas *et al.*, 2004), majority of the respondents, i.e., 69.5%, 95%, and 95%, respectively, desired to know the sex of the unborn child. This study also showed that young mothers (<30) were more interested in knowing the sex of the fetus. This is in agreement with the study in southwest Nigeria (Adekanle *et al.*, 2007). The younger women were more likely to be curious in knowing the sex of the unborn child.

Preference for a particular sex was found in this study to have a significant relationship with interest in prenatal ultrasound sex identification. This is expected in this part of the country where Igbo culture largely assigns the right of inheritance to the male child, and on the other hand, mothers attach importance in caring for their daughters during puerperium (Omugo). This was not the case in other studies. Just like in the study done in the southwest Nigeria, our study showed that desire to have more children dependent on the sex of the index fetus had statistically significant relationship with the desire to know the sex of the unborn child. An Igbo couple would want to have two of the genders. This is because the Igbos are of the opinion that the number "one" is as good as "zero" because if death befalls the only son or daughter, the couple has none. Previous children's sex determined by ultrasound was a significant factor prompting the desire to determine the sex of the unborn child in this study. This was not in agreement with other studies (Adekanle *et al.*, 2007; Thomas *et al.*, 2004).

We found that planned pregnancy and detecting of problem in the index pregnancy had no significant association with the desire to know the sex of the index fetus unlike in the study done among the Yoruba ethnic group of southwest Nigeria (Adekanle *et al.*, 2007). Furthermore, maternal education did not have any significant association with the desire to have prenatal ultrasound sex determination. This agreed with the study in southwest Nigeria (Adekanle *et al.*, 2007), but differed with that of America (Thomas *et al.*, 2004).

CONCLUSIONS

Preference for particular sex, desire to have more children dependent on the sex of the index fetus, and previous ultrasound sex identification were the significant factors associated with the desire to know the sex of the fetus. Further qualitative study can be used to explore other factors, especially in other parts of the country. We recommend that where a fetal sex has been identified, a patient's request for disclosure should be respected.

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Conflicts of Interest

There are no conflicts of interest.

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