

**ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY**

ADDIS ABABA



**Awareness and practice of prenatal gender determination among
pregnant women undertaking anatomic scan at a tertiary hospital in
Addis Ababa, Ethiopia**

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ABSTRACT

Background: Prenatal gender determination is performed for both medical and social reasons. While it can help diagnose sex-linked disorders, its use for non-medical purposes raises ethical and social concerns. Despite increasing demand for gender disclosure during ultrasound examinations, no study has been conducted in Ethiopia to assess the awareness and practice of pregnant women toward this issue.

Objectives: To determine the awareness and practice of gender determination among pregnant women undertaking anatomic scan at SPHMMC, Addis Ababa, Ethiopia

Methods and Materials: A descriptive, cross-sectional study was conducted with an interviewer administered interview questionnaire on 311 mothers, who were selected by a convenience sampling method from women who came for anatomic scan at Saint Paul's hospital millennium medical college from July to September, 2025 G.C. Binary and multivariable logistic regression was used for analysis, and statistical significance was declared at a P value <0.05 in multivariable logistic regression and the Odds ratio was used to determine the effect of association between dependent and independent variables with 95% CI.

Results: Out of 303 women (97.5% response rate), 89.6% were aware that ultrasound can determine fetal gender, and 88.8% identified it as the main method. A total of 72.6% wanted to know their baby's gender, and 78.9% had undergone gender determination in the current pregnancy. Nearly three-fourths (76.9%) had a gender preference, mostly for a male child (73.6%). Higher awareness was associated with receiving information from friends or relatives (AOR = 5.0), knowing ultrasound is not only for gender determination (AOR = 10.43), and being offered the option to know the gender (AOR = 11.8)

Conclusion: Awareness of prenatal gender determination by ultrasound was found to be high among the study population. Information from health care providers and being offered gender disclosure during the scan were key factors influencing awareness.

Keywords: Awareness, Knowledge, and practice, Female feticide, Gender preference, fetal gender, preference and disclosure, prenatal ultrasonography

LIST OF TABLE

Table 1: Socio-demographic characteristics of pregnant women undertaking anatomic scan at SPHMMC, Addis Ababa, Ethiopia, 2025.	15
Table 2 Obstetric characteristics of pregnant women undertaking anatomic scan at SPHMMC, Addis Ababa, Ethiopia, 2025.	16
Table 3 Gender determination awareness's and Knowledge of pregnant women undertaking anatomic scan, SPHMMC, Addis Ababa, Ethiopia, 2025.	17
Table 4 Gender determination practice among pregnant women undertaking anatomic scan in SPHMMC, Addis Ababa, Ethiopia, 2025(n=303).	19
Table 5: Bi-variable and multivariate examination of the variables linked to perinatal gender determination awareness among pregnant women who had anatomic scan follow up at SPHMMC, Addis Ababa, Ethiopia, 2025.	22

LIST OF FIGURE

Figure 1 Source of information about gender determination among pregnant women undertaking anatomic scan in SPHMMC, Addis Ababa, Ethiopia, 2025(n=303)	18
Figure 2 Actions considered among pregnant women undertaking anatomic scan if baby gender being different from their preference in SPHMMC, Addis Ababa, Ethiopia, 2025(n=303).....	20

Table of Contents”

Acknowledgement	I
SUMMARY	Error! Bookmark not defined.
ABBREVIATIONS	VII
1. INTRODUCTION	1
1.2. STATEMENT OF THE PROBLEM	2
1.3. SIGNIFICANCE OF THE STUDY	3
2. LITERATURE REVIEW	4
3. OBJECTIVES	8
3.1. General objective	8
3.2. Specific objective	8
4. METHODOLOGY	9
4.1. Study area and period	9
4.3. Study design	9
4.4. Source and study population	10
4.5. Inclusion criteria and exclusion criteria	10
4.6. Study variables	10
4.7. Sample size and sampling technique	11
4.8. Data collection tool	12
4.9. Data collection and quality control	12
4.10. Data entry, analysis and processing	12
4.11. Operational Definitions	13
4.12. Ethical consideration	13
4.13. Result dissemination	14
5. RESULTS	15
5.1. Socio-demographic characteristics	15
5.2. Obstetrical characteristics	16
5.3. Awareness and Knowledge about gender determination among pregnant women undertaking anatomic scan	16
5.4. Source of information about gender determination among pregnant women undertaking anatomic scan	18
5.5. Gender determination practice among pregnant women undertaking anatomic scan.	19
5.6. Actions taken when the gender different from their preference	20

5.7. Factors associated with perinatal gender determination awareness among pregnant women attending anatomic scan.....	21
6. DISCUSSION.....	23
7. STRENGTHS AND LIMITATIONS OF THE STUDY	24
7.1. Strength of the study.....	24
7.2. Limitation of the study	24
8. CONCLUSION AND RECOMMENDATION OF THE STUDY	24
8.1. Conclusion	24
8.2. Recommendation.....	25
QUESTIONNAIRE	29
አማረኛ ጥያቄ.....	33

ABBREVIATIONS

ACOG – American College of Obstetrics and Gynecology

ANC – Antenatal Care

BSc – Bachelor of Science

DNA – Deoxyribonucleic Acid

ETB – Ethiopian Birr

FISH – Fluorescence In Situ Hybridization

IVF – In Vitro Fertilization

NGO – Non-Governmental Organization

NO – Number

PCR – Polymerase Chain Reaction

SPHMMC- Saint Paul's Hospital Millennium Medical College

X-linked–SexLinked

1. INTRODUCTION

1.1. Background

There is a high likelihood among pregnant women to seek out the gender of their fetus before it is born (1). Generally prenatal gender determination is performed for social and medical reasons (2). Although it is considered ethically unjustified if done for non-medical reasons, it has continued to grow in demand due to pregnant women's request (2). Despite the widespread awareness of prenatal sex determination worldwide some women may still be unaware (1).

Social reasons for gender determination include curiosity, to be able to buy clothes beforehand and preference for a specific gender (3). This practice is tolerated because there is no evidence or scientifically proven harm to the fetus (4, 1). But over one hundred million women in the world are estimated to be "missing" from the world's population due to some form of gendercide (6). Gendercide has traditionally taken the form of sex selective abortion, infanticide, or death caused by neglect (7). Most cultures have historically preferred having male children. Attitudinal surveys, taken periodically since the 1930s in the United States, reveal a sustained and marked preference for male children over female children (8). This preference is especially marked in Asian countries, such as China and India. In these countries, there exists a strong son preference. In rural communities in China and India, the need for hard labor historically caused families to prefer to have sons (8).

The other reason for gender disclosure is medically indicated. Medical reasons for prenatal gender disclosure include X-linked disorders, ambiguous genitalia, testicular feminization syndrome and assignment of zygosity in twin pregnancy (9-11).

There are many invasive and non-invasive methods to determine the gender of the fetus prenatally. These include preconception sperm separation by flow cytometry, Barr bodies, chromosomal analysis, ultrasonography and genetic methods (12). However, with the advent of non-invasive imaging modalities like ultrasound, determination of fetal sex is possible much more easily and heavily relied on, making the other methods obsolete (13).

First trimester sonographic prenatal sex determination can be done from 11 weeks gestation with accuracy of 70 %.Accuracy of sonography for prenatal sex determination increases after 11 week as high 99 %, making 14-24 weeks the best time for prenatal sex determination, (14-16).However, the sensitivity is reduced depending upon the gestational age at which the scan is performed, the lie and presentation of the fetus, type of pregnancy (singleton or multiple), and genetic hermaphrodites (17).

A lot has been said about prenatal gender disclosure worldwide. In some countries, there are strict laws barring gender disclosure to combat gender selection and feticide. In some countries, gender disclosure is regarded as a human rights issue that should not be denied upon request. In Ethiopia, there are no laws guiding prenatal gender disclosure

1.2. STATEMENT OF THE PROBLEM

Prenatal gender disclosure through ultrasound has become increasingly common as part of routine antenatal care. While this information can be valuable for parental preparation and emotional adjustment, it also raises important ethical and social concerns. The most serious potential harm of fetal sex disclosure is its misuse for sex-selective abortion, particularly in settings where there is a strong cultural preference for male children.

Globally, two main methods are used to determine fetal sex: invasive genetic testing and non-invasive ultrasonography. The widespread availability of ultrasound technology has been linked to an increased incidence of sex-selective practices in several Asian countries such as China, India, Korea, Vietnam, and the Philippines regions where male preference is deeply rooted. In China, for instance, where there is a strict birth control policy and a traditional preference for male children, experts now agrees that the increasing ratio of boys to girls can be explained by the increased availability of ultrasonography and easy access to abortion (24). Studies from these and other Asian regions have demonstrated a distorted sex ratio at birth, largely attributed to the combination of accessible ultrasonography and abortion services. Similar trends have also been reported in parts of North America and Canada (30).

Conversely, prenatal gender disclosure can have positive psychological effects. For many expectant mothers, knowing the baby's sex in advance allows emotional preparation and bonding. Denying this information may lead to frustration, feelings of powerlessness, or resentment, which could negatively influence maternal well-being and pregnancy outcomes (29).

Despite its potential social and ethical implications, no study has yet been conducted in Ethiopia to assess the awareness, related to prenatal gender determination among pregnant women. Therefore, this study aims to fill this gap by evaluating the awareness regarding prenatal gender determination among pregnant women undergoing anatomic scans at SPHMMC.

1.3. SIGNIFICANCE OF THE STUDY

Understanding how pregnant women's awareness of gender determination is essential to ensure that the process is handled responsibly and does not contribute to gender bias or social inequality.

This study is significant because it provides valuable insights into the awareness of pregnant women regarding prenatal gender determination at SPHMMC. The findings will help identify the factors that influence women's desire to know their baby's gender and their understanding of the ethical and social implications surrounding this issue.

The results can guide healthcare providers in improving their counseling approaches during antenatal care, ensuring that gender determination is conducted in an ethical and informed manner. In addition, the study will support hospital administrators and policymakers in developing institutional guidelines and public health strategies that promote responsible use of ultrasound technology and gender equality.

Furthermore, the findings from this study will be shared in local and international journals to contribute to the wider scientific discussion on prenatal gender disclosure. Finally, the study will serve as a baseline for future research on prenatal gender disclosure in Ethiopia and other countries with similar social contexts, thereby contributing to improved maternal health practices and balanced gender perspectives within society.

2. LITERATURE REVIEW

Overview of gender determination during pregnancy

Antenatal determination of fetal gender may be carried out non-invasively on parental request. However, guidelines on standard views seem sparse and fetal sex determination is not considered mandatory. Most commonly gender predictions are made in the second or third trimester, however with improvements in ultrasound technology identification of fetal gender in the first trimester is becoming a reality (1). Fetal sex determination is one of the integral parts of second-trimester sonograms, which is achievable by direct visualization of the fetus's external genitalia (2). Mostly, fetal gender is disclosed to prospective parents in order to satisfy their curiosity, but of course such information may be useful for clinical purposes, for example in couples at risk for X-linked diseases, ambiguous genitalia, testicular feminization syndrome, and assignment of zygosity in twin pregnancy (3). Although it is considered ethically unjustified if done for nonmedical reason, however, but has continued to grow in demand due to pregnant women's requests (4). This practice is tolerated because there is no evidence or scientifically proven harm to the fetus. Worldwide studies have shown that majority of women desire to know the gender of their fetus (4-11).

Method of gender determination during pregnancy

Ultrasound is non-invasive, safe and less expensive with real time imaging capabilities that gives parents the image of the fetus (12). The 1989 study conducted by Emerson DS, Felker RE & Brown DL was the first to identify the 'sagittal sign' as a means of determining gender at late first and early second trimester ultrasounds. This study found that a focal bulge creating a cranial acute angle indicated male genitalia, while a bulge creating a caudal acute angle indicated female genitalia (13). Some studies have explored the possibility of quantifying the angle of the tubercle or phallus. The angle of the genital tubercle to a horizontal line through the lumbosacral surface was measured with a protractor. An angle of $> 30^\circ$ was assigned a male fetus. A female was assigned when the genital tubercle was parallel or convergent to the horizontal line ($< 10^\circ$) (14, 15). Whereas in the late second trimester fetal sex determination is based on direct visualization of the external genitalia (13). Other sonographic landmarks, such as the fetal scrotum, the midline raphe of the penis, the labial lines, the uterus, the descended testis, and the direction and origin of the fetal micturition jet in males may contribute to the correct determination of fetal sex (16).

Sex prediction method developed for clinical purposes and those mainly used for research purposes include preconception separation of the X and Y sperm, presence or absence of Barr body, Chromosomal analysis during the metaphase of cell division, Genetic sex determination using any organ, detection of Sry and the Zfy genes located on the mammalian Y chromosome using simple PCR or FISH analysis and Fetal cell-free DNA found in maternal blood at about 10 weeks of gestation are included (17).

Proportion of women desire gender disclosure during pregnancy

The prevalence of women desire for gender disclosure varies in different ethnic groups. Several studies show that approximately 57-75% of expecting parents request fetal sex determination at the second-trimester scan (18-20). Study done in 23 Danish fetal medicine departments on fetal sex determination was assessed in 5,786 singleton pregnancies with live births, the scans were considered not mandatory. All sonographers indicated that they only disclosed the fetal sex on parental request. Danish departments provided information about fetal sex determination to the pregnant couples predominantly orally. Overall, 70% of the departments registered the fetal sex from ultrasound in the second trimester in the Astraia database (21). Other study done in Pakistan shows that seventy (31.4%) respondents were interested in disclosure of fetal gender. Reasons for disclosure were curiosity, preparation for the new arrival, husband wanting to know, and in-laws wanting to know (12.1%, 17.5%, 2.2%, and 1.3%, respectively). In total, 153 (68.6%) women were not interested in disclosure of fetal gender. That it should be left “to God’s will” was cited by 60.5% of women as the major reason for not wanting to know the baby’s gender (22). A cross sectional study done in Nigeria in 2020 shows that Majority of the respondents 130 (65%) will accept ultrasound gender determination if offered, while 70(35%) will not. Among them, 55 (43.3%) will accept in order to make preparation for delivery, While, 46 (35.6%) were just curious to know everything about their babies. Others, 29 (22.3%) want to confirm the accuracy of the ultrasound (23).

Factors determining reasons for gender disclosure

Prenatal gender determination is performed for medical and social reasons. Medical reasons for prenatal gender disclosure include X-linked disorders, ambiguous genitalia, testicular feminization syndrome, and assignment of zygosity in twin pregnancy (1, 2). There are different social reasons mentioned in various studies that determine reason for gender disclosure. Study done in Nigeria shows that 159 (79.5%) are aware that prenatal gender determination can be performed by ultrasound, and only 41 (20.5%) were not aware (23). Study done in Pakistan found that 68.6% of respondents were not interested in knowing the gender of their baby, and 60.5% were content to leave it to “the will of God” (22). Similarly, study done in Nigeria tells among 201 women, 190 (94.5%) wanted to know the fetal sex while 11 (5.5%) declined. The commonest reason offered for not wanting to know fetal sex was ‘Satisfied with anyone’ – 5 (45.5%); ‘Do not want to know’ – 2 (18.2%); ‘Have both sexes already’ – 1 (9.1%); ‘Prefers to know the sex after delivery’ – 1 (9.1%); ‘Satisfied with God’s choice’ – 1 (9.1%); and ‘Personal reasons’ – 1 (9.1%) (25). On the other hand Katz Rothman has observed from studies the reason that determine gender disclosure is parental preference for the sex of the first child and the use of sex selection technology an ‘international boy preference’ (26).

Impact of gender disclosure during pregnancy

Various psychological studies have noted the potential for maternal disappointment on the basis of the baby’s sex in the postpartum period (27, 28). Muriel Winestine suggests that where grief at the loss of the fantasy of the sex-preferred child must be dealt with at the same time as the need to bond with the actual baby, a situation of psychological ‘crisis’ can arise (28). In this context, as Winestine points out, it is plausible to imagine that there might be a correlation between a strong sex preference that has not been satisfied and an increased risk of postnatal depression. Thus where the baby is not of the preferred sex, knowing the sex of the baby ahead of the birth could be of benefit in allowing for a period of adjustment before being faced with the physical and emotional demands of the actual baby (28).

Moreover in the unique context of antenatal care it is entirely plausible to speculate that refusal of this information could cause feelings of powerlessness and resentment, both of which could in turn adversely affect both the pregnancy and the labor (29). In the contrary Gender selection is often assumed to occur in the People’s Republic of China, India, and South Korea (22). In such country where male offspring are more desirable, fetal sexing during ultrasound examination has been

outlawed due to female feticide (22). In China, revealing the sex of a fetus during prenatal testing is generally prohibited, particularly when it is for non-medical reasons. This restriction was established to curb sex-selective abortions, which have historically been influenced by a strong cultural preference for sons. While exceptions are permitted in cases of medical necessity, the disclosure of fetal sex for non-medical purposes remains illegal. The regulation is strictly enforced through penalties directed at healthcare providers and institutions. Physicians who disclose fetal sex without a medical indication may face fines, revocation of medical licenses, and hospitals may be subjected to administrative sanctions. Such measures are intended to prevent selective abortion and mitigate demographic imbalances (31).

In India, prenatal sex determination is explicitly prohibited under the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act of 1994. This law bans the use of any technology, including ultrasonography, to determine the sex of the fetus prior to birth. The legislation was enacted in response to widespread sex-selective abortions and the resulting decline in the child sex ratio. Furthermore, disclosure of fetal sex in any form—whether verbal, written, or symbolic—is considered a violation of the Act. Penalties for non-compliance include imprisonment, financial fines, and the suspension or cancellation of medical licenses (32).

In contrast, the United States does not have federal legislation prohibiting the disclosure of fetal sex during prenatal testing. However, several states have enacted laws that restrict or ban sex-selective abortions, with some indirectly limiting disclosure of fetal sex as part of these regulations. These state-level laws vary significantly and are typically embedded within broader legal frameworks addressing abortion, prenatal diagnostics, and reproductive rights (33)

3. OBJECTIVES

3.1. General objective

To assess Awareness and practice of prenatal gender determination among pregnant women undertaking anatomic scan at a tertiary hospital in Addis Ababa, Ethiopia.

3.2. Specific objective

- To determine awareness of prenatal gender determination among pregnant women undertaking anatomic scan at SPHMMC
- To determine practice of prenatal gender determination among pregnant women undertaking anatomic scan at SPHMMC
- To identify factors influencing awareness towards prenatal gender determination among pregnant women undertaking anatomic scan at SPHMMC.

4. METHODOLOGY

4.1. Study area and period

The study was conducted at Saint Paul's Hospital Millennium Medical College in Addis Ababa, Ethiopia during the period from July to September, 2025 G.C

4.2. Description of study area

This is a hospital based study undertaken in Saint Paul's Hospital Millennium Medical College in Addis Ababa, capital city of Ethiopia. Saint Paul's hospital is one of the tertiary referral hospitals directly under the federal ministry of health. It is also a teaching hospital for the Millennium Medical College. The hospital gives service to 758247 people annually who are referred from all corners of the country. It has a total bed of 650 and on average 2872 patients visit the hospital as outpatient and emergency daily. It gives service under different clinical disciplines which include obstetrics and gynecology. Nearly 25508 attended antenatal care and around 9982 deliveries were attended in 2016 Ethiopian fiscal year. Around 2173 women receive abortion care in the hospital annually (Statistics office of the hospital)

St. Paul's Hospital has two places for ultrasound services. The first is provided by the Radiology Department, and the second is provided by the OBGYN Department for pregnant mothers. The services offered by the OBGYN department include scans conducted by residents and anatomical scans at gestational age 18-22 weeks by MFM specialists. The St. Paul's OBGYN Department ANC ultrasound services gives to around 72 mothers per day, 1602 mothers per month and 19923 mothers per year. The department also gives anatomical scanning of 15 mothers per day, 350 mothers per month and 4196 per year.

4.3. Study design

A three-month hospital based descriptive cross sectional study from July to September, 2025 G.C.

4.4. Source and study population

4.4.1. Source population

The source populations were all pregnant women presenting to SPHMMC who require anatomic scan in the defined study period.

4.4.2. Study population

All pregnant women who undertake anatomic scanning ultrasound at Saint Paul's Hospital Millennium Medical College during the study period and fulfilling the inclusion criteria were included

4.5. Inclusion criteria and exclusion criteria

4.5.1. Inclusion criteria

- Pregnant women who are sent for an anatomic scan
- Age above 18 years

4.5.2. Exclusion criteria

- Pregnant women who are not willing to participate in the data collection process

4.6. Study variables

4.6.1. Dependent variables

- awareness

4.6.2. Independent variables

- **Demographics characteristics:** Age, Religion, Educational status, Occupation, Monthly Income
- **Past obstetrics experience :** Parity, No of alive children, Sex distribution of previous delivered children
- **Reasons for wanting to know**
- **Reasons for not wanting to know**
- **Knowledge on prenatal sex determination methods**
- **Preference for the gender**

- Awareness on fetal sex disclosure with ultrasound
- Pregnancy related immediate decision after unexpected fetal sex

4.7. Sample size and sampling technique

4.7.1. Sample size calculation

The women who meet the inclusion criteria will be included in the study until our sample is saturated. The required sample size is calculated by the following formula and p-value 0.5% because there is no study done in Ethiopia, confidence interval of 95% and 10% contingency for non-respondents. A single population proportion formula is used to estimate the sample size.

$$\checkmark \text{ no} = \frac{(z^2)(P)(1-p)}{d^2}$$

d2

- 95 % confidence level ($Z_{\alpha/2} = 1.96$) and
- Absolute precision or margin of error 5% ($d = 0.05$)
- p-value 0.5% since there is no study done in Ethiopia
- The calculated sample size will be 384
- According to a base line data collected in the one month in St. Paul's Hospital there were a total of 350 mothers who has undergone anatomic ultrasound scanning. This will give a rough estimate of 1,050 pregnant mothers who has undergone anatomic ultrasound scanning in the next three months.
- Since the total size of the population (N) < 10000, we need correction formula
 - $nf = \text{no} / (1 + \text{no}/N)$
 - no= sample size from single population proportion formula
 - nf= final sample size
 - N= total population
 - nf = 282 With 10% non-response rate, the total sample size will be 311

4.7.2. Sampling procedure

An individual mother in the Saint Paul's millennium medical college was selected using convenience sampling method. All eligible women who meet the inclusion criteria were consecutively recruited until the required sample size was reached.

4.8. Data collection tool

- The data for this study was collected using an interviewer-administered questionnaire adapted from previous similar studies through direct face-to-face interviews with the mothers. The questionnaire was designed to capture relevant sociodemographic characteristics of the women, their awareness regarding gender determination and the factors determining gender determination.

4.9. Data collection and quality control

The structured questionnaire is prepared in English and translated into Amharic. It was distributed to the data collectors, and the responses were translated back into English for analysis. Data collectors (midwives) were received two days of training on the questionnaire. A pretest involving 5% of the sample size was conducted at black lion hospital with 16 pregnant women, and the questionnaire was modified if necessary, based on feedback from the pretested mothers and other relevant parties. Each participant was interviewed in a private setting, immediately after their ultrasound scan, to ensure comfort and confidentiality. The midwife was conducting the interviews by explain the purpose of the study, obtained informed consent, and then administered the questionnaire to the participants. Special attention was given to maintaining neutrality and minimizing interviewer bias throughout the data collection process. Supervision of the data collectors was done daily by the principal investigator. Data editing, checking for completeness, coding, and entry into the computer were performed by the investigators using electronic data capture through Kobo Toolbox.

4.10. Data entry, analysis and processing

Data was entered and analyzed by using SPSS version 27 and Frequency distribution, percentages and cross tabulations between the dependent and independent variables was used to describe and summarize the basic socio-demographic characteristics of the respondents. Bivariate analysis was done for all independent and dependent variables one by one using binary logistic regression to see their association.

4.11. Operational Definitions

- **Awareness:** refers to the respondent's self-reported knowledge that fetal sex can be identified during pregnancy, primarily through ultrasound. This was measured using a binary (Yes/No) question asking whether the participant had ever heard that ultrasound or other tests can determine the baby's sex (23).
- **Practice:** refers to the actual behavior of pregnant women regarding prenatal gender disclosure, including whether they have requested, received, or acted upon information about the sex of their fetus during anatomic scanning (23, 37).
- **Prenatal period:** refers to the time from conception until the onset of labor, during which antenatal care services aim to ensure the best possible health outcomes for the mother and baby.
- **Gestational age:** the age of a pregnancy, calculated from the first day of the woman's last menstrual period (LMP) to the current date. It is typically expressed in weeks and days. Gestational age is used to assess fetal development, determine the timing of prenatal tests, and estimate the due date for delivery.
- **Anatomic ultrasound scan:** often called a "detailed fetal anatomy scan" or "anomaly scan," is a specialized prenatal ultrasound examination conducted to assess the physical development of a fetus and identify any structural abnormalities. Typically performed between 18 and 22 weeks of pregnancy
- **Antenatal Care:** Routine health care services provided to pregnant women that include prenatal assessments, counseling, and diagnostic tests such as ultrasounds.

4.12. Ethical consideration

The research proposal was submitted to Saint Paul's Millennium medical college, School of Medicine, Department of Obstetrics and Gynecology. Following the approval by the Institutional Review Board, an official letter of cooperation was requested from the concerned bodies from School of Medicine, Department of Obstetrics and Gynecology and submitted to Saint Paul's ANC department for permission to collect data from patients. Anonymity and confidentiality of the patient information was kept private. The name of the patient was not included in the data collection format.

4.13. Result dissemination

Findings of the study was reported via soft and hard copy to school of medicine, department of Obstetrics and Gynecology and after approval will submitted to Ethiopian federal ministry of health and concerned NGO. The manuscript of the study will be submitted to relevant national and international journals for publication. Copy of the article will be placed in the library of the college of health sciences, Saint Paul's for future reference.

5. RESULTS

5.1. Socio-demographic characteristics

Among 311 pregnant women attending an anatomic ultrasound scan who were invited to participate in the study, 303 provided consent and completed the questionnaire, yielding a response rate of 97.4%. The mean age of the participants was 29.9 years (SD $\pm$ 4.8), with ages ranging from 18 to 44 years. More than half of the participants (57.4%) were within the 21–30-year age group (Table 1).

Table 1: Socio-demographic characteristics of pregnant women undertaking anatomic scan at SPHMMC, Addis Ababa, Ethiopia, 2025.

Variables	Categories	Frequency (%)
Age (n=303)	≤ 20	7 (2.3%)
	21-30	174(57.4%)
	31-40	114(38.6%)
	≥ 41	5(1.7%)
Religion (n=303)	Orthodox	96 (31.7%)
	Muslim	105 (34.7%)
	Protestant	95 (31.4%)
	catholic	7(2.3%)
The educational level of women (n=303)	No formal education	4 (1.3%)
	Primary education	60 (19.8%)
	Secondary education	167 (55.1%)
	Diploma and above	72 (23.8%)
Occupational Status (n=303)	student	5 (1.7%)
	House wife	170(56.1%)
	Government employee	72(23.8%)
	Private employee	39(12.9%)
	Merchant	17 (5.6%)
Monthly income in Ethiopian birr(303)	≤ 1500	6 (2%)
	1600-5000	97 (32.%)
	5100-10000	142(46.9%)
	Above10000	58(19.1%)

5.2. Obstetrical characteristics

Regarding obstetric characteristics, more than one-third of the participants (39.6%) were gravida two, and 37.3% were para two. Among the total respondents, one-third (33.3%) had three or more alive children, while nearly one-third (30.7%) reported a history of abortion (Table 2).

Table 2 Obstetric characteristics of pregnant women undertaking anatomic scan at SPHMMC, Addis Ababa, Ethiopia, 2025.

Variables	Category	Frequency (%)
Gravidity (n=303)	One	65(21.5%)
	Two	120(39.6%)
	Three and above	118(38.9%)
parity(n=303)	Nulliparous	4(1.3%)
	Para one	103(34%)
	Para two	113(37.3%)
	Three and above	18(5.9%)
Number of alive children(n=303)	No	72(23.8%)
	One	99(32.7%)
	Two	31(10.2%)
	three or above	101(33.3%)
Had abortion history(n=303)	No	210(69.3%)
	Yes	93(30.7%)
Type of abortion history(93)	no	210(69.3%)
	Induced	40(13.2%)
	Spontaneous	53(17.5%)

5.3. Awareness and Knowledge about gender determination among pregnant women undertaking anatomic scan.

Out of all respondents, 89.8% had heard that ultrasound can be used to know the baby's gender during pregnancy. Most of them (88.8%) understood that ultrasound is the main method for gender determination. About 72.6% of the women wanted to know their baby's

gender before birth. Among the study participants, approximately three-fourths (76.9%) expressed a preference for the gender of their unborn child. Of these, 73.6% preferred a male child, while 26.4% preferred a female child (Table 3).

Table 3 Gender determination awareness's and Knowledge of pregnant women undertaking anatomic scan, SPHMMC, Addis Ababa, Ethiopia, 2025.

Variables	Category	Frequency (%)
Have you ever received information about prenatal gender can be determined by U/S and other methods (n=303)	no	31(10.2%)
	yes	272(89.8%)
What test do you know that help to disclose perinatal gender(n=335)	Ultrasound	269(88.8%)
	Blood test/cell free DNA test	33(10.9%)
	I don't know any method	33(10.9%)
Do you think U/S Acceptable for prenatal gender determination (n=353)	Yes always accurate	74(24.4%)
	Sometimes accurate	65(21.5%)
	Not accurate	108(35.6%)
	I don't know	56(18.5%)
U/S not only for gender determination (n=303)	No	29(9.6%)
	Not sure	36(11.9%)
	Yes	238(78.5%)
Want to know gender by U/S (n=303)	No	43(14.2%)
	Not sure	40(13.2%)
	Yes	220(72.6%)
Reasons for wanting to know the fetal gender(n=285)	Personal curiosity	182(83.1%)
	Partner curiosity	85(38.8%)
	In laws want to know	18(8.2%)
Reasons don't want to know the gender of your unborn child(n=46)	want to be a surprise at birth	18(39.1%)
	it is unnecessary information	19(41.3%)
	Religious and cultural reasons	9(19.6%)
Why do you (or family in your community) prefer specific gender(n=355)	Cultural reasons	6(1.7%)
	Family reasons	71(20%)
	Personal desire	278(78.3)
Do you prefer gender (n=303)	No	70(23.1%)
	Yes	233(76.9%)
Which gender do you prefer(n=233)	Male	151(73.6)

	Female	80(26.4%)
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5.4. Source of information about gender determination among pregnant women undertaking anatomic scan.

The major source of information for perinatal gender determination was health care providers 252(83.2%) preceded by friends 123(40.9%), internet 58(19.2%), and television 55(18.2%) (Figure 1).

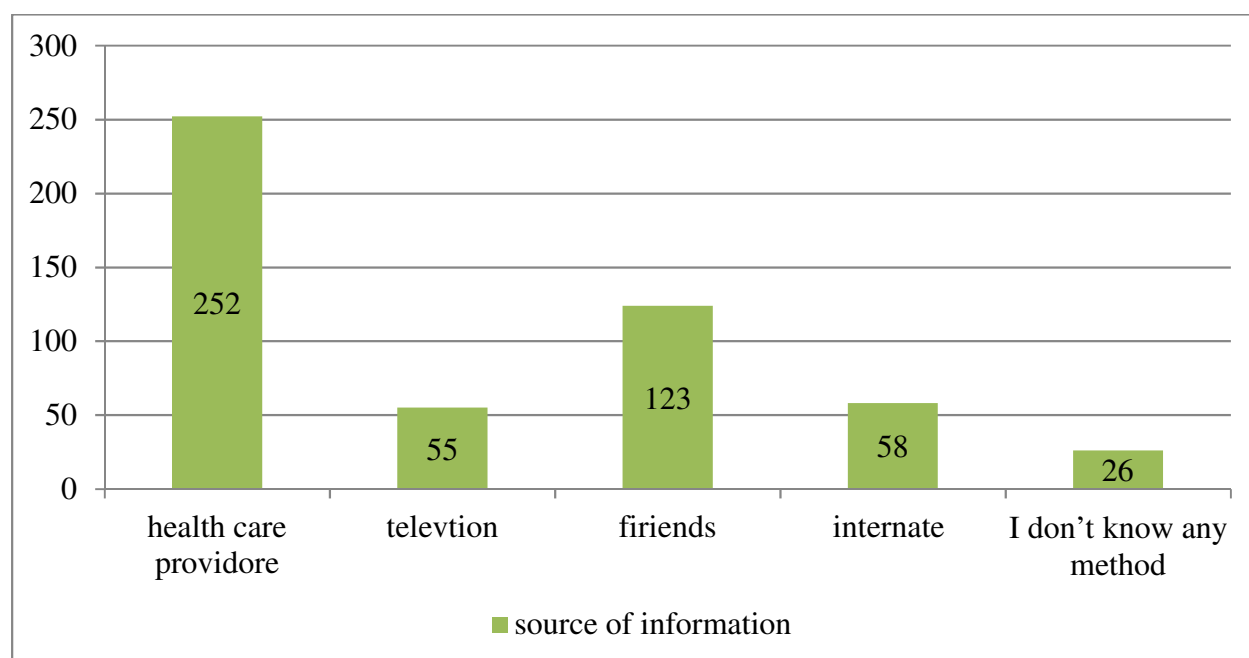


Figure 1 Source of information about gender determination among pregnant women undertaking anatomic scan in SPHMMC, Addis Ababa, Ethiopia, 2025(n=303)

5.5. Gender determination practice among pregnant women undertaking anatomic scan.

Among the total respondents, 78.9% had undergone prenatal gender determination during their current pregnancy, while 21.1% had not. Among those who did not undergo gender determination, the main reasons reported were a belief that it is better to wait until birth (55.6%), religious or cultural considerations (30.2%), and a lack of interest in knowing the gender (17.5%).

Additionally, 77.9% of the participants stated that they were offered the option to know the baby's gender by their healthcare provider. However, only 21.5% reported that they personally requested to know the gender during this pregnancy (Table 4).

Table 4 Gender determination practice among pregnant women undertaking anatomic scan in SPHMMC, Addis Ababa, Ethiopia, 2025(n=303).

Variables	Category	Frequency (%)
Had under gone prenatal gender determination in this pregnancy (n=303)	Yes	239 (78.9%)
	No	64 (21.1%)
Not under gone prenatal gender determination in this pregnancy (n=64)	Religious or cultural beliefs	19(30.2%)
	I am not interested in knowing the gender	11 (17.5%)
	I believe it is better to wait until birth	35 (55.6%)
Offered the options to know the baby gender(n=303)	Yes	236 (77.9%)
	No	67 (22.1%)
Asked the baby gender of the current pregnancy (n=303)	yes	65 (21.5%)
	no	238 (78.5%)

5.6. Actions taken when the gender different from their preference

All most 205(67.7%) of the respondent was not planed specific action and only 94(31%) were educating herself about parenting the present gender.

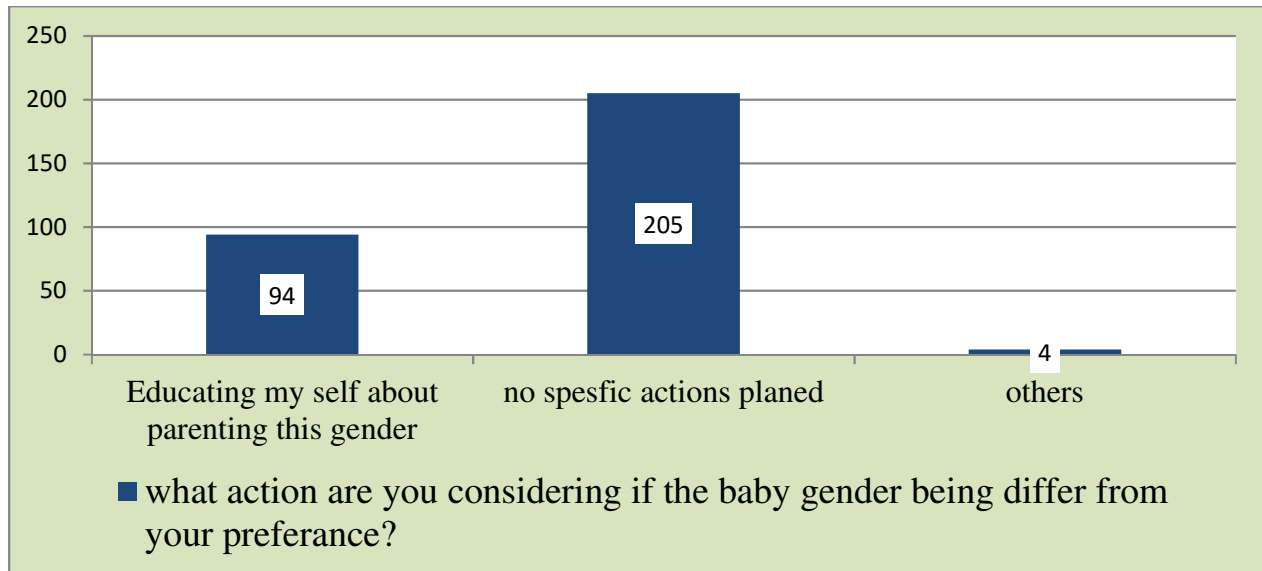


Figure 2 Actions considered among pregnant women undertaking anatomic scan if baby gender being different from their preference in SPHMMC, Addis Ababa, Ethiopia, 2025(n=303).

5.7. Factors associated with perinatal gender determination awareness among pregnant women attending anatomic scan.

Bi-variable logistic regression analysis was used to determine the relationship between each independent variable and perinatal gender determination awareness of pregnant women. In this analysis, gravidity, information sources (friends), who says ultrasound not only used for gender determination, wanting to know the gender of their fetus, and offered options to determine their unborn bay gender were considered as potential predictors for inclusion in a multivariate logistic regression model ($p\text{-value} < 0.25$).

Of these candidate variables, the following remained significantly associated with perinatal gender determination awareness of pregnant women who had anatomic scan follow up in the multivariate logistic regression model ($p\text{-value} < 0.05$) (Table 5).

Those having information from their friends/ relatives were 5 times more likely aware to perinatal gender determination compared to those had no information from their friends with AOR =5.0(95%CI:1.33,18.8) and P value of 0.017.

Additionally, those saying ultrasound not only used for perinatal gender determination were 10.43 times more likely aware to perinatal gender determination compared to those saying no with AOR=10.43 (95%CI:2.84,38.25) and P value of 0.001.

Similarly, respondents who offered options to determine their unborn bay gender were 11.8 times more likely to aware to perinatal gender determination compared to those who did not offered with AOR=11.8 (95% CI: 3.9, 35.6) and P value of 0.001.

Table 5: Bi-variable and multivariate examination of the variables linked to perinatal gender determination awareness among pregnant women who had anatomic scan follow up at SPHMMC, Addis Ababa, Ethiopia, 2025.

Variables	Awareness		COR(95% C.I)	AOR (95% C.I)
	no	yes		
having information from their friends/ relatives				
no	27(15%)	153(85%)	1	1
yes	4(3.3%)	119(96.7%)	5.25(1.79,15.41)	5(1.33,18.81) *
Gravidity				
one	9(13.8%)	56(86.2%)	1	1
two	6(5%)	114(95%)	3.05(1.04,9.0)	2.39(0.55,10.48)
Three or above	16(13.6%)	102(86.4%)	1.03(0.43,2.47)	1.36(0.37,4.94)
ultrasound not only used for gender determination				
No	8(27.6%)	21(72.4%)	1	1
Not sure	14(38.9%)	22(61.1%)	0.6(0.21,1.72)	0.96(0.25,3.8)
yes	9(3.8%)	229(96.2%)	9.7(3.39,27.76)	10.43(2.84,38.25) **
wanting to know the gender of their fetus by U/S				
No	8(18.6%)	35(81.4%)	1	1
Not sure	14(35%)	26(65%)	0.42(0.16,1.16)	0.47(0.12,1.9)
Yes	9(4.1%)	211(95.95%)	5.6(1.94,14.8)	1.56(0.39,6.27)
Offered options to determine their unborn bay gender				
No	23(34.3%)	44(65.7%)	1	1
Yes	8(3.4%)	228(96.6%)	14.9(6.3,35.5)	11.8(3.89,35.56) * *

* Statistically significant at $P < 0.05$, **statistically significant at $p < 0.01$

Note: COR (Crude odds ratio), AOR (Adjusted odds ratio), C.I (Confidence interval)

6. DISCUSSION

Globally, studies have shown that the majority of women desire to know the gender of their fetus (4–11). In this study, among 303 women who underwent an anatomic scan, 89.6% were aware that gender determination can be done by ultrasound. This finding is consistent with studies conducted in Nigeria, where 79.5% (23) and 90% in Enugu (37), as well as a study from South India (87.5%) (41), reported similar levels of awareness. However, the awareness found in our study is higher than that reported in two community-based studies from Karnataka (35) and West Bengal (36), India, which found awareness levels of only 4.5% and 44.5%, respectively. These differences may be attributed to the larger sample sizes in those studies and the fact that our study is institution-based with a smaller, more specific study population (41).

In this study, the primary source of information regarding prenatal gender determination was health care providers, reported by 252 (83.2%) participants. This proportion is higher than that reported in a Nigerian study, where doctors were the major source of information for 88 (44%) of respondents (23). The discrepancy may be due to differences in sample size, as the Nigerian study had fewer participants. Our finding also differs from a study in India, where the majority (66.41%) obtained their information from mass media (41). This difference may be explained by the absence of laws restricting prenatal gender determination in Ethiopia, allowing health care providers to discuss the issue more openly. In contrast, in India (39) and countries such as China (40), legal restrictions and advocacy efforts aim to prevent prenatal gender determination due to concerns about sex-selective feticide in favor of male offspring.

The proportion of women in this study who desired perinatal gender determination is substantially higher than that reported in Pakistan, where only 31.4% of respondents were interested in knowing the fetal gender. In the Pakistani study, the most common reasons for wanting disclosure were curiosity (12.1%), preparation for a new arrival (17.5%), a husband's request (2.2%), and family interest (1.3%). Additionally, 68.6% preferred not to know the gender, with 60.5% stating it should be left "to God's will" (22). These differences may reflect variations in cultural and religious beliefs, health-seeking behavior, and differences in sample size. In our study, 72.6% of participants wanted to know their baby's gender by ultrasound, which is comparable to findings from Nigeria (65%) (23). However, it is lower than the 90% reported in Enugu, Nigeria, and 91.2% found among Polish women (38). This may be because participants in those studies had already discussed gender determination with health care providers prior to their ultrasound visits.

A total of 78.9% of respondents in our study had undergone fetal sex determination during the current pregnancy. This is comparable to studies elsewhere, where 57% to 75% of expecting parents requested fetal sex determination during the second-trimester scan (18–20). In many

settings, this practice is primarily motivated by curiosity, emotional preparation, and family expectations.

Among participants who declined prenatal gender determination, the main reasons included the belief that it is better to wait until birth (30.2%) and cultural or religious considerations (55.6%). This aligns with findings from previous studies in Enugu, where the majority of respondents preferred to know the baby's sex after delivery and believed it should be left to the will of God (37).

This study found that women who received information from friends or relatives, who believed that ultrasound is not used solely for gender determination, and who were offered options for determining their unborn baby's gender were significantly more likely to be aware of perinatal gender determination. These findings highlight the vital role of health care professionals in promoting awareness and responsible use of prenatal information.

7. STRENGTHS AND LIMITATIONS OF THE STUDY

7.1. Strength of the study

To our knowledge, this study is the only study conducted in Ethiopia this used us baseline information for future large scale study.

7.2. Limitation of the study

- A temporal relationship between exposure and outcome is not seen in this study because of its cross-sectional design.
- This study included only pregnant mothers receiving ANC follow-ups at SPHMMC, excluding those other public health facilities and private facilities. This limitation may affect the generalizability or representativeness of the findings.

8. CONCLUSION AND RECOMMENDATION OF THE STUDY

8.1. Conclusion

In this study, 89.6% of pregnant women were aware that ultrasound can be used for gender determination. Health care providers were the primary source of information on prenatal gender determination, reported by 252 (83.2%) participants. Regarding practice, 78.9% of the study participants had undergone prenatal gender determination during their current pregnancy. The study also found that awareness was significantly influenced by receiving information from friends or relatives, believing that ultrasound are not used solely for gender determination, and being offered options to determine the gender of the unborn baby. These findings underscore the

important role of health care professionals in shaping women's awareness of perinatal gender determination.

8.2.Recommendation

- Develop simple institutional guidelines at SPHMMC on when and how gender disclosure should be offered during anatomic scan
- Encourage further multicenter and large-scale studies, including private and other public facilities, to improve generalizability and inform national guidelines

8. References

1. Maaaji SM, Ekele BA, Bello SO, Morhason-Bello IO. Do women want disclosure of foetalgender during prenatal ultrasound scan? *Ann Afr Med.* 2010;9:11–14.
2. Gonzaga, M. A. (2011). An exploratory study of the views of Ugandan women and healthpractitioners on the use of sonography to establish foetal sex. *Pan African Medical Journal*,9(1):3
3. Ekele BA, Maaaji SM, Bello SO, Morhason-Bello IO. Profile of Women Seeking FoetalGender at Ultrasound in a Nigerian Obstetric Population. *Ultrasound* 2021;16(4):199-202.
4. Leung JI, Pang SM. Ethical analysis of non-medical foetal ultrasound. *Nurs Ethics.*2009;16:637–646.
5. ManeeshaDeckha, (Not) Reproducing the Cultural, Racial and Embodied Other: AFeminist Response to Canada's Partial Ban on Sex Selection, 16 *UCLA WOMEN'S L.J.* 1,11 (2007).
6. Anek A, Muhammad AZH, Muhammad A, Tariq MM, Zimar A, Talia A, Darooj A andMuaz A. Accuracy of Ultrasound for Determination of Foetal Gender.
7. Deckha, *supra* note 1, at 11.
8. Preventing Gender-Biased Sex Selection: An Interagency Statement OHCHR, UNFPA, UNICEF, UN Women and WHO, DEPARTMENT OF REPRODUCTIVE HEALTH ANDRESEARCH,3-4(2011), http://whqlibdoc.who.int/publications/2011/9789241501460_eng.pdf [hereinafter UNStatement}].
9. Shipp TD, Shipp DZ, Bromley B, et al. What factors are associated with parents' desire toknow the sex of their unborn child? *Birth.* 2004;31:272–279.
10. Ekele BA, Maaaji SM, Bello SO, Morhason-Bello IO. Profile of women seeking foetalgender at ultrasound in a Nigerian obstetric population. *Ultrasound.* 2008;16:119–202.
11. Mubuuke AG. An exploratory study of the views of Ugandan women and healthpractitioners on the use of sonography to establish foetal sex. *Pan Afr Med J.* 2011;9:36.
12. Ornoy A, Weinstein-Fudim L, Ergaz Z. Methods for Prenatal Sex Determination and TheirImportance in Understanding and Prevention of Gender-Related Birth Defects. In: *ChildbirthIntechOpen*; 2020.
13. Bierig SM, Jones A. Accuracy and cost comparison of ultrasound versus alternativeimaging modalities, including CT, MR, PET, and angiography. *J Diagnostic MedSonography.* 2009;25(3):138-44.
14. Leung JI, Pang SM. Ethical analysis of non-medical foetal ultrasound. *Nurs Ethics.*2009;16:637–646.

15. Maaji SM, Ekele BA, Bello SO, Morhason-Bello IO. Do women want disclosure of foetalgender during prenatal ultrasound scan? *Ann Afr Med*. 2010;9:11–14.
16. Shukar-ud-din S, Ubaid F, Shahani E, Saleh F. Reasons for disclosure of gender to pregnant women during prenatal ultrasonography. *Int J Womens Health*. 2013;5:781–785.
17. Adeyinka AO, Agunloye AM, Idris S. Ultrasonographic assessment of foetalgender. *Afr J Med Med Sci* 2005;34(4):345–8.
18. Harrington K, Armstrong V, Freeman J et al. Fetal sexing by ultrasound in the second trimester: maternal preference and professional ability. *Ultrasound Obstet Gynecol* 1996;8:318–21.
19. Ralph K, Polson D. A woman's decision to know the sex of her child prior to birth. *Ultrasound* 2012;20:161–4.
20. Larsson M, Berglund M, Jarl E et al. Do pregnant women want to know the sex of the expected child at routine ultrasound and are they interested in sex selection? *Ups J Med Sci* 2017;122:254–9.
21. Størup, Gitte; Sørensen, Anne Nødgaard; Dalsgaard, Annemarie; Grønkjær, Mette. Foetal sex determination at the second trimester anomaly scan in Denmark. 2019. *Danish Medical Journal*, 66(12), Article A5580. https://ugeskriftet.dk/files/scientific_article_files/2019-11/a5580_0.
22. shaziashukar-ud-din, Fareeha Ubaid, erumshahani, Farah saleh. Reasons for disclosure of gender to pregnant women during prenatal ultrasonography. 2013. *International Journal of Women's Health* 2013;5 781–785.
23. Yakubu Ahmed, Abubakar A. Panti, Amina G. Umar, Fatima A. Birnin-Yauri, Jamila A. Garbar, Rukayya Ibrahim. Awareness and acceptability of ultrasound prenatal sex determination among pregnant women in a teaching Hospital in Sokoto, Northwestern Nigeria. 2020. *Sch Int J Obstet Gynec* ISSN 2616-8235 (Print) I ISSN 2617-3492 (Online) Scholars Middle East Publishers, Dubai, United Arab Emirates.
24. Plaker T. Sex selection in China sees 117 boys born for every 100 girls. *BMJ* 2002; 324: 1233.
25. S. M. Maaji, B. A. Ekele, S. O. Bello, I. O. Morhason-Bello. Do women want disclosure of fetal gender during prenatal ultrasound scan? 2010. *Annals of African Medicine* Vol. 9, No. 1; 2010:11–4. DOI: 10.4103/1596-3519.62618.
26. Katz Rothman B. *The Tentative Pregnancy*. Pandora Press, 1988: 133–4.
27. Walker MK. Maternal reactions to fetal sex. *Health Care Women Int* 1992; 13: 292–302.
28. Winestine MC. To know or not to know: some observations on women's reactions to the availability of prenatal knowledge of their babies' sex. *J Am Psychoanal Assoc* 1989; 37: 1015–30.
29. T. RAPHAEL. Disclosing the sex of the fetus: a view from the UK. *Ultrasound Obstetric Gynecology* 2002; 20: 421–424.

30. Kale R. "It's a girl" – could be a death sentence. CMAJ. 2012;184: 387–388.
- 31- Li Mei¹ and Quanbao Jiang².RESEARCH Open AccessSex-selective abortions over the past four decades in China.Population Health Metrics.<https://doi.org/10.1186/s12963-025-00368-y>
- 32- Radhika Jagtap and Balwinder Singh Vol. 59, Issue No. 49, 07 Dec, 2024
- 33- Mr. FRANKS.To prohibit discrimination against the unborn on the basis of sex or race,and for other purposes.2017.Autenticated US government Information
34. Bloom's taxonomy by researchers such as bloom (1995) and latter operationalized for KAP studies by WHO and various public health studies.
35. Kulkarni, R. R., Bandireddy, M., & Reddy, N. S. B. (2016). A community based cross sectional study on gender preference, awareness and attitude regarding sex determination among married women in rural field practice areas of North Karnataka, India. *International Journal of Community Medicine and Public Health*, 3(11), 2973-2976.
36. Roy, A., & Biswas, R. (2017). A study on gender preference and awareness regarding prenatal sex determination among antenatal women in a rural area of Darjeeling district, West Bengal, India. *Journal of clinical and diagnostic research: JCDR*, 11(2), LC05.
37. Okeke, T. C., Enwereji, J. O., Okoro, O. S., Ifeikigwe, E. S., Ikeako, L. C., Ezenyeaku, C. C., & Adiri, C. O. (2015). Desire for prenatal gender disclosure among primigravidae in Enugu, Nigeria. *Patient preference and adherence*, 9, 429 433.
38. Robak-Chołubek, D., Chołubek, G., & Piróg, E. (2015). Determining fetal sex in pregnancy with reference to pregnant women behavior in late pregnancy. *Polish Journal of Public Health*, 125(2), 87-89.
39. Nie, J. B. (2011). Non-medical sex-selective abortion in China: ethical and public policy issues in the context of 40 million missing females. *British medical bulletin*, 98(1), 7-20.
40. Sharmila, V., Babu, T. A., & Singh, D. (2016). Knowledge, awareness and attitude about prenatal sex determination, pre-conception and pre-natal diagnostic techniques act among pregnant women in the South Indian union territory of Puducherry. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 5(10), 3470-4.
41. Oyedeji, G. A., Oyedeji, A. O., & Ajibola, A. J. (2002). The association between social disadvantage and morbidity in hospitalised children. *Nigerian Journal of Paediatrics*, 29(1), 5-10.

QUESTIONNAIRE

ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE DEPARTMENT OF OBSTETRICS AND GYNECOLOGY QUESTIONNAIRE FOR PRENATAL GENDER DISCLOSURE AMONG PREGNANT WOMEN WHO UNDERTAKES ANATOMIC SCANNING ULTRASOUND AT SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE ADDIS ABABA, ETHIOPIA

Card numb
Phone numb/mobile.....
Home/line.....

Interviewer: INTRODUCE YOURSELF TO THE CLIENT

Hello, My Name Is We are conducting a research Study on Prenatal Gender Disclosure among Pregnant Women Who Undertakes Anatomic Scanning Ultrasound at Saint Paul's Hospital Millennium Medical College. Addis Ababa, Ethiopia As Part Of This, I Would Like To Ask You Some Questions. There Is No Risk If You Agree To Participate In The Interview. All the Information That You Give To Me Will Be Kept Strictly Confidential; Your Name Will Not Be Used and You Will Not Be Identified In Any Way. Your Current And Future Care At This Facility Will Not Be Affected In Any Way. This Interview Should Take Approximately 20 Min To Complete. Your Participation Is Absolutely Voluntary And There Is No Penalty For Refusing To Take Part. You Are Free To Ask Any Questions; You May Refuse To Take Part In The Interview; You May Refuse To Answer Any Question In The Interview; And You May Stop The Interview At Any Point.

Do You Have Any Questions For Me At This Time About This Survey?

Yes_____

No-----

Do you agree to participate in this interview?

Yes_____

No-----

IF NO, THANK THE PARTICIPANT AND CLOSE THE INTERVIEW.

Inclusion criteria

- Pregnant women who are sent for an anatomic scan

- Age above 18 years

Exclusion criteria

- Pregnant women who are not willing to participate in the data collection process

I	Socio-economic Demographic	Response
01	Age	_____
02	Religion	1.Orthodox 2.Muslim 3.Protestant 4.Catholic 5. Other
03	Educational status	1.No formal education 2.Primary 3.Secondary 4.Diploma or degree 5.Other
04	Occupation	1.House wife 2.Civil servant 3.Student 4.Farmer 5.Merchnt 6.Other
05	Monthly Income	.._____

II	Past obstetric experience	Response
01	Parity	1. Primigravida 2. Primiparous 3. Multiparous 4. Grand multi-parous
02	No of alive children	_____
03	Sex distribution of previous delivered children	No of Male children _____ No of female children_____

III Knowledge about gender disclosure		
1	Are you aware that prenatal gender can be disclosed through ultrasound or other tests?	☐ Yes ☐ No
2	How did you learn about gender disclosure during pregnancy?	☐ Healthcare provider ☐ Television ☐ Friends/Relatives ☐ Internet ☐ don't learn in any method
3	What test do you know that help to disclose gender?	☐ U/S ☐ Blood test / cell-free DNA test ☐ Amniocentesis ☐ Chorionic villus sampling (CVS) ☐ I don't know any method
4	Do you think prenatal gender disclosure methods (like ultrasound) are always accurate?	☐ Yes, always accurate ☐ Sometimes accurate ☐ Not accurate ☐ Don't know
5	Do you know that some prenatal tests are done for medical reasons (to check fetal health), not only for gender?	☐ Yes ☐ No ☐ Not sure
6	Do you want to know the gender of your unborn child	☐ Yes ☐ No ☐ Not sure
7	If yes to question no 06, Reasons for wanting to know the fetal gender	1.Plan for the new baby 2.Personal curiosity 3.Partner curiosity 4.In laws want to know 5.Other reasons_____
8	For question no 6, If you do not want to know the gender of your unborn child, what is the reason?	☐ I want it to be a surprise at birth ☐ I believe it is unnecessary information ☐ Religious / cultural reasons ☐ Fear it may influence family or community attitudes ☐ Healthcare provider advised against it ☐ Other (please specify): _____
9	Why do you (or families in your community) prefer a specific gender?	☐ Cultural reasons ☐ Family pressure ☐ Economic reasons ☐ Personal desire ☐ Other: ____
10	Do you have a preference for the gender of your baby?	☐ Yes ☐ No
11	If yes, which gender do you prefer?	☐ Male ☐ Female ☐ No preference Single choice

IV Practice about gender disclosure		
1	Have you undergone prenatal gender determination in this pregnancy?	☐ Yes ☐ No

2	For question no 1, If not Why?	☐ The healthcare provider refused to disclose ☐ It is prohibited by law/hospital policy ☐ Religious or cultural beliefs ☐ I am not interested in knowing the gender ☐ My partner/family did not want to know ☐ I believe it is better to wait until birth ☐ I was not aware that gender could be determined ☐ Other (please specify)_____
3	Were you offered the options to know the baby gender?	☐ Yes ☐ No
4	If not for question no 2, did you ask the baby gender?	☐ Yes ☐ No
5	What actions, if any, are you considering as a result of your baby's gender being different from your preference?	1. Seeking support from friends or family 2. Consulting with a counselor or therapist 3. Educating myself about parenting this gender 4. Preparing differently for the baby's arrival 5. No specific actions planned 6. Other (please specify):

INTERVIEWER COMMENTS:.....THANK RESPONDENT FOR THEIR TIME AND PARTICIPATION

አማረኛ ጥያቄ

የቅዱስ ፖለሰ ሆስፒታል ሚሊኒየም የህክምና ኮሌጅ የኦብስቴትሪክስ እና የማህፀን ሕክምና ጥያቄ ለቅድመ ወሊድ ጾታዊ መግለጫ በእርግዝና እናቶች መካከል የአካል ጉዳተኛ ህመምተኛ ህመምተኛ ህመምተኞችን በሚወስዱ እርጉዝ ሴቶች መካከል ኮሌጅ አዲስ አበባ፣ ኢትዮጵያ

የካርድ ቁጥር

ስልክ ቁጥር/ሞባይል

ቤት/መስመር

ጠያቂ፡ ራሳችሁን ከደንበኛው ጋር አስተዋውቁ

ጤና ይስጥልኝ, ስሜ አዲስ አበባ ኢትዮጵያ የዚሁ አካል አንዳንድ ጥያቄዎችን ልጠይቅህ ወደድኩ። በቃለ መጠይቁ ላይ ለመሳተፍ ከተስማሙ ምንም አይነት አደጋ የለም። ለእኔ የምትሰጡኝ መረጃዎች በሙሉ በሚስጥር ይያዛሉ; ስምህ ጥቅም ላይ አይውልም እና በምንም መልኩ አትለይም። በዚህ ተቋም ውስጥ ያለህ እና የወደፊት እንክብካቤህ በምንም መልኩ አይነካም። ይህ ቃለ መጠይቅ ለማጠናቀቅ በግምት 20 ደቂቃ መውሰድ አለበት። ተሳትፎዎ ፍፁም በፈቃደኝነት ነው እና ለመሳተፍ ፈቃደኛ ባለመሆኑ ምንም አይነት ቅጣት የለም። ማንኛውንም ጥያቄ ለመጠየቅ ነፃ ነዎት; በቃለ መጠይቁ ላይ ለመሳተፍ እምቢ ማለት ይችላሉ; በቃለ መጠይቁ

ውስጥ ማንኛውንም ጥያቄ ለመመለስ እምቢ ማለት ይችላሉ; እና በማንኛውም ጊዜ ቃለ መጠይቁን ማቆም ይችላሉ።

በዚህ የዳሰሳ ጥናት ላይ ለእኔ በዚህ ጊዜ ጥያቄዎች አሉዎት?

አዎ _____

አይ-----

በዚህ ቃለ መጠይቅ ለመሳተፍ ተስማምተዋል?

አዎ _____

አይ-----

አይደለም ከሆነ ተሳታፊውን አመሰግናለሁ እና ቃለ ምልልሱን ዝጋ።

የማካተት መስፈርቶች

□ ለአናቶሚክ ስካን የሚላኩ እርጉዝ ሴቶች

• እድሜ ከ18 ዓመት በላይ

የማግለል መስፈርቶች

• በመረጃ አሰባሰብ ሂደት ውስጥ ለመሳተፍ ፈቃደኛ ያልሆኑ ነፍሰ ጡር ሴቶች

1 ማህበራዊ-ኢኮኖሚያዊ ጥያቄወች

01 ዕድሜ

02 ሃይማኖት

1. ኦርቶዶክስ

2.ሙስሊም

3.ፕሮቴስታንት

4. ካቶሊክ

5. ሌላ

03 የትምህርት ደረጃ

1. መደበኛ ትምህርት የለም

2. አንደኛ ደረጃ

3. ሁለተኛ ደረጃ

4. ዲፕሎማ ወይም ዲግሪ

5. ሌላ

04 ስራ

1. የቤት እመቤት

2. ሲቪል አገልጋይ

3. ተማሪ

4. ገበሬ

5. ነገዴ

6. የግል ስራ

6. ሌላ

05 ወርሃዊ ገቢ

.ገገገ_____

II ያለፈው የወሊድ ልምድ ምላሽ

01 የርግዝና ብዛት-----

2. የውለድ ብዛት-----

02 በህይወት ያሉ ልጆች ቁጥር

03 ቀደም ሲል የተወለዱ ልጆች የፆታ ስርጭት

የወንድ ልጆች ቁጥር _____

የሴት ልጆች ቁጥር _____

III ስለ ጾታ ይፋ ዕውቀት

1 የቅድመ ወሊድ ጾታ በአልትራሳውንድ ወይም በሌሎች ምርመራዎች ሊገለጽ እንደሚችል ያውቃሉ? ☐ አዎ ☐ አይደለም

2 በእርግዝና ወቅት ስለ ጾታ መግለጫ እንዴት ተማሩ? ☐ የጤና እንክብካቤ አቅራቢ ☐ ቴሌቪዥን ☐ ጓደኞች/ዘመዶች

☐ ኢንተርኔት ☐ በምንም ዘዴ አልማርም።

3 ጾታን ለመግለፅ የሚረዳ የትኛውን መሳሪያ ያውቃሉ? ☐ አልትራሳውንድ ☐ የደም ምርመራ / ከሴል-ነጻ የዲኤንኤ ምርመራ

☐ አሚኖሴንቴሲስ ☐ ክሮኒክ ቪለስ ሳምፕሊንግ (CVS)

☐ ምንም አይነት ዘዴ አላውቅም

4 የቅድመ ወሊድ የሥርዓተ-ፆታ መግለጫ ዘዴዎች (እንደ አልትራሳውንድ) ሁልጊዜ ትክክል ናቸው ብለው ያስባሉ?

☐ አዎ፣ ሁል ጊዜ ትክክለኛ ☐ አንዳንድ ጊዜ ትክክል

☐ ትክክል አይደለም ☐ አላውቅም

5 አንዳንድ የቅድመ ወሊድ ምርመራዎች በጾታ ላይ ብቻ ሳይሆን በህክምና ምክንያት (የፅንሰን ጤንነት ለመፈተሽ) እንደሚደረጉ ያውቃሉ?

☐ አዎ ☐ አይ ☐ እርግጠኛ አይደለሁም።

6 ያልተወለደውን ልጅ ጾታ ማወቅ ይፈልጋሉ?

☐ አዎ ☐ አይ ☐ እርግጠኛ አይደለሁም።

7 ለጥያቄ ቁጥር 06 አዎ ከሆነ፣ የፅንሱን ጾታ ለማወቅ የሚፈልጉበት ምክንያቶች 1. ለአዲሱ ሕፃን እቅድ ለማውጣት

2. የግል የማወቅ ጉጉት

3. የአጋር የማወቅ ጉጉት

4. የአጋር አህት ማወቅ ስለሚፈለጉ

5. ሌሎች ምክንያቶች _____

8 ለጥያቄ ቁጥር 6፣ ያልተወለደውን ልጅ ጾታ ማወቅ ካልፈለጉ ምክንያቱ ምንድን ነው?

☐ ስወልድ ሰርፕራይዝ መሆን ንወ ምፈልገው

☐ አላስፈላጊ መረጃ ነው ብዬ አምናለሁ።

☐ ሃይማኖታዊ/ባህላዊ ምክንያቶች

☐ በቤተሰብ ወይም በማህበረሰብ አመለካከት ላይ ተጽዕኖ ሊያሳድር ይችላል የሚል ፍራቻ

☐ የጤና እንዳይታወቅ ነው የሚመክሩት

☐ ሌላ (እባክዎ ይግለጹ)፡ _____

9 ለምንድነው እርስዎ (ወይም በአካባቢዎ ያሉ ቤተሰቦች) ያልተወለደ ልጅን ጾታ ማወቅ የሚፈልጉት? ☐ የባህል ምክንያቶች ☐ የቤተሰብ ግፊት

☐ ኢኮኖሚያዊ ምክንያቶች ☐ የግል ፍላጎት

☐ ሌላ፡ _____

10 ለልጅዎ ጾታ ምርጫ አለውት?

☐ አዎ ☐ የለም

11 አዎ ከሆነ፣ የትኛውን ጾታ ይመርጣሉ? ☐ ወንድ ☐ ሴት

☐ ምርጫ የለይም

V ስለ አልተወለደ ለጅ ጾታ ይፋ ማድረግን ይለማመዱ

1 በዚህ እርግዝና ውስጥ የቅድመ ወሊድ የፆታ ውሳኔን ወስነዋል? ☐ አዎ ☐ አይደለም

2 ለጥያቄ ቁጥር 1፣ ካልሆነ ለምን?

☐ የጤና እንክብካቤ አቅራቢው ለመግለጽ ፈቃደኛ አልሆነም።

☐ በህግ/በሆስፒታል ፖሊሲ የተከለከለ ነው።

☐ የሃይማኖት ወይም የባህል እምነቶች

☐ ጾቱን የማወቅ ፍላጎት የለኝም

☐ ባልደረባዬ/ቤተሰቤ ማወቅ አልፈለጉም።

☐ እስከ ልደት ድረስ መጠበቅ የተሻለ እንደሆነ አምናለሁ።

☐ ጾታ ሊወሰን እንደሚችል አላውቅም ነበር።

☐ ሌላ (እባክዎ ይግለጹ)_____

3 የሕፃኑን ጾታ ለማወቅ አማራጮች ቀርቦልዎታል? ☐ አዎ ☐ አይደለም

4 ለጥያቄ ቁጥር 2 ካልሆነ የሕፃኑን ጾታ ጠይቀዋል? ☐ አዎ ☐ አይደለም

5 የሕፃኑ ጾታ ከእርስዎ ምርጫ የተለየ በመሆኑ ምን እርምጃዎችን ከግምት ውስጥ ያስገባሉ? 1. ከጓደኞች ወይም ከቤተሰብ ድጋፍ መፈለግ

2. ከአማካሪ ወይም ቴራፒስት ጋር መማከር

ይህንን ጾታ ስለማሳደግ 3. እራሴን ማስተማር

4. የሕፃኑን መምጣት በተለየ መንገድ ማዘጋጀት

5.No የተወሰኑ እርምጃዎች የታቀዱ

6.ሌላ (እባክዎ ይግለጹ):

ጠያቂ

አስተያየቶች:-

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