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Original Research Article

A study on knowledge, perception, attitude and barriers among nursing students of Ganesh Das Government Maternal and Child Health Hospital, Shillong: a cross-sectional study on fertility

Barry Cooper Hynniewta[1]*, Kathrina Marbaniang[2], Restitula Kharbuli[1], Ronald Eleazer Kurbah[3], Esha Kumari[4]

[1]Infertility Clinic, Ganesh Das Government Maternal and Child Health Hospital, Shillong, Meghalaya, India
[2]Department of General Medicine, Shillong Civil Hospital, Shillong, Meghalaya, India
[3]Department of Statistics, North-Eastern Hill University, Shillong, Meghalaya, India
[4]Department of Clinical Embryology, Yenepoya (Deemed to be University), Bangalore, Karnataka, India

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***Correspondence:**
Dr. Barry Cooper Hynniewta,
E-mail: barrycooperhynniewta@gmail.com

ABSTRACT

Background: The inability to get pregnant after a year of unprotected sex is known as infertility. Loneliness and emotional distortion are quite common psychological effects in this population. The causes of female infertility include factors like ovulatory disorders, tubal adhesion, uterine fibroid, endometriosis, STIs, diabetes and cancer. Male infertility can be brought on by low sperm count, low sperm motility, genetic disorders, ejaculatory dysfunctions, testicular injuries or surgeries, excessive obesity, and lifestyle variables like smoking, drinking alcohol and drug usage. The aim was to assess the fertility awareness of nursing students of a tertiary care hospital and its association with demographic factors.

Methods: This cross-sectional study targeted nursing students at Ganesh Das Government MCH Hospital having 154 nursing students. A 33-item FA questionnaire was developed to determine the FA score based on accurate responses. Correct answers scored 1, incorrect scored 0. Participants categorized into low (30%), moderate (31-60%), and high (>61%) FA levels. R-software was used for data analysing.

Results: Out of 154 nursing students 59.09% were aware of their fertility days. 87.01% were sexually active and 74.68% had normal menses. Half of the populations were dissatisfied with their knowledge of fertility. 76.62% responds due to communication barrier. Year of study was the only variable to have significant difference with fertility awareness (FA) (p value<0.05).

Conclusions: Knowledge of fertility awareness was found to be sufficient however, male infertility still lacks. Role of government, primary and specialized health care workers need to emphasize on fertility at an early age to prevent high rate of undiagnosed infertility.

Keywords: Barriers, Fertility, Infertility, Menstrual cycle, Nursing students

INTRODUCTION

Infertility affects millions of couples, making it a significant socioeconomic problem. In today's culture, having children is a sign of success. Couples without children may experience loneliness and emptiness as a result. Infertility is thus both a social and a medical problem. It has wide-ranging effects; with one's emotional health ranking as its most important one.[1] The World Health Organization's definition of health reflects the

premise that mental and physical health is equally important and has gained traction in recent years.

A disorder of the male or female reproductive system known as infertility is characterized by the inability to conceive after 12 months or more of frequent, unprotected sexual activity.[1] Ovulatory problems, damage to one or both fallopian tubes, endometriosis, fibroids, STIs, diabetes, and cancer are the main causes of female infertility in women.[2,3] About 30% of cases of infertility are caused by male factors.[4] Low sperm counts and low sperm motility, genetic disorders and ejaculatory dysfunctions, testicular injuries or surgery, excessive obesity, and factors associated with lifestyle (smoking, consuming alcohol and drug use) are among the primary causes of male infertility. Psychosocial care, as defined by the nurses, includes the following components: empathy, compassion, comprehensive treatment, spiritual care, and family support. Communication between nurses, nurses and patients and families, are integral parts of psychosocial care.[5]

Eight to twelve percent of couples (fifty to eighty million) globally experience infertility at some point in their reproductive life. Primary infertility has a frequency in India that the WHO estimates between 3.9% and 16.8%. Women who experience infertility have always been looked down upon. Women who are stigmatized for being sterile confront societal and religious discrimination. In reality, infertility is more than just a biological truth when considering the ease with which women may be called infertile or dispute the term, the feelings of childless women, and the process of finding remedies for infertility.[6] Furthermore, the topic of male factors in infertility is taboo and seldom explored. Lack of knowledge about reproductive potential is a significant cause of delayed childbearing and rising infertility rates. Making informed decisions about fertility requires a thorough awareness of reproductive facts. The entire world now has a low level of awareness on fertility. According to studies, most women lacked considerable fertility-related knowledge.[7] Couples' ability to communicate and spend time together is limited as a consequence. Even if the couple decides to get help, the woman is usually held responsible, and she is the one who must go through the tests to determine the root of the problem. When individuals in impoverished nations struggle with infertility, they often turn to unproven remedies including tantric practices and traditional medicine. The problem has been made worse by the unaffordable cost and limited availability of infertility-related health care. According to the National Family Health Survey-5, the fertility rate of Shillong is an alarming 1.1 children per woman, much lower than the national average of 2.0 children per woman and male infertility rate in Shillong, Meghalaya stands at 57.21%.[8] The incidence of infertility may be reduced by raising awareness of risk factors and fertility practices, which has significant public health consequences. Programmes for public awareness and targeted education about fertility, may help to lower the number of women who experience infertility, while also facilitating prompt referrals for assisted reproductive treatment. However, no prior research has been done in Meghalaya to evaluate the level of awareness and knowledge around infertility. The study's objectives were to determine the rates of common causes of infertility, evaluate fertility awareness, practices and barriers among nursing students. Due to the stigma associated with discussing sexual health in India, this situation is only expected to worsen in the future.

METHODS

A cross-sectional study design was used to carry out the investigation. The target group consisted of 154 nursing students at the Ganesh Das Government MCH Hospital. Students in GNM years 1, 2, and 3 as well as ANM years 1 and 2 made up the target audience.

The study was carried out between the month of March and April 2023. Students who took part provided written informed consent for the researcher's research. Prior to participating, participants were also told of the study's objectives.

For the study, students were given a questionnaire. The survey builds on previous research. The questionnaire was adapted to the context of the study population and study location after consulting the study guide to ensure the clarity and relevance of the questions.

Ethical clearance was obtained to conduct the study according to the institutional ethics committee (approval letter no. 176 (A)/I.C/MI/GHD/2022-2023/3628 dated Shillong, the 17th of March 2023).

Questionnaire

An FA questionnaire with 33 items was developed using data from past investigations. The questionnaire was examined with the research guide and modified in light of the circumstances of the research location and demographic. Eight questions focused on understanding fertility, eleven asked about obstacles to conception, six asked on conception perception, and eight asked about conception attitudes. Participants in the study answered each of the 33 questions with a true or false response. It took an average of 45 to 60 minutes to complete the questionnaire. The subjects' socio-demographic details and reproductive characteristics were noted. The FA score was calculated using the percentage of correct answers to 33 questions. Each right answer was given a score of 1, while each wrong answer was given a score of 0. The people were categorized into three FA levels: low FA (30%), moderate FA (31-60%), and high (>61%) based on their overall FA score. To ascertain the link between FA and socio-demographic and fertility characteristics (sex, age, education level, family type, religion, community, domicile, and socio-economic status), a statistical study was conducted.

Statistical analysis

The most recent version of R-software was used to analyse the data. For data that was normally distributed, descriptive statistics like mean and standard deviation were produced. Frequency and percentage figures were used to depict categorical data. Using the Chi-square test, frequency data were compared between categories. A two-sided probability of p value <0.05 was regarded as statistically significant for all statistical tests.

Inclusion criteria

The study population included nursing students of ANM (auxiliary nurse midwife) and GNM (general nursing and midwifery) program of Ganesh Das Hospital.

Exclusion criteria

Only nursing students undergoing psychiatric evaluations were excluded from the study.

RESULTS

A total of 154 people participated in this study out of which, (n=154, 83.12%) were females. A huge proportion (n=154, 75.32%) were from rural areas. More than half (n=154, 50%) were aged between 16 to 20 years and 20 to 25 years were (48.05%). Additionally, most participants belong to second year of nursing school. A vast majority of participants in this study were Christians (84.42%). Khasi community was estimated to be (41.56%) of which Garo community were (33.12%). Nuclear family comprises of (85.06%).

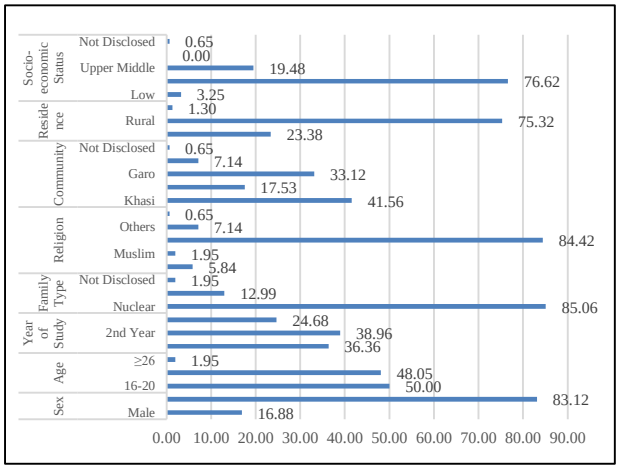

Figure 1: Baseline socio-demographic profile of study population (n=154)

Nearly, more than half of the study populations (59.09%) were aware of their fertility days. Source of knowledge were estimated to be 21.43% from internet and other electronic sources, 14.94% from friends and relatives and the remaining were from other sources like textbook knowledge in schools and colleges.

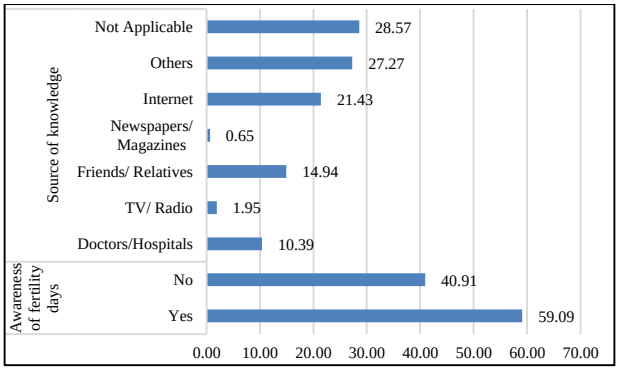

Figure 2: Awareness and source of information regarding fertility (n=154).

A vast majority of the study population 87.01% had engaged in coitus. While participant who has engaged in first sexual activity were 87% between the ages of 20-25 years. Multi partnership 87.01% was found to be predominant. A large population had normal menses 74.68% (26-35 days). Concerns regarding conceiving in the future were 44.16% being not concerned.

Table 1: Details of sexual practices of the studied group (n=154).

Question	Response	Percentage
Ever concerned to become pregnant	Not applicable	16.88
	Not disclosed	1.95
	No	44.16
	Yes	37.01
Have you ever used contraceptive	Not disclosed	1.30
	No	91.56
	Yes	7.14
Your menstrual cycle	Not applicable	16.88
	>35 days	7.14
	26-35 days	74.68
	<25 days	1.30
Ever previously pregnant	Not applicable	16.88
	Not disclosed	1.30
	No	81.17
	Yes	0.65
Number of lifetime sexual partner	Not applicable	1.30
	More than 3	2.60
	Three	87.01
	Two	0.65
	One	8.44
Age of first sex	Not applicable	5.84
	≥26	0.00
	20-25	87.0
	16-20	17.14
	≤15	0.00
Ever had sex before	Not disclosed	0.65
	No	12.34
	Yes	87.01

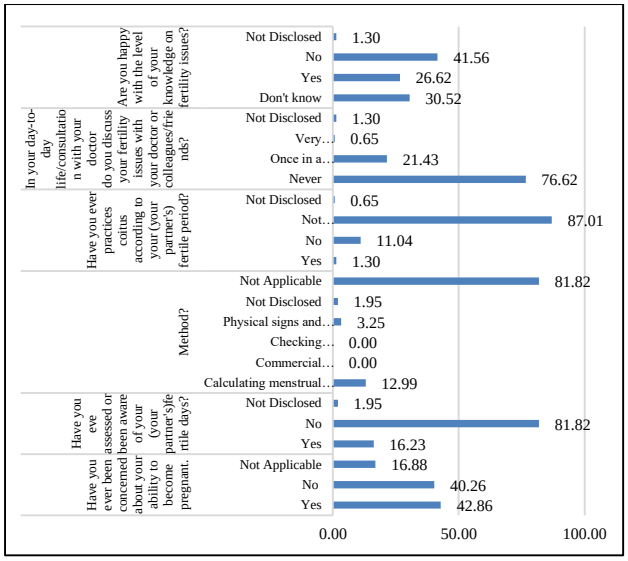

Figure 4: Practices of fertility (n=154).

Nearly, half of the populations 41.56% were not satisfied with their primary knowledge of fertility. Lack of knowledge from physicians and barrier on communication with friends and families resulted in 76.62% responds on lack of communication. 81.82% has never been aware of their fertility period which can be contributed to lack of knowledge on fertility.

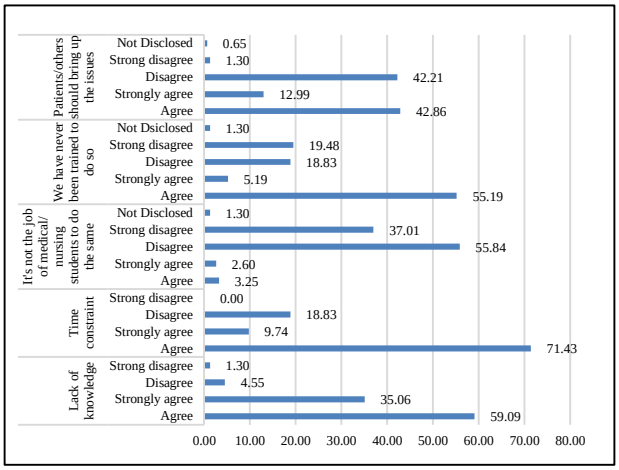

Figure 5: Barriers to discuss fertility issues (n=154).

Table 2: Demographic characteristics of nursing students with association with fertility awareness (FA).

Characteristics		No. of participants	Low FA n=3 N (%)	Moderate FA n=19 N (%)	High FA n=132 N (%)	P value
Sex	Male	26	0 (0)	5 (19.23)	21 (80.77)	0.39
	Female	128	3 (2.34)	14 (19.23)	111 (86.72)	
Age (in years)	16-20	77	0 (0)	9 (11.69)	68 (88.31)	0.41
	20-25	74	3 (4.05)	10 (13.51)	61 (82.43)	
	≥26	3	0 (0)	0 (0)	3 (100)	
year of study	1st year	56	0 (0)	8 (14.29)	48 (85.71)	0.02*
	2nd year	60	0 (0)	5 (8.33)	55 (91.67)	
	3rd year	38	3 (7.89)	6 (15.79)	29 (76.32)	
family type	Nuclear	131	3 (2.29)	15 (11.45)	113 (86.26)	0.06
	Joint	20	0 (0)	2 (10)	18 (90)	
	Not disclosed	3	0 (0)	2 (66.67)	1 (33.33)	
Religion	Hindu	9	0 (0)	3 (33.33)	6 (66.67)	0.54
	Muslim	3	0 (0)	0 (0)	3 (100)	
	Christian	130	3 (2.31)	14 (10.77)	113 (86.92)	
	Others	12	0 (0)	2 (16.67)	10 (83.33)	
Community	Khasi	64	3 (4.69)	5 (7.81)	56 (87.50)	0.27
	Jaintia	27	0 (0)	3 (11.11)	24 (88.89)	
	Garo	51	0 (0)	8 (15.69)	43 (84.31)	
	Others	12	0 (0)	3 (25)	9 (75)	
Residence	Urban	36	1 (2.78)	5 (13.89)	30 (83.33)	0.55
	Rural	116	2 (1.72)	13 (11.21)	101 (87.07)	
	Not disclosed	2	0 (0)	1 (50)	1 (50)	
Socio-economic status	Low	5	0 (0)	2 (40)	3 (60)	N/A
	Lower middle	118	3 (2.54)	13 (11.02)	102 (86.44)	
	Upper middle	30	0 (0)	4 (13.33)	26 (86.67)	
	High	0	0 (0)	0 (0)	0 (0)	
	Not disclosed	1	0 (0)	0 (0)	1 (100)	

*P value <0.05, is considered statistically significant.

Almost half (42.86%) agreed that patients should bring up the issue of fertility whenever they visit a doctor or any medical professional. 55.19% agreed that fertility training for nurses is inadequate in India and 55.84% agreed that training should also be imparted to medical and nursing students to perform preliminary screening for infertility. Infertility consultation is time bound in which 71.43% agreed on that. A higher proportion 59.09% of the studied agreed that lack of knowledge is the key barrier for discussing fertility issues in India.

Correlation of socio-demographic factors with infertility knowledge

There was no significant association between socio-demographic factors including gender (p=0.39), age (p=0.41), family type (p=0.06), and religion (p=0.53) with mean knowledge scores. Year of study (p=0.02), were the only demographic factors that showed significant differences with mean knowledge scores. Referring to Table 2, it can be observed that participants in second year showed better knowledge regarding infertility as compared with the other students.

DISCUSSION

The results of our observational study showed that, the sample population of nursing students at a tertiary care hospital in our nation had sufficient knowledge, as evidenced by the high mean knowledge score. It is obvious that the nursing student population has sufficient knowledge of the aforementioned when simply taking into account the causes and risk factors of infertility that have been accurately identified. This is unexpected considering that research has shown that individuals around the world have little understanding of infertility. A global survey that included over 17,000 participants revealed that inadequate knowledge of reproductive biology and fertility existed.[9] However, some point out that the data show that more than half of our sample group was ignorant that no single sex is exclusively to blame for infertility, with nearly one-third assuming that female factors are the only causes of infertility. One reason for this is that, individuals who are unable to conceive are treated with contempt and disgrace. Motherhood is frequently the only opportunity for women to elevate their position and reputation within the family and community. This mistaken perception ultimately fuels the sometimes-fatal physical violence and psychological repercussions that women in poor nations endure, further emphasizing the fact that infertility has a huge impact on both the social and economic well-being of women.[11-13]

According to the results of our study, students were also aware of the biological factors involved in conception, such as the consequences of aberrant menstruation and the rapid reduction in reproductive potential after the age of 35. Out of the 33 questions posed to gauge participants knowledge of infertility, the majority of participants (99%) were able to correctly respond that repeated genital infections cause infertility, but more than a third (40%) of the respondents did not recognize underweight as a contributing factor. The media exposure of celebrities undergoing fertility treatments like IVF, Surrogacy, etc., and the low cost and ease of access to information could be attributed for the differences in the study's findings. However, despite the fact that the majority of our participants were from rural areas, they demonstrated significant levels of fertility knowledge, which is in contrast to some other studies.[9,10]

Additionally, the results of this study demonstrate that participants' level of education had a substantial impact on their knowledge and awareness of infertility and its risk factors. The adolescent population in the United States is the focus of health efforts including the American Society for Reproductive Medicine's Protect Your Fertility campaign and the Centres for Disease Control's Infertility Prevention Project-STD.[14] To close the awareness gap between different levels of the public regarding infertility, such actions must be conducted by the health authorities in India.

Our poll also revealed an intriguing correlation between sexual activity and the use of oral contraceptives (OCP), with 87.01% of respondents reporting they had sex and 91.56% reporting they have never used OCP in their lifetime. In a study, an OCP was discovered, and half of the participants thought that OCP was the root of infertility.[15] Because of the idea that these contraceptive techniques can cause infertility, this belief may be a contributing factor to the high parity problem in developing nations.[16] To dispel these fallacies, it is imperative that contraceptive education be integrated into secondary or high school curriculum.

Furthermore, studies have conclusively shown that smoking has a significant detrimental effect on both male and female fertility, both before and after conception.[17] Nearly all of the participants in this study stated that smoking and drinking are frequently linked to infertility. Less than three-fifths of our participants also failed to mention being underweight and engaging in excessive exercise as potential contributors to infertility. Due to hormonal imbalances and dietary deficits, underweight impacts fertility in both men and women. In women, obesity is associated with increased risks of menstrual miscarriage, pregnancy complications, dysfunction and anovulation, while spermatogenesis is impaired by obesity in men.[18,19] Equally harmful to a woman's probability of getting pregnant as being overweight or obese is underweight.[19] In our study, it is discovered that most participants thought that overweight is connected with infertility (61%) and with regards to underweight 51% of them felt that it has an association with infertility.

Furthermore, our research found no significant relation between gender differences and understanding of infertility. This result is consistent with Bunting and Boivin's findings.[9] However, other research indicates that men and women have different levels of understanding

concerning infertility, with women having a higher level of knowledge.[16-19] To further analyze these discrepant findings in different surveys, a more detailed study of the impact of gender on infertility knowledge can be conducted in the future. Our results also illustrate that the year of study of the nursing students was significantly associated with infertility knowledge, which is in line with findings from another study with regards to increasing knowledge.[19-22] However, the results obtained in this study possibly might not reflect the general overall population of all nursing students in Meghalaya.

Limitations of this are- a small sample size was used for the research study and the participants were chosen from a single institute.

CONCLUSION

Our study results reveal that awareness regarding fertility is sufficient for nursing students however certain areas such as male infertility still lacks. Knowledge of infertility and its causes must be spread amongst individuals in Meghalaya, so that their misconceptions can be clarified and treatment if needed, be sought on time. Media such as television and newspapers should be utilized to impart knowledge. This would further help in identifying specifically the deficient areas of knowledge (such as the role of male factor, role of folic acid, lifestyle effects) that needs to be emphasized on during outreaches and awareness campaigns. These findings would be a great asset in the development of leaflets and brochures to be given out at primary and specialized healthcare (OB-GYN) clinics, for the education of the visiting patient population. Government's role also needs emphasis to strengthen healthcare availability for infertility patients.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee (approval letter no. 176 (A)/I.C/MI/GHD/2022-2023/3628 dated Shillong, the 17th of March 2023)

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