Knowledge of infertility: its causes, risk factors, and treatments among infertile rural Indian women who are seeking treatment for their childlessness

ABSTRACT

Aims: To assess the knowledge regarding infertility its causes, risk factors, diagnosis and treatments of infertile women who are receiving treatment or have taken treatments for infertility.

Study design: Descriptive research study.

Place and Duration of study: Two districts of Haryana state i.e. Rewari and Hisar were randomly selected, and the data were collected between November 2022 and June 2023.

Methodology: The study respondents were 200 infertile women seeking treatment or have taken treatment for their childlessness; the age range 22-42 years were interviewed using pretested self-structured interview schedules.

Results: The mean age of the respondents was 29.86 years. Less than half (48.7%) understood the correct meaning of infertility, 170(44%) agreed that witchcraft could cause infertility while 230(59%) disagreed that infertility could be prevented. Two hundred and sixty (67%) and 283 (73%) of the respondents had good knowledge and perception towards infertility respectively.

Conclusion: Respondents' knowledge regarding infertility its causes, risk factors, diagnosis and treatments were suboptimal in this study. By focusing on specific fertility education and raising public awareness of the condition's causes and risk factors, we can potentially reduce the prevalence of this condition.

Keywords: Infertility, awareness, knowledge, fertility, infertile women.

1. INTRODUCTION

“Infertility is a public reproductive health problem defined as an inability to conceive after one year of regular unprotected sexual interaction. It can be classified into primary and secondary infertility. Primary infertility refers to the inability to conceive after 12 months of unprotected sexual intercourse with no previous conception. However, secondary infertility arises when couples bearing previously conceived children are now unable to conceive” [1]. “Infertility is a global phenomenon affecting approximately 48.5 million couples in 2010 worldwide” [2]. “According to the Centers for Disease Control and Prevention (CDC) reports, the prevalence of infertility in a married woman aged 15-49 years is estimated to be 8.8% in the United States between 2015 and 2017. The incidence of infertility is higher in developing countries due to a lack of basic knowledge about the causes of infertility and the potential treatment required” [3].

“The definition of ‘infertility’ has been expanded to cover a wider spectrum of conditions affecting the capacity of individuals and couples to reproduce” [4]. “A comprehensive definition of fertility knowledge refers to information that an individual acquires about his or her fertility throughout their life course. For women, this knowledge includes information regarding the menstrual cycle, pregnancy potential in each menstrual cycle and at different life stages, and risks of infertility”, [5]. “Fertility knowledge is important in determining a woman’s ability to perform fertility self-care, which can directly impact both her sexual and reproductive behaviors and health outcomes”, [6,7]. “Infertility has a major impact on the reproductive health of men and women; the associated burden of physical disease comprising in particular genital tract infections secondary to sexually transmitted diseases (STDs) and pregnancy-related sepsis, and negative psychosocial consequences which are common and often severe”.[8]

Scholars have advocated providing fertility knowledge and information to women as a part of the RLP [9] and supporting women to make informed family and childbearing decisions within their life contexts [10]. “Understanding and application of fertility knowledge are meaningful for a woman regardless of her gender identity and sexual orientation. For example, knowledge of the FW can help a woman with HIV to time her intercourse or manual self-insemination to achieve a desired pregnancy. This knowledge is also important for a lesbian woman who is

planning a pregnancy with her same-sex partner" [11,12]. "Fertility knowledge may help young women to appreciate the relationship between sexuality and fertility which could empower young women in their self-development as a whole person" [13]. "In recent years, fertility knowledge has been recognized as a key concept in determining a woman's fertility self-care ability" [14]. "For women who are trying to conceive, it is critical to assess their general knowledge regarding fertility and fertility-awareness practices to identify the fertile window and their agency to achieve pregnancy" [15].

"Although the incidence of infertility is on the rise, knowledge regarding the risk factors of infertility is lacking in many parts of the world. A study conducted to evaluate infertility awareness among women visiting a tertiary fertility clinic revealed approximately three-quarters (76%) of the women have an inadequate understanding of the fertile period in their menstrual cycle and timely infertility management" [16]. "It has been observed that although couples have a basic knowledge of factors affecting fertility, they remain unaware of the impact that advancing age has on a woman's fertility" [17]. "Regarding alternative strategies for conception in couples with infertility, a study showed that while people are aware of options such as in-vitro fertilization (IVF), around 39% grossly overestimated its efficacy" [18].

Keeping the above issues in this study thus seeks to provide an in-depth understanding of knowledge regarding infertility its causes, risk factors, diagnosis and treatments of infertile women who are receiving treatment or have taken treatments for infertility.

2. MATERIALS AND METHODS

A descriptive study was conducted with 200 infertile women; an age range of 22-43 years who were seeking treatment for infertility fromrandomlyselected two districts of Haryana state i.e. Rewari and Hisar. The data was collected through Aanganwadi workers and Asha workers from the selected villages of these two districts.

2.1 Locale of Study

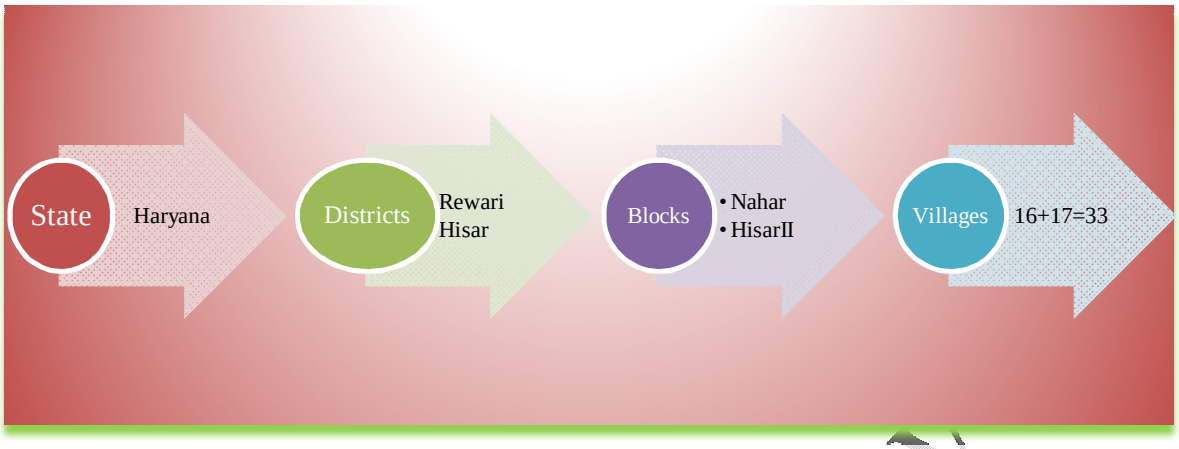

Fig 1. Study location

2.2 Tools of Data Collection

Respondents were interviewed using pretested self-structured interview schedules.

Fertility Knowledge Interview Schedule

A self-structured 30 statements interview schedulerelated to fertility knowledge was prepared and administered face-to-face with each participant. Participants had to answer yes/ no to each statement. Each correct response was awarded two marks and an incorrect response was marked as one. There were 30 minimum while 60 were maximum obtained scores. Those who scored <50% were considered to have inadequate, those with scores >50 to 75% as moderately adequate and those with scores >75% adequate knowledge regarding infertility.

3. RESULTS AND DISCUSSION

3.1 Socio-demographic and infertility-related health information

In Table 1 socio-demographic characteristics and infertility related some basic information of participants has been shown. Different personal variables like age, educational level, occupation, type of marriage (arranged or love), duration of marriage, type of infertility primary or secondary (ever been pregnant or not), and duration of infertility treatment etc. were collected through some basic questions to know about their socio-demographic and infertility-related health status.

A total of 200 rural infertile married for at least two years women of the age range 22-43 years were interviewed; out of which more than half, (n=124, 62%) were aged between 29-35 years. Slightly more than one-fifth (n=42, 21%) were aged between 22 and 28 years with very few (n=34, 17%) being older than 35 years but below 43 years of age. Additionally, more than half

participants (n=118, 59%) received above-secondary level education. Around one-third (n=65, 32.5%) completed some form of secondary education while very few (n=17, 8.5%) had only primary-level education. A vast majority of participants in this study were homemakers (n=138, 69%), while more than one-fifth (n=45, 22.5%) were employed in pvt or govt job and a small proportion (n=9, 4.5%) had their private businesses; equal proportions working as a labourer. All the respondents had arranged marriages. Less than half (n=78, 39%) of the participants had 3-6 years of marriage and more than one-third (n=69, 34.5%) were in the 7-10 years of married life whereas approximately one-fourths (n=53, 26.5%) had more than 10 years of marriage. A maximum number of participants 153(76.5) reported primary infertility and the rest 47(23.5) had the secondary type of infertility. Regarding duration of infertility, most of them 107(53.5) had 6-10 years; 56(28.0) had more than 10 years while 37(18.5) had 1-5 years of diagnosed infertility and were seeking treatment.

Table 1. Socio-demographic and infertility-related health information

Variables	**(N=200)** **Frequency (%)**
Age (22-42) years	
22-28	42(21.0)
29-35	124(62.0)
36-43	34(17.0)
Educational Level	
Up to Primary	17(8.5)
Primary to Secondary	65(32.5)
Above Secondary	118(59.0)
Occupation	
Home Maker	138(69.0)
Job	45(22.5)
• Govt Job • Pvt Job	19(9.5) 26(13.0)
Business	9(4.5)

Labourer	9(4.5)
Type of Marriage	
Arranged	200(100.0)
Love	0
Years of Marriage	
3-6	78(39.0)
7-10	69(34.5)
More than 10	53(26.5)
Type of Infertility	
Primary	47(23.5)
Secondary	153(76.5)
Duration of Infertility/ years of treatment	
1-5	37(18.5)
6-10	107(53.5)
More than 10	56(28.0)

3.2 Knowledge of infertility among the studied population

Table 2 shows the knowledge of respondents regarding infertility its causes, risk factors, diagnostics and treatments. The results showed that only 39.0% of the participantscorrectly recognized that infertility is diagnosed usuallyafter one year of regular unprotected sex.The next two questions were about the age effects of both women as well as men i.e. a common thought of the cause of infertility; 47% of women age and 33.5% of men age effectscorrectly replied yes while else refused that age can impact fertility of a person. Participants were further asked to identify the other causes of infertility like smoking, stress, body weight, defect in the ovaries/ multiple cysts, chronic disease and number of sperms in men etc. Many interestingresponses were observed: 76.5% of them did not thinksmoking is a cause of infertility, and 81.5% thought that stress doesn't have any impact on conception or pregnancy. Forty-six per cent were in support of that previous use of contraceptivesleads to infertility.Only one-fourth of the participantswere aware that there is a fertile period during afemale's

menstrual cycle. When they wereasked for a normal menstrual cycle/ period of 28-35 days only (26.5%), lower abdomen discomfort/pain during the mid-menstrual cycle (28.5%), secretions from inner private parts of the female during mid-cycle (26%), decrease in the morning body temperature in the mid-cycle (22.5%) of them correctly answered.The knowledge of common investigations required forinfertility was also assessed and most of them were unaware of the tests that are required for diagnosis of both men as well as women.

Table 2. Knowledge of causes, risk factors, Diagnostics and treatments of infertility

Statements	**N=200 Frequency(%)**	
	Yes	**No**
Meaning of Infertility	78(39.0)	122(61.0)
Age effects after the age of 35 years	94(47.0)	106(53.0)
Effects of increasing age of the male partner	67(33.5)	133(66.5)
Stress affects	37(18.5)	163(81.5)
Smoking impact	47(23.5)	153(76.5)
Body weight influences	49(24.5)	151(75.5)
Defect in the ovaries/ multiple cysts could be common cause	53(26.5)	147(73.5)
Number of sperm makes a man fertile	69(34.5)	131(65.5)
Duration of contraceptive use affects	108(54.0)	92(46.0)
Chronic diseases influences	49(24.5)	151(75.5)
A normal menstrual cycle/ period is of 28-35 days	46(23.0)	154(77.0)
Day 10 to 18 of a 28 days period are appropriate for conceiving	53(26.5)	147(73.5)
Trial for pregnancy is done during fertile or unsafe period	78(39.0)	122(61.0)
Normally there is lower abdomen discomfort / pain during mid menstrual cycle	57(28.5)	143(71.5)
Mid menstrual cycle pain has no link with trial for	55(27.5)	145(72.5)

pregnancy		
There is change in the secretions from inner private parts of female during mid cycle	52(26.0)	148(74.0)
There is decrease in the morning body temperature in the mid cycle	45(22.5)	155(77.5)
Semen analysis is one of the essential tests for men	69(34.5)	131(65.5)
Semen can be collected in condom for semen analysis	28(14.0)	172(86.0)
Blocked tubes are visualized through MRI as a test	88(44.0)	112(56.0)
Ultrasonography is one of the common tests for woman infertility	63(31.5)	137(68.5)
Intra Uterine Insemination (IUI) is transfer of semen into uterus with help of thin catheter	36(18.0)	164(82.0)
IVF i.e. In Vitro Fertilization method uses ultrasound guided removal of egg/ eggs and fertilized inside the body	26(13.0)	174(87.0)
Adoption may be an option in case it is difficult to conceive	6(3.0)	194(97.0)
Test tube baby is as normal as other born babies	13(6.5)	187(93.5)
Surrogacy does not require legal procedure as an option for pregnancy	138(69.0)	62(31.0)
Controlling intake of coffee or tea might not help in conception	83(41.5)	117(58.5)
Record keeping of mensural cycle is helpful in pregnancy	37(18.5)	163(81.5)
Regular exercises / walk / yoga and meditation promotes chances of pregnancy	87(43.5)	113(56.5)
Skipped medications may be informed to doctor on next visit	45(22.5)	155(77.5)
Nine months complete bed rest after treatment	69(34.5)	131(65.5)

increases the chance of pregnancy		
Should restrict eating outside while undergoing fertility treatment	45(22.5)	155(77.5)

The results of this study indicate that knowledge about infertility is limited in the studied population. “For instance, more than half of the participants were misinformed that the use of contraceptives may lead to infertility. The most interesting finding of this study was that the majority of women were against alternative treatment options, if unsuccessful with the allopathic medicine. Also, half of the participants considered a “test-tube baby” an unacceptable option. The inadequacy of knowledge about infertility was demonstrated through this study. This lack of knowledge explains why such a strong stigma is attached to infertility in society. The results of this study are similar to that of a large global survey conducted during World Fertility Awareness Month (2006) on approximately 17,500 individuals, which revealed that knowledge regarding fertility and the biology of reproduction was lacking throughout the world” [17]. “The limited knowledge was further confirmed upon discovering that merely one-fourth of the participants knew how infertility is diagnosed after one year of regular unprotected sex. This may subsequently determine when the couple will start seeking treatment, which should be neither premature nor delayed. It is also important for the elderly in society to have some awareness about infertility” [18]. “In that way, they will not pressurize young newlyweds, if they are unable to conceive right after the marriage, which is a common expectation in the joint family structure. In addition to proper knowledge about infertility, it is also crucial to know the most fertile period for a woman when she is trying to conceive” [19]. “One of the surprising results found in this study was that only 26.5% of the infertile rural women respondents correctly identified mid-cycle as the most fertile period during the female’s menstrual cycle. The lack of accurate information in this case may lead to improper timing of sexual intercourse, thus possibly delaying the pregnancy. While testing the subjects’ knowledge, we also assessed what they considered to be the causes of infertility. Although the general public doesn't have to know all the causes, they need to know about acquired and potentially preventable causes of infertility such as sexually transmitted diseases [20]. The participants in this study even didn’t correctly identify most of the causes of

infertility and also incorrectly highlighted factors that do not cause infertility such as the use of contraceptives". [19]

Like in other developing countries, India also has the importance of children in a married couple's life. Infertility hurts the psychological and social well-being of women and men in society. In recent years fertility has been decreasing worldwide [21]. Although the infertility rate is rising, to date no study has been conducted to assess the knowledge attitude and practice on infertility among the general population in India and to evaluate how much knowledge attitude and practice of infertility is associated with age, education, gender, location of the general population [22]. Infertility is a serious medical condition that impacts many men and women globally. Knowledge and understanding regarding the aetiology, diagnosis, and treatment of infertility may help people to adopt proactive behaviors to preserve their fertility or to prompt them to seek timely fertility care [23]. The overall findings revealed that women often possess general but very unsophisticated knowledge related to infertility and its treatments. The findings of this study are similar to Perez's review study regarding fertility knowledge and fertility-awareness practices among women trying to conceive[24].

CONCLUSION

The findings of this study indicate that there is a lack of knowledge about infertility and its causes. People need to be made more aware of infertility and its causes so that any misunderstandings they may have can be cleared up and prompt treatment, if necessary. Newspapers and television are examples of media that should be used to spread knowledge. This would additionally assist in pinpointing the precise knowledge gaps that require emphasis in outreach and awareness programmes, such as the function of the malefactor and pelvic inflammatory disorders (PIDs).

RECOMMENDATION

Future research needs to evaluate different methods of providing fertilityknowledge assessment and education in the community. Longitudinal studies areneeded to evaluate the impact of ongoing fertility knowledge education on women'sfertility health risks, and their sexual and reproductive behaviors and outcomes. A more thorough evaluation of the role of

gender on infertility knowledge can be carried out in the future to further investigate these contrasting results in various surveys.

Consent

Informed consent was obtained from each respondent with assurance of confidentiality of information, right to withdraw from the study at any point in time and voluntariness of participation.

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LIMITATIONS

The findings of the study should, however, be interpreted in light of some limitations. The collection of data from a particular geographical area introduces the possibility of the study population not being a true representation of the community at large. Also, the number of respondents in data collection was limited so the results can't be generalized.

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Details of the AI usage are given below:

1.

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