Infertility Awareness: Assessing Knowledge Among Women of Reproductive Age Group in District Bilaspur, Himachal Pradesh

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Abstract: Background: Infertility, defined as the inability to conceive after a year of unprotected intercourse, affects 10-15% of couples within reproductive age. In India, factors like delayed marriages, lifestyle changes, and conditions such as polycystic ovary syndrome (PCOS) and endometriosis contribute to infertility. Awareness and understanding, particularly in rural areas like District Bilaspur, Himachal Pradesh, remain insufficient. This study assesses the knowledge and perceptions of infertility among women of reproductive age in this region. **Material & Methods:** A descriptive, cross-sectional survey was conducted in District Bilaspur, Himachal Pradesh, from January 2024 to May 2024. The study included 400 women of reproductive age who had been residents of the district for at least 12 months. Data were collected using a pre-tested Google Form questionnaire distributed via email and social media platforms. The questionnaire covered socio-demographic information and knowledge about infertility, with scoring based on correct responses. Data were analyzed using Epi Info V7 software. **Results:** The study revealed a diverse socio-demographic profile among participants, with the majority aged 26-35 years (33.0%), followed by 18-25 years (26.8%), 36-45 years (26.0%), and 46-50 years (14.3%). Most participants were married (52.3%) and Hindu (77.5%). Employment status showed 45.5% employed, 33.8% unemployed, and 20.8% students. Educational attainment varied, with 38.0% being graduates. Awareness about infertility was high, with 80.5% having heard of it. However, detailed knowledge was moderate to low in several areas: causes (PCOS 62.8%, endometriosis 61.5%), lifestyle factors (smoking 66.0%, obesity 64.0%), and treatment options (ART 53.0%). Knowledge scores showed that 24.0% had very good knowledge, 29.5% good, 30.3% fair, and 16.3% poor. **Conclusion:** The study highlights significant gaps in knowledge and awareness of infertility among women of reproductive age in District Bilaspur. While basic awareness is relatively high, there is a need for comprehensive educational efforts to address misconceptions and provide detailed information on infertility. Targeted public health education is essential to improve understanding, reduce stigma, and support women's reproductive health in this region.

Key Words: infertility, reproductive health, awareness, knowledge, rural health, Bilaspur, Himachal Pradesh, public health education, gynecological conditions

1. INTRODUCTION

Infertility is a pervasive global health concern, affecting millions of couples and bearing significant emotional, psychological, and social ramifications. Defined as the inability to conceive after a year of regular unprotected intercourse, infertility impacts approximately 10-15% of couples within reproductive age. Beyond the physical inability to conceive, the issue often leads to stigma, discrimination, and a deep sense of personal failure, particularly among women, in many cultural contexts including India [1]–[4].

In India, the multifactorial nature of infertility is influenced by factors such as delayed marriages, lifestyle modifications, environmental stressors, and a rise in medical conditions like polycystic ovary syndrome (PCOS) and endometriosis. Despite medical advancements and the availability of assisted reproductive technologies (ART), awareness and understanding of infertility remain insufficient, especially in rural and semi-urban areas [5]–[7].

District Bilaspur in Himachal Pradesh, characterized by its rural and semi-urban demographic, offers a unique setting to explore infertility awareness. Women in this region often encounter additional barriers due to limited access to healthcare services, socio-economic limitations, and traditional beliefs that may hinder their understanding and management of infertility. Therefore, assessing the knowledge and perceptions of women of reproductive age in this district is essential

for developing targeted interventions to enhance awareness, reduce stigma, and improve access to appropriate healthcare services.

This study is designed to fill the knowledge gap by evaluating the awareness and perceptions of infertility among women of reproductive age in District Bilaspur. By identifying current levels of knowledge, misconceptions, and cultural beliefs surrounding infertility, the research aims to provide crucial insights into the factors influencing women's understanding and attitudes toward infertility. Additionally, the findings will guide the creation and implementation of effective educational programs and healthcare policies tailored to the needs of women in this region.

In essence, this study aims to assess the knowledge and perceptions about infertility among women in District Bilaspur, Himachal Pradesh. Understanding the factors contributing to infertility-related stigma will help develop strategies to enhance awareness and provide support to women experiencing infertility in this region.

1.1. OBJECTIVES OF THE STUDY

The primary objective is to gauge awareness and knowledge about Infertility among women of reproductive age group in District Bilaspur ,Himachal Pradesh.

2. RESEARCH METHODOLOGY

- Research Approach -Descriptive
- Research Design- Cross-sectional survey design
- Study area: District Bilaspur , Himachal Pradesh
- Study duration- between January 2024 to May 2024
- Study population: The study's target population encompassed all women of reproductive age group who had been residents of District Bilaspur Himachal Pradesh for a minimum of 12 months.
- Sample size- A robust sample size of 400 women of reproductive age group was determined using a 95% confidence level, an estimated knowledge level of 50% regarding Infertility, a precise 5% absolute error margin, and a conservative 5% non-response rate.
- Study tool: A google form questionnaire consisting of questions regarding socio-demography and knowledge regarding Infertility was created. The questionnaire was initially pre-tested on a small number of participants to identify any difficulty in understanding by the respondents.
- Description of Tool-
  a) Demographic data survey instrument: The demographic form elicited information on participants' background: age, marital status, religion, employment, education and many more.
  b) Questionnaire: The questionnaire contains 20 structured knowledge related questions regarding Infertility. One mark was given for each correct answer and zero for incorrect answer. The maximum score was 20 and minimum score was zero. Scoring was done on the

basis of marks as >80%(16-20)=very good,60-79%(12-15) =Good,41-59% (8-11)=Fair,<40% (< 8)=poor.
- Validity of tool - by the experts in this field
- Data collection- Data was collected under the guidance of supervisors. The google form questionnaire was circulated among women of reproductive age group who were the residents of District Bilaspur Himachal Pradesh for responses using online modes like e-mail and social media platforms like Whatsapp groups, Facebook, Instagram and Linkedin till the 400 responses were collected.
- Data analysis- Data was collected and entered in Microsoft excel spread sheet, cleaned for errors and analyzed with Epi Info V7 Software with appropriate statistical test in terms of frequencies and percentage.
- Ethical Considerations- Participants confidentiality and anonymity was maintained.

3. RESULTS

The study assessed the socio-demographic characteristics and the awareness and knowledge of infertility among women of reproductive age in District Bilaspur, Himachal Pradesh. A total of 400 participants were surveyed, providing a comprehensive view of the population's understanding of infertility.

The socio-demographic profile of the participants revealed a diverse representation across various age groups and other demographic categories. The majority of participants were aged 26-35 years (33.0%), followed by those aged 18-25 years (26.8%), 36-45 years (26.0%), and 46-50 years (14.3%). Marital status was predominantly married (52.3%), with single women comprising 40.3% of the sample, and others (including widowed and divorced) making up 7.5%. The religious distribution showed that most participants were Hindu (77.5%), with Muslims (13.5%), Sikhs (7.0%), and others (2.0%) also represented. In terms of employment, 45.5% were employed, 33.8% were unemployed, and 20.8% were students. Educational attainment varied, with 17.8% having education below high school, 26.5% completing high school, 38.0% holding a graduate degree, and 17.8% having postgraduate or higher education. This diverse socio-demographic profile provides a comprehensive understanding of the community's characteristics and potential influences on their knowledge and perceptions of infertility.

The participants demonstrated varying levels of awareness and knowledge about infertility. A significant majority had heard of infertility (80.5%), and 76.8% correctly identified infertility as the inability to conceive after one year of unprotected intercourse. Awareness that both men and women can be affected by infertility was relatively high (72.8%). Knowledge about the impact of age on a woman's fertility was acknowledged by 67.8% of participants, while lifestyle factors such as smoking (66.0%) and obesity (64.0%) were also commonly recognized as affecting fertility. Awareness of medical conditions like polycystic ovary syndrome (PCOS) and endometriosis as causes of

Variable	Categories	Frequency (n)	Percentage (%)
Age	18-25	107	26.8
	26-35	132	33.0
	36-45	104	26.0
	46-50	57	14.3
Marital Status	Single	161	40.3
	Married	209	52.3
	Others	30	7.5
Religion	Hindu	310	77.5
	Muslim	54	13.5
	Sikh	28	7.0
	Others	8	2.0
Employment	Employed	182	45.5
	Unemployed	135	33.8
	Student	83	20.8
Education	Below High School	71	17.8
	High School	106	26.5
	Graduate	152	38.0
	Postgraduate	71	17.8

TABLE 1: Socio-Demographic variables of the study population (N=400)

infertility was noted by 62.8% and 61.5% of participants, respectively. Additionally, knowledge of sexually transmitted infections (STIs) affecting fertility was known by 60.3%, and 58.3% recognized irregular menstrual cycles as a sign of infertility. Knowledge about male infertility due to low sperm count was recognized by 57.8%, while the impact of stress (56.5%) and excessive alcohol consumption (54.5%) on fertility was also acknowledged. Awareness of available treatments for infertility (54.3%) and assisted reproductive technologies (ART) such as IVF (53.0%) was moderate. Knowledge that a healthy diet and regular exercise can improve fertility was recognized by 51.5%, while awareness that male infertility can be diagnosed through semen analysis was known by 49.8%. Knowledge of untreated infections leading to infertility (48.3%), the impact of cancer treatment on fertility (47.0%), and the psychological impacts of infertility (46.5%) highlighted areas where further education is needed.

The overall knowledge scores of the participants regarding infertility revealed a wide range of understanding. Approximately 24.0% of participants demonstrated very good knowledge, scoring between 16-20 points. Those with good knowledge, scoring between 12-15 points, constituted 29.5% of the sample. Participants with fair knowledge, scoring between 8-11 points, made up the largest group at 30.3%, while those with poor knowledge, scoring below 8 points, comprised 16.3%. These results indicate that while there is a significant proportion of women with a good understanding of infertility, there is still a considerable number who have only a fair or poor grasp of the condition. This underscores the need for targeted educational interventions to enhance knowledge and understanding of infertility among women in this region.

4. DISCUSSION

The study conducted in District Bilaspur, Himachal Pradesh, provides critical insights into the socio-demographic characteristics and the awareness and knowledge levels of infertility among women of reproductive age. The results indicate both strengths and gaps in understanding infertility within this population, highlighting the need for targeted educational interventions.

The diverse socio-demographic profile of the participants reflects a comprehensive representation of the community. The majority of respondents were aged 26-35 years (33.0%), followed by those aged 18-25 years (26.8%), 36-45 years (26.0%), and 46-50 years (14.3%). This distribution underscores the relevance of the study, given that these age groups are critical for reproductive health. The predominance of married women (52.3%) aligns with the focus on fertility issues, as marital status is closely linked to reproductive planning and concerns. The religious diversity, with the majority being Hindu (77.5%), followed by Muslims (13.5%), Sikhs (7.0%), and others (2.0%), provides a broad cultural context that may influence perceptions and knowledge about infertility.

The study revealed a high level of basic awareness about infertility, with 80.5% of participants having heard of the condition. Moreover, 76.8% correctly identified infertility as the inability to conceive after one year of unprotected intercourse, and 72.8% recognized that infertility affects both men and women. However, detailed knowledge about specific factors affecting fertility showed considerable variation.

While there was a moderate awareness of certain lifestyle factors such as smoking (66.0%) and obesity (64.0%) contributing to infertility, there were notable gaps in understanding other critical aspects. Awareness of medical conditions like polycystic ovary syndrome (PCOS) (62.8%) and endometriosis (61.5%) was moderate, indicating a need for more focused education on these common causes of infertility. Additionally, knowledge about the impact of age on fertility (67.8%) and the role of sexually transmitted infections (STIs) (60.3%) was moderate, suggesting that while participants are aware of some risk factors, comprehensive understanding remains limited.

Awareness about the availability of treatments for infertility (54.3%) and assisted reproductive technologies (ART) such as IVF (53.0%) was moderate. This points to a need for better dissemination of information regarding treatment options, which is crucial for encouraging timely medical consultation and intervention. Awareness of the benefits of a healthy diet and regular exercise (51.5%), and recognition of male infertility through semen analysis (49.8%), were relatively low, highlighting areas where targeted educational efforts could be beneficial.

The overall knowledge scores revealed a wide range of understanding among the participants. Approximately 24.0% demonstrated very good knowledge, scoring between 16-20 points. Those with good knowledge, scoring between 12-15 points, constituted 29.5% of the sample. Participants with fair knowledge, scoring between 8-11 points, made up the largest group at 30.3%, while those with poor knowledge, scoring below 8 points, comprised 16.3%. These results indicate that while there is a significant proportion of women with a good

Question No.	Awareness Question	Correct Answer Frequency (n)	Correct Answer Percentage (%)
1	Have you heard of infertility?	322	80.5
2	Do you know that infertility is defined as the inability to conceive after one year of unprotected intercourse?	307	76.8
3	Do you know that both men and women can be affected by infertility?	291	72.8
4	Do you know that age can affect awoman's fertility?	271	67.8
5	Do you know that lifestyle factors such as smoking can affect fertility?	264	66.0
6	Do you know that obesity can contributeto infertility?	256	64.0
7	Do you know that polycystic ovary syndrome (PCOS) is a common cause of infertility in women?	251	62.8
8	Do you know that endometriosis can causeinfertility?	246	61.5
9	Do you know that sexually transmitted infections (STIs) can affect fertility?	241	60.3
10	Do you know that irregular menstrual cycles can be a sign of infertility?	233	58.3
11	Do you know that men with low sperm count can also experience infertility?	231	57.8
12	Do you know that stress can affectfertility?	226	56.5
13	Do you know that excessive alcohol consumption can impact fertility?	218	54.5
14	Do you know that there are treatments available for infertility?	217	54.3
15	Do you know that assisted reproductive technologies (ART) such as IVF can help with infertility?	212	53.0
16	Do you know that healthy diet and regular exercise can improve fertility?	206	51.5
17	Do you know that male infertility can be diagnosed through semen analysis?	199	49.8
18	Do you know that untreated infections can lead to infertility?	193	48.3
19	Do you know that a history of cancer treatment can affect fertility?	188	47.0
20	Do you know that infertility can have psychological impacts?	186	46.5

TABLE 2: Awareness and knowledge questions on infertility (N=400)

Score Range	Knowledge Level	Frequency (n)	Percentage (%)
16-20	Very Good	96	24.0
12-15	Good	118	29.5
8-11	Fair	121	30.3
8	Poor	65	16.3

TABLE 3: Knowledge scores on infertility (N=400)

understanding of infertility, a considerable number have only a fair or poor grasp of the condition.

When compared to similar studies conducted in other regions, the findings of this study are consistent in some areas but also highlight unique gaps. For instance, studies from urban areas often show higher awareness and knowledge levels due to better access to healthcare information and services. In contrast, rural areas like District Bilaspur exhibit lower comprehensive knowledge, particularly regarding the specific causes and advanced treatment options for infertility. This comparison underscores the influence of healthcare access and educational resources on infertility awareness and highlights the critical need for targeted educational interventions in rural settings [8]–[10].

The findings underscore the necessity for targeted public health initiatives to improve awareness and knowledge about infertility in District Bilaspur. Educational programs should be culturally sensitive and accessible, considering the diverse socio-demographic background of the population. Health campaigns could leverage local healthcare providers, community leaders, and digital platforms to disseminate information effectively. By improving public health literacy, these initiatives can help reduce the stigma associated with infertility, encourage timely medical consultation, and ultimately improve reproductive health outcomes in the region.

5. CONCLUSION

This study highlights significant gaps in the knowledge and awareness of infertility among women of reproductive age in District Bilaspur, Himachal Pradesh. While basic awareness is relatively high, there is a clear need for more comprehensive educational efforts to address misconceptions and provide detailed information on the various aspects of infertility. Continuous public health education, tailored to the unique needs of the community, is vital for empowering women and supporting their reproductive health journeys. By improving understanding and reducing stigma, these initiatives can lead to better health outcomes and enhance the quality of life for women experiencing infertility in this region.

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