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Shradha Malviya
Ph.D. Scholar, Department of
Obstetrical and Gynecological
Nursing, Malwanchal
University, Indore, Madhya
Pradesh, India

A study to find out the occurrence and causative factors of male infertility among couples visiting gynecological OPD and infertility clinics of Indore

Shradha Malviya

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Abstract

Background: Global infertility prevalence rates are difficult to determine, due to the presence of both male and female factors which complicate any estimate which may only address the women and an outcome of a pregnancy diagnosis or live birth.

Aim: This study will focus on male-related causes, aiming to enhance understanding of male infertility and address the emotional impact on those affected.

Methods and Materials: An explorative design to find out the occurrence and various causative factors of male infertility among couples. The setting of the study was Index Medical College Hospital and Research Center, Index. A convenient sampling technique was used to select 50 males in the age group <20-40> years. A self-structured questionnaire was used to assess the demographic data, past medical history and physiological parameters. The data analysis was done using descriptive statistics.

Results: The results highlighted that demographic factors do not affect the causes of male infertility. Key findings revealed that Azoospermia and Oligospermia were the primary contributors, accounting for 9 (18%) and 20 (40%) cases, respectively. Other factors included Asthenozoospermia at 6 (12%), Mixed pathology at 7 (14%), and low volume at 8 (16%).

Conclusion: The study assume that the causes of maximum male and female infertility are related to increased age and obesity. The study provided an enriching experience for investigator.

Keywords: Occurrence, causative factors, male infertility

Introduction

The World Health Organization (WHO) defines infertility as the inability to conceive after a year of unprotected sexual intercourse. About 84% of couples will become pregnant within the first year of trying, with this number rising to 92% in two years and 93% in three years. However, if a couple hasn't conceived after three years, their chances drop to 25% in the following year. Currently, around 20% of couples face infertility, with male factors accounting for 40-60% of these cases. Despite advances in assisted reproductive technologies (ART), success rates for *in vitro* fertilization remain around one-third. A growing area of research is the decline in male reproductive health, particularly spermatogenetic disorders, which can occur even before puberty due to various risk factors, including cancer treatments. Conditions like testicular torsion, inguinal hernia, and physical injuries can also lead to anti-sperm antibodies, affecting fertility down the line. Assessing the global prevalence of infertility is difficult due to the complex interaction of male and female factors, which can skew estimates that focus only on women and pregnancy outcomes. Research shows that one in four couples in developing countries faces infertility.

Need and Significance of Study

Infertility incidence refers to the annual rate of new infertility diagnoses. The American Society for Reproductive Medicine (ASRM) reports at least 2 million cases of male infertility each year, with female infertility numbers being similar (Dr. Rama's Infertility IVF Hospital, Hyderabad, 2005). An article states that around 7.3 million people in the U.S. are affected by infertility. Of these, about one-third is due to female factors, another third to male factors, and the final third is either a mix of causes or remains unexplained (New York Times Magazine, 2008).

Corresponding Author:
Shradha Malviya
Ph.D. Scholar, Department of
Obstetrical and Gynecological
Nursing, Malwanchal
University, Indore, Madhya
Pradesh, India

Worldwide, infertility impacts roughly 15% of couples, equating to about 48.5 million couples. Males are solely responsible for 20-30% of infertility cases and contribute to 50% overall. However, this data may not represent all regions accurately due to a lack of reliable statistics on male infertility. Our report examines key global regions and presents male infertility rates based on female infertility data.

Research from the All India Institute of Medical Sciences (AIIMS) found that the average sperm count for Indian adult males has dropped from 60 million per milliliter three decades ago to around 20 million today. The study indicated that men in high-temperature jobs—like welders, dyers, and those in the cement and steel industries—face a greater risk of infertility. Additionally, IVF expert Dr. Sonia Malik has recently completed a decade-long study on sperm quality and quantity.

A 2004 study in partnership with the WHO found that infertility affects one in four couples in developing countries, based on data from women's responses in the Demographic and Health Surveys from 1990. This issue remains prevalent. A WHO report from late 2012 showed that the rate of infertility among women in 190 countries has stayed stable from 1990 to 2010.

Dr. Hrishikesh Pai, an infertility expert and Vice-President of the Indian Society of Assisted Reproduction, highlighted the increasing problem of male infertility in India. He estimated that around 30 million couples face infertility, leading to a 10 percent incidence rate among couples. "This is a significant number, and we are seeing a rise in male infertility due to various lifestyle changes and health issues," he stated during a media event at Fortis Hospital, Mohali. Dr. Pai noted that in 40 to 50 percent of cases, the male partner is involved. "Societal expectations often place the blame on women for childless marriages, but men also need treatment," he stressed. What is causing this troubling trend? "Lifestyle changes are certainly a major factor contributing to infertility in both genders."

Statement of the Problem

A study to find out the occurrence and causative factors of male infertility among couples visiting gynecological OPD and infertility clinics of Indore.

Objectives

1. To describe the sample characteristics according to demographic variables.
2. To determine the occurrence of male infertility.
3. To find out the causes of male infertility.
4. To determine the association of causative factors of male infertility and selected demographic variables of male.

Hypothesis

H0: There is no significant association between causative factors of infertility and age of males at the level $p < 0.05$.

H1: There is significant association between causative factors of male infertility and BMI of males at the level $p < 0.05$.

Materials and Methods

The study was aimed to find out the occurrence and causative factors of male infertility among couples visiting gynecological OPD and infertility clinics. A non-experimental research approach was used. An explorative descriptive design was used to find the occurrence and various causative factors of male infertility among couples. The setting of the study was Index Medical College Hospital & Research Center Indore. The sample size comprised of 50 males was selected using convenient sampling technique. A dichotomous type questions were used to gather information and medical history from respondents through self administration of questionnaire in paper and pencil format. The data analysis was done using descriptive analysis.

Result and Discussion

Section I: Distribution of participants according to sociodemographic variables

Majority of participants 29 (58%) were in the age group 21-30 years followed by 18 (36%) in the age group of 31-40 years and least 3 (6%) in the age group of 41 years and above. Majority of participants 36 (72%) were educated till higher secondary and the least 2 (4%) had primary education. All the participants 50 (100%) were working. Majority 21 (42%) of the male had no occupational exposure but there was nearly one half 20 (40%) had prolonged exposure of heat followed by 7 (14%) who had exposure of pesticides and only 2 (4%) who had exposure to noxious chemicals.

Majority of participants 42 (84%) were not having a family history of infertility in first line relation but the remaining 8 (16%) were having a family history of infertility. 37 (74%) participants were residing in urban area. Majority of participants 34 (68%) had their duration of marriage was less than 5 years. Whereas 16 (32%) had more than 5 years of marriage. Majority of participants 41 (82%) had primary infertility in males and 9 (18%) had secondary infertility in males. Majority of participants 30 (60%) had BMI more than 25 whereas 20 (40%) had BMI less than 25.

Section II: Distribution of various causative factors of infertility among males

Table 1: Showing Distribution of various causative factors of infertility among males

S No	Causative Factors	Frequency	Percentage
1	Azoospermia	9	18%
2	Oligozoospermia	20	40%
3	Asthenozoospermia	6	12%
4	Mixed pathology	7	14%
5	Less volume	8	16%
	Total	50	100%

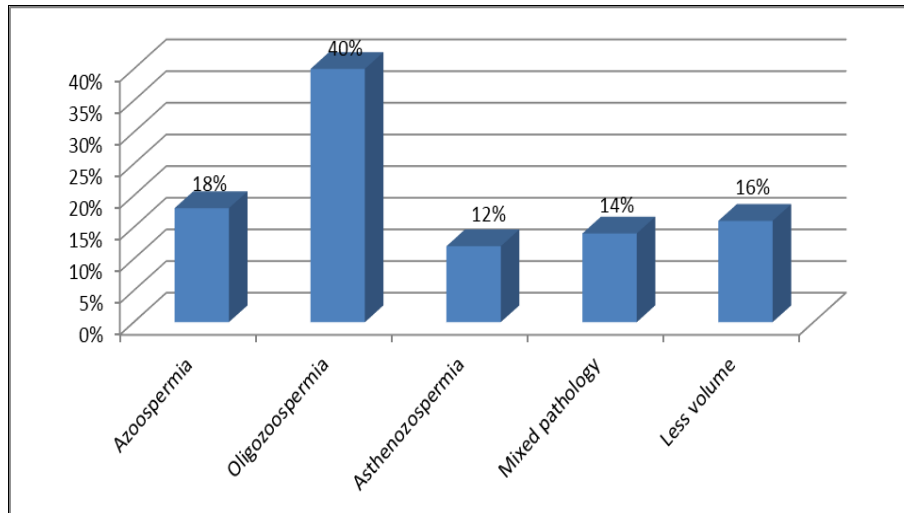


Fig 1: Showing distribution of various causative factors of infertility among males

The above table and graph shows that cause of infertility in men was azoospermia and oligospermia i.e. 9 (18%), and 20 (40%) followed by asthenozoospermia is 16 (12%), mixed pathology is 7 (14%) and less volume 8 (16%).

Section III: Association between the causative factors of male infertility and selected demographic variables

The association was seen between age, educational status, work status, occupational exposure, type of family, family history in first line relation, area of residence, duration of marriage, religion, type of infertility and BMI. The Pearson chi-square test was used for finding the association between causes of male infertility and demographic variables. This test could not be applied on work status, as all the subjects were working and hence this demographic variable became constant. The chi square test was applied on all the other demographic variables, the P value obtained for all the associations was >0.05 , which showed that there is no statistically significant association between causes of male infertility and demographic variables. Thus, we can conclude that demographic variables does not have any impact on the causes of male infertility.

Discussion

Majority of participants 29 (58%) were in the age group 21-30 years followed by 18 (36%) in the age group of 31-40 years and least 3 (6%) in the age group of 41 years and above. Majority of participants 36 (72%) were educated till higher secondary and the least 2 (4%) had primary education. All the participants 50 (100%) were working. Majority 21 (42%) of the male had no occupational exposure but there was nearly one half 20 (40%) had prolonged exposure of heat followed by 7 (14%) who had exposure of pesticides and only 2 (4%) who had exposure to noxious chemicals. A man could have single factor causing infertility or more than one factor contributing to infertility as shown in the table and graph. In this study, cause of infertility was azoospermia and oligospermia i.e. 9 (18%), and 29 (40%) followed by asthenozoospermia is 16 (12%), mixed pathology is 7 (14%) and less volume 8 (16%).

Association between the causative factors of male infertility and selected demographic variables. The association was seen between age, educational status, work status, occupational exposure, type of family, family history in first line relation, area of residence, duration of marriage,

religion, type of infertility and BMI. The Pearson chi-square test was used for finding the association between causes of male infertility and demographic variables. This test could not be applied on work status, as all the subjects were working and hence this demographic variable became constant. The chi square test was applied on all the other demographic variables, the P value obtained for all the associations was >0.05 , which showed that there is no statistically significant association between causes of male infertility and demographic variables. Thus, we can conclude that demographic variables does not have any impact on the causes of male infertility.

Conclusion

The findings of the study have shown that causative factors of male infertility was Azoospermia and Oligospermia i.e. 9 (18%) and 20 (40%) followed by Asthenozoospermia is 6 (12%), mixed pathology is 7 (14%) and less volume 8 (16%).

Conflict of Interest

The author declare there is no conflict of interest.

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