



## SOCIOECONOMIC STATUS AMONG INFERTILE COUPLES

## Genetics

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## ABSTRACT

**Introduction:** Infertility is the common health problem in developing countries like India. Infertility has been associated with the various socioeconomic condition and anthropometric parameters. It is the matter of social injustice and inequality.

**Aim and Objective:** The aim of the present study was to investigate the effect of some socioeconomic status on the fertility in a population of central India.

**Materials and Methods:** This cross-sectioned study was done among 88 infertile couples from different infertility clinics and centers in Bhopal, Rewa, Indore and adjoining areas. Collected information through constructed questionnaire including socioeconomic status.

**Result:** There was a positive relationship between infertility with age, education and socioeconomic status.

**Conclusion:** Infertility is a global health problem that needs proper management and appropriate treatment. The medical and socioeconomic support for infertile couples is an important requirement.

## KEYWORDS

Infertility, socioeconomic factors, causes of infertility, Central India.

## Introduction

A couple that fails to conceive after 12 months of regular cohabitation, without using any contraceptive, is defined as an infertile couple. Shah et al., (2003) reported that one in every six couples wishing to start a family falls into this category.[1] It is estimated that approximately 15% of married couples are infertile according to the aforementioned definition.[2] Infertility is multifactorial, but primarily it is because of male factor, female factors or a combination of both. Infertility can be hormonal, related to age, obesity, infectious diseases, anatomical problems and genetic causes.[3,4] It can be immunological, psychological, as a result of surgery or blockage or may be associated with different abnormalities in the gametes. The most common causes of infertility are simply 'unexplained' and these account for about 20% of such couples.[5]

Many etiological factors are responsible for infertility that involve physical factors, Professional background, education level etc.[6] Fertility has been associated with various socioeconomic factors. Body mass index (BMI) have been found closely related to infertility as has been revealed in various studies.[7,8] As a determinant of health socioeconomic status can have a profound impact on a person's health status. Some studies have reported relationship of socioeconomic conditions with infertility in India.[9,10]

Age and infertility are closely related because several studies have shown that fertility declines as women get older. There is a substantial decline in fertility after age 35 or 40 years.[11]

## Materials and Methods

One hundred and seventy-six subjects of infertile people were included from different infertility centers and clinics of Bhopal, Indore, Rewa and adjoining districts of Madhya Pradesh were chosen for the present study. Collected information through proforma of annual family income, place of living and living standard. Data were tabulated in Microsoft Excel 2013 spreadsheet and analysis by an appropriate statistical method in SPSS16 software.

## Results

In the study, it was found that 88 couples were infertile, out of the 57 (64.77%) had been suffering from primary infertility and 21 (23.86%) were secondary infertility. Table 1 and 2 demonstrated physical parameters of males and females belonging to different infertile couples.

**Table 1: Physical parameters of males and females belonging to different infertile couples.**

No. of subjects	Age (yrs) (±SD)	Height (cm) (±SD)	Weight (kg) (±SD)
88 males	38.63 (±7.13)	160.17 (±12.03)	75.00 (±11.84)
88 females	33.57 (±5.96)	154.89 (±10.14)	67.61 (±18.72)

Table 2 describes the factors which affect fertility. The age of maximum infertile subjects were more than 25 years. Age and BMI were the most significant factors. It was found that occupational status of the male has a significant effect on fertility may be due to physical and psychological problems. About 84.09% infertile subjects were literate and 15.91% were illiterate. Monthly income of 35.23% couple had between Rs. 30000-89000. Nearly 33% of couples had monthly income more than Rs. 150000. 7.95% couples were not disclosed their income. In this study maximum, infertile couples were Hindus followed by Muslim, Christian, others, and Sikh. The majority of the couples were living in a nuclear family.

**Table-2: Association with cases of infertility and controls according to demographic and other characteristics.**

Risk Factors	variables	Cases N=176 (%)	Controls n=176 (%)	Chi-Square	P-value	Significant Level (p < .05)
Age at marriage (years)	≥ 25 years	51 (28.98)	97 (55.11)	24.66	0.00001	Significant
	<25 years	125 (71.02)	79 (44.89)			
Educational Status	Literate	148 (84.09)	164 (93.18)	7.22	0.00720	Significant
	Illiterate	28 (15.91)	12 (6.82)			
Religious Backgrounds	Hindu	118 (67.05)	123 (69.89)	1.92	0.7487	Not Significant
	Muslim	36 (20.45)	33 (18.75)			

	Christian	12 (6.82)	09 (5.11)	12.57	0.0003	Signifi- cant
	Sikh	04 (2.27)	2 (1.14)			
	Others	06 (3.41)	9 (5.11)			
BMI	Normal	143 (81.25)	165 (93.75)			
	Overweig ht	33 (18.75)	11 (6.25)			
Addi- tion	Tobacco	22 (12.5)	7 (3.98)	16.86	0.00075	Signifi- cant
	Alcohol	12 (6.82)	3 (1.70)			
	Both	5 (2.84)	2 (1.14)			
	None	137 (77.84)	164 (93.18)			
Occupati- onal Status	Govern- ment	23 (26.14)	43 (48.86)	9.76	0.0075	Signifi- cant
	Private	42 (47.73)	28 (31.82)			
	Others	23 (26.14)	17 (19.32)			
Family Income	<30,000	10 (11.37)	3 (3.41)	14.59	0.00220	Signifi- cant
	30,000- 89,000	31 (35.23)	19 (21.59)			
	90,000- 149000	11 (12.5)	27 (30.68)			
	>1,50,00 0	29 (32.95)	39 (44.32)			

## Discussion

Infertility is a multidimensional health issue, which occurs not only due to health problems but it may also be due to the modern lifestyle. Several studies have reported that the average age of having children has increased and this is a major cause of infertility. The mean age (in years) of subjects belonging to different infertile couples was  $38.63 \pm 7.13$  and  $33.57 \pm 5.96$  in males and females respectively. Age-related infertility is quite common, particularly in women. With the increase in age ability to be pregnant and carry the pregnancy to term may decrease due to many biological changes which increase the chances of miscarriage and chromosomal abnormalities, birth defects such as Down's syndrome, etc.<sup>[12,13]</sup> The mean heights (in cm) of the subjects belonging to different infertile couples were  $160.17 \pm 12.03$  and  $154.89 \pm 10.14$  respectively in males and females. Height may be correlated with infertility. Some studies found tall height is may be responsible for infertility because of tall height.

Regarding educational level, we found that 15.91% infertile subjects are illiterate. It is suggested that with increasing higher education level among women infertility rate increased. This can be related to the fact that with desire for achieving a higher educational level, marriage is delayed.

Private jobs are more demanding in nature and may lead to many physical and psychological problems. Maximum male subjects belonging to different infertile couples were in private jobs which might be under stress. It could directly affect the physiology of the person leading to increased prolactin levels, disruption of the hypothalamic pituitary adrenal axis and thyroid dysfunction which may ultimately result in infertility.

The average weight (in kg) of males and females was  $75.00 \pm 11.84$  and  $67.61 \pm 18.72$  respectively in the infertile couples. In the present study, we found that 18.75% are overweight. Wise et al., (2010) and Maheshwari et al., (2007) reported that a women's BMI higher than 25 kg/m<sup>2</sup> had a lower chance of pregnancy.<sup>[14,15]</sup> Some studies have shown that male and female with excess body weight are more likely to have fertility problems.<sup>[8,16]</sup> The adverse effects may be reversible with weight loss. Obesity is associated with several health problems, including diabetes, cardiovascular disease, hypertension, and infertility. Among the various risk factors for infertility, obesity can

cause hormonal imbalances in women that may indirectly have an impact on ovulation and menstruation. In man, excess weight may be linked with altered testosterone, poor semen quality leading to infertility.<sup>[17]</sup>

Lower BMI of females of the infertile couples was observed which may be due to malnutrition and/or lower annual income. However, higher BMI in males as well as in females of infertile couples was observed which may be due to modern and/or irregular lifestyle. The frequency of infertile couple was higher in individuals with lower BMI as well as higher BMI.

The incidence of infertility was higher in the lower income group as well as in higher income group. This may be attributed to malnutrition and poor standard of living in the former group and to the irregular lifestyle in the subsequent group.

Most of the infertile couples were Hindus followed by Muslims, Christians, Others (Jain, Sindhi, Parsi, etc.) and Sikhs. This seems to be in proportion to their population in the studied area. Hence, the religion of the couples has no strong relationship with Infertility.<sup>[18]</sup>

In this study, nearly 48% male subjects belonging to different infertile couples had private jobs. In India, there are several reports on infertility and its relationship with socio-economic conditions of the infertile couples.<sup>[10,18,19]</sup>

Several studies showed the relationship between socio-economic status and infertility. Larsen (1995) reported that in Cameroon and Nigeria, socio-economic status, education, and occupation are not significantly related to infertility.<sup>[20]</sup> By contrast, Barden-O'Fallon (2005) found that in Malawi, being in the highest income group is significantly associated with infertility, but only in men.<sup>[21]</sup>

## Conclusion:

There is no need to emphasize that infertility in human reproductive period continues to be a major cause of concern. It is a global health problem which requires appropriate treatment and management. It is becoming a health challenge in developing countries. In spite of various causes, socioeconomic factors are considered significant. Evidence shown in different studies that the significant risk factors for infertility are education level, BMI, Family income, Addiction. The present study addresses socioeconomic issues of infertile couples and draws a certain conclusion. In our study, we found that the significant association between age, educational status, occupational status, family income, BMI and addiction with infertility. It is, therefore, important that these factors should be considered in formulating specific policies for infertile couples.

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## Conflict of interest:

We declare that we have no conflicts of interest.

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