

A STUDY TO ASSESS KNOWLEDGE, ATTITUDE AND PRACTICE OF INFERTILITY AMONG ADULTS IN INDIAN POPULATION

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ABSTRACT

Background: Infertility is growing public health problem in India. Due to infertility couples face lots of discrepancies in socio-religious activities and may also develop mental health issues in couples.

Objective: To assess the knowledge, attitude and practice on infertility among adults of India. **Introduction:** Infertility is defined as not being able to get pregnant despite having frequent unprotected sexual intercourse for at least one year without using birth control methods. Infertility may be a result from an issue with either female partner or male partner or a combination of factors which prevent pregnancy.

Methods: A cross-sectional study was conducted through internet chat application to assess the knowledge, attitude and practice among adults in Indian population. Sample size was of 119 participants within inclusion criteria. Data analysis was done using Statistical Package of Social Sciences (SPSS) software Version 25 and p-value<0.05 was considered significant. **Results:** The study revealed that 61.3% of participants had good knowledge, 66.4% had good attitude, 58.8% had adequate practice on infertility. Age was found to be statistically significant (p-value=0.009) with attitude. Also, age and education were significantly associated with practice as well with p-value=0.015 and 0.002

respectively. **Conclusion:** This study concludes that there is a need to improve the knowledge attitude and practice of adult population regarding infertility, health professionals and electronic media can play a vital role in improving the same.

KEYWORDS: Knowledge, Attitude, Practice, Infertility, Adult.

INTRODUCTION

Infertility has become one of the global public health problems, where couple is unable to bear a child, they are not able to conceive and remain childless. For women under the age of 35 years infertility is defined as inability to conceive a child after 1 year of unprotected sexual intercourse. For women aged 35 to 40 years it is defined as inability to conceive after 6 months of unprotected sexual intercourse. For women above 40 years of age it is defined as inability to conceive after 3 months of sexual intercourse. Infertility is also an inability to carry a pregnancy to term, such as in cases of recurrent pregnancy loss.^[1] There are two types of infertility primary infertility and secondary infertility, primary infertility refers to couples who have not become pregnant after at least 1 year having sexual intercourse without using any birth control method. While secondary infertility refers to couples who have been able to get pregnant at least once, but unable to conceive second time.^{[2][3]} According to WHO the prevalence of primary and secondary infertility is 3% and 8% respectively.^[4] A study conducted in Asian institute of infertility management and Shefali Jain test tube baby Centre among 1000 cases it was experienced that maximum infertility is due to female factors which is 30.2%, cause of infertility in females was observed due to ovulation problem and most of the cases were from the females falling in age group of 35 yrs to 40 yrs. While male factors in infertility contributes 19.5% which is less than females, causes of infertility was observed in males due to absence of sperms in semen, low count of sperm, motility problem most of the cases were from males falling in the age group of 35 yrs to 40 yrs. But majority of 37% cases was observed with unexplained causes.^[5]

Infertility takes place in the couple when there is problem in their reproductive system. Not only reproductive system, diagnosis of infertility can also be attributed to many factors: hormonal and metabolic problem, age, infection, lifestyle (smoking, alcohol), tubal disease, cancer treatment, genetic and environmental chemicals.^[1] It has been found out that decreasing fertility is directly related to female literacy rate, resulting educated women easily could postpone their marriage hence it affects the child birth they are also in position to plan their family and most of women opt for smaller family size to increase the income of

individual other reason may be given regarding the decreasing infertility are lack of physical activities and sedentary lifestyles, which give rise to obesity, thus causing them PCOS. It has been also noticed that infertility among couples are due to rise in unprotected sexual intercourse, which results into STD's and regular use of emergency contraception and surgical abortions results in increasing of infertility.

In rural section, the percentage of women infertility is due to genital infections like tuberculosis, these may result into blockage of tubes. In villages there is use of pesticides and fertilizers which contributes in declining fertility.^{[6][7][8]}

On the other part if we analyze the male problem regarding the low fertility it has been studied in the systematic review article on dietary patterns, food and nutrients in male fertility parameters and fecundability by Albert Salas-Huetos that male fertility is affected by consumption of smoking and alcohol, increased use of gadgets like mobiles, laptops, environmental chemicals and it is also found that some dietary patterns also affects the male fertility like diets rich in processed meat, soy foods, potatoes, full fat dairy products, cheese, sugar sweetened beverages and sweets has harmful effects associated with quality of semen.^[9]

In concept of Indian population, it was stated in a study to assess knowledge attitude of couples diagnosed with infertility by Samta that childless couple in the society does not hold any respect. Infertility affects the personal life of couples and emotional and sexual life too; especially women do not get much respect in comparison to male partner. Women even get divorced from the husband; they are forbidden from the religious practices and face many more in other social practices due to infertility. An infertile man is not considered as a man in society.^{[1][3][10][11]} In a study of the relationship between stress and infertility by Kristine L. Rooney it was reported that the majority of infertile women shows feelings of depression, anxiety, isolation and loss of control as they do not express their problems with the family and friends which results in adverse effects on their mental health. The negative feelings of guilt, low self esteem and shame increases the intensity of depression, anxiety, distress and leads to poor quality of life.^{[1][12][13]}

METHODOLOGY

Study design and study population:

A web based cross sectional survey was conducted among 119 adults from 14th March 2020 to 6th April 2020. As it was not feasible to do a community-based national sampling survey during the lockdown period, we decided to collect data online.

An online questionnaire was administered via social networks and all the possible networks to contact potential participants. The link to the Google form was sent to the study participants which contained a brief introduction, objective, voluntary nature of participation, declarations of anonymity and confidentiality. The study protocol and procedures of informed consent before the formal survey was done. The participants had to confirm their willingness to participate voluntarily.

Inclusion and Exclusion Criteria

Inclusion Criteria: Permanent residents of India, male and female both, married and unmarried, from urban and rural areas between age group of 15-45yrs.

Exclusion Criteria: Non resident Indians and transgender.

Study Tool

A self-structured, pre-tested questionnaire was used to collect information. It consisted of four sections, these four sections contained questions assessing the socio-demographic data of participants, their knowledge, attitude and practice regarding the infertility, respectively.

The basis for correct answer was selected from literature and clinical expert's knowledge. For assessing knowledge, attitude and practice each correct answer was awarded a score of one and each incorrect answer was awarded a score of 0. Quartiles were generated for each component. Based on quartiles, knowledge, attitude and practice were divided into adequate and inadequate.

Statistical analysis

Data analysis was done using Statistical Package of Social Sciences (SPSS) software Version 25. The categorical data is presented as percentages and the continuous data is presented as mean \pm standard deviation analyzed through descriptive statistics. The chi-squared test was also applied to find out the association between different variables considering the significance level of $p < 0.05$.

RESULTS

The socio-demographic data revealed that participants between age group of 15-35yrs were 107(89.9%), and 36-45yrs were 12(10.1%). Out of which females were 66(55.5%) and males 53(44.5%). It is shown that married participants were 43(36%) and unmarried participants were 76(63.9%). Educational status revealed that 59(49.6%) were graduates and post-graduate participants were 60(50.4%). It is observed that 69(58.0%) participants in the study were Hindus, and 50(42.0%) participants were Muslims. Table 1 depicts the same.

Table 1: Socio-demographic data.

AGE	FREQUENCY	PERCENTAGE
15-30yrs	107	89.9
36-45yrs	12	10.1
SEX		
FEMALE	66	55.5
MALE	53	44.5
RELIGION		
HINDU	69	58.0
MUSLIM	50	42.0
MARITALSTATUS		
MARRIED	43	36.1
UNMARRIED	76	63.9
EDUCATIONALSTATUS		
GRADUATE	59	49.6
POST GRADUATE	60	50.4

Table 2 indicates the different knowledge variables asked from the study participants. In the study to know about the level of knowledge of participants regarding infertility it was noticed that out of 119 participants, majority of participants 76(63.9%) considered problem with eggs and tubal factors both as the cause of infertility, only 7(5.9%) participants didn't know the cause of infertility. When participants were asked about infertility, 21(17.6%) participants felt that infertility is inability to conceive after one year of sexual intercourse without contraception. When the participant's knowledge was checked on fertilization, majority 49(41.2%) of participants knew correctly that fertilization of egg takes place in tube while only 6(5%) participants didn't know where fertilization of egg takes place. 75(63%) of participants had correct knowledge that only one egg is released in ovulation. When the participants were asked that which phase of menstrual cycle, women are most likely to become pregnant the majority of participants 64(53.8%) knows correctly that women is most likely to get pregnant in halfway between two periods phase of menstrual cycle. 55(46.2%) strongly agreed, 51(42.9%) participants agreed that smoking and alcohol consumption can

decrease the sperm count. 52(43.7) agreed with it and 40(33.6%) participants strongly agreed that polycystic ovary syndrome and obesity are the main reasons for global rise in infertility in India. Majority of participants 95(79.8%) knows correctly about surrogacy that it is about putting embryos in other women's uterus. 60(50.4%) agreed, 32(26.9%) participants strongly agreed that donation of sperms and eggs can be helpful in infertility.

Table 2: Based on knowledge of infertility.

	FREQUENCY	PERCENTAGE
WHAT CAN BE THE CAUSE OF INFERTILITY		
With eggs	27	22.7
Tubal factors	09	7.6
All of the above	76	63.9
Don't know	07	5.9
DO YOU KNOW WHAT IS INFERTILITY		
Inability to conceive after one month of unprotected sexual intercourse without contraception	60	50.4
Inability to conceive after one year of unprotected sexual intercourse without contraception	21	17.6
Inability to get pregnant after marriage	20	16.8
Inability to get pregnant within 3 months of sexual intercourse without contraception	18	15.1
WHERE DOES THE EGGS GET FERTILIZED		
In the ovary	39	32.8
In the tube	49	41.2
In the womb	25	21.0
Don't know	06	5.0
HOW MANY EGGS ARE RELEASED IN OVULATION		
One egg	75	63.0
Two egg	07	5.9
Multiple egg	30	25.2
Don't know	07	5.9
AT WHICH PHASE OF MENSTRUAL CYCLE WOMEN ARE MOST LIKELY TO BECOME PREGNANT		
Halfway between the two periods	64	53.8
Just after the period	30	25.2
Just before the period	15	12.6
The moment doesn't matter	03	2.5
Don't know	07	5.9
SMOKING AND ALCOHOL CONSUMPTION CAN DECREASE THE SPERM COUNT		
Strongly agree	55	46.2
Agree	51	42.9
Neutral	11	9.2
Disagree	02	1.7

POLYCYSTIC OVARY SYNDROME AND OBESITY ARE THE MAIN REASON BEHIND GLOBAL RISE IN INFERTILITY IN WOMEN		
Strongly agree	40	33.6
Agree	52	43.7
Neutral	27	22.7
WHAT DO YOU KNOW ABOUT SURROGACY		
Putting embryos in other woman's womb	95	79.8
Putting embryos in your own uterus	03	2.5
Taking donor eggs from others	14	11.8
Taking donor eggs from others	07	5.9
DONATION OF SPERMS AND EGGS CAN BE HELPFUL IN INFERTILITY		
Strongly agree	32	26.9
Agree	60	50.4
Neutral	08	6.7
Disagree	19	16.0
WHEN ONE SHOULD SEEK HELP FOR INFERTILITY PROBLEM (UNDER AGE 35YRS)		
After one year of unprotected sexual intercourse without contraception	42	35.3
After three months of unprotected sexual intercourse without contraception	28	23.5
After six months of unprotected sexual intercourse without contraception	13	10.9
Don't know	36	30.3

Table 3 shows the attitude towards infertility of the study participants. To observe the attitude of participants towards infertility, participants were asked whether infertility could be treated, 59(49.6%) participants strongly agreed, 51(42.9%) participants agreed. When participants were asked whether infertility is a serious medical condition, 51(42.9%) participants strongly agreed, 46(38.7%) participants agreed to it. When participants were asked whether infertility is a treatable condition 44(37%) strongly agreed, 58(48.7%) agreed to it, 12(10.1%) remained neutral. When participants were asked whether they are concerned about infertility 30(25.2%) were strongly agreed, 64(53.8%) participants agreed to it, and 20(16.8%) participants were neutral. When participants were asked whether they like to have knowledge on infertility majority of participants 50(42%) strongly agreed, 49(41.2%) participant agreed to it, 16(13.4%) participants were neutral. When participants were asked if couples conceive once, they might have problem in conceiving again, 20(16.8%) participants strongly agreed, 31(26.1%) participants agreed to it and 17(14.3%) participants were neutral while majority of 51(42.9%) participants disagreed on this. When participants were asked infertility is a problem in both men and women majority of participants 66(55.5%) strongly agreed to it, 47(39.5%) participants agreed to it. 28(23.5%) participants strongly agreed that sedentary

lifestyles contributes in infertility, 60(50.4%) participants agreed to this and 28(23.5%) participants were neutral.

Table 3: Based on attitude on infertility.

	FREQUENCY	PERCENTAGE
INFERTILITY SHOULD BE TREATED		
Strongly agree	59	49.6
Agree	51	42.9
Neutral	08	6.7
Disagree	10	0.8
INFERTILITY IS A SERIOUS MEDICAL CONDITION		
Strongly agree	51	42.9
Agree	46	38.7
Neutral	15	12.6
Disagree	07	5.9
INFERTILITY IS A TREATABLE CONDITION		
Strongly agree	44	37
Agree	58	48.7
Neutral	12	10.1
Disagree	05	4.2
I CARE ABOUT BEING ABLE TO HAVE CHILDREN		
Strongly agree	48	40.3
Agree	56	47.1
Neutral	12	10.1
Disagree	03	2.5
BEING CAPABLE OF HAVING CHILDREN IS IMPORTANT TO MY OVERALL HEALTH		
Strongly agree	38	31.9
Agree	56	47.1
Neutral	21	17.6
Disagree	04	3.4
I AM CONCERNED ABOUT INFERTILITY		
Strongly agree	30	25.2
Agree	64	53.8
Neutral	20	16.8
Disagree	05	4.2
I LIKE TO HAVE MORE INFORMATION ON HOW TO PROTECT FERTILITY		
Strongly agreed	50	42
Agreed	49	41.2
Neutral	16	13.4
Disagree	04	3.4
I THINK THAT IF A COUPLE CONCEIVES ONCE, THEY MIGHT HAVE PROBLEMS IN CONCEIVING AGAIN		
Strongly agree	20	16.8
Agree	31	26.1
Neutral	17	14.3

Disagree	51	42.9
INFERTILITY IS A PROBLEM IN BOTH MEN AND WOMEN		
Strongly agree	66	55.5
Agree	47	39.5
Neutral	04	3.4
Disagree	02	1.7
SEDENTARY LIFESTYLES CONTRIBUTES IN INFERTILITY		
Strongly agree	28	23.5
Agree	60	50.4
Neutral	28	23.5
Disagree	03	2.5

Table 4 depicts the practice towards infertility among study participants. In the study to observe the practice of participants on infertility few questions were asked like, which is the best place for the treatment of infertility, majority of participants 82(68.9%) felt that it is good to be taken at higher centers, 30(25.2%) participants felt that government hospitals are good for infertility treatment while only 7(5.9%) participants felt that local doctors should be consulted. Majority of the participants 49(41.2%) felt, in women fertility starts declining at the age of 39yrs, 43(36%) participants felt that it declines at the age of 35yrs, and 14(11.8%) participants felt it declines at the age of 32yrs while 13(10.9%) participants felt that it declines at the age of 27yrs. When participants were asked which of the treatment is good for infertility majority of participants 86(72.3%) responded that intra uterine insemination, IVF, surrogacy all of them are good treatment, while only 5(4.2%) participants felt only surrogacy is a good treatment. Participants were asked that is it acceptable to have a test tube baby 32(26.9%) participants strongly agreed with it. Participants were asked that whether fertility drugs are acceptable 27(22.7%) participants strongly agreed, 59(49.6%) participants were agreed. Participants were asked husband wife both should be investigated for infertility majority of participants 71(59.7%) strongly agreed. Participants were asked whether reducing alcohol and caffeine consumption helps in enhancing fertility majority of participants 59(49.6%) were agreed, 34(28.6%) participants were strongly agreed, 19(16%) participants were found neutral on this. When participants were asked women who are trying to conceive should boost their intake of folic acid 58(48.7%) agreed with it, 39(32.8%) participants were strongly agreed and 19(16%) were found neutral.

Table 4: Based on practice of Infertility.

	FREQUENCY	PERCENTAGE
BEST PLACE FOR TREATMENT OF INFERTILITY		
Government hospitals	30	23.5
Local doctor's	07	5.9
taken at higher centers	82	68.9
WHICH OF THE FOLLOWING AFFECTS THE FERTILITY RATE OF AN INDIVIDUAL		
Nutrition	19	16
Sexual behavior	09	7.6
Consanguinity	01	0.8
All of the above	10	75.6
A WOMEN'S FERTILITY BEGINS TO DECLINE AT WHAT AGE		
27 yrs	13	10.9
32yrs	14	11.8
35yrs	43	36.1
39yrs	49	41.2
WHICH OF THE TREATMENT IS GOOD		
Intra uterine insemination	07	5.9
IVF	21	17.6
Surrogacy	05	4.2
All of the above	86	72.3
I THINK,IF COUPLE DON'T HAVE CHILDREN THEY SHOULD ADOPT		
Strongly agree	59	49.6
Agree	47	39.5
Neutral	13	10.9
I THINK, IT IS ACCEPTABLE TO HAVE A TEST TUBE BABY		
Strongly agree	32	26.9
Agree	68	57.1
Neutral	15	12.6
Disagree	04	3.4
I THINK, FERTILITY DRUGS ARE ACCEPTABLE		
Strongly agree	27	22.7
Agree	59	49.6
Neutral	28	23.5
Disagree	05	4.2
DO YOU THINK HUSBAND WIFE BOTH SHOULD BE INVESTIGATED FOR INFERTILITY		
Strongly agree	71	59.7
Agree	42	35.3
Neutral	06	5
DOES REDUCING ALCOHOL AND CAFFEINE CONSUMPTION HELPS IN ENHANCING FERTILITY		
Strongly agree	34	28.6
Agree	59	49.6
Neutral	19	16
Disagree	07	5.9

WOMEN WHO ARE TRYING TO CONCEIVE SHOULD BOOST THEIR INTAKE OF FOLIC ACID		
Strongly agree	39	32.8
Agree	58	48.7
Neutral	19	16
Disagree	03	2.5

Thus, 61.3% of participants have adequate knowledge regarding infertility while 38.7% have inadequate knowledge regarding infertility. 66.4% of participants have good attitude towards infertility while 33.6% have poor attitude towards infertility. 58.8% of participants have good practice on infertility while 41.2% have poor practice on infertility.

Like in other developing countries, in India also have importance of children in married couple's life. Infertility has negative effect on psychological and social wellbeing of women and men in society. In recent years fertility has been decreasing worldwide. Although the infertility rate is rising, but till date no study has been conducted to assess the knowledge attitude and practice on infertility among general population in India and to evaluate how much knowledge attitude and practice of infertility is associated with the age, education, gender, location of general population.

Table 5 indicates the association of level of knowledge with different socio-demographic variables. 83.3% of study participants having adequate knowledge belong to the age group of 36-46 years. 62.1% and 60.4% were females and males who had adequate knowledge respectively. It was noticed that 63.8% Hindus and 58% Muslims had adequate knowledge regarding infertility. 63.3% and 53.3% participants pursued post graduate and graduate courses respectively that had adequate knowledge. 60.5% participants were unmarried and 62.8% were married reporting adequate knowledge. 66.7% were rural residents where as 60.7% were residing in urban locality who reported to have adequate level of knowledge.

Table 5: Bivariate analysis showing association of knowledge with socio-demographic data.

Variable	Level of Knowledge among study participants		p-value
	Inadequate Knowledge%	Adequate Knowledge%	
AGE			0.099
15-30yrs	44(41.1)	63(58.9)	
36-45yrs	02(16.7)	10(83.3)	
GENDER			0.346
MALE	21(39.6)	32(60.4)	
FEMALE	25(37.9)	41(62.1)	
RELIGION			0.524
HINDU	25(36.2)	44(63.8)	
MUSLIM	21(42.0)	29(58.0)	
EDUCATION			0.653
GRADUATE	24(40.7)	35(59.3)	
POST-GRADUATE	22(36.7)	38(63.3)	
MARITAL STATUS			0.807
MARRIED	16(37.2)	27(62.8)	
UNMARRIED	30(39.5)	46(60.5)	
LOCATION			0.690
URBAN	42(39.3)	65(60.7)	
RURAL	04(33.3)	08(66.7)	

Table 6 indicates the type of attitude towards infertility among study participants. 62.6% of study participants had positive attitude in the age group of 15-35 years. It was also found to be statistically significant (p value=0.009). 66% males and 66.7% females showed positive attitude. 63.8% Hindus and 70% Muslims had a positive attitude towards infertility. Graduates (76.3%) showed higher positive attitude than post graduates (56.7%). Unmarried participants (69.7%) were found to have more positive attitude than married (60.5%) participants.

Table 6: Bivariate analysis showing association of attitude with socio-demographic data.

Variable	Type of Attitude towards infertility among study participants		p-value
	Negative Attitude	Positive Attitude	
AGE			
15-35yrs	40(37.4)	67(62.6)	0.009
36-45yrs	0(0)	12(100)	
GENDER			0.942
MALE	18(34.0)	35(66.0)	
FEMALE	22(33.3)	44(66.7)	
RELIGION			0.478
HINDU	25(36.2)	44(63.8)	
MUSLIM	15(30.0)	35 (70.0)	
EDUCATION			0.24
GRADUATE	14(23.7)	45(76.3)	
POST-GRADUATE	26(43.3)	34(56.7)	
MARITAL STATUS			0.304
MARRIED	17(39.5)	26(60.5)	
UNMARRIED	23(30.3)	53(69.7)	
LOCATION			0.983
URBAN	36(33.6)	71(66.4)	
RURAL	4(33.3)	08(66.7)	

Table 7 indicates the kind of practice of infertility among study participants. 91.7% in the age group of 36-45 years and 55.1% in the age group of 15-35 years were found to have efficient practice towards the issue of infertility. It was found statistically significant as well (p-value=0.015). 63.6% females and 52.8% males were noticed showed similar efficiency of practice in infertility. 64% Muslims and 55.1% Hindus were noticed in the same clan. Graduates (72.9%) showed better practicing habits than post-graduates (58.8%). It was also found to be statistically significant (p-value=0.05).

Table 7: Bivariate analysis showing association of practice with socio-demographic data.

Variable	Type of Practice towards infertility among study participants		p-value
	INADEQUATE%	ADEQUATE %	
AGE			0.015
15-35yrs	48(44.9)	59(55.1)	
36-45yrs	01(8.3)	11(91.7)	
GENDER			0.234
MALE	25(47.2)	28(52.8)	
FEMALE	24(36.4)	42(63.6)	
RELIGION			0.329

HINDU	31(44.9)	38(55.1)	
MUSLIM	18(36.0)	32(64.0)	
EDUCATION			0.002
GRADUATE	16(27.1)	43(72.9)	
POST-GRADUATE	49(42.2)	70(58.8)	
MARITAL STATUS			0.680
MARRIED	13(30.2)	30(69.8)	
UNMARRIED	36(47.4)	40(52.6)	
LOCATION			0.230
URBAN	46(43.0)	61(57.0)	
RURAL	03(25.0)	09(75.0)	

DISCUSSION

A study conducted by Samta on similar grounds to assess the knowledge and attitude of infertility in couples diagnosed with infertility with the sample size of 60 found that half of the male participants (53.3%) and female participants (43.3%) had adequate knowledge of infertility while 56.6% of female participants had inadequate knowledge of infertility and its management. Also it was noticed that about 58.8% of female participants had adequate attitude towards infertility.^[3]

In other study on knowledge attitude and practice among Saudi couples conducted by Mostafa A Abolfotouh, with the sample size of 277 fertile participants from out patient clinic and 104 infertile patients from IVF clinic at King Abdul Aziz medical city. During the study when the participants were asked about couples conceived once, might face problem in conceiving second time the study shows that 68.3% of IVF patient participants and 87.9% of fertile out patient agreed for the same, while in our study only 42.9% participants supported that problem might comes in conceiving second time in the couples conceived once.^[2]

Further in study conducted at King Abdul Aziz medical city participants being asked whether infertility can be treated medically 93.5% IVF participants and 96.6% participants from fertile out patient reported infertility can be treated medically. In this regard our study shows 85.7% participants reported that infertility is treatable condition. On asking the participants about the acceptance of test tube baby, 92.4% Of IVF patients and 73.3% of fertile out patient agreed the acceptance of test tube baby while in our study 84.0% of participants accepted to have test tube baby.⁽²⁾

The same study showed 87.5% of IVF patients and 68.4% of fertile out patient agreed for the acceptance of infertility drugs where as in our study it shows that 72.3% participants agreed

for the fertile drugs are acceptable. Also, 82.7% of IVF patients and 85.4% of fertile out patient agreed that both partner needs to be investigated for infertility while in our study 95% of participants reported that both husband and wife needs to be investigated about the causes of infertility.^[2]

CONCLUSION

The study suggests that some programs should be developed to improve the knowledge of adult population regarding the infertility management and progress themselves with higher attitude and practice satisfactorily. Result may be oriented with the help of health professional and further their need of individual counseling for the urban and rural adult population. The program in this regard could be taken at government hospitals where best counseling could be parted with. Electronic media can also play a vital role in the development of knowledge-practice gap of infertility among adults. Media like audio-visual television advertisement and newspaper helps in the spreading the knowledge of infertility. This study also revealed there is need of research which could further help in making the policies and programs by the government authorities in the field of infertility.

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REFERENCES

1. Windy Ezzel, The impact of infertility on women's mental health, North Carolina medical journal, 2016, <https://doi.org/10.18043/ncm.77.6.427>.
2. Mostafa A Abolfotouh,¹Abdullah A Alabdrabalnabi,²Rehab B Albacker,³Umar A Al-Jughaiman,⁴ and Samar N Hassan⁵, Knowledge, attitude, and practices of infertility among Saudi couples, International journal of general medicine, 2013,<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711755/>.
3. Samta, Manju Chhugani, veena Sharma, Monika Gupta, A Study to assess Knowledge and Attitude of Couples diagnosed with Infertility, International journal of nursing and midwifery research, 2016 <https://medical.adrpublications.in/index.php/IntlJ-NursingandMidwiferyRes/article/view/500/635>.
4. Ashwini Nayak U.*, Ramakrishnan K. G., Venkateswar K. N., Vijayshree M., Dissecting the rural Indian women's knowledge, attitude and practice about infertility, International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 2017,<https://www.ijrcog.org/index.php/ijrcog/article/view/3256>.

5. Patel Mital¹, Jain Shefali², Jain Dinesh², Patel Bhavesh¹, Phanse Nandini¹, Vyas Priti¹ and Rathore Pragya³, Prevalence of Different Factors Responsible for Infertility, Research Journal of Recent Sciences, 2012, https://www.researchgate.net/publication/264784307_Prevalence_of_Different_Factors_Responsible_for_Infertility.
6. Dr Sonia Malik, Infertility a growing concern for India, BW BUSINESSWORLD, 2018, <http://www.businessworld.in/article/Infertility-A-Growing-Concern-For-India/09-04-2018-145838/>.
7. Seyedeh Zahra Masoumi, Ph.D.,¹Parisa Parsa, Ph.D.,²Nooshin Darvish, B.Sc.,³Sahar Mokhtari, B.Sc.,⁴Mahnaz Yavangi, M.D.,⁵ and Ghodratollah Roshanaei, Ph.D.⁶ An epidemiologic survey on the causes of infertility in patients referred to infertility center in Fatemeh Hospital in Hamadan, Iranian journal of reproductive medicine, 2015, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4637117/>.
8. Jimei Cong, Pingping Li, Liqiang Zhen, Jichun Tan, Prevalence and Risk Factors of Infertility at a Rural Site of Northern China, Plos one, 2016, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0155563>
9. Albert Salas-Huetos¹, Emma R James², Kenneth I Aston³, Timothy G Jenkins³, Douglas T Carrell³, Diet and Sperm Quality: Nutrients, Foods and Dietary Patterns, national center for biotechnology information, 2019 <https://nih.gov/28333357/pubmed.ncbi.nlm>.
10. Sumera Ali, Raafay Sophie, Ayesha M Imam, Faisal I Khan, Syed F Ali, Annum Shaikh, Syed Farid-ul-Hasnain Knowledge, perceptions and myths regarding infertility among selected adult population in Pakistan: a cross-sectional study, BMC Public Health, 2011, <https://bmcpublihealth.biomedcentral.com/articles/10.1186/1471-2458-11-760>
11. Karin Hammarberg, Veronica Collins, Carol Holden, Kate Young, Robert McLachlan, Men's knowledge, attitudes and behaviours relating to fertility, *Human Reproduction Update*, 2017, <https://academic.oup.com/humupd/article/23/4/458/3065332>
12. Kristin L. Rooney, BA, Alice D. Domar, PhD^{*}, The relationship between stress and infertility, Dialogues in clinical neuroscience, 2018, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016043/>
13. Enikő Lakatos,^{✉1}Judit F Szigeti,²Péter P Ujma,¹Réka Sexty,³ and Piroska Balog¹, Anxiety and depression among infertile women: a cross-sectional survey from Hungary, BMC Womens Health, 2017, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5525318/>

14. Reeta Mahey, Monica Gupta, Shobha Kandpal, Neena Malhotra, Perumal Vanamail, Neeta Singh, Alka Kriplani, Fertility awareness and knowledge among Indian women attending an infertility clinic: a cross-sectional study, *BMC Women's Health*, 2018, <https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-018-0669-y>
15. Achmad Kemal Harzif, Victor Prana Andika Santawi, Stephanie Wijaya, Discrepancy in perception of infertility and attitude towards treatment options: Indonesian urban and rural area, reproductive health, 2019, <https://link.springer.com/article/10.1186/s12978-019-0792-8>.