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to Study the Prevelance of Etiological Factors Resposible for Subfertility and Its Correlation with Clinical Profile in Rural India.

KEYWORDS

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INTRODUCTION

A wish for a child is a need of an individual instinct for development of individual personality, socio cultural process, economic factors, individual biographical changes, fate, interpersonal processes between partner and family dynamics. failure to meet that is associated with physical and mental stress. The word infertility is highly stigmatized and leads to profound social consequences for infertile couple hence word subfertility is used synonymously in absence of major/uncorrectable causative factor.

According to WHO [1] Infertility, whether male or female, is defined as the inability of a couple to achieve conception or bring a pregnancy to term after a year or more of regular, unprotected sexual intercourse, and there is no other reason (such as breastfeeding or post partum amenorrhea). the term is generally used to denote that the couple has reduced chances to conceive as compared to general population.

Among these couples, infertility is exclusively a problem in the female in about 30-40% of cases, in the men in about 10-30% of cases. In 15-30% of cases, both partners have detectable abnormalities. After thorough medical examinations, the causes of infertility remain unexplained in 5-10% of couples. WHO believes that around 60-80 million couples in the world are infertile.[2,3]

It can be sub-divided into primary or secondary infertility

Couples with **primary** infertility have never been able to conceive, while on the other hand, **secondary** infertility means difficulty in conceiving after having, already been pregnant in the past.

Subfertility can be caused by male and female factors or both.ech account for 35% of cases. Often, there is more than one factor, with male and female factors combined causing 20% of infertility. In the remaining 10% of cases etiology is unknown.[4]

Aims and objectives-

- To study the prevalence of various etiological factors responsible for sub-fertility.
- To study the clinical profile of sub-fertile couple and correlate with etiology.

Materials and methods.

- TYPE OF STUDY- PROSPECTIVE CROSS SECTIONAL STUDY
- Duration of study :- 2013august -2015 august
- Place of study :- DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY JNMC ,AVBRH, DMIMS, WARDHA
- Sample size :-100 consecutive couples attending fertility clinic at AVBRH were considered for the purpose of study, after informing them and taking written consent from them, for becoming the part of the study.
- Total number of patients attending our fertility clinic is 15-20 new patients per month. Among them who were willing and affording to get the investigations done were taken for the study.

Exclusion criteria-

- 1) couples not living together.

- **Methodology-**
- 100 subfertile couples attending obstetrics and gynecology opd were included in the study. Preliminary details in the form of name, age, address, socio economic status, education and registration number were noted.

Results-

Observations and result

The present study is a prospective cross sectional study conducted at Acharya vinobhabhave rural hospital attending obstetrics and gynaecology department. This study has been conducted for 2 years from September 2013-2015. the study included 100 sub fertile couples.

The present study included 100 sub fertile couples out of which 76% were primary infertility cases and 24% were secondary infertility cases.

Table no 1-Distribution of cases according to Type of infertility

TYPES OF INFERTILITY	NO OF CASES N=100	%
Primary	76	76%
secondary	24	24%
Total	100	100%

In the present study 32% of women belonged to the age group of 21-25 years,46% belonged to the age group of 26-30 years,11% belonged to the age group of 31-35 years,11% women belonged to age group of more than 35 years of age.

11% of men belonged to the age group of 21-25years,33% men belonged to age group of 26-30 years,27% of men belonged to the age group of 31-35 years.

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Table no 2 : distribution of cases according to the age

Age(yrs)	Wife age	%	Husband age	%
21-25yrs	32	32	11	11
26-30yrs	46	46	33	33
31-35yrs	11	44	27	27
More than 35yrs	11	44	29	29
Total	100	100	100	100
Mean Age	28.19	32.78		
SD	4.64	5.67		

The table below shows the education status of the women 39% women had received only primary education,29% women had received secondary education whereas 32% women had received secondary education.

Table no 3 : distribution of cases according to Educational Status

Educational Status	No of cases	%
Primary	39	39
Higher	29	29
Secondary	32	32
Total	100	100

in the present study 54% of women were home makers,25% were manual labourer,21% were office workers.

Table no 4 :distribution according to the Occupational Status(W)

Occupation	No of cases	%
Home maker	54	54
Manual labourer	25	25
Office worker	21	21
Total	100	100

In the present study according to kuppuswami scale 6% cases were from class1,29% cases were from class2,41% cases were from class 3,23% cases were from class 4 and 1% belonged to class 5.

Table no 5- socio economic status.

Socio economic status	No of cases	percentage
Class1	6	6%
Class 2	29	29%
Class3	41	41%
Class4	23	23%
Class5	1	1%
total	100	100%

In The present study since our set up is in rural area maximum patients belonged from rural area 53% and 47% belonged to urban area.

Table no 6- distribution of cases according to the residential area

Area	No of cases	%
Rural	53	53
Urban	47	47
total	100	100

In the present study 38% patients had duration of infertility between 2-3 years,28% had between 3-5 years,24% patients had duration between 5-10 years and 10% patients had duration more than 10 years. Mean duration was 5.84-5.90 years

Table no 7- distribution of cases according to the Duration of infertility

Duration(Years)	No of cases	%
2-3 yrs	38	38
>3-5 yrs	28	28
>5-10 yrs	24	24
>10 yrs	10	10
Total	100	100.0
Mean ±SD	5.84±5.90 years	

In the present study 42% cases had frequency of coitus of 1-2 times per week,53% had 3-4 times per week,5% cases had frequency of more than 5 times per week.

Table no 8: distribution of cases according to Frequency of coitus

Frequency of coitus/wk	No of cases	%
1-2/wk	42	42
3-4/wk	53	53
>4/wk	5	5
Total	100	100

In the present study there were 5% patients who had complain of dyspareunia.

Table no 9-distribution of cases according to the complaint of dyspareunia.

Dyspareunia	No of cases	%
Yes	5	5
No	95	95
Total	100	100

In the present study according to the history taken from patients 77% cases had regular mensturation,23% patients had irregular menstruation out of which 12% patients had oligomenorrhea,7% patients had polymenorrhea,4% patients had menorrhagia.

Table no 10-distribution of cases according to menstrualhistory

Menstrual History		No of cases	%
Regular		77	77
Irregular		23	23
	Oligomenorrhea	12	12
	Polymenorrhea	7	7
	Menorrhagia	4	4

In the present study out of 100 patients ,17% patients had history of dysmenorrhea and 4% patients had history of mid cycle pain(i.e at time of ovulation).

Table no 11- distribution of cases according to menstrual history

	Present in no of cases	%
Dysmenorrhoea	17	17%
Mid cycle pain	4	4%
Total	23	23%

In the present study 63% males had history of substance abuse which included consumption of alcohol, smoking, charas, ganja, tabacoo chewing. And 3% of females also presented with history of substance abuse.

Table no 12- distribution of cases according to personal history

Sub abuse	No of cases	%
Males	63	63%
Females	3	3%

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In the present study20% cases had Chlamydia antigen titres positive,6% cases had history of hypothyroidism, 5% cases had history of acute/chronic pelvic inflammatory disease,3% cases had htn or dm,1% case had hyperthyroidism,1% patient had history of surgery (i.e MRM) and had also received chemotherapy.

Table no 13-distribution of cases according to past medical or surgical history

Past medical/surgical history	No of cases	%
T.B.	2	2
Acute/chronic PID	5	5
Chlamydial (CAT)	20	20
DM/HTN	3	3
Any surgery	1	1
Chemotherapy	1	1
HYPOTHYROIDISM	6	6
HYPERTHYROIDISM	1	1

In the present study 57% of patients had history of previous treatment (ovulation induction, previous history of undergoing IUI CYCLES ETC) and 43% patients did not receive any treatment they had visited for first time.

Table no 14- distribution of cases according to history of previous treatment taken.

Previous t/t	No of cases	%
Yes	57	57%
No	43	43%
Total	100	100.0

In the present study there were 24 cases of secondary infertility out of which 4 (16.66%) Cases had history of normal vaginal delivery,4 cases(16.66%) had history of LSCS,14 cases (58.33%) had history of abortions,2 cases (8.33%) had history of ectopic pregnancy.

Table no 15-distribution of secondary infertility cases according to past obstetric history

Obstetric history	No of cases n=24	%
Normal vaginal delivery	4	16.66%
Lscs	4	16.66%
Abortion	14	58.33%
Ectopic	2	8.33%
Total	24	100.00

In the present study 55% cases did not use any method of contraception,14% patients practiced natural method,12% cases had history of use of contraceptive oral pills,17% cases used barrier method,2% cases had used copper T.

Table no 16- distribution of cases according to the use of contraceptive method

Types of contraception	No of cases	%
No use	55	55
Natural method	14	14
Pills	12	12
Barrier	17	17
Cu-t	2	2

In the present study, after physical examination of all the women patients, none had abnormal secondary sexual characters,21% patients had abnormal waist hip ratio (raised/less),16% cases had acne,2% cases had galactorrhea,12% cases had hirsutism and 9% cases had acanthosis nigricans ,and 2% cases had thyroid enlargement .

TABLE NO 16-DISTRIBUTION OF CASES ACCORDING TO PHYSICAL EXAMINATION

Physical Examination	No of cases n=100	%
Acne	16	16
Galactorrhea	2	2
Hirsutism	12	12
ACANTHOSIS NIGRICANS	9	9
THYROID ENLARGEMENT	2	2
ABNORMAL WAIST HIP RATIO	21	21
ABNORMAL SECONDARY SEXUAL CHARACTERS	0	0

In the present study, after taking height and weight of every patient BMI was calculated at the first visit ,79% patients fell under normal BMI range(18.5-25),21% patients had abnormal BMI range, out of which 12% patients fell under overweight category (25-30),6% patients fell under class 1 obese category (30-35),2% patients fell under category of class 2 obese category (bmi-35-40),while 1 patient was underweight (bmi-16-18.5).

Table no 16(a)- distribution of cases according to BASAL METABOLIC INDEX(BMI)

BMI RANGE	NO OF CASES	PERCENTAGE
UNDERWEIGHT 16-18.5	1	1
NORMAL 18.5-25	79	79
OVERWEIGHT (25-300	12	12
OBESE CLASS 1 (30-35)	6	6
OBESE CLASS 2 (35-40)	2	2
OBESE CLASS 3 (OVER 40)	0	0

In the present study after per abdomen examination 1 patient had palpable mass of 16 weeks size, while 99% cases were detected with no abnormality.

TABLE NO 17-DISTRIBUTION OF CASES ACCORDING TO PER ABDOMEN EXAMINATION

Per abdomen	No of cases	%
NAD	99	99
Palpable mass/lump	1	1

The table below shows on ,per speculum examination was done for every patient 79% patients had normal finding,11% cases had vaginitis,5% cases had cervicitis (erosion or nabothian follicle was present),5% cases had both vaginitis and cervicitis,1% patient had gartner cyst.

Table no 18- distribution of cases according to per speculum findings.

Per speculum	findings	No of cases	%
Normal		79	79
Abnormal			
	Vaginitis	11	11
	Cervicitis(erosion + nabothian follicles)	5	5
	Vaginitis+cervicitis	4	4
	Gartner cyst	1	1
	Tubular cervix with PIN POINT os	1	1

In the present study after bi manual examination, 89% patients had anteverted uterus,11% patients had retroverted uterus. 2% cases had enlargemebt in the size of uterus,1% cases had fullness in the fornices,65 cases had restricted mobility,2% cases had cervical stenosis.

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Table no 19-distribution of cases according to bi-manual examination

Bi-manual examination		No of cases	%
	Anteverted	89	89
	Retroverted	11	11
Enlargement of uterine size		2	2
Fullness at the fornices/adenaxal mass		1	1
Restricted mobility		6	6
CERVICAL STENOSIS		2	2

In the present study out of 100 male patients, none had history of mumps,any trauma to genital organs, or any history of accident while only 1 patient had history of pre mature ejaculation.

Table no 20- distribution of male cases according to history

SIGNIFICANT MALE HISTORY	NO OF CASES	%
PRE MATURE EJACULATION	1	1
MUMPS	0	0
Trauma/accident	0	0

In the present study, after complete examination of male patients,1 patient had varicocele and 1 had undescended testes while other 98 patients had no abnormality, no history of hernia .

Table no 21- distribution of male cases according to examination

Male examination	No of cases	%
Varicocoele	1	1
Undescended testes	1	1
hernia	0	0

In the present study all the males underwent semen analysis, 63% patients had normal seminogram,16% had oligospermia,4% patients had azoospermia,5% patients had asthenospermia and 12 % patients had combined abnormality of sperm (pyospermiaalone,pyospermia with oligoapermia,teratospermia).

Table no 22- distribution of cases according to seminogram.

Seminogram	No of cases	%
Normospermia	63	63
Oligospermia	16	16
Azoospermia	4	4
Asthenospermia	5	5
Combine	12	12

In the present study all the women had done ultrasound 66% cases were detected with no abnormality, while 24% cases were found to have polycystic ovaries,2% cases had fibroid,7% cases had ovarian cyst,1% case had asherman syndrome.

Table no 22- distribution of cases according to ultrasound findings

Usg finding	No of cases	Percentage (%)
Normal	66	66
PCOD	24	24
Fibroid	2	2
Ovarian cyst	7	7
Asherman syndrome	1	1

In the present study hormonal profile was done on day 3 of menses, luteinizing hormone was done for all the patients out of which 86 patients had normal value,13 patients had raised value and 1 patient had less value.

Follicle stimulating hormone was done for all the patients out of which 96 patients had normal value,3 had raised value and 1 had less value.

Thyroid stimulating hormone was done for all the patients 98 patients had normal value (some patients were already on thyroid drugs),2 patients had raised value.

Anti mullerian hormone(AMH) was done for 69 patients, out of which 46 patients had normal value,17 patients had raised value and 6 patients had less value.

Prolactin was done for 40 patients,38 patients had normal value,2 patients had raised value.

Table no 23-distribution of cases according to hormonal profile.

Hormones	No of cases investigated	Normal	Raised	Less	χ2-value
LH	100	86	13	1	55.81 p<0.001,S
FSH	100	96	3	1	
AMH	69	46	17	6	
THYROID	100	98	2	0	
PROLACTIN	40	38	2	0	

In the present study out of 100 patients only 52 patients had underwent hysterosalphingogram in which 37 cases (71.15%) had no abnormality,11 cases (21.15%) were found to have unilateral block,4 cases (7.69%) had bilateral block.

Table no 24- distribution of cases according to hysterosalphingogram

TUBAL STATUS	NO OF CASES N=52	%
NORMAL	37	71.15
Unilateral BLOCK	11	21.15
Bilateral BLOCK	4	7.69
TOTAL	52	100.0

In the present study out of 100 patients,51 patients had undergone hysteroscopy, 45% patients had no abnormal finding, 3.92% cases were found to have septum or synechaie, 1.96% cases had abnormal endometrium,1.96% cases had structural defect,3.92% cases had fibroid,1.96% patients had tubular cervix with pin point os and 1.96% patients had cervical stenosis.

Table no 25- distribution of cases according to hysteroscopy findings.

HYSTEROSCOPY FINDING	NO OF CASES N=51	%
NORMAL	45	88.23
SYNECHAIE/SEPTUM	2	3.92
CERVICAL STENOSIS	1	1.96
Tubular cervix with PIN POINTED OS	1	1.96
ABNORMAL ENDOMETRIUM	1	1.96
STRUCTURAL DEFECT	1	1.96
FIBROID	2	3.92

In the present study, 51 patients had undergone laparoscopy, ovarian factor contributed to 37.2% of total factors out of which polycystic ovaries were found in 12 cases, ovarian cyst was found in 6 cases, T.O Mass was seen in 1 case. Uterine factor was seen in 7.84% of all the factors Fibroid was seen in 2 cases, structural defect was found in 2 cases, tubal factor contributed to 25.4% of all the factors unilateral block was seen 6 cases, bilateral block was seen in 5 cases and hydrosalpinx was seen in 2 cases, peritoneal factor was found to be 12 % of all the factors, 8 cases were seen having adhesions,2 cases had endometriosis, 2 cases were found to have tubercle and endometrium was sent for TB PCR.

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TABLE NO 26-DISTRIBUTION OF CASES ACCORDING TO LAPROSCOPIC FINDING

Laparoscopic finding		No of cases n=51	%
Ovarian factor			
	PCOD	12	23.53
	OV.CYST	6	11.76
	TO MASS	1	1.96
Uterine factor			
	FIBROID	2	3.92
	S.DEFECT	2	3.92
Tubal factor			
	UNILATERAL BLOCK	6	11.76
	BILATERAL BLOCK	5	9.80
	HYDROSALPINX	2	3.92
Peritoneal factor			
	ADHESION	8	15.69
	ENDOMETRIOSIS	2	3.92
	TB/TUBERCLE	2	3.92

In the present study overall ovarian factor contributed to 35% of all the factors, out of which 25 cases of polycystic ovaries were seen which contributed to 71.42% of ovarian factor,9 cases of ovarian cyst which contributed to 25.71% of ovarian factor and 1 case of T.O.MASS was found which contributed to 2.85% of ovarian factor .

Table no 27- distribution of cases contributing to ovarian factor

OVARIAN FACTOR	NO OF CASES	percentage
PCOD	25	71.42
OVARIAN CYST	9	25.71
T.O.MASS	1	2.85
total	35	100%

In the present study uterine factor contributed to 7% of all the factors , out of which 3 cases of fibroid was seen contributing to 42.85% of uterine factor, structural defect was seen in 3 cases contributing to 42.85% of uterine factor and TO MASS was seen in 1 case contributing to 14.28% of uterine factor

Table no 28- distribution of cases contributing to uterine factor

Uterine factor	No of cases	percentage
Fibroid	3	42.85%
Structural defect	3	42.85%
Asherman syndrome	1	14.28%
total	7	100%

In the present study tubal factors contributed to28% out of which unilateral block was seen in 17 cases contributing to 60.71%,bilateral block was seen in 9 cases contributing to 32.14% of tubal factor,hydrosalpinx was seen in 2 cases contributing to 7.14% of tubal factors.

TABLE NO 29- DISTRIBUTION OF CASES CONTRIBUTING TO TUBAL FACTORS

Tubal FACTOR	NO OF CASES	percentage
Unilateral block	17	60.71%
Bilateral block	9	32.14%
hydrosalpinx	2	7.14%
total	35	100%

IN THE PRESENT STUDY PERITONEAL FACTOR CONTRIBUTED TO 12% OF ALL THE FACTORS,OUT OF WHICH ADHESIONS WERE SEEN IN 8 CASES CONTRIBUTING TO 66.66%,2 CASES OF ENDOMETRIOSIS WERE SEEN CONTRIBUTING TO16.66% OF PERITONEAL FACTOR,2 CASES WERE SEEN TO HAVE TUBERCLES CONTRIBUTING TO 16.66% OF PERITONEAL FACTOR.

TABLE NO 30-DISTRIBUTION OF CASES CONTRIBUTING TO PERITONEAL FACTORS

PERITONEAL FACTOR	NO OF CASES	percentage
ADHESIONS	8	66.66%
ENDOMETRIOSIS	2	16.66%
TB/TUBERCLE	2	16.66%
TOTAL	12	100%

IN THE PRESENT STUDY CERVICAL FACTORS CONTRIBUTED TO 3% OF ALL THE FACTORS,1 CASES OF TUBULAR CERVIX WITH PIN POINTED OS WAS SEEN CONTRIBUTING TO33.33% OF CERVICAL FACTOR AND CERVICAL STENOSIS WAS SEEN IN 1 CASE CONTRIBUTING TO 66.66% OF TOTAL CERVICAL FACTOR.

TABLE NO 31- DISTRIBUTION OF CASES CONTRIBUTING TO CERVICAL FACTOR

CERVICAL FACTOR	NO OF CASES	percentage
TUBULAR CERVIX WITH PIN POINTED OS	1	33.33%
CERVICAL STENOSIS	2	66.66%
TOTAL	3	100%

IN THE PRESENT STUDY OUT OF 100 SUBFERTILE COUPLES,15% FACTOR WAS CONTRIBUTED BY MALES,23% CASES HAD ABNORMAL MENSTRUAL CYCLE ,14% CASES HAD LOWER GENITAL TRACT INFECTION,18% CASES HAD ABNORMAL ENDOCRINE PROFILE,OVARIAN FACTOR CONTRIBUTED TO 35% OUT OF WHICH IN TOTAL 25% CASES OD POLYCYSTIC OVARIES WERE NOTED,9% CASES HAVING OVARIAN CYST,1% CASE HAD TO MASS.

UTERINE FACTOR CONTRIBUTED TO 7%, FIBROID WAS SEEN IN 3% OF CASES, STRUCTURAL DEFECT WAS SEEN IN 3% OF CASES,1 PATIENT HAD ASHERMAN SYNDROME.

TUBAL FACTOR CONTRIBUTED TO 28%, UNILATERAL BLOCK WAS SEEN IN 17% OF CASES,BILATERAL BLOCK WAS SEEN IN 9% OF CASES,HYDROSALPINX WAS SEEN IN 2% OF CASES.

PERITONEAL FACTOR CONTRIBUTED TO 12% OF ALL THE FACTORS, ADHESIONS WERE NOTED IN 8% OF CASES,ENDOMETRIOSIS IN 2% OF CASES AND TUBERCLES WERE SEEN N 2% OF CASES.

CERVICAL FACTOR CONTRIBUTED TO 3% OF ALL THE FACTORS,1 CASE OF TUBULAR CERVIX WITH PIN POINT OS WAS NOTED AND 2% CASES OF CERVICAL STENOSIS WERE NOTED.

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Table no 32- distribution of cases according to the factors responsible for subfertility.

FACTOR		TOTAL %	PRIMARY(N=76)	SECONDARY(N=24)
MALE		15%	14	1
AB.MENSTURATION		23%	16	7
LOWER GENITAL TRACT INFECTION		14%	14	9
AB.ENDOCRINE PROFILE		18%	13	5
OVARIAN FACTOR		35%		
	PCOD	25%	20	5
	OV.CYST	9%	7	2
	TO MASS	1%	1	0
UTERINE FACTOR		7%		
	FIBROID	3%	3	0
	S.DEFECT	3%	2	1
	ASHERMAN SYNDROME	1%	0	1
TUBAL FACTOR		28%		
	UNILATERAL BLOCK	17%	12	5
	BILATERAL BLOCK	9%	7	2
	HYDROSALPINX	2%	2	0
PERITONEAL FACTOR		12%		
	ADHESION	6%	6	2
	ENDOMETRIOSIS	1%	1	1
	TB/TUBERCLE	2%	2	0
CERVICAL FACTOR		3%		
	PIN POINTED OS	1%	1	0
	CERVICAL STENOSIS	2%	2	0

In the present study female factor contributed to the maximum i.e 49%, male factor was 15%,combined (i.e both male and female 23%) and unexplained subfertility was found in 13% of the cases.

factor	PRIMARY	SECONDARY	TOTAL
FEMALE	36	13	49
MALE	14	1	15
COMBINED	17	6	23
UNEXPLAINED	9	4	13

DISSCUSSION-

The present study is prospective cross sectional study "to study the prevalence of various etiological factors and clinical profile ofsub fertile couples, attending obstetrics and gynecology opd in Acharya vinobha bhave rural hospital sawangi .this study is done for 2 year duration from September2013-september 2015.the study included 100 subfertile couple for evaluation of various etiological factors responsible for subfertility.Infertility is a medical problem that affects a vast proportion of the world's young population (10-15%). Irrespective of the definition used, the inability to bear children seriously affects psychosocial and emotional lives of couples facing this condition. A large proportion of the world's population has no access to medical treatment for infertility and even in developed and emerging economies there are great inequalities in access to proper diagnosis and treatment. Infertility in this stud) is defined as inability to conceive after one year of unprotected adequately timed intercourse.Theprevalence and etiology of infertility vary from place to others all over the universe; it may depend on the influence of religion and region. Generally infertility is a multifactorial condition with more than one factor contributes to have the disease.

The worldwide incidence of subfertility is in Africa it is 10.1,caribbian 6.5,north America6,europe5.4,asia 4.8,latin America3.1[5]

Type of infertility	Primary infertility	Secondary infertility
Dugnian et al[6]	77%	23%
Shamilas et al[7]	82.48%	17.52%
Templeton et al[8]	74.9%	25.1%
Sharma et al[9]	67.2%	32.8%
Nakade et al[10]	69.4%	30.8%
Present study	76%	24%

On analyzing the type of sub fertility in the present study out of 100 cases of subfertility, primary were 76% and secondary were 24% which was similar to study done by dugnian et al[6] 77% primary and 23% secondary cases. While in the study done by shamila s et[7] al 82.48% were reported as primary and 17.52% were reported as secondary infertility. In the study conducted by Templeton and keer et al[8] 74.9% were primary and 25.1% cases were of secondary subfertility. This indicates that primary infertility is more common than secondary subfertility.

In the study conducted by sumita et al [11]maximum number of infertile women belonged to the age between 26 to 30 yrs. (40 cases, 60.6%). Next higher group was between 21 to 25 yrs. (18 cases, 27.27%). 5 cases (7.57%) belonged to the age between 31 35 yrs., 2 cases (3.03%) were between 36 and 38 yrs., while only 1 woman (1.5%) was below 20 age group. Our study also correlated with their study that 45% of patients belonged to age group of 26-30 years of age group. Thus,importance of age factor lies in the fact that increase in age (>34 years) is associated with decline in fertility.

The duration of primary infertility in the study conducted by sumita et al[11] the majority of women, 38 cases (57.57%) were between 2 to 5 yrs. Of their marriage, 16 cases (24.24%) between 6 to 9 yrs., 8 cases (12.12%) were married for 10yrs.whereas in ours 65 cases had duration of 2-5years and 25 cases had duration of 6-9 years and 10 cases had duration more than 10years.thus, majority of infertile couple start worrying about their inability to conceive within 1-5 years of marriage and decide to get themselves investigated.

In our study 19 cases had irregular menstruation which could be due to hormonal imbalance, myoma, infection, pcod being one of the common causes leading to irregularity in menstruation. Where as in study conducted by sirradhet al[12] 48 cases out of 169 had irregular menstruation.

In our study 20% of cases were found to have chlamydial infection, study done by Malik et al[13]corresponded with ours 28.1%. Chlamydial infection can be symptomatic or asymptomatic it can be used as a predictive value in the detection of tubal damage and are quantitatively related

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to the severity of damage. For practical clinical purposes, chlamydia serology is useful mainly as a screening test for the likelihood of tubal damage in infertile women and may facilitate decisions on which women should proceed with further investigations without delay.

Out of 100 cases 24% cases were of secondary subfertility details of past obstetric history was taken and it was observed that maximum patients had history of previous abortions (54.16%),followed by normal vaginal delivery 17.39%,lower segment caesarean section were 17.39% and 8.70% patients had history of ectopic pregnancy. Which was similar to the study conducted by Bose S.T et al[14]who had reported 56.52% cases of abortions 31.2% cases of normal delivery 12.5% cases of preterm delivery. Sharma et al[9]reported 32.4% cases of normal delivery, 51.3% cases of abortions 8.1% cases of preterm delivery and 8.1% cases of IUD. , Dor et al[15] and Sharma et al[9] also showed the same. History of previous abortion is important as it may lead to formation of adhesions or infection leading to intra uterine synachiea, tubal block which clearly portrays the role of evaluation of obstetric history.

In the present study 21% cases were found to have vaginal infection on per speculum examination whereas study conducted by siradh mm et al[12]reported with 45% cases

In the present study 89% cases had anteverted uterus and 11% cases had retroverted uterus and in study conducted by siradh mm et al[12] 81.6% cases had anteverted uterus and 18.3% cases had retroverted uterus

Abnormal sperm parameters	IKECHEBELU JI ET AL [16](2003)	ABBAS ET AL[17](2009)	PATEL ET AL [18](2012)	S.SAMAL ET AL [19](2012)	PRESENT STUDY
ASTHENOSPERMIA	32.3%	15.5%	17.4%	1.83%	5%
OLIGOZOOSPERMIA	35.9%	-	23.5%	33.17%	16%
AZOOSPERMIA	-	20.7%	50%	9.89%	4%
COMBINED	-	63.8%	9%	1.08%	12%

In the present study 100 males underwent semen analysis 16% cases reported to have oligospermia followed by 12% cases had combine abnormality (pyospemia,teratospermia alone or with oligospermia), 5% cases were reported to have asthenozoospermia,4% cases had azoospermia which was similar to the study conducted by patel et al which reported that 23.5% cases had oligospermia,50% cases had azoospermia,17.4% cases had asthenospermia and 9% were reported to have combined abnormality. Samal et al reported 33.17% cases had oligospermia,9.89% cases were reported to have azoospermia and 1.83% cases reported to have asthenospermia. %. Thus, education about male infertility and investigating males can be helpful in finding the factor and further management

In the present study on day 3 of menses hormonal analysis was done which included lh,fsh,thyroid ,prolactin,amh and 45% had abnormal hormonal profile which was similar to the study done by sirdahmm et al[12] who reported 55% abnormal hormonal profile.

factor	Gabos et al[20]	Siegler et al[21]	Hutchins et al[22]	Sumita et al[11]	Present study
Normal				40	37(72.5%)
Unilateral block	13.7%	15.2%	12.5%	14(15.15%)	11(21.5%)
Bilateral block	8.5%	5.3%	2.7%	12(18.8%)	3(5.88%)

In the study conducted by gabos et al unilateral block was seen in 13.7% of patients while bilateral block was seen in 8.5% of patients,siegler et al reported 15.2% cases had unilateral block and 8.5% cases had bilateral block. Hutchins et al reported 12.5% patients had unilateral block and 2.7% patients had bilateral block which was similar to our study in which out of out of 100 patients, 51 patients underwent hsg, 21.5% women had unilateral block and 5.88% patients had bilateral block. This procedure is still commonly employed in developing countries like ours because of its cost-effectiveness and our institute provides the facility of FTR at the same sitting as a day care procedure.

Hysteroscopic finding	Sajida Praveen et al[23](2009)	Shakaya et al[24](2009)	Lasmarr b et al[25](2010)	Nayak et al[26] (2013)	Present study
normal	-	88%	45.8%	-	88.2%
Endometrial polyp	9%	6%	4.1%	5%	-
Cervical stenosis	-	-	2.2%	-	1.96%
Fibroid	1%	2%	4.9%	3%	3.9%
Septate uterus/asherman/ uterine anomaly	3.2%	4%	19%	10%	7.8%

In present study 51 patients underwent hysteroscopy which study revealed 88.2% cases with normal findings which was similar to the study done by shakya et al 88%, 3.9% cases had fibroid which was similar to the study done by nayak et al 3%, shakya et al 2% which indicates a low occurrence but an important finding in case of subfertility. Cervical stenosis was seen in 1.96% cases which was similar to study done by lasmaar b et al 2.2%.The present study had 7.8% cases had uterine anomaly or septum or asherman's disease which was similar to study conducted by nayak et al 10%.anomalies of the uterus are considered to be one of the reasons for infertility in women and for this reason diagnostic laparoscopy is fundamental in screening for infertility.

factors	Sajida et al [23](2009)	Nayakpk et al[26] (2012)	Zhang et al [27](2014)	Chakraborti et al [28]	Present study
Pcod	12	-	-	11.4	12(23.5%)
Ovarian cyst	-	-	-	8	6(11.76%)
Endometriosis	5	42	51	-	2(3.92%)
Bilateral block	10	18	18	17.7	5(9.8%)
Unilateral block	12	30	30	5	6(11.76%)

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Pid/pelvic adhesions/tubercles	7	36	40	8.3	10
myomas	4	15	31	-	2(3.92%)
Uterine anomaly	-	-	-	-	2(3.92%)

In the present study 51 patients underwent laproscopy,12 cases were seen of pcod which corresponded to the study of sajida et al 12 cases and chakarborti et al 11.4 % cases ,ovarian cyst was found in 6 cases which was similar to study done by chakarborti et al 8% cases .unilateral block was seen in 5 cases which was similar to the study done by chakarborti et al 5% cases . Bilateral block was seen in 5 cases whereas sajida et all also reported with 10 cases. 2 cases were reported to have endometriosis sajidaet al reported with 5 cases.2 cases had myoma which was similar to the study conducted by sajidaet al 4 cases. Since india has high incidence of tuberculosis pid,adhesions and tubercles was seen in 10 cases which was corroborating to the study done by sajida et al 7 cases and chakarborti et al 8.3 cases.thus considering laproscopy as a gold standard test to find out the etiology.

Ovarian factor	Chakarborti et al[28] (1991)	Wasimtalib et al[29] (2003)	Talatnaz et al [30](2009)	Azziz n et al [31](2010)	Present study
PCOD	11.4%	28%	8.82%	15.6%	25(71.4%)
OVARIAN CYST	8%	6%	5%	6.3%	9(25.7%)
TO MASS	7.7%	-	-	-	1(2.8%)
TOTAL	27.1%	34%	11.8%	21%	35(100%)

In the present study ovarian factor contributed to 35 % this correlates with the study done by wasibtalib et al 34% and chakarborti et al 27.1%.of the total ovarian cause pcod was the main cause contributing to 71.4% of total ovarian factor and 25.7% cases had ovarian cyst and only 1 case was found to have TO mass i.e 2.8% Thus, pcod as a factor was on a higher side.

	NAKADE ET AL[10]	CHAKARBORTI ET AL[28] (1991)	SORTEY KD ET AL [32](2010)	AZIZ N ET AL[31] (2010)	NALINI ET AL[39] (2014)	PRESENT STUDY
UTERINE FACTOR	12%	14%	11%	6%	23%	7%

In our study 7% cases contributed to uterine factors which was similar to study done by sortey kd et al 11% and aziz et al et al 6%.

PERITONEAL FACTOR	SHARMA ET AL [9](1991)	CHAKARBORTI ET AL[28] (1991)	TALAT NAZ ET AL[30] (2009)	WASIM TALIB ET AL[29] (2003)	M NABIL ET AL [34](2011)	PRESENT STUDY
PELVIC ADHESIONS	-	-	25%	4%	35.23%	8(66.8%)
ENDOMETRIOSIS	6.6%	4.6%	10.9%	2.8%	3.69%	2(16.6%)
PELVIC TUBERCLE	10.6%	8.3%	-	-	-	2(16.6%)

Peritoneal factor contributed to 12%, out of which 66.8% cases had pelvic adhesions 16.6% had endometriosis and 16.6% cases which was similar the study done by talatnaz et al 10.9% cases had endometriosis and 16.6% cases had pelvic tubercles or genital tuberculosis. Study corroborated with study done by sharma et al 10.6% and 8.3% cases were seen by study conducted by chakarborti et al which indicates that TB still contributes to the etiology of subfertility.

TUBAL FACTOR	CHAKARBORTI ET AL[28]	GOKHAN GOYUNUMER ET AL[35]	TALAT NAZ ET AL[30]	BHIDE ET AL[36]	N.NABIL ET AL[34]	PRESENT STUDY
UNILATERAL BLOCK	5	19	2.9	10.2	10.37	17(60.71%)
BILATERAL BLOCK	17.7	5	24.9	12.6	12.75	9(32.14%)
HYDROSALPINX	9.2	5	2	-	10.39	2(7.14%)
TOTAL	39.1	29	29.	-	33.51	28(100%)

In our study tubal factors contributed to 28% cases out of which 60.17% cases reported with unilateral block the commonest cause followed by bilateral block 32.14% and 7.14% cases had hydrosalpinx. Whereas study done by gokhangoynumer et al[180] reported unilateral block was seen in 19 cases 5 cases had bilateral block and 5 cases reported to have hydrosalpinx.in the study conducted by talatnaz et [al1752].9% cases were reported to have unilateral block 24.9% cases had bilateral block, 2 cases were found to have hydrosalpinx. It indicates that tubal factor still plays an important role in the etiology of infertility.

	Aflatoonianet al[37](2009)	Mitalet al[38] (2012)	JAJOO ET AL [39]2013	Present study
Male	35%	19.5%	30%	15%
Female	58%	30.2%	46%	49%
Combined	12%	13.3%	13%	23%
Unexplained	11%	37%	11%	13%

Out of 100 cases,15% cases were seen where only male was responsible, 49% cases were seen where female was responsible, 23% cases both male and female were responsible and 13% cases were unexplained WHICH WAS SIMILAR TO THE STUD DONE BY MITAL ET AL MALE FACTORS WERE 19.5%,FEMALE FACTOR WAS 30.2%,COMBINED WAS 13.3 % AND UNEXPLAINED WAS 37%. JAJOO ET AL SAID THAT MALE FACTOR WAS 30%,FEMALE FACTOR WAS 46%,COMBINED WAS 13%,UNEXPLAINED WAS 11%.

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CONCLUSION

To conclude, the causative factors leading to infertility in the present study are the ovarian factors, out of which polycystic ovarian disease is predominating, followed by tubal factors, peritoneal factors and uterine factors.

Overall male factor was seen in 15%,female factor in 49%combined factors were found only in 23% of cases. And unexplained in 13% of cases.

Out of 100 cases, ovarian factors were responsible in 35% of cases followed by tubal factors 28%,peritoneal factor 12%, and uterine factor 7%.lower genital tract infection was seen in 23% cases, abnormal endocrine profile was reported in 18% cases.

Incidence of tuberculosis was less in spite of being rural setup.

LIMITATIONS

ALL THE WOMEN COULD NOT GO FOR AMH BECAUSE OF THE COST.

MULTIPLE FACTORS WERE PRESENT SIMULTANEOUSLY IN ONE PATIENT.

NOT VERY PATIENT WAS WILLING FOR EVERY INVESTIGATION TO BE DONE.

RECOMMENDATIONS

LARGE SAMPLE SIZE SHOULD BE REQUIRED FOR FURTHER STUDIES.

AS PCOD IS MORE COMMON FURTHER FOCUS CAN BE DONE ON PCOD RELATED TO INFERTILITY.

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