Infertility patterns of Young Females in urban population

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ABSTRACT

Background information: Risk factors for infertility are changing due to alteration in life style and other environmental factors. Therefore, ongoing research is required to evaluate the infertility pattern in a specific region so that it can be effectively addressed.

Aim / Objective: The objective of our study was to gain understanding and knowledge on the reproductive behavior of young females visiting Infertility clinic.

Type of Study: Observational study;

Setting: Clinical setting.

Methodology: A verbal consent taken from hundred (N = 100) young females of age group of 20 – 40 years of age i.e. < 40 years visiting Infertility Clinic and an objective data obtained was analyzed by using SPSS version 20 and descriptive and inferential statistics were applied and P-value of 0.05 was considered significant.

Results: Different descriptive parameters such as age, body mass index, menstrual cycle regularity, history of miscarriages, history of use of contraceptives, other associated complaints and prescribed drugs were correlated and majority of them were found to be significant having P -Value of 0.000 that is significant while some others were non-significant.

Conclusion: We can conclude through our study that age and body mass index are important factors affecting infertility and weight should be reduced while managing infertility as it improves ovulation and thus resulting in successful outcomes. Our study also reveals the

importance of screening of endocrine functions such as thyroid profile. Polycystic ovary is one of the leading causes of infertility and most prescribed drug are clomiphene and secondly letrozole for ovulation induction along with metformin in PCOs and thyroxin in hypothyroidism.

Index Terms- Infertility, Young female, Urban population, Endocrine diseases, PCOs, Thyroid disease.

INTRODUCTION

Infertility is in general defined as the failure to conceive after one year of trying to become pregnant. Infertility can be due to any abnormality in the female or male reproductive system. In most cases, the etiology is distributed moderately among male factors, ovarian dysfunction, and tubal factors. Endometriosis, uterine or cervical factors or other etiological factors may be the reason for infertility in a smaller percentage of cases (Barbieri, 2019).

Infertility in large group of cases is due to "idiopathic infertility". This is when a couple fails to conceive after a regular intercourse of about 18 months, and no cause is found. There are a number of known causes of why a woman may be infertile. Damaged or blocked fallopian tube which might be caused by a sexually transmitted infection is one of the most common reasons. Ovulation disorders can avert the ovaries from releasing eggs. Without an egg, there can be no pregnancy (Ali et al., 2023).

The most widespread ovulation disorder is polycystic ovarian syndrome, a condition in which the body produces too much of the hormone androgen causing ovulation problems. Polycystic ovarian syndrome (PCOS) is one of the mainly common endocrine disorders among women of reproductive age. These patients generally are more likely have menstrual cycle to be irregular, hyperandrogenism, and defects in ovulation and polycystic ovaries (Zehravi, Maqbool, & Ara, 2021a). PCOS women have an increased chance of developing metabolic syndrome (MBS), as they show up two times higher frequency of this disorder compared to normal population (Zehravi, Maqbool, & Ara, 2021b). Insulin resistance, obesity, diminish glucose metabolism, dyslipidemia and hypertension are the main characteristics of MBS (Kriedt, Alchami, & Davies, 2019).

Hormonal level can also play an important role in a woman's infertility and can include such problems as an elevated prolactin level, and low or over secreting thyroid, or early menopause. Elevated levels of prolactin can cause ovulation not to occur. Thyroid disorders can interrupt the menstrual cycle and early menopause can deplete follicles essential for ovulation (Chitme, Al Azawi, Al Farsi, Abdul, & Jalil, 2019).

Age plays key role as fertility pattern changes with age. Following puberty together males and females become fertile in their teens. For girls, the start of their reproductive years is marked by the initiation of ovulation and menstruation. It is commonly understood that following *menopause* women are no longer able to get pregnant. Generally, reproductive prospective

decreases as women get older, and fertility can be anticipated to end 5 to 10 years before menopause (Bala, Singh, Rajender, & Singh, 2021).

The risk factors which contribute to both male and female infertility may be; older age, weight (overweight or underweight), smoking, heavy alcohol use, infection of reproductive organs (sexually transmitted infections), surgery to abdomen and reproductive organs and exposure to environmental hazards and toxins (pesticides, radiation, mercury and lead) (Clarke, Whitson, Williams, & Robson, 2021; Wilkinson et al., 2019).

The diagnosis is based on following tests; for women, these include an investigation of body temperature and ovulation, examination of the fallopian tubes and uterus through x-ray technique, and laparoscopy. Over a women's full menstrual cycle, the testing cycle continues and a woman can expect multiple visits more that month. For men, primary tests center of attention is on semen analysis (Dudel & Klüsener, 2021).

Treatment for infertility should first concentrate on any underlying medical condition that may be contributing to fertility problems. Treatment may include drugs, surgical procedures, or both may be used. Surgery may also be used to repair blockage in fallopian tubes. Several approaches are used to treat infertility:

Lifestyle measures (such as maintaining a healthy weight, cessation of smoking, abstaining from excessive alcohol use, timing sexual activity with ovulation cycle)

Drugs for ovulation induction, such as clomiphene and gonadotrophins

In vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI) which are Assisted reproductive technologies (ART) (Zhao et al., 2019)

Endometriosis is a common finding in women with infertility. A closer look at the question of medical management of endometriosis reveals the use of medical therapies, such as GnRH agonists, for endometriosis and associated infertility. Buserelin acetate (GnRH agonists) markedly reduced dysmenorrhea, pelvic pain, and dyspareunia during the treatment. Buserelin acetate induced a significant improvement of pain symptoms that persist in endometriosis (Kolanska et al., 2021).

Follitropin alpha is a recombinant form of follicle-stimulating hormone (FSH), an endogenous gonadotrophin. In women undergoing IVF cycle, follitropin alpha appears to have a better stimulatory effect on follicle development (Litzky & Marsit, 2019). A sequential course of therapy of low-dose clomiphene citrate followed by human menopausal gonadotropin (hMG) injections to encourage ovulation in anovulatory infertility patients or to augment ovulation in patients with mild endometriosis or luteal phase inadequacy (Kolanska et al., 2021).

Recombinant FSH (Puregon) is effective in inducing multifollicular development and achieving an ongoing pregnancy. Recombinant FSH results in a good clinical outcome for patients undergoing ovarian stimulation for IVF or ICSI (Simoni & Santi, 2020). Human chorionic gonadotropin seems to be capable of getting better uterine receptiveness by enhancing endometrial quality and stromal fibroblast function. It could be mediating relevant actions

increasing fertility and the usefulness of therapeutic procedures used in the management of infertility (Behnoud, Rezaei, Estorm, & Farzaneh, 2019).

Clomiphene is the recent first-line infertility management in women with the polycystic ovary syndrome, but aromatase inhibitors, including letrozole, might end result in better pregnancy outcomes (Yousaf, 2022). Letrozole has fewer side effects, and a shorter half-life than clomiphene citrate. It is efficacious in treating women with persistent anovulation, unexplained infertility and diminished ovarian reserve. Its safety is superior to clomiphene citrate (Tsiami, Goulis, Sotiriadis, & Kolibianakis, 2021). The polycystic ovary syndrome is a familiar cause of infertility. Clomiphene and insulin sensitizers such as metformin hydrochloride are used alone and in combination to induce ovulation (Najafi, Noghabi, Afzali, & Mohammadzadeh, 2020).

Thyroid dysfunction adversely affects fertility. Many studies entail a role for immunology, including thyroid autoimmunity in unsuccessful conception. Thyroxine or Levothyroxine is given in infertile patients with diagnosed hypothyroidism (Unuane & Velkeniers, 2020). Vitamin D is an important factor in Estrogen Biosynthesis of both female and male gonads. It is also important for the regulation of estrogen synthesis in gonads. Thus it plays an important role in treating patients with infertility (Ashraf et al., 2023). In female reproduction, folate is also important for female gametocyte quality and maturation, implantation, placentation, fetal growth and development. Zinc has also been concerned in testicular development, sperm maturation and testosterone synthesis. In females, zinc plays a role in ovulation and the menstrual cycle (Schisterman et al., 2020).

It has been observed that women in Pakistan seek care for infertility at an early time and visit various types of healthcare providers (Ali et al., 2023). One study showed a lower prevalence of infertility in central part of Iran than to other countries. Ovarian disorders were considered as the main etiological female factor contributing to infertility in Iran (Langarizadeh, Fatemi Aghda, & Nadjarzadeh, 2022). In Pakistan the reported prevalence of infertility according to a study showed about 22% with 4% primary and 18% secondary infertility. It was found that people have sufficient knowledge about infertility so they are able to seek medical care and their misconceptions can be corrected (Ahmed et al., 2020). A study determined the prevalence and various causes of infertility in a cross section of Pakistani population in which investigations revealed a number of causes for the deprivation of fertility. Furthermore it emphasized on the importance of proper diagnosis for the management of infertility (Javaid et al., 2022). One of the studies suggested that there is decline in fertility rate with increasing age. It was observed that couples of older age were attributable to increased infertility but not absolute sterility (Hazlina, Norhayati, Bahari, & Arif, 2022). In women becoming pregnant after assisted reproductive technology treatment a noticeable relationship was established between risk of abortion and BMI (Hunter, Avenell, Maheshwari, Stadler, & Best, 2021). Impact of obesity on fertility study showed that the greater prevalence of obesity is an alarming sign for healthcare professionals towards awareness of its effect on fertility for better mitigation or treatment (Vitek & Hoeger, 2022). Oral contraceptives were found to have beneficial effect on risk of ovarian cancer which reduces after twenty years since last use. The study suggested that tubal ligation, use of intrauterine device and infertility were related with the risk of ovarian cancer. A positive association was examined between infertility history and use of contraceptives (Chohan et al., 2021). The study explains that the use of oral contraceptives at a young age effects the fertility rate and increasing the risk of leiomyomata among young women (Song et al., 2023). Rate of

miscarriage was greatly reduced in patients with polycystic ovary with long term treatment with buserelin than with clomiphene citrate in a study assessing the risk of miscarriage (Tsiami et al., 2021). It has been observed in a study that there is a reduction in first trimester pregnancy loss in women with polycystic ovary syndrome by the administration of metformin (Cena, Chiovato, & Nappi, 2020). The first therapeutic option identified in a study for the infertile and overweight women is reduction in weight thus resulting in better ovulation and pregnancy outcomes and improvement in other endocrine parameters (Reka & Elakkiya, 2022). An elevated TSH levels were prevalent in women with at least one year of infertility with majority diagnosed with hypothyroidism having ovulatory dysfunction. The study suggested that treating women with hypothyroidism results in successful pregnancies (Unuane & Velkeniers, 2020). A study on the impact of subclinical hypothyroidism in infertile Nigerian women showed a Subclinical hypothyroidism and hyperprolactinemia rates were higher in secondary infertility than in primary infertility (Jagun, Andu, & Olawale, 2022).

METHODOLOGY

An Observational study was carried out in a clinical setup. Verbal consent taken from all patients included in our study and privacy of patient is maintained. The patients included in our study were based on following eligibility criteria.

Eligibility Criteria:

Gender: Young females with Infertility reporting to Clinic.

Inclusion Criteria:

Female of fertile age (20 – 40 years of age)
Females with Infertility
Females reporting to clinic with complete objective data.

Exclusion Criteria:

Females of < 20 years and > 40 years of age.
Females with no Infertility
Admitted female patients or general females not reporting to clinic.

The data were analyzed by using SPSS version 20. Descriptive and inferential statistics were applied; categorical variables are represented in frequency and percentage. The different variables were correlated by the cross tabulation and statistically results were interpreted as Pearson Chi-Square Values. P value less than 0.05 were considered statistically significant.

RESULTS

A total of 100 (N=100) young females reporting to infertility clinic were included in our study, out of which 48 (48%) belonged to age group of 20 to 30 years and the rest 52 (52%) were from

the age group of 30 to 40 years of age respectively. According to body mass index most of the participants were obese i.e. 94 (94%) and 6 (6%) were overweight. As shown in **Table 1**: Only 4 (4%) had the history of contraceptives and 18 (18%) had the history of miscarriage and the menstrual cycle was found to be irregular in 48 (48%) out of 100 young females.

Table 2: When age is related to other descriptive parameters of the participants, out of the 94 (94%) obese participants the 44 (44%) were from the age of 20-30 years and 50 (50%) were from the age group of 30-40 years and the value of P was found to be 0.301. Similarly, when age was related to other descriptive parameters such as history of miscarriage and number of miscarriages the value of P was 0.327 and 0.75 respectively. For the history of use of contraceptives only 4 (4%) had use contraceptives were from the age group of 30-40 years, with P-value of 0.06. When seen with regularity of menstrual cycle it was observed that out of 48 (48%) participants with irregularity, most i.e. 26 (26%) and 22 (22%) were from the age group of 20-30 and 30-40 years of age respectively. Lastly when related with other associated complaints polycystic ovary was seen in 10 (10%) of females of age 20-30 years, 6 (6%) with Hypothyroidism were from the age group of 20-30 years whereas only 2 (2%) belonged to 30-40 years of age. Fallopian tube blockage was observed only in females from the age group of 30-40 years of age with P-value to be 0.006.

Table 3: When body mass index was related to other descriptive parameters, it was seen that when related to history of contraceptives only 4 (4%) were with history of contraceptives and all were obese. When related with the regularity of menstrual cycle 48 (48%) were with irregularity and out of which 44 (44%) were obese and only 4 (4%) were overweight with value of P as 0.301. Similarly, when related to other associated complaints 12 (12%) with polycystic ovary were obese none of them were overweight with PCOs, Hypothyroidism was observed in 8 (8%), 4 (4%) with fallopian tube blockage all were obese. When related to treatment procedure plan it was observed that 84 (84%) on ICSI (intracytoplasmic sperm injection) were obese females with value of P was 0.05.

Table 4: Correlation between the regularity of menstrual cycle with the history and number of miscarriages and drugs prescribed. It was observed that 18 (18%) females had history of miscarriage out of which most were with irregular menstrual cycle and P-value was found to be 0.000, when related to the number of miscarriages it was observed that out 18 (18%) with history of miscarriages out of which 14 (14%) and 4 (4%) had history of one and two miscarriages respectively. Out of 14 (14%) females 12 (12%) had irregular menstrual cycle, and out of 4 (4%) all of them had irregularity in menstrual cycle with P-Value of 0.001. When related to the prescribed drugs it was observed that 10 (10%) females with irregular menstrual cycle were prescribed clomiphene, similarly when related to other drugs the value of P was 0.000.

Table 5: When associated complaints were correlated with regularity of menstrual cycle, treatment procedure plan and prescribed drugs, it was observed that 48 (48%) with irregular menstrual cycle out of which 26 (26%) had none associated complaints and 12 (12%) with polycystic ovary, 2 (2%) with ovarian cyst and 8 (8%) were with hypothyroidism with P-Value 0.000. When related to treatment procedure plan the females on ICSI (Intracytoplasmic sperm injection) 8 (8%) were with poly cystic ovary, 2 (2%) with ovarian cyst and 8 (8%) with hypothyroidism. Out of the females on IVF (In Vitro fertilization) 2 (2%) were with polycystic

ovary and 4 (4%) with fallopian tube blockage respectively. Females on IUI (Intra Uterine Insemination) 2 (2%) were with polycystic ovary and the P-value observed was 0.000.

When associated complaints correlated with the prescribed drugs, it was observed that 4 (4%) with Fallopian tube blockage were prescribed Clomiphene, 8 (8%) with polycystic ovary were prescribed Clomiphene + Calcium Vitamin D + Metformin and 4 (4%) with polycystic ovary were prescribed Fallotropin alpha + Menotropins + Multivitamins + Metformin. 8 (8%) with Hypothyroidism were prescribed Clomiphene + Thyroxin. The value of P observed was found to be 0.000.

TABLE 1: Descriptive Parameters of the Female Patients Included in Study

Descriptive Parameters	Frequency (N)	Percentage (%)
1) Patients Age (years)		
20-30	48	48%
30-40	52	52%
> 40	0	0
2) Body Mass Index (BMI)		
Overweight	6	6%
Obese	94	94%
3) History of Contraceptives		
Yes	4	4%
No	96	96%
4) History of Miscarriages		
Yes	18	18%
No	82	82%
5) No. of Miscarriages		
None	82	82%
One	14	14%
Two	4	4%
6) Menstrual Cycle Regularity		
Regular	52	52%
Irregular	48	48%

TABLE 2: Patient Age and Other Descriptive Parameters			
Descriptive Parameters	**Age N (%)**		
	20 - 30	**30 – 40**	**P – value**
1) BMI			
Overweight	4 (4 %)	2 (2 %)	0.301
Obese	44 (44%)	50 (50%)	
2) Miscarriage History			
Yes	10(10%)	8 (8%)	0.327
No	38 (38%)	44 (44 %)	
3) No. of Miscarriages			
Zero	38 (38%)	44 (44%)	0.75
One	8 (8%)	6 (6%)	
Two	2 (2%)	2 (2%)	
4) Contraceptives History			
Yes	0	4 (4%)	0.069
No	48 (48%)	48(48%)	
5) Menstrual Cycle Regularity			
Regular	22 (22%)	30 (30%)	0.162
Irregular	26 (26%)	22 (22%)	
7) Other Associated Complaints			
None	32 (32%)	42 (42%)	0.006
Poly Cystic Ovary	10 (10%)	2 (2%)	
Ovarian Cyst	0	2 (2%)	
Hypothyroidism	6 (6%)	2(2%)	
Fallopian Tube Block	0	4 (4%)	

TABLE 3: Patient BMI And Other Descriptive Parameters			
Descriptive Parameters	**Body Mass Index (BMI) N(%)**		
	Overweight	**Obese**	**P – value**
1) Contraceptives History			
Yes	0	4 (4%)	0.778
No	6 (6%)	90 (90%)	
2) Miscarriage History			
Yes	0	18 (18%)	0.294
No	6 (6%)	76 (76%)	
3) No. of Miscarriages			
Zero	6 (6%)	76 (76%)	0.496
One	0	14 (14%)	
Two	0	4 (4%)	
4) Menstrual Cycle Regularity			
Regular	2 (2%)	50 (50%)	0.301
Irregular	4 (4%)	44 (44%)	
5) Associated Complaints			
None	6 (6%)	68 (68%)	0.691
Polycystic Ovary	0	12 (12%)	
Ovarian Cyst	0	2 (2%)	
Hypothyroidism	0	8 (8%)	
Fallopian Tube Block	0	4 (4%)	

6) Treatment Procedure Plan			
ICSI	4 (4%)	84 (84%)	0.05
IVF	2 (2%)	6 (6%)	
IUI	0	4 (4%)	

TABLE 4: Correlation Between the Regularity of Menstrual Cycle with the History and No. of Miscarriages and Drugs Prescribed

Descriptive Parameters	**Menstrual Cycle Regularity N (%)**			
1) History Of Miscarriages	**Regular**	**Irregular**	**Total N (%)**	**P - Value**
Yes	2 (2%)	16 (16%)	18 (18%)	0.000
No	50 (50%)	32 (32%)	82 (82%)	
2) No. of Miscarriages				
None	50(50%)	32 (32%)	82 (82%)	0.001
One	2 (2%)	12 (12%)	14 (14%)	
Two	0	4 (4%)	4 (4%)	
3) Drugs Prescribed				
Clomiphene	26 (26%)	10 (10%)	36 (36%)	0.000
Clomiphene + Multivitamin	14 (14%)	6 (6%)	20 (20%)	
Clomiphene + Menotropins + Fallotropin alpha +	4 (4%)	2 (2%)	6 (6%)	

Buserelin				
Clomiphene + CalVitD + Metformin	0	8 (8%)	8 (8%)	
Clomiphene + Thyroxin	0	8 (8%)	8 (8%)	
Letrozole	6 (6%)	2 (2%)	8 (8%)	
Letrozole + Menotropin + hCG + FSH	2 (2%)	8 (8%)	10 (10%)	
Fallotropin alpha + menotropin + multivit + Metformin	0	4 (4%)	4 (4%)	

TABLE 5: Correlation Of Associated Complaints of Infertility with the Menstrual Cycle Regularity, Drugs Prescribed and Treatment Procedure Plan
Note: PCO – poly cystic ovary, Ovary Cyst- ovarian cyst, FTB – fallopian tube block ICSI-Intracytoplasmic sperm injection, IVF- invitro fertilization, IUI- Intra uterine insemination

Descriptive Parameters	**Associated Complaints N (%)**					
	None	**PCO**	**Ovary-Cyst**	**Hypothyroid**	**FTB**	**P - Value**
1) Menstrual Cycle Regularity						
Regular	48 (48%)	0	0	0	4 (4%)	0.000
Irregular	26 (26%)	12 (12%)	2 (2%)	8 (8%)	0	
2) Treatment Procedure Plan						
Ovulation Induction + ICSI	70 (70%)	8 (8%)	2 (2%)	8 (8%)	0	0.000
IVF	2 (2%)	2 (2%)	0	0	4 (4%)	
IUI	2 (2%)	2 (2%)	0	0	0	
3) Drugs Prescribed						

Clomiphene	32 (32%)	0	0	0	4 (4%)	0.000
Clomiphene + Multivitamin	18 (18%)	0	2(2%)	0	0	
Clomiphene + Menotropins + Fallotropin alpha + buserelin	6 (6%)	0	0	0	0	
Clomiphene + CalVitD + Metformin	0	8 (8%)	0	0	0	
Clomiphene + Thyroxin	0	0	0	8 (8%)	0	
Letrozole	0	0	0	0	0	
Letrozole + Mentropin + hCG + FSH	10 (10%)	0	0	0	0	
Fallotropin alpha + menotropin + multivit + Metformin	4 (4%)	4 (4%)	0	0	0	

DISCUSSION

Reproductive behavior of young females visiting Infertility clinic was studied and the data obtained when analyzed statistically the results revealed that young females of age less than 40 years of age were included in the study and most of them were obese about 94 (94%). The menstrual cycle regularity was found to be in an equal ratio i.e. 52 (52%) with regular cycle and 48 (48%) with an irregular cycle.

When age related with other descriptive parameters under study such as body mass index, history of miscarriage, number of miscarriages, history of contraceptives, regularity of menstrual cycle and associated complaints it was observed that use of contraceptives was found to be only in 4 (4%) of females who were from the age group of 30-40 years of age and in young females of age group of 20-30 years there was no use of contraceptives. Most of the females with other associated complaints were from the age group of 30-40 years of age and females of 20-30 years of age most of them were without any associated complaints.

When related with body mass index it was observed that the females with history of use of contraceptives were found to be obese and most of the females with irregular menstrual cycle were obese suggesting that obesity can be an important factor contributing to the irregularity in menstrual cycle and most of the females with polycystic ovary were obese. An important feature of females with PCOs is that there are found to be obese and irregular menstrual cycle. Thus, BMI is an important factor and should be considered while treating infertility. Most frequent associated complaint with Infertility was found to be polycystic ovary i.e. 12 (12%) and 74

(74%) females were without any associated complaints. Most of the females who were obese were on ICSI (intracytoplasmic injection) having P value 0.05 that is significant. It was determined that the body mass index was strongly correlated to the rate of infertility. In the study it was observed that there is highest risk of ovulatory infertility in obese women but slight increase in moderate overweight and underweight women (Marinelli, Napoletano, Straccamore, & Basile, 2022).

Menstrual cycle regularity when correlated with other descriptive parameters miscarriage history, number of miscarriages and prescribed drugs, the results were found to be of significant value i.e. (P = 0.000, 0.001 and 0.000) respectively. The results showed that most of the females with the history of miscarriage had an irregular menstrual cycle contributing that females having history of miscarriage are more likely to have an irregular.

While relating to the treatment procedure plan the results suggested that most of the females were on Ovulation induction and ICSI (Intracytoplasmic injection) and the females having associated complaints of fallopian tube blockage were advised for IVF (Invitro fertilization).

The association of other complaints with prescribed drugs, the results were significant (P = 0.000) and it was observed that the females with no associated complaints were prescribed clomiphene and its combinations with other drugs such as menotropins, fallotropin alpha and buserelin acetate. In some females with none associated complaints were prescribed letrozole and its combinations with other drugs such as menotropins, Human Chorionic Gonadotrophin (hCG), Recombinant Follicle-Stimulating Hormone (FSH). It was observed that females with polycystic ovary were prescribed metformin in addition to other drugs. Similarly, females with hypothyroidism were prescribed thyroxin in addition to other drugs.

Vitamin D is important for the regulation of estrogen synthesis in gonads thus some females were prescribed Calcium and vitamin D medications along with other drugs while treating infertility.

According to previous studies and our study suggests that body mass index is an important factor and first step to treat infertility issues is to reduce the weight in over weight and obese females which can result in better ovulatory rates and thus improving fertility.

Previous studies suggests that Clomiphene is the recent first-line infertility management in women with the polycystic ovary syndrome, but letrozole, might result in better pregnancy outcomes (Costello et al., 2019). In our study we have observed a similar drug prescribed pattern that is use of clomiphene and Letrozole for ovulation induction in females with anovulation or irregular menstrual cycle and as well as females with unexplained infertility cause. In females with Polycystic ovary, an important cause of infertility clomiphene or letrozole with an insulin sensitizer such as metformin in prescribed and our study also suggests the use of metformin drug in females with polycystic ovary. A previous study suggested that buserelin acetate reduces the risk of miscarriages (Pacelli et al., 2022). Our study also highlights the use buserelin with other drugs prescribed for treating infertility and reducing the risk of miscarriages.

CONCLUSION

According to our study we can conclude that infertility can be due to a number of causes and as well as unexplained that is idiopathic but polycystic ovary is one of the leading cause of infertility. Age and body mass index are also important factors contributing to infertility as fertility reduces with increasing age and most of the females in our study with an irregularity in mestrual cycle were obese thus first line of management should be reducing weight which improves ovulation. Other associated complaints are also important while managing infertility issues in females screening of thyroid profile is also essential and its treatment along with other medications of infertility. The most prescribed drug is clomiphene or letrozole for ovulation induction. The treatment and management of infertility issues in females should be according to the other associated complaints such as polycystic ovary, ovarian cyst, fallopian tube blockage and hypothyroidism.

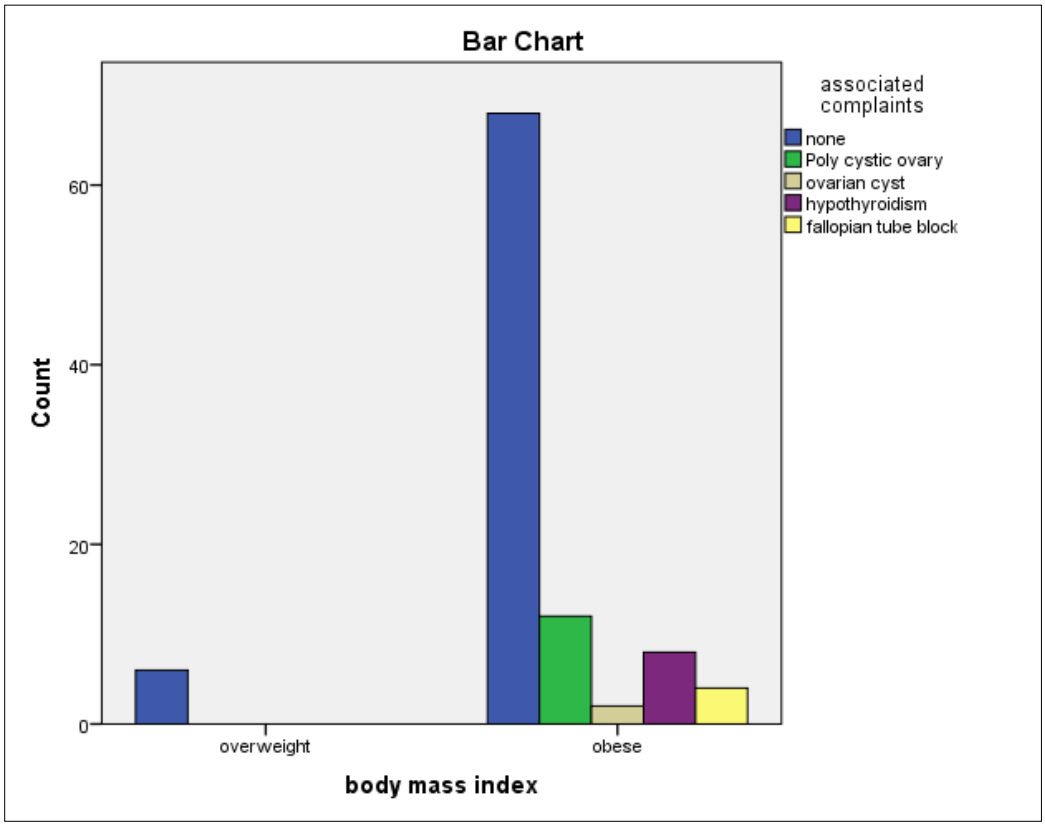

Figure 1

Body Mass Index and Other Associated Complaints

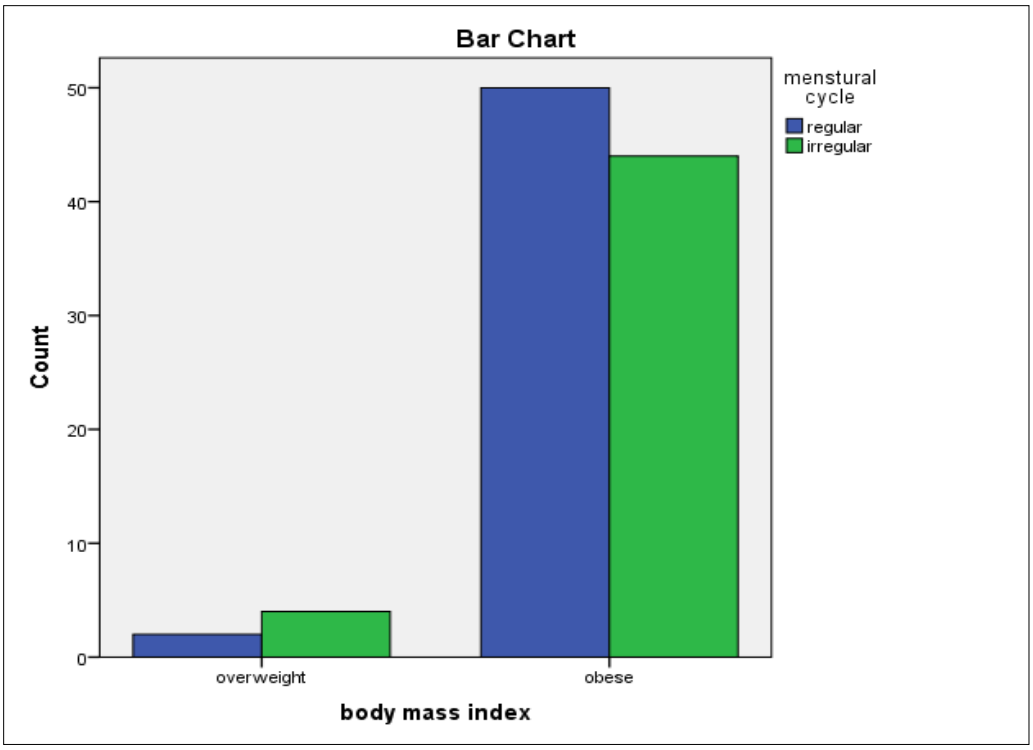

Figure 2

Body Mass Index and Menstrual Cycle Regularity

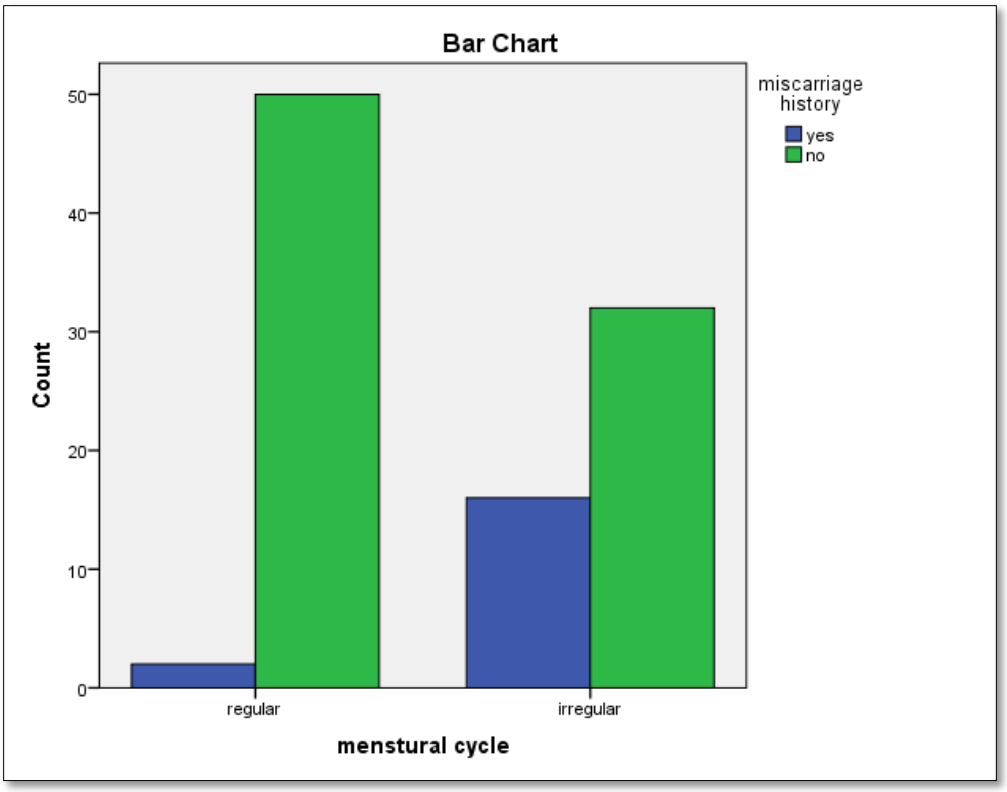

Figure 3

Menstrual Cycle Regularity and History of Miscarriage

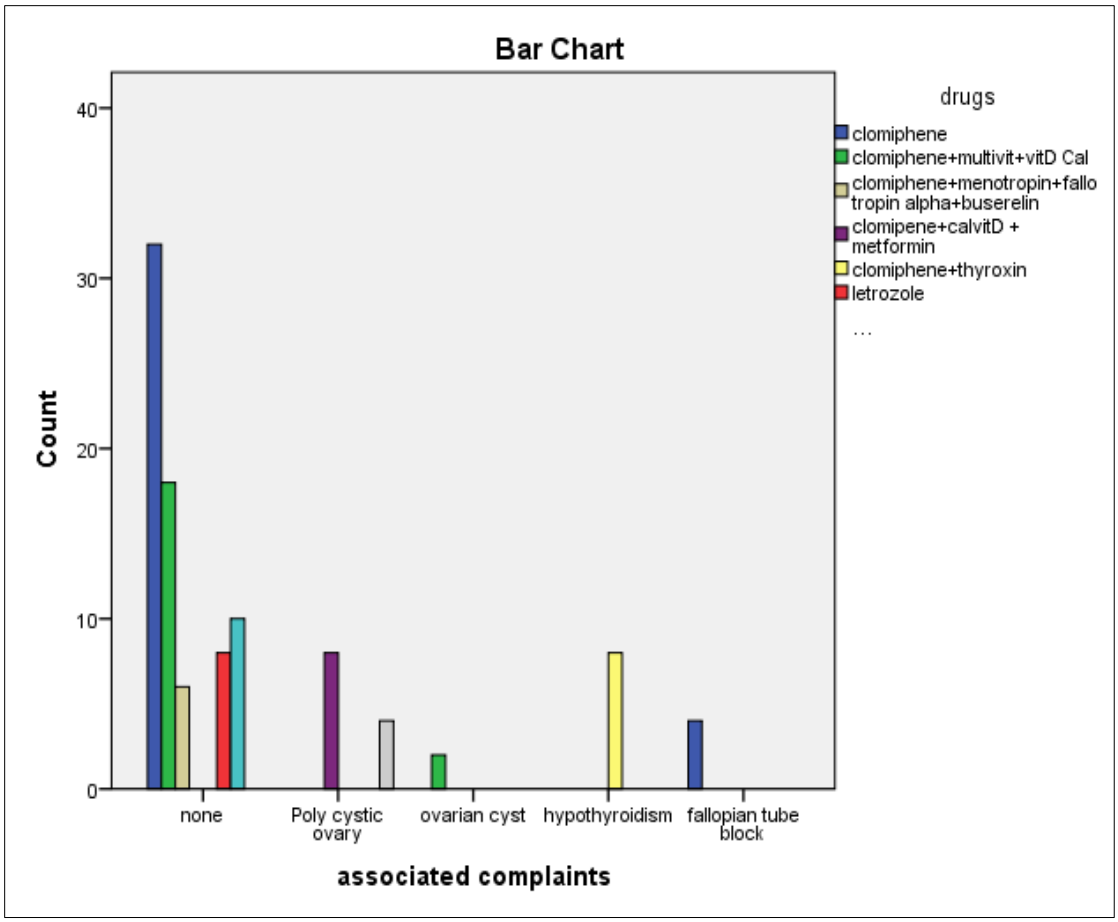

Figure 4

Associated Complaints and Prescribed Drugs

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