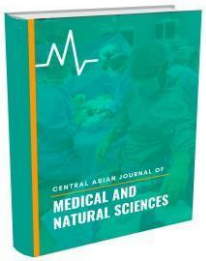

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Article

Causes and Prevalence Factors Causing Subfertility among 20-45 Years Old Women in Thi-Qar Governorate-Iraq

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Abstract: Delayed conception is one of the most common causes of medical concern. It's a global health issue that concerns thousands of people in childbearing age across the globe. Despite infertility's lack of life-threatening properties, its negative effects on the patient, his family and society are not underestimated. Subfertility can be caused by male, female or both sexes, and it may represent unexplained infertility. Unexplained infertility is the result of a thorough investigation of the partners, but no cause of infertility can be determined. To figure out the typical frequency of primary, secondary or unexplained subfertility in women of this age bracket (20-45 years), the most common causes of subfertility in women of this demographic are discussed. This investigation was intended as a crosssectional study that attempted to determine the commonality and causes of infertility in women between the ages of 20-45. One hundred and fifty women from impoverished marriages participated in the study. Data was collected from all patients who visited the gynecology practice between the end of August of 2023 and the end of November of 2024. We developed a questionnaire that inquired about the sociological, demographic, and medical attributes of infertile couples, the duration of their infertility, the type of surgery they underwent, and the medical history of their spouse and themselves. The percentage of couples with primary subfertility was less than that with secondary subfertility (65; 85). The average age of women with secondary infertility and their male partners was significantly greater than that of women with primary infertility and their male partners. About the distribution of causes of infertility among the participants, women were the majority (44.0%) of the participants, followed by a combination of men and women (28.7%). Male factors alone had a participation of 14.0% of the cases, while 13.3% had an unexplained subfertility. The causes of female subfertility in this age bracket (20-45 years) are as follows: 27% of the cases had no specific cause, the most common cause was polycystic ovary syndrome (38%), followed by disorders of ovulation (25%). Male partners of infertile partners: 57% of the incidents had typical sperm characteristics. Asthenozoospermia was the second most commonly visited condition (29%). Recent research has demonstrated that the percentage of couples with primary subfertility is less than the percentage with secondary subfertility. The most common cause of female subfertility is polycystic ovary syndrome, while the most common cause of male subfertility is decreasing the motility of sperm cell.

Keywords: Subfertility, Primary and Secondary Subfertility, and Polycystic Ovarian Syndrome

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1. Introduction

The ability to successfully conceive is contingent on the patient's medical, sexual, and reproductive history, age, physical examination, diagnostic tests, or a combination of these factors. Patients who have sexual activity that is regular and neither partner has a known

cause of infertility should be evaluated after 12 months if their partner is younger than 35 years of age, and after 6 months if their partner is 35 years of age or older (1).

From a statistical perspective, it is considered to be the "women of childbearing age who have attempted to conceive, but have failed for over two years" (2). The World Health Organization documented that infertility afflicted at least 50 million couples worldwide in 2017 (3). The percentage of infertile people across the globe has increased over the course of time from 1990 to 2017. The percentage of women with fertility issues increased by 0.37% (4). Infertility may be caused by the postponement of marriage and the birth of the first child (5, 6). Additionally, a decreasing fertility rate may lead to an increase in the difficulty of aging (7). Subfertility is primarily caused by couples that have never been pregnant or, less commonly, by couples that have been pregnant once but have not been pregnant again (8). Many factors associated with men are reversible or treatable if a proper diagnosis and assessment is conducted. The American Urological Association's rules include the following: Conditions that are reversible due to disease of the genitals or hormonal issues. Conditions that are irreversible and can be overcome with the help of assisted reproduction technology utilizing the partner's sperm. For conditions that are irreversible, sperm donation or adoption is possible. Unexplained infertility (also called subfertility) is a condition that is of exclusion for couples that have problems conceiving. The causes of female infertility are anatomical, physiological, and genetic, as well as issues with the ovulatory process, fallopian tubes, endometriosis, the uterus, and chromosomal issues. For men, the inability to produce sperm and azoospermia are the most common causes of infertility (9,10). The procedure of treating infertility that is inexplicable includes the potential for the baby to develop, using sperm that are stimulated to fertilize the woman, or in vitro fertilization as the first-line treatment option (11).

Causes of Female subfertility

Ovulatory dysfunction

Ovulation is a complex procedure that is facilitated by the proper operation of the hypothalamic-pituitary-ovarian axis, the responsiveness of the intended organs, and additional feedback mechanisms. Ovulatory failure may be caused by problems with any part of the hypothalamic-pituitary-ovarian system. It's typically determined by measuring the serum progesterone level during the middle of the luteal phase or the urinary LH level during the ovulatory burst of LH (12).

Polycystic ovary syndrome (PCOS) is the most common cause of failure to ovulate. Other than having numerous small cysts on the ovaries, women with PCOS are also noted to have high testosterone levels, as well as a lack of ovulation (13). Body weight increase, failure to get pregnant, acne, overgrowth of hair, and irregular or nulliparity are all symptoms of PCOS. Obesity and insulin resistance are both associated with PCOS (14,15).

Prolactin hormone : Serum prolactin levels of 20-50 ng/ml lead to a lack of progesterone release from the corpus luteum, this results in a shortened luteal phase. Over 100 ng/ml is associated with significant hypogonadism and an absence of menstruation, this is typically caused by a pituitary tumor (16). The World Health Organization considers prolactinoma to be one of the most significant causes of female infertility; however, recent rules from the ASRM state that the initial diagnosis of this condition can be made without including prolactin (17).

Pelvic and tubal adhesions: Intra-abdominal infection is the most common cause of failure to have vaginal/auricular attachment; the most common infectious process that causes infertility is PID. The organism with the greatest propensity for infertility associated with PID is Chlamydia trachomatis (18). Intrauterine bonds can cause the uterine chamber to be partially or entirely sealed, this results in irregular menstruation, pain in the pelvis, subparity, or repeated abortions. Hysteroscopic removal of adherences can increase fertility and reduce abortions, but complications may occur (19).

Despite no documented dietary or nutritional treatments, a healthy lifestyle is of paramount importance in avoiding infertility. Behaviors that are changed can address some instances of egg laying (20).

2. Materials and Methods

The investigation took place in the Dhi Qar District of Iraq, it was finished between the end of August and the end of December of 2024. All of the participants were at least 20 years old, and no more than 45 years old, they were diagnosed with subfertility. In this study, a sample of 150 women with infertility was selected by simple random sampling. Data on the causes of subinfertility, as well as the length and duration of subinfertility, was obtained through a questionnaire, and the most common causes of subinfertility were identified. Couples with secondary subfertility recorded information on the duration of subfertility, number of children, and mode of delivery (vaginal or cesarean section). The researchers confirmed that the participants understood the purpose and methods of the investigation. They also received a message that their participation in the study was entirely voluntary, and the analyst was responsible for the safety of the information.

Statistical Analysis

Effective statistical techniques were used to assess the information. Descriptive statistics were used to describe the basic characteristics of the population studied, including means and standard deviations. The primary and secondary classes of infertility were distinguished using the following approaches:

Constant variables are evaluated for equal variance using the independent t-test.

Chi-square test for categorical variables

Exact Monte Carlo testing was employed if the chi-square's hypotheses were not valid. A p-value of 0.05 was considered significant. The significance of the differences was determined using IBM SPSS V29.

3. Results

Table 1. Baseline characteristics of studied samples (N=150).

Age of Female (Mean ± SD)	**Primary subfertility 28 ± 6**		**Secondary subfertility 32 ± 6**		**P/value <0.001**[b]**
Age group N(%)					
≤35	56	(86.2)	60	(70.6)	0.024*
>35	9	(13.8)	25	(29.4)	
Occupation of mother N (%)					
Employment	9	(13.8)	14	(16.5)	0.658
Housewife	56	(86.2)	71	(83.5)	
Parity N(%)					
0	65	(100.0)	0	(100.0)	<0.001**
1-3	0	(0.0)	73	(85.9)	
≥4	0	(0.0)	12	(14.1)	
Mode of delivery N(%)					
None	65	(100.0)	0	(100.0)	<0.001**
NVD	0	(0.0)	42	(49.4)	

CS	0	(0.0)	43	(50.6)	
Age of male (Mean ± SD)	32 ± 6		35 ± 6		<0.001**[b]
Occupation of father (%)					
Employment	19	(29.2)	43	(50.6)	0.008**
Free worker	46	(70.7)	40	(49.5)	
Relative N (%)					
Yes	10	(15.4)	17	(20.0)	0.466
No	55	(84.6)	68	(80.0)	
Duration of subfertility (Mean ± SD)	7.1 ± 4.3		4.4 ± 2.9		<0.001**[b]
Duration of subfertility N (%)					
1-2	8	(12.3)	26	(30.6)	
3-4	13	(20)	27	(31.8)	<0.001**
≥5	44	(67.7)	32	(37.6)	

a: The chi-square test was employed, the b: independent sample t test was employed

Table 2. Distribution of subfertility factors among the study participants.

	N	%
Cause of subfertility		
Male factor	21	14.0%
Female factor	66	44.0%
Both male and female factors	43	28.7%
Unexplained	20	13.3%

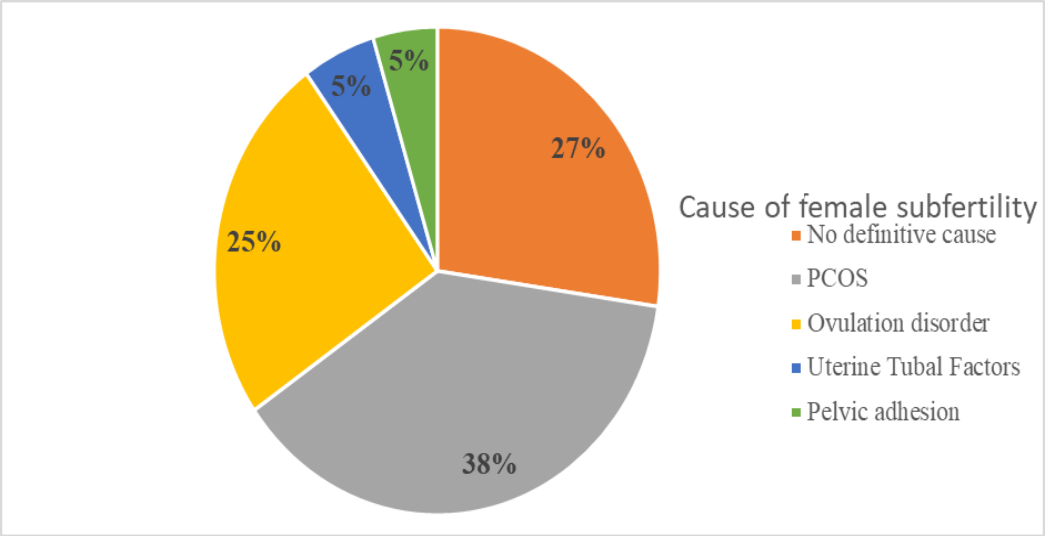

Figure 1. Causes of female subfertility among the studied group.

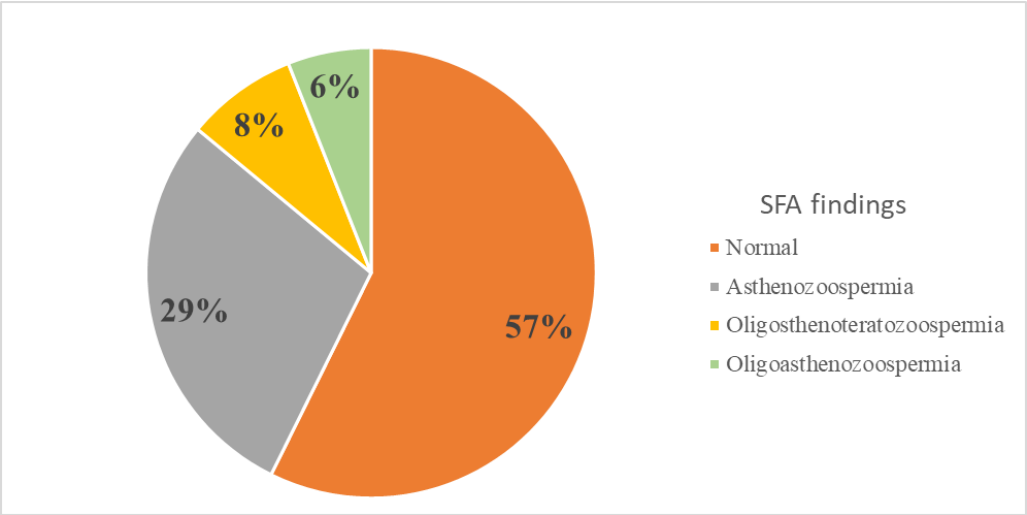

Figure 2. Semen analysis findings.

Table 3. Distribution of subfertility types according to causes.

Causes	Primary = (65) N (%)		Secondary =(85) N (%)		Total
PCOS	29	(44.6)	28	(32.9)	57(38)
Ovulation disorder	11	(16.9)	26	(30.6)	37 (24.7)
Male factor	14	(21.5)	7	(8.2)	21 (14)
Unexplained	5	(7.7)	15	(17.6)	20 (13.3)
Uterine and tubal factors	6	(9.2)	2	(2.4)	8 (5.3)
Pelvic adhesion	0	(0.0)	7	(8.2)	7 (4.7)
a: Using Monte Carlo Exact test		**P<0.001**[a]**			

Table 4. Distribution of the study samples according to period of subfertility and nature of disorder.

	PCOS	Ovulation disorder	Male factor	Unexplained	Uterine and tubal factors	Pelvic adhesion
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Duration of infertility						
1-2	10 (17.5)	9 (24.3)	3 (14.3)	9 (45)	0 (0)	3 (42.9)
3-4	18 (31.6)	11 (29.7)	2 (9.2)	4 (20)	3 (37.5)	2 (28.6)
≥5	29 (50.9)	17 (45.9)	16 (76.2)	7 (35)	5 (62.5)	2 (28.6)
Total	57	37	21	20	8	7
a: Using Chi square test			**P=0.07[a]**			

4. Discussion

Infertility is a worldwide problem that affects both the individual and social aspects of people and their families (21). It's a singular condition that has a significant impact on psychology, economy, demography, and medicine. It pertains to couples rather than individuals (22). This investigation shows that women's characteristics have a significant impact on fertility issues. The increase in the rate of secondary subinfertility has overtaken the increase in the primary subinfertility rate. The increasing prevalence of polycystic ovary syndrome may also have a significant impact. Predesigned investigations in Asia have supported these findings (23). Other investigations that have been conducted in Baghdad, Duhuk, and Najaf have demonstrated a higher percentage of primary infertility than have investigations in Washington (24). Polycystic ovary syndrome is a common condition that possesses multiple symptoms that negatively impact the patients' health-related quality of life (25-27). In this study, the most common cause of subfertility was polycystic ovary syndrome (38%), followed by other causes of ovulation (25%). These findings concur with previous investigations in Baghdad and Tikrit (28,29). The percentage of PCOS patients has increased throughout the world in recent times (30), and the average worldwide is 11-13% (31). Regarding the occupation factor distribution, the most frequent were among house wife women in primary and secondary subfertility (86.2%,83.5%) respectively, these results agree with that reported in Iran and Al- Najaf (32,33).

5. Conclusion

Subfertility is frequent and serious. As such, health initiatives should be initiated. Male and female factors often contribute to infertility. They're frequently complex and associated with lifestyle. Clarify the risks is important for women to help them to make informed decisions on the timing of conception . Asocial-cultural trend towards delaying childbearing has led to a significant decrease in the success rate of fertility treatments in later life.

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