



Study of risk factors for infertility for Iraqi patients (a cross-sectional study of women aged 20-40 years).

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ABSTRACT

This paper aims to assess risk factors for infertility for Iraqi patients through a cross-sectional study of women aged 20-40 years.

A specific questionnaire was applied to 120 Infertile women and 80 Normal women with aged between 25 and 50 years from September 2018 to September 2020 from several different hospitals.

A questionnaire was designed by experts from the Infertility Technical Group of the Ministry of Public Health, and a database was created using Microsoft Access

The result which found in this paper were (200 cases collected divided to 120 with Infertile women and 80 normal women) and the study revealed a high body mass index for women over the age of 40 years; 60 women were diagnosed with 50% of the patients' group 29-32 kg/m².

Couples who were between 2 and 5 years old were infertile before the consultation, with 66 patients for, 55% featured.

The associated risk factors reported by infertile women were Smoking, Depression, Anxiety, Stress, increased BMI, and age at menarche.

We conclude from this study that there is a statistically significant association in older women with P VALUE < 0.05 and A family history of infertility (P < 0.05). As for the physiological factors, a positive relationship was found between obesity and infertile women, with statistical significance P VALUE < 0.05.

Keywords:

Infertility, Physiological, Depression, Women, Primary, Secondary

Introduction Currently, the problem of female fertility is the focus of attention of doctors all over the world, so infertility is an urgent medical and social problem of our country [1,2], and the number of infertile couples is increasing every year. Infertility can be defined as a defect in the reproductive system, clinically manifested in the inability of the spouses to achieve pregnancy for more than one year at least [3,4]

In Iraq, the percentage of women who did not give birth over the age of 30 years increased from 11% in 2000 to 26% in 2016 11%. in 2018

The reasons behind female infertility may differ in terms of their relative importance from one country to another, for example, because of differences in the base rates of the prevalence of sexually transmitted diseases or the different ages of the population groups being studied. [5,6,7]

Age plays an important role in a couple's ability to conceive as fertility declines with age in both women and men, but this trend is more pronounced in women. [8,9,10]

Female reproductive infertility may result from disorders of the tubes, such as obstruction of the fallopian tubes, which in turn result from untreated sexually transmitted diseases, [11] complications from unsafe abortion, postpartum sepsis, or abdominal/pelvic surgery; Ovarian disorders, such as polycystic ovary syndrome [12].

Studies in Asia, Latin America, and the Middle East revealed that the main factors predisposing to infertility are: pelvic factor 50% (includes salpingo- and endometriosis), [13,14] male factor with impaired sperm production 40%, cervical factor .5% and without 5% known cause. [15] In addition, there has been a change in women's perspective on life in recent years, which is why she has postponed motherhood due to work goals and development within the business. [18] Given this, the current study was conducted with the aim of identifying demographic, clinical, and adverse consumer habits factors associated with female infertility. [16,17]

Jacky Boivin et al. published in Human Reproduction the result of a systematic review of population surveys on the prevalence of

infertility [19] and found a global average rate of 9%, with significant geographic differences, which was explained by environmental, cultural, and socioeconomic (Boivin et al., 2007).

Material and method

Collection sample

An observational, descriptive, and retrospective study was conducted on infertile patients with data collected from several different hospitals in Baghdad, Iraq, from September 2018 to September 2020.

In this study, 120 patients of infertile couples who agreed to participate in the study were recruited.

Method

A specific questionnaire was applied to 120 women aged between 25 and 50 years from September 2018 to September 2020 from several different hospitals.

Exclusion criteria included patients with a history of hysterectomy or Salpingitis and patients whose partner was diagnosed as infertile. In addition, incomplete medical records and illegible handwriting were excluded.

Through a review of the international literature, socio-demographic factors (age, level of education) were suggested; sociodemographic and gynaecological factors (dysmenorrhea, dyspareunia); pathological factors (history of pelvic inflammatory disease, history of ectopic pregnancy, history of endometriosis); Environmental factors (consumption of caffeine, alcohol, tobacco, and drugs).

Statistical analysis

A questionnaire was designed by experts from the Infertility Technical Group of the Ministry of Public Health, and a database was created using Microsoft Access; statistical analysis was performed using IBM SOFT SPSS 22 for Windows, and the final document was prepared with the Microsoft Office package.

Absolute frequencies were calculated for qualitative, prevalence, quantitative variables,

mean and standard deviation, with 95% confidence intervals expected in all cases.

To determine the factors associated with the prevalence of infertility in women, monodispersal logistic regression was used as a statistical method; Prevalence ratios and 95% confidence intervals were calculated according to using the SPHERMAN TEST and associated p-value.

Ethical approval

Ethical and scientific rules have been taken into account to collect patient demographic data and

information that are based on internationally accepted guidelines in order to preserve the rights, safety, and health of patients participating in this study. The autonomy of the woman and her consent to provide the requested information, as well as the confidentiality of personal data, were also respected.

To apply the techniques and methodological procedures, permission and approval were received from the implementing authorities for the purpose of create this study.

Results

Table 1- Characterises demographic results of patients

Variable	Patients' women, N=120	Control group, N=80	P-value
Age, N (%)			
25-29	20 (16.6)	18 (22.5)	0.95
30-34	40 (33.33)	22 (27.5)	0.05
35-39	30 (25)	25 (31.25)	0.087
40-44	15 (12.5)	7 (5.8)	0.044
45-50	15 (12.5)	8 (10)	0.02
BMI, N (%)			
25-28	22 (18.3)	44 (55)	0.034
29-32	60 (50)	26 (32.5)	0.77
33-36	38 (31.6)	10 (12.5)	<0.001
comorbidities			
Hypertension	20 (16.6)	10 (12.5)	0.033
Diabetes	50 (41.6)	23 (28.75)	0.67
Renal failure	9 (7.5)	17 (21.25)	0.88
Heart disease	4 (3.3)	10 (12.5)	0.9

Obesity	37 (30.8)	30 (37.5)	0.66
Smoking			
Yes	10 (8.3)	5 (6.25)	0.77
No	110 (91.6)	75 (93.75)	0.62
Age at marriage			
Mean (SD)	27.93 ± 1.38	28.40 ± 1.55	0.00065
Family history of infertility			
Yes	70 (58.3)	44 (55)	0.0043
No	50 (41.6)	36 (45)	<0.001

Table 2- Distribution of patients according to education level

Variable	Patient	Control	P-value
Primary	22 (18.3)	11 (13.75)	0.076
Secondary	50 (41.6)	44 (55)	0.83
College	39 (32.5)	20 (25)	0.0051
High education	9 (7.5)	5 (6.25)	0.066

Table 3- Prevalence of patients according to the type of Infertility

Variable	Patients' women, N=120		P-value
	Primary	Secondary	
25-29	14	6	0.0039
30-34	26	14	0.0045
35-39	18	12	0.032
40-44	10	5	0.00743
45-50	12	3	0.001

Fig 1- Distribution of patients according to time of infertility

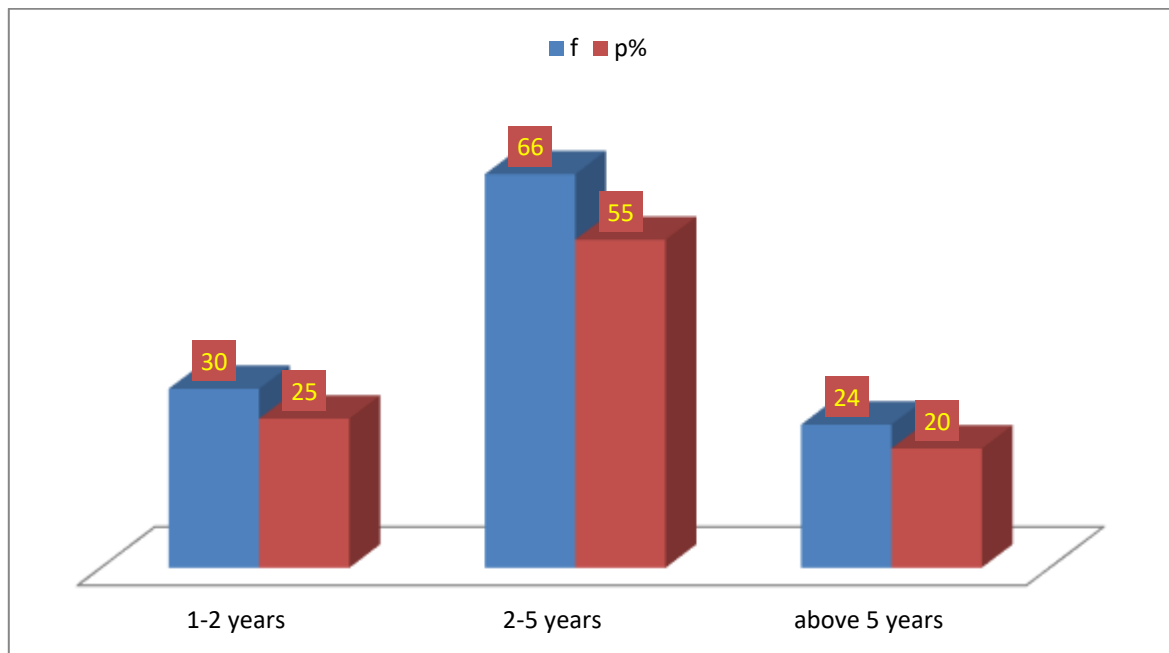


Fig 2- Results of patient's study Age at menarche

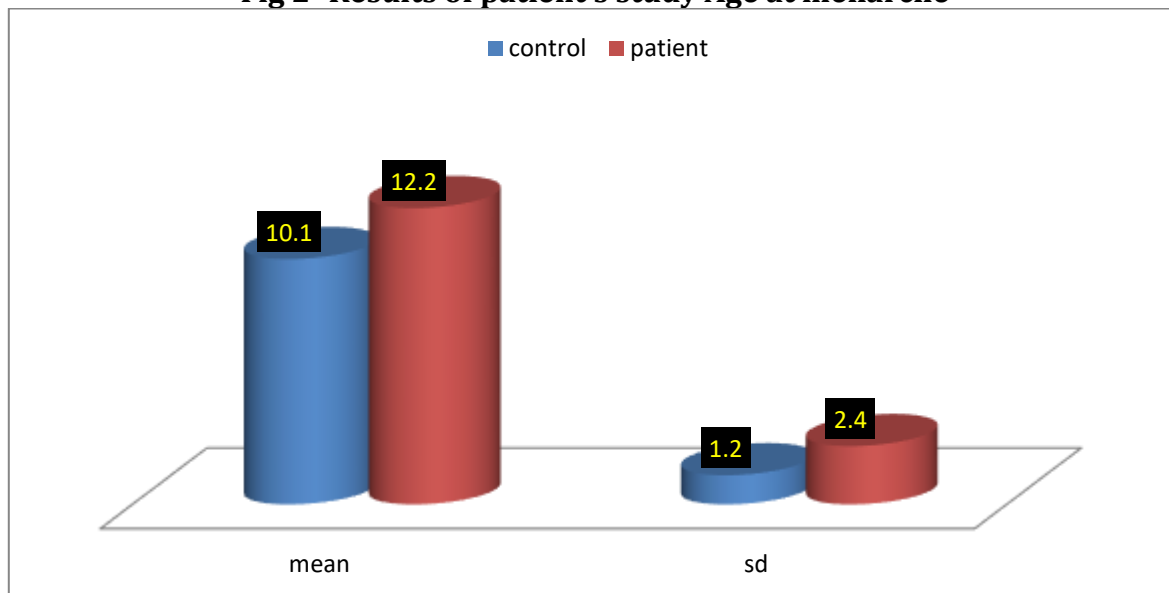


Table 4- Evaluation of physiological factors for Infertility risk factors

Variable	Patient	Control	P-value
comorbidities	40	19	0.01
Age at menarche			
>14	30	8	0.0633
<14	15	5	0.05
Menstruation pattern			
Irregular	20	4	0.034
Regular	15	5	0.088

Table 5- Evaluation of Psychological factors for Infertility risk factors

Variable	Patient	Control	P-value
Smoking	2	0	0.001
Depression	20	2	0.0006
Anxiety	23	3	0.0005
Stress	10	2	0.087
Education with Primary school	5	1	0.031

Table 6- Logistic regression for a patient-risk model analysis

Items	OR 95%	P-value
Age	2.3 (1.6-3.1)	<0.001
Depression	1.5 (0.9-2.2)	0.005
Anxiety	1.67 (1.1-2.4)	0.001
Stress	0.9 (0.5-1.5)	0.44
Age at menarche	1.2 (0.7-1.7)	0.067
BMI	1.99 (1.33-2.88)	0.00378

Discussion

In this study, 200 female patients in Iraq were collected and distributed according to the diagnosis of infertility (120 infertile women patients and 80 normal women), and the average age in this study ranged between 25-50 years.

The most frequent ages in this study were from 35-39 for 30 patients, with 25% of the patient's group, and for 25 women, with 31.25% of the control group.

The study revealed a high body mass index for women over the age of 40 years; 60 women were diagnosed with 50% of the patient's group 29-32 kg/m²

The most prevalent comorbidities in this study were diabetes, in addition to the presence of the obesity factor. The study also revealed the

presence of 8.3% of women who smoke, and this is an influencing factor in diagnosing infertility, as shown in Table 1.

This study is of great importance both in the clinical practical field and in the theoretical field because, thanks to this, we have a better view of the determinants that may be associated with infertility [20]. A significant association was found in women over 35 years of age, a finding similar to the studies of Ramos et al. 12 with (OR = 1.9, 95% CI: 1.3–4.1, p<0.001) and Cabrera 13, who also found an association between these two variables. Martinez 14 determined that 67% of infertile people are between the ages of 30 and 39. In the same way, Mallo and Marin determined that age was a risk factor associated with infertility with a value of p<0.05. [21,22]

An observational study of 118 infertile couples in the municipality of Pinar del Rio determined that more than half of them had at least one abortion. The indiscriminate use of abortion as a method of pregnancy termination is one of the most important factors in the future emergence of infertility [23,24]

. Another recent study conducted in Las Tunas County identified a high rate of miscarriages in previous pregnancies of currently infertile women.

In previous studies, the prevalence was 15%, and in another study (5), in this regard, the presence of previous children is considered important for infertility counselling, allowing identification of their type of infertility as primary or secondary. [25]

Primary infertility is dominant in this case and does not coincide with studies (18), where it was observed that the most common type of infertility is secondary. However, there is an increase in the frequency of both types of infertility with age.

The duration of infertility is considered in an inverse relationship, and the longer the infertility, the lower the chance of achieving pregnancy. According to the current research, approximately half of the patients suffer from infertility between two and five years, which coincides with the previous literature studied (19). The average value of the duration of infertility in this study has a negative predictive factor regarding pregnancy potential

The study revealed that more than 40 female patients with BMI ≥ 25 kg/m² were obese and. A woman's weight is more likely to affect fertility when she has a BMI greater than 29 as an imbalance of estrogen and progesterone has been observed, and this causes abnormal ovulation and irregular periods which increases the chances of infertility as well as polycystic ovary syndrome, a condition that affects hormone levels in women.

Dysmenorrhea was found to be a statistically significant association with infertility, confirmed by the study of Mallikarjuna et al. with (OR: 6.08, p = 0.009). On the other hand, HE X17 also found an association with this factor (OR = 1.62).

On the other hand, a history of pelvic inflammation was statistically significant in our study. Confirming the results of HE X 17, who also identified an association between these two variables with (OR = 7.07, 95% CI 3.4-14.46). Ramos et al. 12 found that it was not statistically significant, with a p-value greater than 0.05.

Conclusion

In this study, we conclude that there are endocrine disorders (diabetes) and disorders like (overweight and obesity) which are directly related to infertility in Iraqi women

And through the use of the logistic analysis of the Evaluation of Psychological factors for Infertility, we find a relation with other risk factors like Smoking, Depression, Anxiety, and Stress.

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