Study Risk Factors Associated with Secondary Infertility among Infertile Woman Attending Infertility Clinic

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Abstract:

Background: Infertility is a public health problem during the reproductive age, the secondary infertility is the incapability to conceive in a couple who have had at least one successful   conception in the past. **Aim of the study**: Was to study risk factors associated with secondary infertility among infertile woman attending infertility clinic. **Research design:** A Descriptive research design was used to conduct this study. **Setting**: This study was conducted at Obstetric and gynecological out-patient clinic at Benha University Hospital and Benha Teaching Hospital. **Sample**: A purposive sample was used in the study (80 women). **Tools**: Data was collected by (two tools) Tool I: A Structured interviewing questionnaire to assess:(Socio-Demographic data, Menstrual and Gynecological   history, Obstetric history, Past medical and surgical history, psychological history, Lifestyle practices). Tool II: Documentation Sheet to assess: (Physical measures, medical diagnosis). **Results:** More than half of the studied women were overweight, more than two thirds of the studied women don't have any marital disputes, all of the studied women who performed operation had caesarian section operation of the studied women hospitalized due to operational causes. **Conclusion:** The study concluded that irregular menstrual cycle, overweight, psychological pressure, hormonal disorders, ovulation disorders, polycystic ovarian diseases and ovarian cyst were some common risk factors associated with secondary infertility. **Recommendation:** Educational program for women to raise their awareness about secondary infertility related factors should be a priority to ensure early diagnosis of the disease.

Key words: secondary Infertility, Infertility Clinic, Risk Factors.

Introduction:

Infertility is a public health problem during the reproductive age, affecting about 10-15% of couples attempting to achieve pregnancy in worldwide Infertility is defined by the failure to achieve a natural pregnancy after 12 months or more of regular un protected sexual intercourse. For many couples, the inability to bear children is a shocking tragedy leading to serious physical, social, psychological and sexual dysfunction in their lives **(ELnour et al., 2021)**

Infertility can be primary or secondary. Primary infertility is when a pregnancy has never been achieved by a person, and secondary infertility is when at least one prior pregnancy has been achieved. Fertility care encompasses the prevention, diagnosis and

treatment of infertility. Equal and equitable access to fertility care remains a challenge in most countries; particularly in low and middle-income countries. Fertility care is rarely prioritized in national universal health coverage benefit packages **(Adofo et al., 2021).**

Secondary infertility defines as infertility in a woman who has had one or more pregnancies. Secondary infertility rates have been estimated globally to approximately ten percentage and primary infertility approximately two percentage among women aged 20–44 years **(Aboelroose et al., 2020)·**

In the female reproductive system, infertility may be caused by a range of abnormalities of the ovaries, uterus, fallopian tubes, and the endocrine system, among others. Problems in the quantity or quality of eggs: Women are born with a limited supply of eggs and are unable to create new eggs after birth .Problems with the fallopian tubes: The fallopian tubes, which carry eggs from the ovaries to the uterus, can become blocked due to pelvic infections such as chlamydia or gonorrhea **(Ljungbeck et al., 2020).**

Problems with the uterus: There are many conditions related to the uterus that can cause secondary infertility. Scarring can occur during cesarean delivery. Endometriosis: Endometriosis is a condition where tissue that normally grows inside the uterus grows elsewhere in the body, such as on the ovaries or bowel surfaces. While endometriosis is common, not all endometriosis causes infertility **(Giviziez et al., 2022).**

Polycystic ovary syndrome: Polycystic ovary syndrome (PCOS), primary ovarian

insufficiency (POI), decreased egg production related to aging, thyroid or other endocrine disorders that affect hormone production. Breastfeeding: If a woman feeds her baby only by breastfeeding, her body stops ovulating or releasing eggs for potential fertilization **(Abd-Elaziz et al., 2021).**

Nurses have an important role to promote health by providing women with infertility with support and knowledge needed. In addition, nurses can promote the quality of care, effectively manage therapies to enhance quality of life and decrease pain to avoid other diseases. The nurses should also give the woman time to express feelings about symptoms and its care **(ELnour et al., 2021).**

Nurses working within these clinical areas can be an instrument in recognizing the symptoms and understanding the impact of this diagnosis on women's activities of daily life and their relationships. Infertility can affect women on a physical, psychological, mental and social level, so a holistic and sensitive approach to care is imperative in supporting women to cope with this condition **(Adofo et al., 2021)**

Significance of study:

As per the WHO, the overall prevalence of primary infertility ranges between 3.9% and 16.8%. The World Health Organization (WHO) performed a large multinational study to determine gender distribution and infertility etiologies. In 37% of infertile couples, female infertility was the cause; in 35% of couples, both male and female causes were identified; in 8%, there was male factor infertility (World Health Organization **(WHO), 2021.**

In Egypt, the prevalence of secondary infertility has been estimated to be between 10 to 15% among married couples and causes can be found in about 90% of infertile cases

and about 10% of couples without explained causes. **(Ma, J et al., 2021).**

This study is the first study of the risk factors associated with secondary infertility among infertile woman in the faculty of nursing, Benha University.

Aims of the Study

Study aimed to study risk factors associated with secondary infertility among infertile woman attending infertility clinic .

Research Question:

What are the risk factors associated with secondary infertility among infertile women?

Subjects and method

Technical Design:

Study Design:

Descriptive design was adopted to identify risk factors associated with secondary infertility among infertile women.

Setting:

This study was conducted at Obstetrics and Gynecology Outpatient Clinic at Benha University Hospital and Benha Teaching Hospital. They are a large hospitals in Benha City and receives clients from all Qaliobia Governorate and other Neighbor Governorates. These two hospitals provides free and economical service to all patients. These clinic provides health care services of obstetrics and gynecological women, from different areas (urban and rural area).

Sampling:

Sample type:

A purposive sample was used in the study.

Sample Size:

All women having secondary infertility that was attended at outpatient clinic for six months during the period of data collection (80 women).

Inclusion criteria:

Women having secondary infertility and at the reproductive age (during the childbearing period).

Exclusion criteria:

- Women with primary infertility.
- Women with husbands have abnormal semen analysis .

Sample technique:

The researcher visited the study setting, introduced herself and explained the aim of the study with the previous mentioned criteria to collect data and this was been repeated 2 times/weekly through studying day for six months.

Tools of data collection:

Two tools were structured to collected necessary data.

The following tools were used for data collection:-

Tool I: A Structured interviewing questionnaire:

It was developed by the researcher. It was included six parts as the following:

Part (1): Socio-Demographic data: It was included: (Age, residence. educational level, occupation. income and breadwinner).

Part (2): Menstrual and Gynecological history such as (Age of menarche, duration of menstruation, regularity, interval of menstrual cycle, amount of menstrual blood. menstrual characteristics .menstrual pain (time of pain) type of analgesic taken.

Part (3): Obstetric history such as (Number of previous labor, Number of children, Type of delivery, Premature labor, Number of abortion, Age during first labor, Age during last labor or abortion, Using contraception method, The period of using these methods/ month.

Part 4: Past medical and surgical history such as (suffer from chronic diseases, hypertension, diabetes multiuse and cardiac disease previous hospitalization, previous surgical/gynecological operations, and operational complication).

Part 5: Psychological history such as(any marital disputes, husband caring, natural of the caring, suffering from any psychological pressure, types of the psychological pressure, psychological pressure affect the menstruation, delaying in pregnancy affecting on the marital relationship).

Part (6): Lifestyle factors:

(A): Lifestyle practices it composed of 10 items as (Eating habits, frequency of meals per day, eat balanced diet, drinking caffeine, present any smoker in family, exposure to the smoking, number of daily sleeping hours, sleep at nape time, type of exercise, wear tided clothes for long period).

(B): Marital history such as (age at marriage (years), years of marital life, number of intercourse/week, intercourse occur during ovulation, use any lubricate substance during intercourse, vaginal rinse before and after intercourse, substances using for vaginal rinse)

Tool II: Documentation Sheet:which was developed by the researcher

Part (1): Physical measures such as (height, weight, body mass index), and body mass index).

Part (2): Medical diagnosis for infertility such as (diagnosed cause of secondary infertility and hormonal values, perform infertility investigations, type of these investigations as hormone analysis in the blood, endometrial biopsy, x rays, hysteroscopy, thyroid analysis, hysterosalpinogram).

Ethical consideration:

Ethical aspects should be considered before starting the study as the following:

▪   The research approval was obtain from scientific research ethical committee, faculty of nursing at benha university before starting the study.

▪   An official permission from the selected study settings was obtained from the fulfillment of the study.

▪   The aim of the study was explained to each participant before applying the study.

▪   An oral consent was obtained from each participant after explanation the purpose of the study.

▪   The study was not having any physical, social or psychological risk on participants.

▪   Maintain confidentiality, self-esteem and dignity of participants.

▪   Freedom to with draw from participation in the study at any time.

Tools validity and reliability:

led The validity of questionnaire was reviewed by 3 jury experts in the field of obstetrics & woman health nursing to ascertain clarity, relevance, comprehensiveness and applicability of tools. Modifications were done such as adding, rephrasing and omitting some questions. The reliability was done by Cranach's Alpha which revealed that the internal consistency of knowledge was 0.81 and the internal consistency of the practices was 95.

Pilot study:

The pilot study was conducted on 10 % from cases total period six months which is approximately 3 weeks to test the simplicity clarity, applicability, and feasibility of the developed tools also to find out the possible obstacles and problems that might face the researchers and interfere with data collection,

and to estimate the time neede for data collection) according to the result of pilot study required modifications were done. The women involved in the pilot study sample were being excluded from the study (8 cases).

Preparatory phase:

To fulfill the aim of this research, the following preparation was done:

▪ The researcher was carried out this study through review of local and international related literature about the various aspects of the research problem. This was helped researcher to be acquainted with magnitude and seriousness of the problem, and guided the researcher to prepare the required data collection tools.

▪ Tools were distributed to three experts in this field ,these were including two maternity nursing professors one obstetrician, the aim is to test its appropriateness, comprehensiveness, clarity, importance and applicability. The result of the jury was done.

▪ During this phase an official approval to conduct the research was obtained by submission an official letter was obtained from the Dean of the faculty of nursing at Benha University to the directors of Benha University Hospital and Benha Teaching Hospital in order to obtain their agreement to conduct the research after explaining its purpose.

Field work:

Data were collected through a period of six months (24week) from the beganning of June 2021 to the end of November 2021 in

obstetrics and gynecology outpatient clinics at Benha university hospitals and Benha Teaching Hospital at Benha City.

▪ The researcher visited the previously mentioned sittings, one day (Saturdays) weekly from 9 a.m. to 12:00 p.m in outpatient clinics at Benha Univeristy Hospital and one day (Monday) weekly from 9:00 am to 1:00 pm in outpatient clinics at Benha Teaching Hospital . The researcher introduced herself, greet woman, the purpose of the study was explained by the researcher and oral consent was taken to participate in this study. The average number of woman that the researcher met was about 1-2 woman /day. The researcher met the woman at waiting room of outpatient clinics at Benha university hospitals and Benha Teaching Hospital.

▪ The researcher interviewed the infertile woman and distributed (Tool I) which was A Structured interviewing questionnaire (socio-demographic characteristics, menstrual and gynecological history, obstetric history, medical and surgical history, psychological history, lifestyle factors) the researcher aske the questions and recorded females's answers.

▪ The time needed to complete the A structured interviewing questionnaire was ranged from 25-30 minutes.

▪ Then assessment of secondary infertile women (Tool ll)which was Documentation sheet(physical measures, diagnosed cause of secondary infertility and hormonal values)the required time to complete this part was approximately 15-20 minutes.

▪ All these steps were repeated throughout previously determined period of data collection (6 months).

Statistical analysis:

Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 21) was used followed by data tabulation and analysis. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Independent t-test, Chi-square test and Pearson correlation coefficients were used. A significant level value was considered when $p \leq 0.05$. And a highly significant level value was considered when $p < 0.001$.

Study Limitation:

▪ While starting to collect the sample from Benha University Hospital the researcher noted that the infertility clinic of the obstetrics and gynecology department was closed so researcher went to the outpatient clinic (obstetrics and gynecology)in the hospital to collect the sample

▪ The waiting place of the obstetrics and gynecology outpatient clinic was crowded and noisy, which required more time and effort to conduct the study.

▪ Some of the females (3 females) refused to continue the questionnaire and researcher excluded them from sample.

▪ The psychological status of the sample which require caution in dealing as they are more sensitive and ashamed.

Results:

 Table (1): Illustrates that, less than half (47.5%) of the studied women their age ranged from (21-<30) years with Min –Max= (23-44(Mean ±SD= (31.58±6.86), less than two thirds (61.3%) of them are from rural area and half (50.0%) of them with intermediate education. Also, more than half (52.5%) of the studied women are house wife, more than half (58.5%) of them have enough income and more than half (53.8%) of them their husband is the breadwinner .

Table (2): Clarifies that, there was a highly statistical significant relation between studied women' body mass index and regularity of menstruation. Obese women had irregular menstrual cycle (> 45 days) which were at risk for infertility. $P \leq 0.001$

Table (3): Clarifies that, there was a highly statistical significant relation between studied women' psychological pressure and regularity of menstruation. Women under psychological pressure had irregular menstrual cycle (> 45 days) which were at risk for infertility. $P \leq 0.001$

Table (4): Clarifies that, there was a highly statistical significant relation between studied women' body mass index and chronic diseases. Obese women had chronic diseases which were at risk for infertility. $P \leq 0.001$

Table (5): Clarifies that, there was a highly statistical significant relation between studied women' hormonal disorders and polycystic ovarian disease. Women with polycystic ovarian disease had hormonal disorders which were at risk for infertility. $P \leq 0.001$

Table (6): Clarifies that, there was a highly statistical significant relation between studied women' polycystic ovarian disease as well as ovarian cyst and ovulation disorders. Women with polycystic ovarian disease or ovarian cyst had ovulation disorders which were at risk for infertility.

$P \leq 0.001$

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Table (1): Frequency distribution of studied women regarding their demographic characteristics (n=80).

| Demographic characteristics	No	%
Age (years)		
21-<30	38	**47.5**
30-<40	30	37.5
40+	12	15.0
Min –Max	23-44	
Mean ±SD	31.58±6.86	
Residence		
Rural	49	**61.2**
Urban	31	38.8
Educational level		
Basic education	15	18.8
Immediate education	40	**50.0**
University education	25	31.2
Occupation		
Work	38	47.5
Housewife	42	**52.5**
Income		
Enough	47	**58.8**
Not enough	19	23.7
Enough and saved	14	17.5
The breadwinner		
Husband	43	**53.8**
Wife	8	10.0
Both	29	36.2
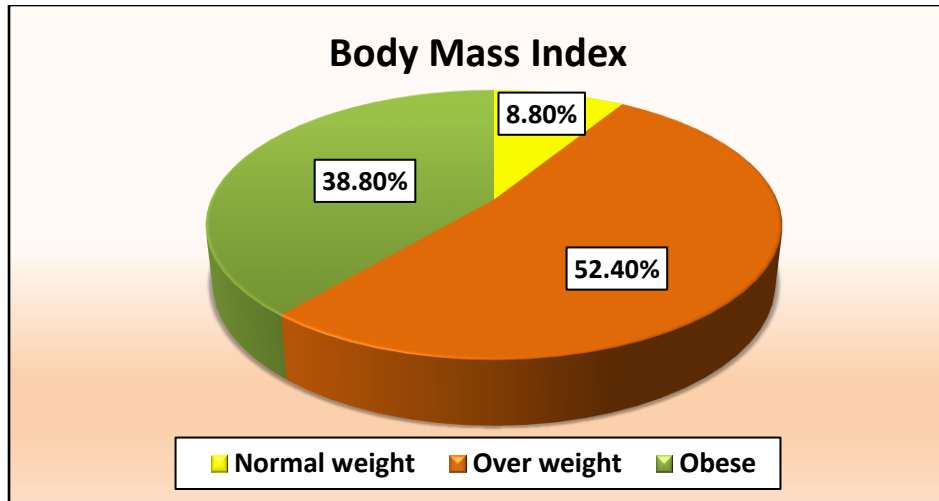
Figure (1): Percentage distribution of studied women regarding their body mass index degree (n=80).
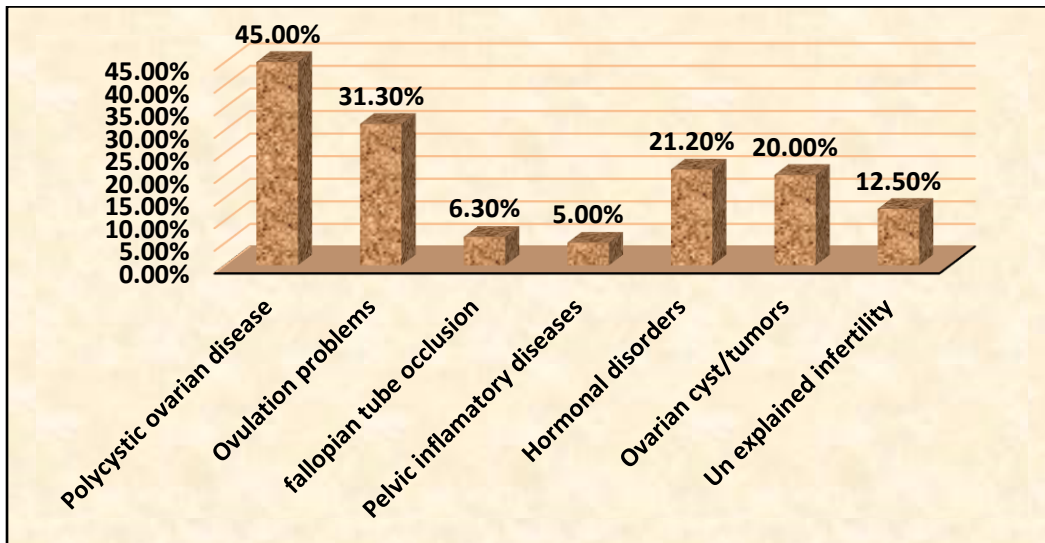

Fig (2): Percentage distribution of studied women regarding diagnosed causes of secondary infertility (n=80).

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Table (2): statistically relation between body mass index and regularity of menstruation among studied infertile women (n=80).

Variables	Once in 28 days (n=8)		Once in 29-32 (n=12)		Once in 33-45 days (n=21)		> 45 days (n=39)		X^2	p-value
	no	%	no	%	no	%	no	%		
Body mass index										
Normal weight (n=7)	4	50.0	0	0.0	2	9.5	1	2.6		
Over weight (n=42)	3	37.5	10	83.3	14	66.7	15	38.4	31.7	0.000
Obese (n=31)	1	12.5	2	16.7	5	23.8	23	59.0		

** Highly statistically significance $\qquad$ p ≤ 0.001

Table (3): statistically relation between psychological pressure and regularity of menstruation among studied infertile women (n=80).

Variables	Once in 28 days (n=8)		Once in 29-32 (n=12)		Once in 33-45 days (n=21)		> 45 days (n=39)		X2	p-value
	No	%	no	%	no	%	no	%		
Psychological pressure										
Yes (n=61)	0	0.0	5	41.7	18	85.7	38	97.4	44.3	0.000
No (n=19)	8	100.0	7	58.3	3	14.3	1	2.6		

** Highly statistically significance $\qquad$ p ≤ 0.001

Table (4): Statistically relation between chronic diseases and body mass index among studied infertile women (n=80).

Variables	Chronic diseases				X^2	p-value
	Yes (n=53)		No (n=27)			
	no	%	no	%		
Body mass index						
Normal weight (n=7)	0	0.0	7	25.9		
Over weight (n=42)	29	54.7	13	48.2	15.6	.000**
Obese (n=31)	24	45.3	7	25.9		

** Highly statistically significance $\qquad$ p ≤ 0.001

Table (5): Statistically relation between hormonal disorders and polycystic ovarian disease among studied infertile women (n=80).

Variables	Polycystic ovarian disease				X^2	p-value
	Yes (n=36)		No (n=44)			
	no	%	No	%		
Hormonal disorders						
Yes (n=17)	14	38.9	3	6.8	12.17	.000**
No (n=63)	22	61.1	41	93.2		

** Highly statistically significance $p \le 0.001$

Table (6): Statistically relation between polycystic ovarian disease as well as ovarian cyst and ovulation disorders among studied infertile women (n=80).

Variables	Ovulation disorders				X^2	p-value
	Yes (n=25)		No (n=55)			
	no	%	No	%		
Polycystic ovarian disease						
Yes (n=36)	19	76.0	17	30.9	14.11	.000**
No (n=44)	6	24.0	38	69.1		
Ovarian cyst						
Yes (n=16)	11	44.0	5	9.1	13.0	.000**
No (n=64)	14	56.0	50	90.9		

** Highly statistically significance $p \le 0.001$

Discussion

According to demographic characteristics of studied women, the current study described that, less than half of the studied women their age ranged from (21-<30) years with Min – Max= (23-44)Mean ±SD= (31.58±6.86), more than three fifths of them are from rural area and half of them with intermediate education. In my point of view this might be due to early age of women marriage in rural area. Also, more than half of the studied women are house wife, less than three fifths of them have enough income and more than half of them their husband is the breadwinner. In investigator point of view this might be due to low education of women and decrease number of work women.

This study was in the same line with **Akalewold et al., (2022),** who studied "Magnitude of infertility and associated factors among women attending selected public hospitals in Addis Ababa, Ethiopia" and reported that, nearly half (49.5%) of women their age ranged from (22-<30) years old and less than two thirds (63.3%) of them are from rural area. Also this study was supported with **Makwe et al., (2021**), who studied "Hysterosalpingography findings of female partners of infertile couple attending fertility clinic at Lagos University Teaching Hospital, Nigeria" and reported that, half (50%) of the studied women are house wife, three fifths (60.5%) of them have enough income

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The current study was in contrasted with **Olarinmoye et al., (2021)**, who study "Infertility and Its Associated Factors among Women Attending Selected Health Facilities in Boripe Local Government Osun State" and noted that, among these respondents, 72% live in rural area, 17.8% had no formal education, 19.6% had primary education, and 40.4% had secondary education while 22.2% had higher education. This might be due to difference between cultures and interested in women education.

As for body **mass** index degree of studied women, the present study showed that, more than half of the studied women were overweight, more than one third of them were obese, while only of them were in normal weight. In my point of view this might be due to follow un health life style and eaten irregular and unhealthy meal.

The study was in the same line with **Elnour et al. (2021),** who studied "Comparison of prolactin, follicle-stimulating hormone, luteinizing hormone, estradiol, thyroid-stimulating hormone, free thyroxine and body mass index between infertile and fertile Saudi women" and noted that, more than half (55.4%) of the cases women were overweight, more than one third (38.8%) of them were obese, while few 6.8% of participants were in normal weight

The study was in opposite opinion with **Berjis et al. (2021),** The relationship between body mass index and infertility among infertile women, France" and reported that, less than three quarters (70.0%) of the cases women were in normal weight, more than one third (20.%) of them were obese, while few 10% of participants were in over weight.

According to studied women medical diagnosis for infertility, the present study illustrated that, more than two fifths of the studied women had polycystic ovarian disease as a diagnosis for infertility, most of them perform infertility investigations and less than three quarters of them do X rays. This might be due to doctor order.

These findings in contrast with **Abd-Elaziz et al., (2021),** who studied "Comparative study between hysteroscopy and transvaginal ultrasound in evaluation of unexplained infertility, Al-Azhar Assiut" and reported that, in our current study, the vaginal ultrasonography detected abnormal findings (93.3%) of cases, intrauterine polyps were found in (20%) of cases, By hysteroscopy, which is the gold standard in investigating the uterine cavity in our study, representing 90% of cases.

Also the present study was in harmony with **Kazemi et al. (2021),** who studied "Effects of dietary glycemic index and glycemic load on cardiometabolic and reproductive profiles in women with polycystic ovary syndrome" and reported that, less than half (47.0 %) of the cases had polycystic ovarian disease as a diagnosis for infertility and (89.6%) of them perform infertility investigations

Regarding to studied women diagnosed causes of secondary infertility, the present study clarified that, more than two fifth of the studied women diagnosed with polycystic ovarian disease and less than one third of the studied women had ovulation problems. Taking into consideration results not mutually exclusive because the studied women may have more than one causes of infertility.

This study was in the same line with **Cai et al. (2021),** who studied "Low body mass index is

associated with ectopic pregnancy following assisted reproductive techniques: a retrospective study" and reported that, two fifth (40.0%) of the women suffered from polycystic ovarian disease and less than one third (31.3%) of them had ovulation problems.

The study in consisted of **Mansouri et al. (2021),** who studied "The Relationship Between Sexual and Marital Satisfaction Level and the Causes of Infertility in Infertile Couples who Referred to Nahal Infertility center in Alborz Province. Alborz University" and reported that, more than one third (35.3%) of the studied women had ovulation problems

The result in dis harmony with **Husain & Imran (2021),** who studied "Infertility as seen by the infertile couples from a collectivistic culture, Pakistan" and noted that, in response to the causes of infertility; 34% responses considered unhealthy lifestyle as the cause of infertility, 29% responses referred to different biological causes of infertility, 12% responses considered supernatural forces (e.g., magic and evil eye) to be the cause of infertility, 11% responses suggested that infertility has psychological causes, and 10% responses regarded sexual problems as the cause of infertility.

Concerning on statistically relation between body mass index and regularity of menstruation among studied infertile women, the present study clarifies that, there was a highly statistical significant relation between studied women' body mass index and regularity of menstruation. Obese women had irregular menstrual cycle (> 45 days) which were at risk for infertility.

The study was consist of **Giviziez et al. (2022),** who studied "Association of Overweight and Consistent Anovulation among Infertile Women with Regular Menstrual Cycle, Brazil" and reported that, there was a highly statistical significant relation between studied women' body mass index and regularity of menstruation As regards statistically relation between psychological pressure and regularity of menstruation among studied infertile women the current study clarified that, there was a highly statistical significant relation between studied women' psychological pressure and regularity of menstruation. Women under psychological pressure had irregular menstrual cycle (> 45 days) which were at risk for infertility.

The study was in harmony with **Tabassum et al. (2021),** who studied "Impact of polycystic ovary syndrome on quality of life of women in correlation to age, basal metabolic index, education and marriage, Columbia" and reported that there was a highly statistical significant relation between studied women' psychological pressure and regularity of menstruation

The study was in dis agreed with **KaboodMehri et al. (2021),** who studied "The association between the levels of anti-Müllerian hormone (AMH) and dietary intake in Iranian women" and noted that, there was a highly statistical significant relation between studied women' psychological pressure and regularity of menstruation

The current study clarified that, there was a highly statistical significant relation between studied women' body mass index and chronic diseases. Obese women had chronic diseases which were at risk for infertility . in my point of view this might be due to obesity increase liability of body to disease and affect hormonal balance in body.

The study was in harmony with **Saeed et al. (2022),** who studied "Women's obesity correlated with chronic diseases and reproductive dysfunction. a review" and noted that, there was a highly statistical significant relation between studied women' body mass index and chronic diseases

The present study clarified that, there was a highly statistical significant relation between studied women' hormonal disorders and polycystic ovarian disease. Women with polycystic ovarian disease had hormonal disorders which were at risk for infertility. P ≤ 0.001

The study was in agreement with **Wendland et al. (2021),** who studied "Association between metabolic and hormonal profile, proinflammatory cytokines in saliva and gingival health in adolescent females with polycystic ovary syndrome" and reported that there was a highly statistical significant relation between studied women' hormonal disorders and polycystic ovarian disease.

The current study clarified that, there was a highly statistical significant relation between studied women' polycystic ovarian disease as well as ovarian cyst and ovulation disorders. Women with polycystic ovarian disease or ovarian cyst had ovulation disorders which were at risk for infertility.

The present study was in harmony with **Iervolino et al. (2021),** who studied "Natural molecules in the management of Polycystic Ovary Syndrome (PCOS)" and noted that, there was a highly statistical significant relation between women' polycystic ovarian disease and ovulation disorders

Conclusion

There was a highly statistically significant relation between the studied women's type of

labor and their chronic disease there was a highly statistical significant relation between studied women' body mass index and regularity of menstruation. there was a highly statistical significant relation between studied women' psychological pressure and regularity of menstruation. Women under psychological pressure had irregular menstrual cycle (> 45 days) which were at risk for infertility. There was a highly statistical significant relation between studied women' body mass index and chronic diseases. Obese women had chronic diseases which were at risk for infertility.

Recommendation:

Educational program for women to raise their awareness about secondary infertility related factors should be a priority to ensure early diagnosis of the disease.

References:

A.Benksim, N.Elkhoudri, A.Addi, A.Baali, & M.Cherkaoui. (2018). Difference between primary and secondary infertility in Morocco: frequencies and associated factors. International journal of fertility & sterility.vol.12(2),pp.142,2018.

A.Elnour, M.Javed & S. Elkhier, . (2021). Comparison of prolactin, follicle-stimulating hormone, luteinizing hormone, estradiol, thyroid-stimulating hormone, free thyroxine and body mass index between infertile and fertile Saudi women. Obstet Gynecol Int.vol.J, 12(2),pp.119-122,2021.

Abd-Elaziz, D., Mahmoud, R., Badawy, M., & Mohammad, A. (2021). Comparative study between hysteroscopy and transvaginal ultrasound in evaluation of unexplained infertility. Al-Azhar Assiut Medical Journal, 19(1), 192

Abd-Elaziz, R.Mahmoud, M.Badawy & A.Mohammad. . (2021). Comparative study

between hysteroscopy and transvaginal ultrasound in evaluation of unexplained infertility. Al-Azhar Assiut Medical Journal.vol.19(1),pp.192-210,2021.

Aboelroose, ZM.Ibrahim, EH.Madny, AM.Elmazzahy, OT. Taha, (2020). A randomized clinical trial of sildenafil plus clomiphene citrate to improve the success rate of ovulation induction in patients with unexplained infertility. Int J Gynaecol Obstet .vol.150(1),pp.72-76, 2020.

Adofo, J.Dun-Dery, M.Kotoh, F.Dun-Dery, A.Avoka, & E.Ashinyo. **. (2021).** Fear of infertility limits contraceptive usage among first-time mothers in Ghana: A cross-sectional study. SAGE open medicine.vol.9, 20,pp.520-600,2021.

Akalewold, M., Yohannes, W., Abdo, A., Hailu, Y., & Negesse, A. (2022). Magnitude of infertility and associated factors among women attending selected public hospitals in Addis Ababa, Ethiopia: a cross-sectional study. BMC Women's Health, 22(1), 1-11

C. R.Giviziez, E. G. D. M.Sanchez, Y. A. R. D.Lima, , & M. S. Approbato, . (2022).. Association of Overweight and Consistent Anovulation among Infertile Women with Regular Menstrual Cycle: A Case-control Study. Revista Brasileira de Ginecologia e Obstetrícia.vol.43,pp.834-839,2022.

Elnour, A., Javed, M., & Elkhier, S. (2021). Comparison of prolactin, follicle-stimulating hormone, luteinizing hormone, estradiol, thyroid-stimulating hormone, free thyroxine and body mass index between infertile and fertile Saudi women. Obstet Gynecol Int J, 12(2), 119-122

F.Tabassum, C.Jyoti, H. H.Sinha, K.Dhar & M. S. Akhtar. . (2021). Impact of polycystic ovary syndrome on quality of life of women in

correlation to age, basal metabolic index, education and marriage. PloS one.vol.163,pp.247-486, (2021)

Giviziez, C. R., Sanchez, E. G. D. M., Lima, Y. A. R. D., & Approbato, M. S. (2022). Association of Overweight and Consistent Anovulation among Infertile Women with Regular Menstrual Cycle: A Case-

Husain, W., & Imran, M. (2021). Infertility as seen by the infertile couples from a collectivistic culture. Journal of Community Psychology, 49(2), 354-360

J.Cai, L.Liu, X.Jiang, P. Li, A.Sha & J.Ren. (2021). Low body mass index is associated with ectopic pregnancy following assisted reproductive techniques: a retrospective study. BJOG: An International Journal of Obstetrics & Gynaecology.vol.128(3),pp.540-550,2021.

K.Berjis, A.Azmodeh, N.Salsabili, E.Mostafavi, M.Moaya & M. S.Ghiasi, **. (2021).** The relationship between body mass index and semen quality and sex hormones among infertile men. International Journal of Frontier Research in Science.vol.1(1) ,pp.40-50,2021.

Kazemi, M., McBreairty, E., Chilibeck, D., Pierson, A., Chizen, R., & Zello, A. (2021). Knowledge, attitudes, and barriers towards dietary pulse consumption in women with polycystic ovary syndrome participating in a multi-disciplinary lifestyle intervention to improve women's health. Sexes, 2(1), 88-103

Ljungbeck, S.Forss, H.Finnbogadóttir, & E.Carlson. (2020). Content in nurse practitioner education–A scoping review. Nurse Education .vol. 10,pp.46-50,2020.

M.Iervolino, E.Lepore, G.Forte, A. S.Laganà, G.Buzzaccarini & V. Unfer, (2021). Natural molecules in the management

of Polycystic Ovary Syndrome (PCOS): an analytical review. Nutrients.vol.13(5),pp.16-77,2021.

M.Mansouri, Z.Heydar, R.Lotfi, M.Rahimzadeh Kiwi & T.Tahamtan,. (2021). The Relationship Between Sexual and Marital Satisfaction Level and the Causes of Infertility in Infertile Couples who Referred to Nahal Infertility center in Alborz Province. Alborz University Medical Journal.vol.11(1),pp.34-34,2021.

Ma, J., Zhang, Y., Bao, B., Chen, W., Li, H., & Wang, B. (2021). Prevalence and associated factors of erectile dysfunction, psychological disorders, and sexual performance in primary vs. secondary infertility men. Reproductive Biology and Endocrinology, 19(1), 1-10.

Makwe, C., Ugwu, O., Sunmonu, H., Yusuf-Awesu, A., Ani-Ugwu, N. K., & Olumakinwa, E. (2021). Hysterosalpingography findings of female partners of infertile couple attending fertility clinic at Lagos University Teaching Hospital. The Pan African Medical Journal, 40 Nigeria

N.Wendland , J.Opydo-Szymaczek, D.Formanowicz , A.Blacha, G.Jarząbek-Bielecka & M.Mizgier. (2021). Association between metabolic and hormonal profile, proinflammatory cytokines in saliva and gingival health in adolescent females with polycystic ovary syndrome. BMC Oral Health.vol. 21(1),pp.1-10,2021.

Olarinmoye, A., Ajao, O., Eniade, D., Ekwonwa, E., Olasunkanmi, A., & Ogenma, U. (2021). Infertility and Its Associated Factors among Women Attending Selected Health Facilities in Boripe Local Government Osun State. Infertility, 33(3). 14

R.KaboodMehri, Z. Z.Sorouri, S. H.Sharami, B S. E.agheri, S.Yazdipaz, , & S.Doaei. (2021). The association between the levels of anti-Müllerian hormone (AMH) and dietary intake in Iranian women. Archives of Gynecology and Obstetrics.vol.304(3),pp.687-694,2021.

Saeed, N. A. H. A. A., Zabbon, A. A., & Elhaboby, B. T. (2022). Women's Obesity Correlated With Chronic Diseases And Reproductive Dysfunction. A review. Journal of Education and Scientific Studies, 2(19)

World Health Organization ((WHO), (2021). Infertility, available at https://www.who.int/health-topics/infertility.

دراسة عوامل الخطر المرتبطة بالعقم الثانوي بين النساء المصابات بالعقم اللائي يترددن على عيادة العقم

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العقم هو مشكلة صحية عامة خلال سن الإنجاب ، والعقم الثانوي هو عدم القدرة على الإنجاب في الزوجين اللذين كان لهما على الأقل حملًا واحدًا ناجحًا في الماضي ، وكان الهدف من الدراسة هو دراسة عوامل الخطر المرتبطة بالعقم الثانوي لدى النساء المصابات بالعقم. حضور عيادة العقم. وتم استخدام تصميم بحث وصفي لإجراء هذه الدراسة. وقد أجريت هذه الدراسة في العيادة الخارجية لأمراض النساء والتوليد في مستشفى جامعة بنها ومستشفى بنها التعليمي على عينة هادفة في الدراسة (80 سيدة). واوضحت الدراسة إلى أن عدم انتظام الدورة الشهرية ، وزيادة الوزن ، والضغط النفسي ، والاضطرابات الهرمونية ، واضطرابات الإباضة ، وأمراض تكيس المبايض ، وكيس المبيض ، كانت من بين عوامل الخطر الشائعة المرتبطة بالعقم الثانوي. كما اوصت الدراسة بأنه يجب أن يكون البرنامج التثقيفي للنساء لزيادة وعيهن حول العوامل المرتبطة بالعقم الثانوي أولوية لضمان التشخيص المبكر للمرض.