



## PREVALENCE AND RISK FACTOR OF OVARIAN CYST AMONG WOMEN

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Article History: Received: 15.04.2023

Revised: 25.05.2023

Accepted: 30.05.2023

### Abstract

**Background:** Ovarian cysts may be fluid-filled. 10-15% of reproductive-age women have functional cysts. Hormonal contraceptives, obesity, PCOS, endometriosis, and ageing cause ovarian cysts. Ovarian cysts, infertility, Lynch syndrome, and clomiphene and tamoxifen in the family may increase risk. Most ovarian cysts are harmless. Large cysts or ruptures may cause pelvic pain, bloating, and bladder issues. Cysts twist or explode, producing severe pain and internal bleeding.

**Methods:** The Zagazig University Obstetrics and Gynecology Nursing Department conducted this research from March 2022 to September 2022. 200 people were studied. Patients reported demographic, medical, obstetric, and gynaecological histories. Each patient had CBC, Estrogen, and Progesterone checked. A thorough physical check and pelvic ultrasound may reveal ovarian cysts. CT or MRI may have assessed the cyst. Repeated ultrasounds may have observed a little, asymptomatic cyst. If the cyst was large or symptomatic, a biopsy may have shown cancer.

**Results:** Ovarian cyst patients had greater BMI, family history, and ovarian surgery. Ovarian cysts had greater comorbidities. Ovarian cysts raised oestrogen and diminished progesterone. Ovarian cyst diagnosis was strongly connected with BMI, past ovarian surgery, family history of cysts, DM, HTN, obesity, infertility, and irregular menses. Platelets, progesterone, and ovarian cyst diagnosis inversely linked.

**Conclusion:** There was significant positive correlation between ovarian cyst diagnosis and BMI, previous ovarian surgery, family history of ovarian cysts, DM, HTN, obesity, infertility and irregular menses. There was significant negative correlation between platelets count and progesterone and ovarian cyst diagnosis.

**Keywords:** Prevalence, Risk Factor, Ovarian Cyst, marry.

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DOI: 10.31838/ecb/2023.12.5.330

### 1. INTRODUCTION

Ovarian cysts are fluid-filled sacs that can develop on the ovaries. They are common among women of reproductive age, and while most cysts are benign, some can be cancerous (Borş & Borş, 2020). The prevalence of ovarian cysts among married women varies depending on the population being studied, but overall, it is estimated that at least 10-15% of women of reproductive age have at least one functional cyst at some point in their lives. One of the main risk factors for the development of ovarian cysts is the use of hormonal contraceptives (Nazir et al., 2018). These types of contraceptives, such as birth control pills, work by altering the hormonal balance in the body and can lead to the formation of cysts on the ovaries.

Additionally, women who are overweight or obese are also at an increased risk of developing ovarian cysts due to the hormonal changes that occur in

these individuals. Another risk factor for the development of ovarian cysts is the presence of polycystic ovary syndrome (PCOS) (Zeng et al., 2022). This condition is characterized by the formation of multiple small cysts on the ovaries and is associated with an imbalance of hormones, including an excess of androgens (male hormones). Women with PCOS have a higher risk of developing ovarian cysts, as well as other health problems such as infertility, diabetes, and heart disease (Purohit et al., 2022).

A history of endometriosis, a condition in which tissue similar to the lining of the uterus grows outside of it, is another risk factor for ovarian cysts. This tissue can form cysts on the ovaries and can also lead to chronic pelvic pain, heavy periods and infertility. Age is another important risk factor for ovarian cysts (Arafah et al., 2021). The incidence of ovarian cysts increases as women age, and the risk of developing a cyst is highest in women who

are approaching menopause. However, most cysts in postmenopausal women are benign and likely do not require treatment. Other factors that can increase the risk of developing ovarian cysts include a family history of the condition, infertility, and certain genetic conditions such as Lynch syndrome, a genetic disorder that increases the risk of certain types of cancer (Mobeen & Apostol, 2020).

Certain medications, such as clomiphene, which is used to treat infertility, and tamoxifen, which is used to treat breast cancer, have also been linked to an increased risk of developing ovarian cysts. It is important to note that most ovarian cysts are benign and do not cause any symptoms. However, if a cyst becomes large or ruptures, it can cause symptoms such as pelvic pain, bloating, and difficulty emptying the bladder. In rare cases, a cyst can also twist or rupture, which can lead to severe pain and internal bleeding. In these cases, immediate medical attention is required (Higgins, 2020).

The present study is aimed to detect prevalence and risk factor of ovarian cyst among married women.

## 2. MATERIAL AND METHODS

This study was done in Obstetrics and Gynecology department, Zagazig University from March 2022 to September 2022. The study was conducted on 200 subjects.

### • Study population:

The study population was a sample of women of reproductive age (15-44 years).

**Inclusion criteria:** Women who are married and of reproductive age (15-44 years) and Women who are willing to participate in the study and sign an informed consent form.

**Exclusion criteria:** Women who have a history of ovarian cysts or any other gynecological or medical condition that might affect the study results, Women who are pregnant or planning to become

pregnant and Women who are unwilling or unable to complete the study.

Demographic data, medical, obstetrics and gynecological history were obtained from each patient.

Laboratory evaluation including CBC, Estrogen, Progesterone were evaluated for each patient.

The diagnosis and evaluation of ovarian cysts typically began with a thorough physical examination and pelvic ultrasound, which could accurately identify the presence and size of a cyst. Other imaging tests such as CT or MRI may also have been used to further evaluate the cyst.

If the cyst was small and asymptomatic, it may have been monitored with repeat ultrasound scans to ensure that it was not growing or causing any problems. If the cyst was large or causing symptoms, a biopsy may have been performed to determine if it was malignant or benign.

**Ethical Approval:** The study was approved by the Ethics Board of the University and an informed written consent was taken from each participant in the study. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

### STATISTICAL ANALYSIS:

IBM-SPSS version 24 was used for data analysis (May 2016). Kristall-Wallis and Wilcoxon's tests, as well as Spearman's correlation and logistic regression analysis, were used to determine statistical significance. Based on the type of data it contained, each variable was analysed (parametric or not). We considered results statistically significant if the P-values were less than 0.05. (five percent).

## 3. RESULTS

**Table (1):** Demographic data of included subjects of the study

Parameter	Value (N = 200)
Age	28.9 ± 2.45
Residence	
• Urban	124 (62%)
• Rural	76 (38%)
BMI (Kg/m <sup>2</sup> )	25.07 ± 2.34
Co-Morbidities	
• DM	121 (60.5%)
• HTN	98 (49%)
• Obesity	57 (28.5%)
• Infertility	74 (37%)
• Irregular Menses	62 (31%)
Family history of ovarian cysts	66 (33%)
Ovarian Cyst	36 (18%)

The subjects' mean age is 28.9 years with a standard deviation of 2.45. The majority of the subjects (62%) reside in urban areas, while the remaining 38% reside in rural areas. The Body Mass Index (BMI) of the subjects is 25.07 kg/m<sup>2</sup> with a standard deviation of 2.34. The study also reports on the co-morbidities of the subjects, with

the majority of the subjects (60.5%) having diabetes mellitus (DM), 49% having hypertension (HTN), 28.5% having obesity, 37% having infertility, and 31% having irregular menses. Additionally, the study reports that 33% of the subjects have a family history of ovarian cysts and 18% have an ovarian cyst.

**Table (2):** Demographic data of included subjects diagnosed with ovarian cyst and those who were not diagnosed.

	Cases Diagnosed with Ovarian Cyst (N = 32)	Cases without Ovarian Cyst (N = 168)	P. Value
<b>Age</b>	28.47 ± 4.52	28.98 ± 1.83	0.28449
<b>Residence</b>			
• <b>Urban</b>	19 (59.38%)	105 (62.5%)	0.7385
• <b>Rural</b>	13 (40.63%)	63 (37.5%)	
<b>BMI (Kg/m<sup>2</sup>)</b>	27.69 ± 3.02	24.58 ± 1.81	<0.0001*
<b>Previous ovarian surgery</b>	18 (56.25%)	43 (25.6%)	0.0006*
<b>Family history of ovarian cysts</b>	24 (75%)	42 (25%)	<0.0001*

BMI, previous ovarian surgery and prevalence of family history of ovarian cysts was significantly increased in cases diagnosed with ovarian cyst

were significantly increased in cases diagnosed with ovarian cyst.

**Table (3):** Comorbidities of included subjects diagnosed with ovarian cyst and those who were not diagnosed

	Cases Diagnosed with Ovarian Cyst (N = 32)	Cases without Ovarian Cyst (N = 168)	P. Value
<b>DM</b>	26 (81.25%)	95 (56.55%)	0.009*
<b>HTN</b>	27 (84.38%)	71 (42.26%)	<0.0001*
<b>Obesity</b>	30 (93.75%)	27 (16.07%)	<0.0001*
<b>Infertility</b>	22 (68.75%)	52 (30.95%)	<0.0001*
<b>Irregular Menses</b>	30 (93.75%)	27 (16.07%)	<0.0001*

HTN: Hypertension | DM: Diabetes Mellitus  
Different comorbidities were more prevalent in cases diagnosed with ovarian cyst.

**Table (4):** Laboratory evaluation of included subjects diagnosed with ovarian cyst and those who were not diagnosed

	Cases Diagnosed with Ovarian Cyst (N = 32)	Cases without Ovarian Cyst (N = 168)	P. Value
<b>Hgb (g/dl)</b>	14.23 ± 1.58	14.06 ± 1.77	0.61288
<b>RBCs (10<sup>6</sup>/microliter)</b>	4.93 ± 0.2	5.04 ± 0.38	0.08998
<b>WBCs (*10<sup>3</sup>/microliter)</b>	9.01 ± 1.74	8.33 ± 2.76	0.1779
<b>Plt (*10<sup>3</sup>/ microliter)</b>	293.31 ± 38.19	305.65 ± 38.08	0.09462
<b>Estrogen (pg/mL)</b>	291.53 ± 16.96	190.94 ± 11.77	<0.0001*
<b>Progesterone (ng/mL)</b>	0.04 ± 0.01	2.65 ± 0.37	<0.0001*

Estrogen was significantly increased in cases diagnosed with ovarian cyst and progesterone

significantly decreased in cases diagnosed with ovarian cyst.

**Table (5):** Correlation between ovarian cyst and different parameters

	Ovarian Cyst Diagnosis	
	r	P. Value
Age	-0.07605	0.28449
BMI	.489**	<0.0001*
Previous ovarian Surgery	.244**	0.0005*
Family history of ovarian cysts	.390**	<0.0001*
DM	.185**	0.00863*
HTN	.309**	0.00001*
Obesity	.631**	<0.0001*
Infertility	.287**	0.00004*
Irregular Menses	.631**	<0.0001*
Hgb	-0.06043	0.39533
RBCs	-0.06045	0.39517
WBCs	0.066369	0.35043
PLT	-.141*	0.04605*
Estrogen	.949**	<0.0001*
Progesterone	-.940**	<0.0001*

There was significant positive correlation between ovarian cyst diagnosis and BMI, previous ovarian surgery, family history of ovarian cysts, DM, HTN,

#### 4. DISCUSSION

Ovarian cysts are sacs filled with fluid that form on the ovaries. They are a common gynecological condition and frequently present asymptotically. Based on their origin and histological characteristics, ovarian cysts can be categorized into functional cysts, cystadenomas, and endometrioid cysts. In the majority of instances, ovarian cysts are benign and resolve spontaneously. However, some patients may experience symptoms such as pelvic pain, abdominal distension, or dyspareunia. Rarely, ovarian cysts may rupture or undergo torsion, resulting in severe pain and potential for serious complications (Zahidy and Abdulkareem, 2018).

Our results showed that BMI, previous ovarian surgery, comorbidities and prevalence of family history of ovarian cysts was significantly increased in cases diagnosed with ovarian cyst.

Our results were consistent with Yousaf et al. (2004) who reported that results of their study reflected a positive association between functional ovarian cyst and obesity. Obesity has been linked to an increased risk of developing ovarian cysts. This may be due to the production of increased levels of hormones such as insulin and estrogen, which can alter the normal functioning of the ovaries and increase the likelihood of cyst formation.

Our results were in agreement with Abduljabbar et al. (2015) who reported that ovarian cysts caused the heredity of families experiencing cysts.

In the current study, we found that Estrogen was significantly increased in cases diagnosed with

obesity, infertility and irregular menses. There was significant negative correlation between platelets count and progesterone and ovarian cyst diagnosis.

ovarian cyst and progesterone significantly decreased in cases diagnosed with ovarian cyst.

Estrogen stimulates endometrial proliferation and follicular growth, while progesterone exerts an inhibitory effect on follicular growth and promotes endometrial thickening. Imbalanced estrogen and progesterone levels, characterized by heightened estrogen and diminished progesterone, may result in persistent follicular growth and ovarian cyst formation. The significant estrogen surge and progesterone deficit in patients diagnosed with ovarian cysts may disrupt normal ovarian function and enhance the susceptibility to ovarian cystogenesis (Farahani and Datta, 2016).

Our results were consistent with previous reports from Taran et al. (2006), De Vries et al. (2006) and Mandai et al. (2012).

In this study, we found that there was significant positive correlation between ovarian cyst diagnosis and BMI, previous ovarian surgery, family history of ovarian cysts, DM, HTN, obesity, infertility and irregular menses. There was significant negative correlation between platelets count and progesterone and ovarian cyst diagnosis.

Our results were consistent with Simcock and Anderson (2005) who reported a significant positive association between family history and increased risk of ovarian cysts. Similar results were reported by Farghaly (2014).

Moreover, our results were consistent with Kotrikadze et al. (2006) who reported a significant association between deficit of progesterone and increased risk of ovarian cysts.

However, our results were inconsistent with Nomelini et al. (2019) who reported that higher

values of platelets were found in ovarian cyst patients ( $P = 0.0132$ ).

## 5. CONCLUSION

There was significant positive correlation between ovarian cyst diagnosis and BMI, previous ovarian surgery, family history of ovarian cysts, DM, HTN, obesity, infertility and irregular menses. There was significant negative correlation between platelets count and progesterone and ovarian cyst diagnosis.

**Conflict of interest:** The authors declare no conflict of interest.

**Sources of funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Author contribution:** Authors contributed equally in the study.

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