

Quality of life among women with Polycystic Ovarian Syndrome at Suez Canal University Hospital

Amany Nabawy Abdelaziz¹, Asmaa Abobakr Ibrahim², Nevein Mohamed Mohamed³, Inas Mohamed Abdallah⁴

1. Demonstrator in Obstetrics and Gynecological Nursing, Faculty of Nursing, Suez Canal University, Egypt.
2. Lecturer of Obstetrics and Gynecological Nursing, Faculty of Nursing, Suez Canal University, Egypt.
3. Assist. Professor of Obstetrics and Gynecological Nursing, Faculty of Nursing, Suez Canal University, Egypt.
4. Professor of Obstetrics and Gynecological Nursing, Faculty of Nursing, Suez Canal University, Egypt.

Abstract

Background: Polycystic ovarian syndrome (PCOS) is a common heterogeneous disorder with uncertain-etiology. PCOS is associated with a complex symptomatology and various clinical presentations, resulting in worsened quality of life (QOL). **Aim of the study:** To assess the quality of life among women with Polycystic Ovarian Syndrome at Suez Canal university hospital. **Research design:** A descriptive design was utilized in this study. **Study sample:** A convenient sample of 115 women diagnosed with Polycystic Ovarian Syndrome was selected from outpatient clinic of gynecology at Suez Canal University Hospital in Ismailia Governorate. **Tools of data collection:** A Structured interviewing questionnaire about personal, menstrual, obstetric, and gynecological history, and quality of life questionnaire for women with polycystic ovarian syndrome were used for data collection. **Results:** - Almost half (49.6%) of the studied women were nulligravida, 67.8% of them were nullipara and more than two-thirds (70.4%) didn't have children, 71.3% had an irregular menstrual cycle and the majority of them (87.8%) suffered from infertility. Less than half of the studied women (44.4%) had poor quality of life, more than half (52.1%) had average quality of life while only 3.5% had good quality of life. **Conclusion:** PCOS has a negative impact on women's overall QOL. PCOS affects all the domains of QOL by different grades as infertility was the first most important contributor to a reduced QOL score followed by menstrual irregularities then weight problems. **Recommendations:** Upgrading women's knowledge concerning PCOS toward lifestyle modifications with a periodic screening of women for early detection and management of PCOS. Health promotion programs through different media to increase public awareness about this syndrome.

Keywords: Polycystic ovarian syndrome, Quality of life, lifestyle modifications

1. Introduction

Polycystic ovarian syndrome (PCOS) is considered the most common endocrine disorder characterized by chronic ovulatory dysfunction, hyperandrogenism and polycystic ovarian morphology. It affects up to 25% of women of reproductive age

worldwide (*Iervolino et al., 2021*).

PCOS is a major public health concern because of its reproductive, metabolic, and psychosocial features which considered the main contributor to overall diminished women's quality of life. PCOS can cause a variety of symptoms, including irregular menses, hirsutism, acne, subfertility, and

pregnancy problems. Furthermore, PCOS is associated with psychological disorders such as anxiety and depression as well as low self-esteem (*Fatemeh et al., 2021*). As, it has no any constant treatment due to its multifaceted features, the management of PCOS is directed toward enhancing women's QOL by symptomatic alleviation and prevention of complications (*Louwers & Laven, 2020*).

Quality of life (QOL) is defined as people's "perceptions of their position in life according to culture and value systems wherever they settle associated with their goals, concerns, standards and expectations and their perception of the consequences and treatments for any disease that may have an impact on their life". So, QOL is a broad multidimensional concept that involves many vital aspects of human life such as physical, psychological, social, and sexual domains (*Graziani & Tsakos, 2020*). Also, Evaluation of quality of life aspects has become an important priority today and is considered an important outcome variable in medical and nursing research and practice (*Karjula, 2021*).

PCOS is a public health concern that undermines women's QOL. Therefore, studying the quality of life for women allows health care providers as nurses to assess the

impact of PCOS. Also, isolated medical treatment is ineffective in controlling the clinical status of PCOS whereas nurses play a vital role on women with PCOS through raising awareness regarding this syndrome and helping women to understand the nature of the disease and its related risk factors to avoid long-term health problems through education. The role of nurses for women with PCOS is mainly towards lifestyle modifications, such as weight loss and stress management, which are critical in the management of this disease (*Mohamed Reda et al., 2022*).

Significance of the Study:

Assessing women's quality of life is an important step to design effective nursing implications for women with PCOS. Because of there is no any researches conducted at Suez Canal University to assess the quality of life for women with PCOS, so this study aimed to assess the quality of life among women with Polycystic Ovarian Syndrome at Suez Canal University Hospital.

2. The aim of the study:

This study aimed to assess the quality of life among women with Polycystic Ovarian Syndrome at Suez Canal University Hospital.

Objectives of the study:

- Assess physical aspect of quality of life among women diagnosed with Polycystic Ovary Syndrome.
- Assess psychological aspect of quality of life among women diagnosed with Polycystic Ovary Syndrome.
- Assess social aspect of quality of life among women diagnosed with Polycystic Ovary Syndrome.
- Assess sexual aspect of quality of life among women diagnosed with Polycystic Ovary Syndrome.

Research question:

Does Polycystic Ovary Syndrome affect women's quality of life?

3. Subject and Methods

Study design:

A descriptive study design was applied in this study.

Study setting:

The study was carried out at the outpatient clinic of gynecology at Suez Canal University hospital in Ismailia Governorate.

Study subjects:

A convenient sample of 115 women diagnosed with Polycystic Ovarian Syndrome was selected to participate in the study. Sample size was calculated according to the following equation (*Dawson and Trapp, 2004*):

$$n = \left[\frac{Z_{\alpha/2}}{E} \right]^2 * P(1 - P)$$

Where :

n = sample size

Z α /2 = 2.58 (The critical value that divides the central 99% of the Z distribution from the 1% in the tail)

P = the prevalence of the outcome variable=22% (*Zaki et al., 2015*)

E = the margin of error (=width of confidence interval)=0.1

Tools of data collection:

Tool (1): A Structured interviewing questionnaire (Lobo et al., 2017) which included personal, menstrual, obstetrical and gynecological history.

Tool (2): Quality of Life Questionnaire for women with Polycystic Ovarian Syndrome (PCOSQ): The questions were developed by the researcher based on an extensive literature review (*Williams et al., 2018*), (*Nasiri-Amiri et al., 2016*), (*Guyatt et al., 2004*), (*Jones et al., 2004*) & (*Cronin et al., 1998*) to assess the health-related quality of life aspects for women after affection by PCOS. It consisted of 55 questions, every woman had three responses for each statement to choose from severe problems /all of the time (always suffered from problems), some problems

/some of the time (suffered sometimes from problems) and no problems /none of the time (not suffered from any problems) as described QOL aspects which divided into four parts:-

Part 1: included physical functioning toward Polycystic Ovarian Syndrome as (hirsutism, body weight, and menstrual problems impact on physical functioning) (21 questions).

Part 2: included psychological functioning toward Polycystic Ovarian Syndrome as (emotional disturbance assessment and infertility impact on psychological functioning) (17 questions).

Part 3: included social functioning and personal relationships toward Polycystic Ovarian Syndrome (12 questions).

Part 4: included sexual functioning toward Polycystic Ovarian Syndrome (5 questions).

Scoring system:

The response of each question on PCOSQ was recorded on a 3-point scale in which score (1) represents no problem "best function", score (2) represents some problems, and score (3) represents severe problems "poorest function ". The total score of PCOSQ was classified into three levels as the following according to (*Elsaied et al., 2020*):

- Low score (< 50%) indicated a little impact of PCOS on women's QOL and was

considered **good** QOL.

- Moderate score (50% - < 75%) indicated a moderate impact of PCOS on women's QOL and was considered **average** QOL.

- High score ($\geq 75\%$) indicated a severe impact of PCOS on women's QOL and was considered **poor** QOL.

Tool validity and reliability:

The tool of data collection was already tested for its content validity with a content validity index (**0.8**). The tool was evaluated for its content validity, comprehensiveness, and applicability by a jury consisting of five experts of obstetric and gynecological professors in the medical and nursing field who revised the tools, and modifications were done according to their opinion. Tool reliability was assessed by the researcher for testing the internal consistency of the instrument by measuring the related Cronbach's alpha and its value was (**0.924**).

Field work:

Data was collected within 6 months starting in April 2021 and ending in September 2021. Data was collected 3 days/week from 9 am to 1 pm from women visiting an outpatient gynecological clinic at Suez Canal University Hospital. The researcher selected the women according to the pre-

determined criteria. The researcher introduced herself and explained the purpose and nature of the study for each woman. Written consent was obtained from all women to participate in the study. Data was collected using the developed tools in simple Arabic language through face-to-face interviews in a private room to minimize distraction and ensure privacy. The interview lasted for 15-20 minutes for each woman.

Pilot study:

A pilot study was carried out on 10% of the sample (12 women with PCOS) to examine the applicability and ensure the clarity of the tools. It was carried out for one month. The sample involved in the pilot study was excluded from the study sample to ensure the stability of answers.

Ethical considerations:

Formal approval from the ethical committee in the Faculty of Nursing at Suez Canal University was obtained for conducting the study by code 93 on date 30/11/2020. All ethical considerations were taken into account for privacy and confidentiality. Written consent was obtained from the selected women after a brief explanation of the nature of the study and women's reassurance that the data obtained will be confidential and used only for the

research purpose and informed about her right to withdraw from the study at any time she wants.

Data analysis:

Collected data through the questionnaire were arranged, coded, entered, and analyzed using Statistical Package for the Social Sciences (SPSS version 21) program. Descriptive statistics, such as mean, standard deviation (SD), frequency, and percentage were used to report personal data, history and quality of life scale.

4. Results

Table (1): reveals that mean \pm SD of age for studied women was 27.96 \pm 5.52 years old and mean \pm SD of BMI was 30.16 \pm 4.36. It is noticed that more than two-thirds (71.3%) of the studied women had an irregular menstrual cycle. Almost half (49.6%) of them were nulligravida, 67.8% were nullipara and more than two-thirds (70.4%) of women didn't have children. More than one-quarter (27.8%) of the studied women had a history of abortion. Regarding suffering from infertility approximately half (49.5%) of the studied women had primary infertility whereas more than one-third (38.3%) of them had secondary infertility.

Table (2): shows that most of women had

PCOS symptoms (99.1%). Regarding these symptoms, the studied PCOS women had irregular menstrual cycle or heavy menstrual flow than usual, mood swings, excess hair, and obesity represented 92.1%, 82.5%, 81.6%, and 70.2% respectively.

Table (3): Regarding the hirsutism problem, less than half of the studied women (40%) had poor QOL towards the growth of visible hair on the chin and more than one-third of the studied women (37.4%) had severe impact of abnormal hair growth on women appearance. Regarding weight problems, nearly half of studied women (45.2) had poor QOL in terms of suffering from abdominal obesity (63.5%) and felt frustrated in trying to lose weight (46.1%). Regarding menstrual problems, more than half of studied women (54.5) had poor QOL in terms of headache, back & leg pain (70.5%), irregular menstruation (68.7%), menstrual cramps (63.5%) & late menstrual period (47.8%).

Table (4): Regarding emotional disturbance assessment, there was a high percentage of poor QOL in terms of worried (54.8%), moody (48.7%), nervous or tearful on the initial diagnosis with PCOS (47.8%), easily tired (63.5%), and felt depressed (34.8%). Regarding infertility impact, more than half of

the studied women (58.2%) had poor QOL in terms of concerned or worried about infertility problems, felt afraid of not being able to have children, felt sad or trouble toward infertility threat and frustrated toward being misunderstood by others represented 74.3%, 72.3%, 67.3% & 51.5% respectively.

Table (5): shows that approximately two-thirds of the studied women (61.7%) had increased financial burden and nearly half (46.1%) of them had a tendency to loneliness and social isolation all of the time.

Table (6): shows that more than one-third of the studied women (35.7%) had decreased libido due to having PCOS all of the time while less than half of the studied women (48.7%) had average QOL towards reflection or impact of abnormal hair growth on sexual activity and more than half of them (53%) feel unsexy or attractive due to having PCOS.

Figure (1): illustrates the total quality of life of the studied women regarding polycystic ovarian syndrome. Less than half of the studied women (44.4%) had poor quality of life, more than half (52.1%) had average quality of life while only 3.5% had good quality of life.

Discussion

Polycystic ovarian syndrome (PCOS) is a heterogeneous endocrinal-disorder which has a significant negative impact on women's health and quality of life throughout their life course because of the disorder's complexity and its unpleasant features (*Louwers & Laven, 2020*). Therefore, the present study was conducted to assess the quality of life among women with the polycystic ovarian syndrome. It included married women aged 18-45 years.

Regarding the symptoms of PCOS, the current study showed that the majority of the studied women experienced more than one symptom like excess hair, acne, obesity, and menstrual abnormalities which were the most commonly noted symptom. This finding was in line with *Chaudhari et al., (2018)* who found in their study that most of women suffered from more than one symptom like acne, hirsutism, alopecia, and menstrual abnormality which was the most commonly noted symptom in the study population. In addition, *Morshedi et al., (2021)* revealed in their study that the majority of women had experienced hirsutism, irregular menstruation, painful menstruation, and were obese.

Regarding the physical effects of PCOS on the studied women's QOL, the present

study showed that menstrual irregularities and weight problem (obesity) were reported as the most affected domains in worsened QOL than the hirsutism problem. A similar finding was reported by *Yoldemir et al. (2017)* who found that menstrual irregularities were the worst parameter affecting women's QOL. Also, *Fatemeh et al. (2021)* found that menstrual problem was the most affected area in worsened HRQOL than obesity.

On the other hand, our finding is contradicted with *Khomami et al. (2015)* who found that the QOL of Iranian women towards PCOS seems to be more affected by hirsutism's severity compared to other PCOS symptoms. This difference might be due to physical differences between Eastern and Western populations and the usage of new technology for hair removal.

Regarding the hirsutism effect on the physical domain of QOL towards PCOS, the present study showed that more than one-third of studied women have a severe problem with dealing with hirsutism as it is reflected in women's general appearance. Also, not only hirsutism is a major concern for PCOS women, but they spent a lot of time and energy removing excess hair and this aggravates the distress further.

A similar finding was reported by *Naumova, et al. (2021)* whose results showed that the presence of hirsutism is mainly considered to be associated with women's well-being, which can lead women with PCOS to be dissatisfied with their general appearance, and make them feel unfeminine, unattractive and low self-esteem. Also, *Angin, et al. (2019)* and *Böttcher et al. (2018)* found in their study that clinical features of PCOS, particularly hirsutism and obesity, have the greatest impact on QOL and self-perception as they mainly interfere with outer appearance. This also matches with *Kutlu, (2020)* who reported that hirsutism in women with PCOS is significantly more associated with reduced physical dimensions of QOL and sexual dissatisfaction.

The present study showed that OOL in women with PCOS was poor regarding the weight problem as the highest percentage of studied women suffered from abdominal obesity, felt frustrated in trying to lose weight, and had trouble controlling or dealing with weight. These results are in the same line with *Copp et al. (2021)* and *Ee et al. (2020)* who found that the biggest concern reported by women with PCOS was bodyweight problems including trouble dealing with weight and frustration in losing weight. Also, *Barber et*

al. (2019) reported that weight gain has a negative impact on HRQOL in PCOS women.

Regarding the impact of menstrual problems on a physical domain of women's QOL, the present study revealed that there was a high percentage of poor QOL in terms of headache, back & leg pain, irregular menstruation, heavy menstrual flow, menstrual cramps, and abdominal bloating. This finding comes in agreement with *Behboodi Moghadam et al. (2018)* who reported that menstrual dysfunction is considered one of the important hallmarks of PCOS as menstrual irregularity has a negative effect on the HRQOL. In the same line, *Ranasinghe et al. (2021)* found in their study that most women gave a lower rating for irregular menstruation, headaches, abdominal bloating, and menstrual cramps which indicate a worse HRQOL.

Concerning the psychological domain, the present study showed that more than one-third of studied women had poor QOL regarding emotional disturbance assessment as a high percentage of women felt nervous, tearful, worried, moody, and depressed due to having PCOS. These results match with *Chaudhari et al. (2018)* who found that the sum score of the psychological domain

indicated poor HRQOL in women with PCOS. Also, *Light et al. (2021)* reported that women with PCOS experienced a high degree of psychological distress and difficulties coping with their condition.

In the same line, *Asdaq et al. (2020)* reported that the fluctuated mood due to PCOS may probably lead to depression, and this explained the increased risk of depression in women with PCOS. Also, *Gao et al. (2019)* found that women with PCOS, who have a high prevalence of depression and anxiety, are especially at high risk of lower QOL due to psychological discomfort. In addition to, *Yin et al. (2021)* and *Boivin et al. (2020)* who found in their study that women medically confirmed with PCOS suffered from depression, anxiety, and experienced a poor quality of life.

Also, the present study revealed that women with PCOS suffered low self-esteem with undesired changes in appearance and frustration of being misunderstood by others. This result is in agreement with *Sulaiman et al. (2017)* who reported that women with PCOS had high levels of psychological burden with low self-esteem and fluctuating mood.

Regarding infertility impact as the main

part of the psychological domain for women with PCOS, the present study revealed that infertility was the first most important contributor to a reduced HRQOL score followed by menstrual irregularities. More than two-thirds of studied women felt afraid of not being able to have children, sad, troubled, concerned, and worried about infertility threat. This match with *Naumova et al. (2021)* and *Amiri et al. (2019)* who stated similar findings that infertility undoubtedly exacerbates deterioration in the QOL and emotional wellbeing of women with PCOS.

In a similar direction, *Basirat et al. (2020)* stated that a history of infertility in PCOS women was associated with psychosocial distress, anxiety, guilt, depression, low self-esteem, and need for parenthood and others. Also, *Laguitao et al. (2021)* found that infertile PCOS women experience more negative emotional feelings and somatic complaints than women who successfully conceive spontaneously.

Moreover, this finding was in line with *Behboodi Moghadam et al. (2018)* who mentioned that infertility diagnosis is always accompanied by significant psychological distress (infertility stress) including fear of not

having children and sadness or worry due to infertility threats.

Concerning the social QOL domain of quality of life, the current study revealed that nearly half of the studied women had a tendency to loneliness and social isolation. This finding is in agreement with *Patel, (2022)* who stated that PCO interferes with social life. Also, *Tabassum et al., (2021)* showed that PCOS had a negative effect on the social QOL domain. In addition, *Sánchez-Ferrer et al., (2020)* who found that the social relationships of women were significantly influenced by the severity of physical changes of PCOS.

Also, the present study showed that more than half of the studied women suffer an increased financial burden due to PCOS. This matches with *Rodriguez-Paris et al., (2019)* who mentioned the increased economic burden due to cost-effective methods of advanced treatment of PCOS.

Regarding sexual function toward PCO, the present study showed that only less than one-quarter of the studied women had poor sexual-QOL. This matches *Stapinska-Syniec et al., (2018)* who stated that approximately a third of all women assessed their sexual satisfaction level as low. Also, *Habib et al.,*

(2021) mentioned in their study that the average score of sexual function for PCOS women does not indicate a poor or negative result.

The present study finding showed that almost half of studied women had reflection or impact of abnormal hair and overweight on sexuality at some of time. This finding is in agreement with *Naumova et al. (2021)* who mentioned that the sexual disorders increased with the hirsutism severity. Also, *Fliegner et al. (2019)* reported that PCOS obviously has a negative impact on sexual life as obese women with PCOS had less sexual satisfaction, and excessive body hair affects their sexuality. In contrast, *Kaluźna et al. (2021)* found that sexual satisfaction of PCOS women was not influenced by high BMI or hirsutism.

Regarding the total score of the quality of life questionnaire for women with polycystic ovarian syndrome (PCOSQ), the present findings revealed that PCOS has a significant negative impact on studied women's QOL as the following; more than one-half of the studied women suffered from average QOL and less than half of them had poor QOL while only 3.5% had good QOL. A similar finding was reported by *Aliasghari et al.*

(2017) whose results showed that PCOS women were suffered from average quality of life.

Also, our findings seem to be consistent with the results of other researchers like *Bielecka et al. (2021)*, *Yin et al. (2021)*, *Wright et al. (2021)*, and *Boivin et al. (2020)* who found that women with PCOS are experiencing a reduced quality of life. On the other hand, our finding is contradicted with *Atya et al. (2019)* whose results showed that PCOS women were suffered from poor quality of life. This may be due to the difference in residence among the studied women.

From all of the research were conducted to study the quality of life among women with PCOS, nearly all of them agree with the results of current study. To sum up, the current study showed that PCOS have a significant impact on women's quality of life. Furthermore, this impact can be seen in different aspects that vary in degree but share a common attribute. Also, the current study's findings answered the research question, "Does polycystic ovarian syndrome affect women's quality of life?"

5. Conclusion:

Based on the findings of the present study, it can be concluded that PCOS has a negative impact on women's overall QOL. It affects all the domains of QOL by different grades as infertility was the first most important contributor to a reduced health related quality of life score followed by menstrual irregularities then weight problems.

6. Recommendations:

- Organizing educational sessions and development of teaching materials in the form of posters, booklets, and brochures to increase women's awareness about the causes, symptoms, and the management of PCOS and counseling sessions to answer women's questions.
- Health promotion programs and workshops through different media to increase public knowledge about this syndrome and improve QOL for women with PCOS.
- Designing and implementing nurses' educational classes about PCOS to improve their knowledge to activate their role as providers of health care.
- Further research should be conducted with a large sample size in a different setting to assess the effectiveness of methods of treatment on QOL for women with PCOS.

Table (1): Distribution of the studied women according to their personal, menstrual, obstetric, gynecological history (n=115).

Variables	N	%
Age (Years) Mean ±SD	27.96±5.52	
BMI Mean ±SD	30.16±4.36	
Menstrual regularity		
-Regular	33	28.7
-Irregular	82	71.3
Number of Gravidity		
nulligravida	57	49.6
1-3 times	46	40.0
4-6 times	12	10.4
Number of Parity		
nullipara	78	67.8
1-3 times	35	30.4
4-6 times	2	1.7
Number of living children		
None	81	70.4
1-3 child	32	27.8
4-6 child	2	1.7
History of abortions		
No	83	72.2
yes	32	27.8
Did you suffer from infertility?		
None	14	12.2
Primary	57	49.5
Secondary	44	38.3

Table (2): Frequency distribution of the studied women according to PCOS symptoms (n=115).

Variables	N	%
Presence of symptoms of polycystic ovarian syndrome?		
Yes	114	99.1
No	1	0.9
If yes (n=114)*		
Pelvic pain	65	57.0
Polyuria	45	39.5
Dyspareunia	71	62.3
Obesity	80	70.2
Excess hair	93	81.6
Alopecia	49	42.9
Acne	59	51.8
Mood swings	94	82.5

Irregular menstrual cycle or heavy menstrual flow than usual	105	92.1
--	-----	------

*is multiple response

Table (3): Distribution of the studied women according to their physical domain of quality of life (n=115)

Items	Severe problem (poor QOL)		Some problem (average QOL)		No problem (good QOL)	
	N	%	N	%	N	%
Hirsutism Problem						
-Growth of visible hair on your body	35	30.4	54	47.0	26	22.6
-Growth of visible hair on upper lip	38	33.0	45	39.1	32	27.8
-Growth of visible hair on face	39	33.9	47	40.9	29	25.2
-Growth of visible hair on chin	46	40.0	42	36.5	27	23.5
-Confused or embarrassed about excessive body hair	44	38.3	44	38.3	27	23.5
-Impact of abnormal hair growth on women appearance	43	37.4	47	40.9	25	21.7
-Spent a lot of time and energy removing excess hair	38	33.0	50	43.5	27	23.5
Average percent	35.2		40.8		24.0	
Weight problem						
-Increase appetite and body weight	43	37.4	36	31.3	36	31.3
-Suffering from abdominal obesity	73	63.5	22	19.1	20	17.4
-Has trouble control or deal with your weight	48	41.7	29	25.2	38	33.0
-Felt frustrated in trying to lose weight	53	46.1	32	27.8	30	26.1
-Have difficulties in staying on ideal weight	51	44.3	28	24.3	36	31.3
-Worried or concerned as result of being overweight	44	38.3	31	27.0	40	34.8
Average percent	45.2		25.8		29	
Menstrual Problems						
-Headache, back & leg pain	81	70.5	19	16.5	15	13.0
-Menstrual cramps	73	63.5	33	28.7	9	7.8
-Irregular menstruation	79	68.7	24	20.9	12	10.4
-Abdominal bloating	70	60.9	14	12.1	31	27.0
-Late menstrual period	55	47.8	21	18.3	39	33.9
-Have skin changes like fatty or skin pills	41	35.7	35	30.4	39	33.9
-Heavy menstrual flow	50	43.5	21	18.3	44	38.2
-Blood clots during menstruation	52	45.2	31	27.0	32	27.8
Average percent	54.5		21.5		24	

Table (4): Distribution of the studied women according to their psychological domain of quality of life (n=115)

Items	All of time (poor QOL)		Some of time (average QOL)		No time (good QOL)	
	N	%	N	%	N	%
Emotional disturbances assessment						

-Nervous or tearful on the initial diagnosis with PCOS	55	47.8	32	27.8	28	24.3
-Low self-esteem toward having PCOS	37	32.2	35	30.4	43	37.4
-Easily tired	73	63.5	20	17.4	22	19.1
-Had undesired change in appearance as result of PCOS	42	36.5	51	44.3	22	19.1
-Feel depressed as result of PCOS	40	34.8	37	32.2	38	33.0
-Worried due to having PCOS	63	54.8	38	33.0	14	12.2
-Moody as a result of having PCOS	56	48.7	43	37.4	16	13.9
-Self-conscious as a result of having PCOS	31	27.0	40	34.8	44	38.3
-Feel lack of control over the situation of having PCOS	39	33.9	49	42.6	27	23.5
-Feel frightened of getting cancer	24	20.9	47	40.9	44	38.3
-Felt like you weren't a real woman because of PCOS	30	26.1	46	40.0	39	33.9
-Felt like you do not know what to do to control PCOS	44	38.3	46	40.0	25	21.7
Average percent	38.7		35.1		26.2	
In case of Infertility (n=101)						
-Feel afraid of not being able to have children	73	72.3	22	21.8	6	5.9
-Feel sad or trouble toward infertility threat	68	67.3	25	24.8	8	7.9
-Concerned or worried with infertility problems	75	74.3	23	22.8	3	3.0
-Frustrated toward being misunderstood by others	52	51.5	30	29.7	19	18.8
-Felt under pressure to have a child	26	25.7	34	33.7	41	40.6
Average percent	58.2		26.5		15.3	

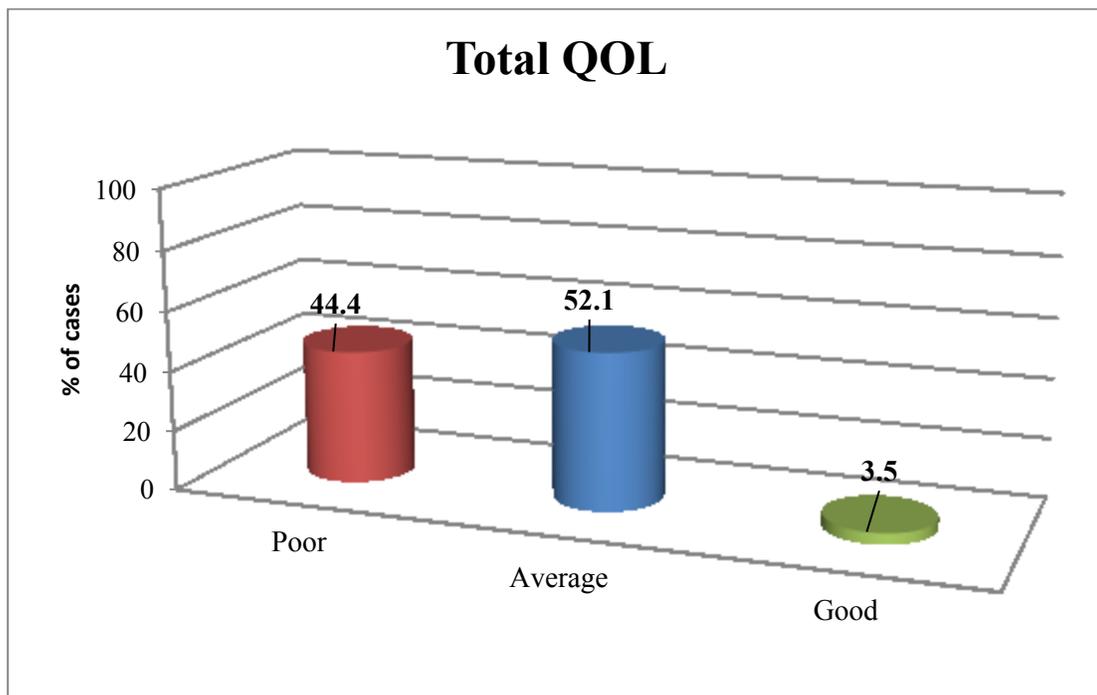
Table (5): Distribution of the studied women according to their social domain of quality of life (n=115)

Items	All of time (poor QOL)		Some of time (average QOL)		No time (good QOL)	
	N	%	N	%	N	%
Social functioning and personal relationships toward Polycystic Ovarian Syndrome						
-Tendency to loneliness and social isolation	53	46.1	35	30.4	27	23.5
-Wanted to take part in a social activity but have not because of your PCOS	42	36.5	41	35.7	32	27.8
-Avoid meeting strangers or others	39	33.9	36	31.3	40	34.8
-Avoid family visits	26	22.6	30	26.1	59	51.3
-Increased financial burden	71	61.7	28	24.3	16	13.9
-Lack of enough support from husband	11	9.6	19	16.5	85	73.9
-Lack of sufficient family support	12	10.4	11	9.6	92	80.0
-PCOS interfere peers relationship with others	30	26.1	37	32.2	48	41.7
-PCOS interfere with daily home activities	29	25.2	47	40.9	39	33.9
-PCOS interfere with your job	11	9.6	15	13.0	89	77.4
- PCOS interfere the relationship with your husband	29	25.2	45	39.1	41	35.7
-Spending spare time alone	39	33.9	36	31.3	40	34.8
Average percent	28.4		27.5		44.1	

Table (6): Distribution of the studied women according to their sexual domain of quality of life (n=115)

Items	All of time (poor QOL)		Some of time (average QOL)		No time (good QOL)	
	N	%	N	%	N	%
Sexual functioning toward Polycystic Ovarian Syndrome						
-Decreased libido due to having PCOS	41	35.7	36	31.3	38	33.0
-Change in sexual activity due to infertility threat	33	28.7	31	27.0	51	44.3
-Reflection or impact of abnormal hair growth on sexual activity	22	19.1	56	48.7	37	32.2
Items	Severe problem (poor QOL)		Some problem (average QOL)		No problem (good QOL)	
-Reflection or impact of overweight on sexuality	24	20.9	48	41.7	43	37.4
-Feel like you are not sexy or attractive due to having PCOS	25	21.7	61	53.0	29	25.2
Average percent	24.6		41.6		33.8	

Figure (1): Total QOL of the studied women diagnosed with PCOS



7. References

Aliasghari, F., Mirghafourvand, M.,

Charandabi, S. M. A., and Lak, T. B. (2017): The predictors of quality of life in women with polycystic ovarian

syndrome. *International journal of nursing practice*, 23(3), e12526.

Amiri, M., Bidhendi Yarandi, R., Nahidi, F., Tohidi, M., and Ramezani Tehrani, F. (2019): The relationship between clinical and biochemical characteristics and quality of life in patients with polycystic ovary syndrome. *Clinical endocrinology*, 90(1), 129-137.

Angin, P., Yoldemir, T., and Atasayan, K. (2019): Quality of life among infertile PCOS patients. *Archives of gynecology and obstetrics*, 300(2), 461-467. <https://doi.org/10.1007/s00404-019-05202-z>.

Asdaq, S. M. B., Jomah, S., Hasan, R., Al-Baroudi, D., Alharbi, M., Alsubaie, S and Al-Yamani, M. J. (2020): Impact of polycystic ovary syndrome on eating behavior, depression and health related quality of life: A cross-sectional study in Riyadh. *Saudi Journal of Biological Sciences* .

Atya, A. A; Eshra, D. M; Kassem, I. K and Ashour, E. S. (2019): Assessment of quality of life among women with polycystic ovary syndrome. *IOSR Journal of nursing and health science (IOSR-JNHS)*, 8(4), 28-29

Barber, T. M., Hanson, P., Weickert, M. O., and Franks, S. (2019): Obesity and polycystic ovary syndrome: implications for pathogenesis and novel management

strategies. *Clinical Medicine Insights: Reproductive Health*, 13, 1179558119874042.

Basirat, Z., Faramarzi, M., Chehrazi, M., Amiri, M., Ghofrani, F., and Tajalli, Z. (2020): Differences between infertile women with and without PCOS in terms of anxiety, coping styles, personality traits, and social adjustment: a case-control study. *Archives of Gynecology and Obstetrics*, 301(2), 619-626.

Behboodi Moghadam, Z., Fereidooni, B., Saffari, M., and Montazeri, A. (2018): Polycystic ovary syndrome and its impact on Iranian women's quality of life: a population-based study. *BMC women's health*, 18(1), 164. doi: 10.1186/s12905-018-0658-1

Bielecka, A., Jamrogiewicz, K., Turek, D., Wdowiak, N., Pucek, W., and Unit, D. T. (2021): Quality of life in women with polycystic ovary syndrome treated with in vitro fertilization. *EJMT*, 1, 30.

Boivin, M. J., Fatehi, F., Phillips-Chan, A. E., Richardson, J. R., Summers, A. N., and Foley, S. A. (2020): Exploratory study of a screening measure for polycystic ovarian syndrome, quality of life assessment, and neuropsychological evaluation. *BMC Women's Health*, 20(1), 1-12.

Böttcher, B., Fessler, S., Friedl, F., Toth, B., Walter, M. H., Wildt, L., and Riedl, D. (2018): Health-related quality of life in patients with polycystic ovary syndrome:

validation of the German PCOSQ-G. Archives of gynecology and obstetrics, 297(4), 1027-1035.

<https://doi.org/10.1007/s00404-017-4623-2>

Chaudhari, A. P., Mazumdar, K., and Mehta, P. D. (2018): Anxiety, depression, and quality of life in women with polycystic ovarian syndrome. Indian journal of psychological medicine, 40(3), 239-246.

Copp, T., Muscat, D. M., Hersch, J., McCaffery, K. J., Doust, J., Dokras, A., and Jansen, J. (2021): The challenges with managing polycystic ovary syndrome: A qualitative study of women's and clinicians' experiences. Patient Education and Counseling.

Cronin, L., Guyatt, G., Griffith, L., Wong, E., Azziz, R., Futterweit, W and Dunaif, A. (1998): Development of a health-related quality-of-life questionnaire (PCOSQ) for women with polycystic ovary syndrome (PCOS). The Journal of Clinical Endocrinology & Metabolism, 83(6), 1976-1987

Dawson, B. and Trapp, R. G. (2004): Basic & Clinical Biostatistics, Mc Graw-Hill, 4th ed. USA.

Ee, C., Smith, C., Moran, L., MacMillan, F., Costello, M., Baylock, B., and Teede, H. (2020): "The whole package deal": experiences of overweight/obese women

living with polycystic ovary syndrome. BMC women's health, 20(1), 1-9.

Elsaied, H. E., Nour Eldin, S. A., Gad, A. H., & Mohamed, H. A. K. (2020): Effect of uterine fibroid on women's health related quality of life and nursing management for patients undergoing hysterectomy. Assiut Scientific Nursing Journal, 8(20.00), 12-27.

Fatemeh, B., Shahideh, J. S., and Negin, M. (2021): Health related quality of life and psychological parameters in different polycystic ovary syndrome phenotypes: a comparative cross-sectional study. Journal of Ovarian Research, 14(1), 1-9.

Fliegner, M., Richter-Appelt, H., Krupp, K., and Brunner, F. (2019): Sexual Function and Socio-Sexual Difficulties in Women with Polycystic Ovary Syndrome (PCOS). Geburtshilfe und Frauenheilkunde, 79(5), 498-509. doi: 10.1055/a-0828-7901

Gao, K., Su, M., Sweet, J., and Calabrese, J. R. (2019): Correlation between depression/anxiety symptom severity and quality of life in patients with major

Graziani, F and Tsakos, G. (2020): Patient based outcomes and quality of life. Periodontology 2000, 83(1), 277-294 .

Guyatt, G., Weaver, B., Cronin, L., Dooley, J. A and Azziz, R. (2004): Health-related quality of life in women with polycystic ovary syndrome, a self-administered questionnaire,

was validated. *Journal of Clinical Epidemiology*, 57(12), 1279-1287

Habib, S., Anwar, A., Hoda, F., Verma, R., Akhtar, M., and Najmi, A. K. (2021): Prevalence of depression, anxiety and quality of life among North Indian polycystic ovary syndrome women: evidence from a prospective observational study. *International Journal of Basic & Clinical Pharmacology* 10: 1360.

Iervolino, M., Lepore, E., Forte, G., Laganà, A. S., Buzzaccarini, G., and Unfer, V. (2021): Natural Molecules in the Management of Polycystic Ovary Syndrome (PCOS): An Analytical Review. *Nutrients*, 13(5), 1677.

Jones, G.L. Benes, K. Clark, T.L. Denham, R. Holder, M.G. Haynes, T.J. Mulgrew, N.C. Shepherd, K.E. Wilkinson, V.H. Singh, M. Balen, A. Lashen, H. Ledger, W.L.(2004): The Polycystic Ovary Syndrome Health Related Quality of Life Questionnaire (PCOSQ): a validation, *Human Reproduction*, 19 (2): 371–377

Kałużna, M., Nomejko, A., Słowińska, A., Wachowiak-Ochmańska, K., Pikosz, K., Ziemnicka, K., and Ruchala, M. (2021): Lower sexual satisfaction in women with polycystic ovary syndrome and metabolic syndrome. *Endocrine Connections*, 10(9), 1035-1044.

Karjula, S. (2021): Long-term consequences of polycystic ovary syndrome on mental health and health-related quality of life (Doctoral dissertation, University of Oulu).

Khomami, M. B., Tehrani, F. R., Hashemi, S., Farahmand, M., and Azizi, F. (2015): Of PCOS symptoms, hirsutism has the most significant impact on the quality of life of Iranian women. *PLoS One*, 10(4), e0123608

Kutlu, Ö. (2020): Evaluation of quality of life of patients with hirsutism among Turkish women: A single-center cross-sectional study. *Journal of Cosmetic Dermatology*, 19(11), 3053-3057.

Laguitao, J. Z., Mangaliman, G. C., Marcial, M. P. V., Mendoza, A. G., Miranda, D. A. M., Nasayao, P. I. B., and Ponciano, F. E. (2021): Awareness on Polycystic Ovarian Syndrome: A Comparative Study on the Health-Related Quality of Life between Diagnosed and Undiagnosed Women Aged 18-49. *International Journal of Progressive Research in Science and Engineering*, 2(9), 195-211.

Light, R. S., Chilcot, J., and McBride, E. (2021): Psychological distress in women living with polycystic ovary syndrome: the role of illness perceptions. *Women's Health Issues*, 31(2), 177-184.

- Lobo, R. A., Gershenson, D. M., Lentz, G. M and Valea, F. A. (2017):** Comprehensive Gynecology E-Book. (7th.ed). Elsevier Health Sciences: 129-133
- Louwers, Y. V., and Laven, J. S. (2020):** Characteristics of polycystic ovary syndrome throughout life. *Therapeutic Advances in Reproductive Health*, 14, 2633494120911038.
- Mohamed Reda, A., Ahmed Hassan, A., Abdalla El Sayed, H., and Mohammed Salama, A. (2022):** Knowledge and Attitude of Late Adolescent Girls regarding Polycystic Ovarian Syndrome. *Journal of Nursing Science Benha University*, 3(1), 889-906.
- Morshedi, T., Salehi, M., Farzad, V., Hassani, F., and Shakibazadeh, E. (2021):** The status of relationship between coping strategies and quality of life in women with polycystic ovary syndrome. *Journal of Education and Health Promotion*, 10(1), 185-185. doi: 10.4103/jehp.jehp_1008_20
- Nasiri-Amiri, F., Tehrani, R. F., Simbar, M. Montazeri, A. (2016):** Health-related quality of life questionnaire for polycystic ovary syndrome (PCOSQ-50): development and psychometric properties. *Qual Life Res* 25, 1791–1801.
<https://doi.org/10.1007/s11136-016-1232-7>
- Naumova, I., Castelo-Branco, C., Kasterina, I., and Casals, G. (2021):** Quality of Life in Infertile Women with Polycystic Ovary Syndrome: a Comparative Study. *Reproductive Sciences*, 28(7), 1901-1909. doi: 10.1007/s43032-020-00394-1
- Patel, V. H. (2022):** Polycystic Ovarian Syndrome: An Autobiographical Case Report of an Often Overlooked Disorder. *Cureus*, 14(1).
- Ranasinghe, B. A., Balasuriya, A., Wijeyaratne, C. N., and Fernando, N. (2021):** Health-Related quality of life questionnaire for women with polycystic ovary syndrome: A sinhala translation and validation study. *ethnicities*, 15, 16.
- Rodriguez-Paris, D., Remlinger-Molenda, A., Kurzawa, R., Głowińska, A., Spaczyński, R., Rybakowski, F., and Banaszewska, B. (2019):** Psychiatric disorders in women with polycystic ovary syndrome. *Psychiatr Pol*, 53(4), 955-966.
- Sanchez-Ferrer, M. L., Adoamnei, E., Prieto-Sanchez, M. T., Mendiola, J., Corbalan-Biyang, S., Monino-Garcia, M., and Torres-Cantero, A. M. (2020):** Health-related quality of life in women with polycystic ovary syndrome attending to a tertiary hospital in Southeastern Spain: a case-control study. *Health and Quality of Life Outcomes*, 18(1). 1-10. doi: 10.1186/s12955-020-01484-z
- Stapinska-Syniec, A., Grabowska, K., Szpotanska-Sikorska, M., and Pietrzak, B.**

(2018): Depression, sexual satisfaction, and other psychological issues in women with polycystic ovary syndrome. *Gynecol Endocrinol*, 34(7), 597-600.

Sulaiman, M. A., Al-Farsi, Y. M., Al-Khaduri, M. M., Waly, M. I., Saleh, J., and Al-Adawi, S. (2017): Psychological burden among women with polycystic ovarian syndrome in Oman: a case-control study. *International journal of women's health*, 9, 897.

Tabassum, F., Jyoti, C., Sinha, H. H., Dhar, K., and Akhtar, M. S. (2021): Impact of polycystic ovary syndrome on quality of life of women in correlation to age, basal metabolic index, education and marriage. *PLoS One*, 16(3), e0247486. doi: 10.1371/journal.pone.0247486

Williams, S., Sheffield, D and Knibb, R. C. (2018): The Polycystic Ovary Syndrome Quality of Life scale (PCOSQOL): Development and preliminary validation. *Health Psychology Open*.1-8

Wright, P. J., Corbett, C. L., Pinto, B. M., Dawson, R. M., and Wirth, M. D. (2021): The impact of exercise perceptions and depressive symptoms on polycystic ovary syndrome-specific health-related quality of life. *Women's Health*, 17, 1745506521106586 5.

Yin, X., Ji, Y., Chan, C. L. W., and Chan,

C. H. Y. (2021): The mental health of women with polycystic ovary syndrome: a systematic review and meta-analysis. *Archives of Women's Mental Health*, 24(1), 11-27.

Yoldemir, T., Angin, P., Ramoglu, S., and Atasayan, K. (2017): Health-related quality of life (HRQL) in women with polycystic ovary syndrome (PCOS). *Maturitas*, 100, 175.

Zaki, M., Kholoussi, S., Ismail, S., Raouf, H. A., Helwa, I., Hassan, N and Yousef, W. (2015): Metabolic abnormalities in young Egyptian women with polycystic ovary syndrome and their relation to ADIPOQ gene variants and body fat phenotype. *Egyptian Journal of Medical Human Genetics*, 16(4), 367-374