



Polycystic Ovary Syndrome's Effect on Bangladeshi Women's Quality of Life

**[A Thesis Turned in to Comply Partially with the Masters of Public Health (MPH)
Requirements]**

Submitted by

Sumi Khandaker

Student ID: 0242220007273069

Supervised by

Dr. ABM Alauddin Chowdhury

Professor and Head

Department of Public Health

Faculty of Health and Life Sciences

Daffodil International University

Date of Submission

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DECLARATION

By presenting this thesis, I, **Sumi Khandaker**, hereby proclaim “**Polycystic Ovary Syndrome's Effect on Bangladeshi Women's Quality of Life**”, that with the exception of the places where credit is due, all of the work contained inside is original to me and my only author. Additionally, it states that the work has never been submitted before for evaluation for any other reason.

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.....

Sumi Khandaker

ID: 0242220007273069

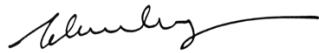
Daffodil International University (DIU)

Dhaka, Bangladesh

CERTIFICATION

This attests to **Sumi Khandaker** completion of her dissertation, which is named "**Polycystic Ovary Syndrome's Effect on Bangladeshi Women's Quality of Life**" under my close supervision, for the partial completion of the criteria needed to be awarded the Master of Public Health (MPH) degree. As far as I am aware, no other university or institute has received the findings presented in this thesis for consideration for a degree or diploma.

Signature of the Supervisor:



Dr. ABM Alauddin Chowdhury
Professor and Head
Department of Public Health
Faculty of Allied Health Sciences
Daffodil International University

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Sumi Khandaker

Student, MPH 31th Batch

Department of Public Health, DIU

***Dedicated to
My Beloved Parents***

Abstract

Background: A significant endocrine condition that affects young women's mental and health-related quality of life (HRQOL) is polycystic ovarian syndrome (PCOS). The purpose of this study was to evaluate how Bangladeshi women's quality of life is affected by polycystic ovarian syndrome.

Methods: Between April and September of 2024, 180 women with PCOS who were enrolled in the outpatient gynecology and obstetrics department at MARKS Medical College and Hospital were the subjects of this descriptive cross-sectional study. A semi-structured interview questionnaire was utilized to gather data, and the self-administered PCOSQOL-47 questionnaire was utilized to gauge quality of life in patients with polycystic ovarian syndrome.

Results: Study results indicated that respondents mean age was 24.23 (± 5.08) years and 26.1% women had poor quality of life and 53.3% had moderate quality of life. Age, BMI, educational attainment, and employment status were revealed to be substantially correlated (P -value <0.05) with the quality of life of women with PCOS according to chi-square test analysis. Women who were suffering from irregular menstrual cycle, having less than two kid and infertility problem were also discovered significantly connected with poor quality of life (P -value <0.05).

Conclusion: The study found that women with PCOS had a modest quality of life and that their PCOSQOL-47 scores decreased as they grew older and/or had higher body mass index.

Keywords: Women, Public Health, PCOS, Quality of Life, Bangladesh.

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Abbreviations

Enumeration of Abbreviations	Full Form
PCOS	Polycystic Ovary Syndrome
HRQoL	Health-Related Quality of Life
SDS	Socio Demographic Status
BMI	Body Mass Index
PCOSQOL	Polycystic Ovary Syndrome Quality of Life

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CHAPTER I

Introduction

Background

The cause of polycystic ovarian syndrome (PCOS), a prevalent endocrine disorder among women of reproductive age, is still unknown. Its prevalence ranges from 4% to 12%.^[1] Menstrual irregularities, hirsutism, and infertility are some of the symptoms of PCOS that lead to related morbidities and negatively impact an individual's psychological and interpersonal functioning.^[2]

The effects of PCOS can cause stress in many women's social and personal lives.^[3] PCOS has a significant psychological toll, with incidences of anxiety and sadness ranging from 28% to 64%.^[4] Research has demonstrated that PCOS symptoms negatively affect women's HRQoL and are a significant contributor to psychological morbidity.^[1-4] In response to this issue, international guidelines call for a particular examination of the psychological aspects and overall well-being of women with PCOS, involving the monitoring of potential depressive and anxiety symptoms during consultations.^[6]

The World Health Organization (WHO) claims that the definition of Quality of Life (QoL) has evolved over time and has been understood in a variety of ways. Originally, QoL was associated with purchasing power and how it might be used to provide various living circumstances.^[7] But as life expectancy has increased, science has advanced, and more people are surviving chronic illnesses, the idea of quality of life has evolved and changed, and it is now linked to a person's health.^[8] Therefore, an individual's assessment of their own health and well-being as well as their perception of the effects and available therapies for any ailment that may have an impact on their quality of life is referred to as their health-related quality of life, or HRQoL.^[9]

Therefore, health practitioners can evaluate the impact of syndromes like PCOS by examining people's quality of life in relation to their health using tools like scales or questionnaires.^[10] In this regard, the guidelines advise women with PCOS to incorporate exercise and a diet low in calories as a form of non-pharmacologic treatment. This will help to lessen the negative effects of PCOS symptoms on women's health and, in turn, their quality of life.^[11]

Only one systematic review, published in 2015, has addressed this specific issue in the literature.[19] Given the number of recent clinical trials on the topic, this proposal aims to update the previous review by examining the current evidence and evaluating the effects of lifestyle changes on these parameters.^[20] This revision tightens the language for clarity and smoothness while maintaining the original meaning.

Problem statement

The issue of quality of life concerning polycystic ovarian syndrome (PCOS) highlights two main points: firstly, PCOS is a hormonal disorder that influences women of reproductive age and presents signs and symptoms that greatly diminish self-esteem and affect health-related quality of life (HR-QoL). PCOS has a set definition, and quality of life should be understood and defined following a clear comprehension of life itself [1-4]. As a result, numerous studies performed globally have identified links between HR-QoL and the prevalence of PCOS. Women with PCOS may experience lower HR-QoL more frequently. Nonetheless, several previous studies investigated a cohort of women with PCOS or evaluated the effects of an intervention (lifestyle changes or medical therapies).

Because of this, interpreting these studies is difficult because of the wide range of sample sizes and methods used to measure HR-QoL, group heterogeneity within the study, and various factors that significantly affect HR-QoL, including age, body mass index, educational attainment, and occupational activity, as well as variations in racial and geographic distribution among women with PCOS [2]. This study focuses on how PCOS negatively impacts GHR-QoL. To illustrate the impact of this condition on overall HR-QoL and the varied presentations of the disease, a condensed version of the WHO QoL-BERF questionnaire was utilized. This involved analyzing correlations between general scales and specific related variables of the patients examined, including: (Age Groups, Marital Status, Education, Residency, and Socio-Economic Status), within a sample from the "General Women and Children Hospital" in Diwaniyah Governorate.

Justification of the study

A significant endocrine condition that affects young women's mental and health-related quality of life (HRQOL) is polycystic ovarian syndrome (PCOS) [1,2]. Moreover, this develops into a long-term condition that endures well into later life and affects approximately 5 million children [3, 4]. According to reports, prevalence among teenagers in India varies with racial equivalents and is predicted to be 9.13% [5]. Obesity and significant physical changes, including irregular menstruation, have been identified as the primary causes of psychological problem [6–8]. The detrimental effects of PCOS are constantly underappreciated, control women's lives, and increase their chance of developing severe anxiety and psychiatric disorders [9, 10]. Significantly, the psychological burden changes significantly in response to shifts in society beliefs and geographic locations. These patients may find stressful, and they could also be more likely to develop anxiety and depression, which may even increase their risk of suicidal thoughts [9, 10].

In terms of clinical manifestations, PCOS is distinguished by anovulation or oligo-ovulation, hyperandrogenism, which may lead to infertility, and additional metabolic abnormalities associated with it [11]. This leads to a higher chance of reproductive problems such as endometrial cancer, infertility, gestational diabetes, and mental health disorders [12]. Novel therapies and treatments, however, can then be directed on resolving those issues, which are most crucial for the person in question [13, 14]. Understanding the effects of PCOS symptoms, particularly those related to the feminine identity, and treating them from the patient's point of view in order to improve quality of life (QOL) have gained relevance recently. Any disease's self-perceived health status as determined by health status questionnaires is known as HRQOL [15]. Consequently, Short Form Health Survey-36, were employed to compare and track the illness burden, assess the health condition of individual patients, and comprehend the effects of PCOS [16, 17]. Important negative factors associated with PCOS patients, such as menstrual-related somatic and emotional symptoms, are not included in the SF-36 measure [16]. The questionnaire is a valuable and promising instrument for HRQOL in PCOS cases due to its excellent internal reliability, good test-retest reliability, good concurrent and discriminating validity, and reasonable factor analysis.

To compare the socioeconomic status and the relationship between age and marital status among women of reproductive age with and healthy controls visiting the gynecology and obstetrics department of tertiary care hospitals, a prospective study was planned, considering these elements.

Research question

What effect does polycystic ovary syndrome have on the quality of life for women in Bangladesh?

Research objectives

General objective:

to evaluate the effect of polycystic ovarian syndrome on Bangladeshi women's quality of life.

Specific objectives:

1. To determine the participants' sociodemographic details
2. To gauge each participant's menstrual and reproductive history
3. To ascertain the ladies with polycystic ovary syndrome's quality of life

List of Variables

When designing the devices for data collection, the following variables were taken into consideration:

Background characteristics: Age, BMI, educational attainment, marital status, and employment.

Variables related to menstrual and reproductive history: Menarche age, Menstrual cycle, status of parents, how many times pregnant, and how many children?

Operational Definition

Polycystic ovary syndrome

A disorder known as polycystic ovary syndrome causes rare, lengthy, or infrequent periods. It frequently leads to an excess of the male hormone androgen. Numerous tiny fluid-filled sacs form on the ovaries. They might not consistently release eggs. For both adult men and women, the body mass index (BMI) is a measurement of body fat based on height and weight.

CHAPTER II

Methodology

Study design and period

A descriptive study with a cross-sectional design for patients with (PCOS) was carried out, beginning data collection from April 2024 to September 2024.

Study setting

The study was carried out at outpatients' department of Gynecology and Obstetrics of MARKS Medical College and Hospital. MARKS Medical College and Hospital (MRMC) is considered as one of the best private medical colleges in Bangladesh which was founded in 2011 with the vision of offering affordable, high-quality medical care, research, and education to the nation's citizens.

Population and sample of the study

Study population was the patients, who have received a diagnosis and undergone treatment by department of Gynecology and Obstetrics of MARKS Medical College and Hospital.

Sample was calculated by following formula -

$$n = z^2 pq / d^2$$

Where,

n= desired sample size

z = 1.96 (95% confidence interval)

p= (Prevalence of poor quality of life among PCOS women was 31.26%) [Noor Hamed et al., 2022].

$$= 0.32$$

$$q = 1 - p = 1 - 0.32 = 0.68$$

$$d = 5 \%$$

$$\text{So, } n = (1.96)^2 (0.32 \times 0.68) / (0.05)^2$$

$$= 334.37$$

Due to shortage of time and resources 180 participants were selected for this study.

Sampling Technique

Data was collected through purposive non-probability sampling technique from women diagnosed with PCOS attending at selected hospital in Bangladesh.

Selection Criteria

Inclusion criteria

We included only diagnosed cases of PCOS, females aged 10–49 years from menarche to menopausal age, and those who provided consent given with knowledge.

Exclusion criteria

Patients with cognitive or developmental disabilities or other significant illnesses that notably affected the HRQOL of women, those with confirmed malignancies and deformities, and breastfeeding women were not included in the study.

Data collection procedure and Research instrument

After receiving approval from the gynecological doctors at the MARKS Medical College Hospital, the data collection process got underway. Following the description of written and spoken material regarding the study, data was gathered. Following the explanation, each participant signed the informed permission form and was asked to fill out the surveys. Investigators performed in-person interviews with subjects who met the inclusion criteria and gave their consent to participate in the study in two parts: **Part A:** Data on sociodemographic, economics, and reproductive history were gathered using semi-structured, pre-validated questionnaires.

Part B: The living standards of both married and unmarried women with polycystic ovarian syndrome. syndrome was assessed using the highly dependable, validated, understandable, and self-administered Polycystic Ovary Syndrome Quality of Life (PCOSQOL-47) questionnaire. The health-related quality of life (HRQOL) was scored using a 5-point Likert scale, with each item denoting the woman's experiences in the two weeks prior to seeking consultation; for example, never = 5 (no effect), Seldom = 4, Quite often = 3, Very often = 2, and Always = 1 (maximum effect on QOL). Each item's total score for each domain were added together and evaluated. The final domain score was then calculated as a (mean $\pm$ SD) by dividing the findings by the total number of items that had been scored. The total of the individual domain scores divided by the total number of domains that were analyzed yielded the ultimate or final score according to the

questionnaire. In the end, HRQOL is markedly affected by the first interval values (from 1 to < 3 points); marginally affected by the second interval values (from 3 to < 4 points); minimally affected by the third interval values (from 4 to < 5 points); and not affected by the fourth interval (5 points). The more negatively it affects HRQOL, the lower the score.

- **Poor quality of life 94 percent**
- **Moderate life quality: 95–188**
- **High standard of living: 189–235**

Data analysis

Data were examined by utilizing statistical program SPSS (Version 26.0). The appropriate statistical test was used after making sure continuous variables met the normality criteria. Factors such as an excessive body weight were taken into account. The minimum, maximum, and mean $\pm$ SD of quantitative data had a skewed and normal distribution, respectively. Quality of life of women was considered as dependent variable. Categorical variables like age, BMI, educational attainment, marital status, and employment, menarche age, menstrual cycle, status of parents, how many times pregnant, and number of children given as frequency and percentage. The Fisher exact test and the Pearson Chi-Square test were used to examine the relationship between the qualitative and category variables. P-values less than 0.05 are regarded as statistically significant for statistical tests.

Ethical Issues

The DIU Faculty of Allied Health Science (FAHS) Research Ethics Committee (REC) granted ethical permission. The interviewers gave the participants a brief explanation of the study's history and goals prior to starting any interviews. Confidentiality and anonymity were rigorously upheld.

CHAPTER III

Findings of the study

3.1 Socio-demographic information of the respondents

Table 3.1 displays the respondents' sociodemographic data. The majority of women diagnosed with PCOS were in the 20–30 age range, with a mean age of 24.23 (± 5.08) years. The majority of the women (64.4%) were students, and 72.8% had achieved a degree equivalent to a graduation. 42.2% of the women were single, while over half (57.8%) were married.

Table 3.1: Distribution of respondents by socio-demographic characteristics (n=180)

Participants' characteristics		Frequency	% Distribution
Age	19 years or less	50	27.8
	20-30 years	112	62.2
	More than 30 years	18	10.0
	Mean $\pm$ SD		24.23$\pm$5.08
Level of education	Up to primary	18	10.0
	S.S.C-H.S.C	46	25.6
	Graduation and above	116	64.4
Marital status	Married	104	57.8
	Unmarried	76	42.2
Occupation	Student	131	72.8
	Homemaker	25	13.9
	Service	6	3.3
	Others	18	10.0

Figure 3.1 represents BMI level of the participants. It can be seen that 26.7% of the respondents had a BMI of 25–30, 15% had a BMI of ≥ 30 , and half of the respondents (50.6%) had a BMI of 18–25.

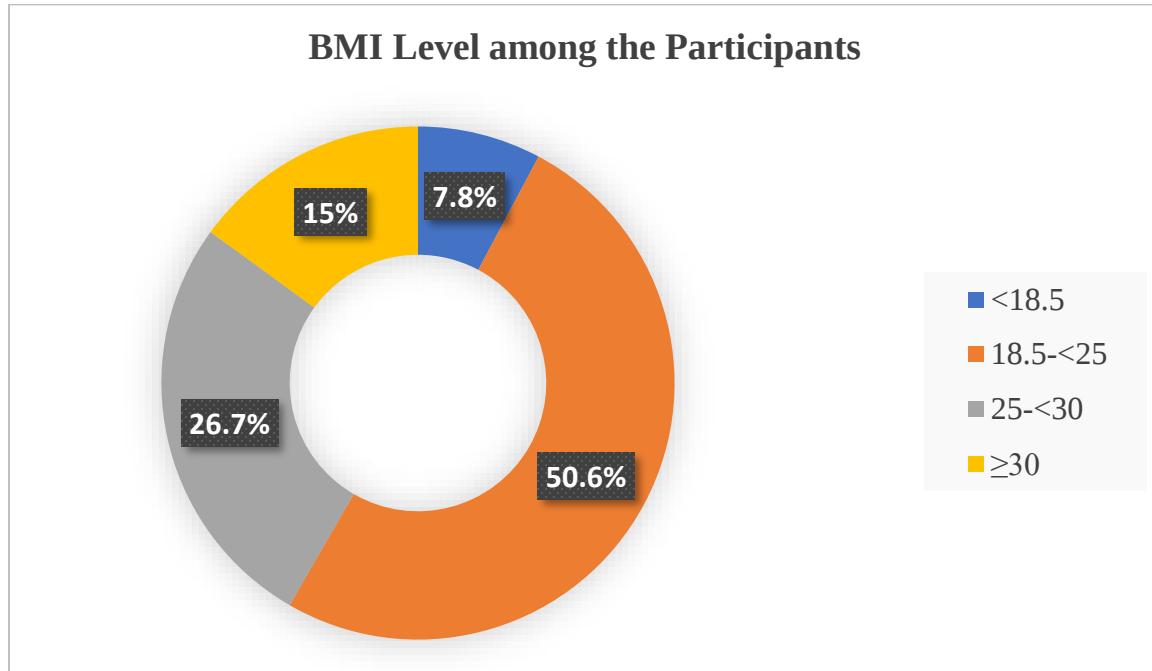


Figure 3.1: BMI Level among the Participants

3.2 Menstrual and reproductive history of the respondents

The respondents' menstrual and reproductive histories are shown in **Table 3.2**. More women (70.0%) menarched between the ages of 11 and 14. Only 3.3% of the women with PCOS reported having a regular menstrual cycle, whereas the majority had irregular or delayed cycles (47.8% and 48.9%, respectively). Of the respondents, 68.9% had more than two children, and 69.4% had more than two. A higher percentage of PCOS-afflicted women (62.2%) stated that they had never become pregnant.

Table 3.2: Distribution of respondents by their menstrual and reproductive history (n=180)

Participants' characteristics		Frequency	% Distribution
Age at menarche	11–14	126	70.0
	>14	54	30.0
Menstrual cycle	Regular	6	3.3
	Irregular	86	47.8
	Delayed/Late	88	48.9
Parental status	Yes	56	68.9
	No	124	31.1
Number of children	≤2	17	30.6
	>2	39	69.4
How many times pregnant	≤2	32	17.8
	>2	36	20.0
	Never	112	62.2

3.3 Living standards of women with PCOS

Figure 3.2 a pie chart illustrates the quality of life for women with PCOS. It is evident that 20.6% of women had a high quality of life and 26.1% had a low one. A higher proportion of female PCOS patients (53.3%) had a moderate quality of life.

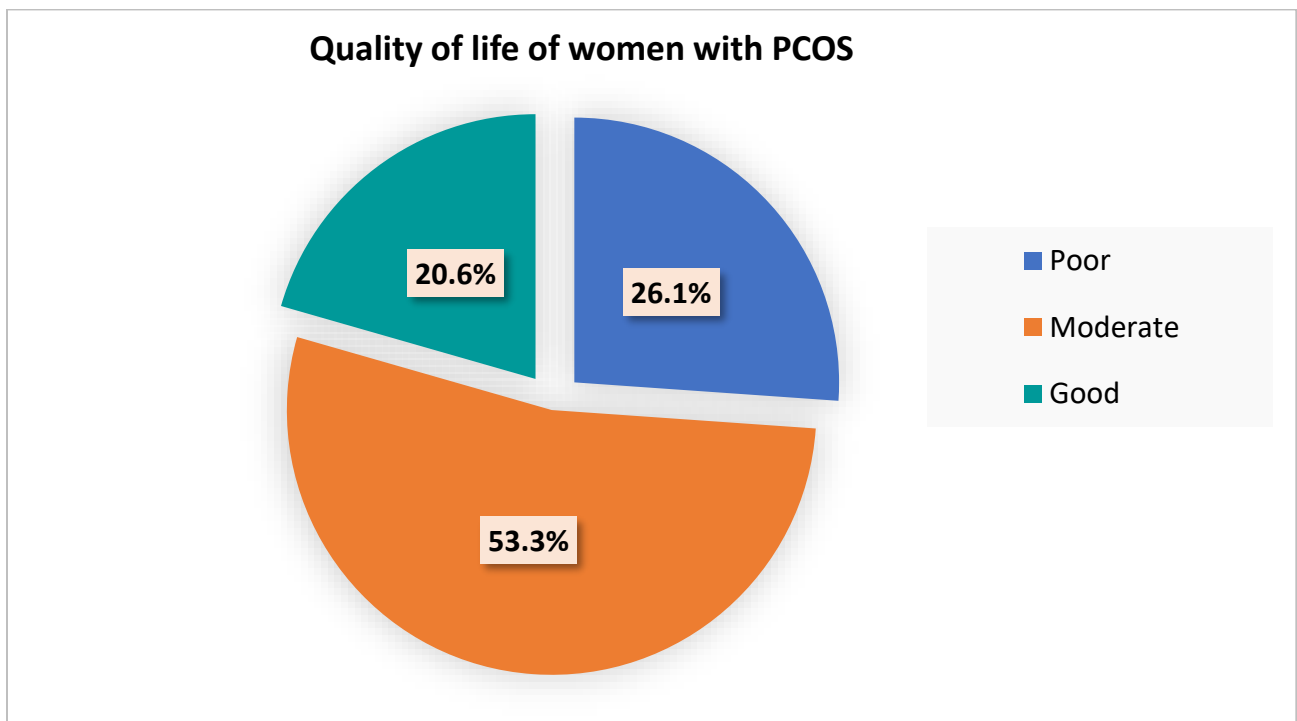


Figure 3.2: Quality of life of women with PCOS

The quality of life of women with PCOS was assessed by means of chi-square test analysis to assess the relationship between sociodemographic, menstrual, and reproductive status parameters. **Table 3.3** demonstrates that strongly correlated with age ($\chi^2=8.082$; P-value = 0.018), BMI ($\chi^2=31.97$; p value=0.000), education level ($\chi^2=9.794$; p value=0.007), and occupational status ($\chi^2=16.25$; p value=0.001). A statistically significant negative correlation was found between respondents' quality of life and irregular menstrual cycles (χ^2 11.607; p value=0.003), less than two children ($\chi^2=19.117$; p value= 0.000), and infertility issues (χ^2 = (P-value<0.05). Two factors, such as parental status (χ^2 =3.95; p value= 0.067) and marital status (χ^2 = 0.718; p value=0.397), were not shown to be significantly correlated with the quality of life experienced by women with PCOS.

Table 3.3 Association between factors regarding socio-demographic, menstrual and reproductive status with quality of life of women with PCOS

Risk factors		Quality of life of women			
		Poor (%)	Good (%)	χ^2	P-value
Age	19 years or less	35(70)	15(30)	8.082	0.018
	20-30 years	92(82.1)	20(17.9)		
	More than 30 years	18(100)	0(0)		
BMI	18.5	8(57.1)	6(42.9)	31.970	0.000
	18.5-<25	62(68.1)	29(31.9)		
	25-<30	48(100)	0(0)		
	≥ 30	27(100)	0(0)		
Level of education	Up to primary	18(100)	0	9.794	0.007
	S.S.C-H.S.C	31(67.4)	15(32.6)		
	Graduation and above	96(82.8)	20(17.2)		
Marital status	Married	86(82.7)	18(17.3)	0.718	0.397
	Unmarried	59(77.6)	17(22.4)		
Occupation	Student	96(73.3)	35(26.7)	16.252	0.001
	Homemaker	25(100)	0(0)		

	Service	6(100)	0(0)		
	Others	18(100)	0(0)		
Age at menarche	11–14	120(95.2)	6(4.8)	57.804	0.000
	>14	25(26.3)	29(53.7)		
Menstrual cycle	Regular	6(100)	0(0)	11.607	0.003
	Irregular	77(89.5)	9(10.5)		
	Delayed/Late	62(70.5)	26(29.5)		
Parental status	Yes	95(76.6)	29(23.4)	3.955	0.067
	No	50(89.3)	6(10.7)		
Number of children	≤2	55(100)	0(0)	19.117	0.000
	>2	90(72)	35(28)		
How many times pregnant	≤2	32(100)	0(0)	10.843	0.004
	>2	25(69.4)	11(30.6)		
	No	88(78.6)	24(21.4)		

CHAPTER IV

Discussion

Discussion

Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder among women of reproductive age, affecting approximately 6-10% of women globally. In Bangladesh, the prevalence of PCOS has been increasing, and its impact on the quality of life of affected women is becoming a significant concern. The condition involves irregular menstrual cycles, excessive hair growth, acne, weight gain, and difficulty in conceiving, which can affect the physical, emotional, and social well-being of women. Below is a detailed discussion of the impact of PCOS on the quality of life of women in Bangladesh.

PCOS has several direct effects on the physical health of women. These include:

One of the hallmark symptoms of PCOS is irregular menstruation, leading to distress, anxiety, and physical discomfort for many women. This can also contribute to difficulties in planning pregnancy, which exacerbates emotional stress.

Women with PCOS often experience infertility due to anovulation (lack of ovulation). In Bangladesh, where social pressures to marry and have children are strong, infertility can lead to social stigma and marital strain.

A significant number of women with PCOS experience weight gain, particularly around the abdomen. Obesity increases the risk of other health issues, such as diabetes, cardiovascular diseases, and metabolic syndrome, and this can further reduce quality of life.

Hirsutism is common in women with PCOS due to elevated androgen (male hormone) levels. The presence of unwanted hair, especially on the face and chest, is often a source of embarrassment

and low self-esteem for women in Bangladesh, where beauty standards are heavily influenced by feminine appearance.

PCOS can significantly affect the mental health and emotional well-being of women:

Due to the physical symptoms like weight gain, acne, and hair growth, as well as infertility concerns, women with PCOS often experience high levels of depression, anxiety, and stress. In Bangladesh, where discussions about mental health are still taboo in many communities, women suffering from PCOS may not receive adequate psychological support, exacerbating their mental health issues.

Societal pressures regarding physical appearance and beauty standards are particularly strong in Bangladesh. Women with PCOS may feel stigmatized due to their physical changes, leading to poor self-esteem and body image issues. The emotional toll of dealing with hirsutism, acne, and obesity is significant. The stigma associated with infertility, menstrual irregularities, and visible symptoms like acne or excess hair can lead to social isolation for women in Bangladesh. They may avoid social interactions or family gatherings, further contributing to their mental health challenges.

PCOS can have far-reaching social implications, especially in a society like Bangladesh, where cultural norms and expectations shape women's roles:

In Bangladesh, women face significant social pressure to marry and bear children, especially at a relatively young age. Women with PCOS may experience delayed marriage or face infertility issues, leading to societal disapproval, marital stress, or even divorce. This creates emotional distress and a sense of failure.

The medical expenses associated with managing PCOS can place a financial burden on women and their families. Costs related to diagnosis, treatment, medications, and consultations can be high in Bangladesh, where healthcare resources are limited, and access to specialized care may be restricted.

One of the significant challenges in Bangladesh is the lack of awareness about PCOS among women and healthcare professionals:

Many women in Bangladesh may not be aware that their symptoms are related to PCOS. Additionally, there is a lack of comprehensive education on the condition in schools, health centers, and communities, which hinders early diagnosis and proper management.

While some urban areas in Bangladesh have well-developed healthcare infrastructure, rural areas still face challenges in accessing healthcare services. Women in rural parts may not have access to specialists or proper diagnostic tests for PCOS, leading to delays in treatment and a worsening of symptoms.

In some parts of Bangladesh, seeking treatment for hormonal imbalances or infertility can be culturally stigmatized, making women reluctant to visit doctors or seek help. Traditional medicine and home remedies are sometimes prioritized over modern medical treatment, which can delay effective management.

In Bangladesh, the treatment options for PCOS include lifestyle changes, medications (such as birth control pills to regulate menstrual cycles, anti-androgens for hair growth, and medications to manage insulin resistance), and sometimes fertility treatments like in-vitro fertilization (IVF). However, the availability and affordability of these treatments are limited, especially for women in rural areas.

Diet and exercise play a crucial role in managing PCOS. However, in Bangladesh, the diet may not always be conducive to weight management due to cultural dietary habits and socioeconomic constraints. Lack of proper education and awareness about nutrition and physical activity also exacerbates the situation.

The impact of PCOS on the quality of life of women in Bangladesh is multifaceted and profound. It affects their physical health, emotional well-being, social relationships, and economic stability. While medical treatments and lifestyle changes can help manage the condition, significant

improvements in awareness, healthcare access, and social support are essential to reducing the burden of PCOS. Moreover, promoting a shift in cultural perceptions and encouraging open discussions about women's health can significantly enhance the quality of life for women suffering from PCOS in Bangladesh.

CHAPTER V

Conclusion and Recommendations

Conclusion

The purpose of this study was to evaluate how women's quality of life is affected by polycystic ovarian syndrome. According to the data, age of the respondents was 24.23 (± 5.08) years. Additionally, it was shown that 15% of women had a BMI of ≥ 30 and 26.7% had a BMI of 25–<30. According to this study, the majority of women with PCOS experienced irregular or delayed menstrual cycles (47.8% and 48.9%, respectively), and a higher percentage of these women (62.2%) also experienced infertility issues. According to this study, women's quality of life was found to be moderate in 53.3% of cases and bad in 26.1% of cases. Age, BMI, educational attainment, and employment status were revealed to be substantially correlated with (P-value<0.05) according to chi-square test analysis. It was also discovered that women with irregular menstrual cycles, fewer than two children, and infertility issues were statistically related to having a lower quality of life (P-value<0.05). The results of this study indicated that women's quality of life is more significantly impacted by PCOS, and that women should be the target of effective intervention programs to lessen this burden.

Recommendations

- Health education and counselling program should be emphasized on diet, exercise and other healthy life style habits to control PCOS symptoms, lower risk of developing chronic disease and improve life.
- Further research needs to be conducted with larger sample size to deeper understanding of this issue.

Limitations and strengths of the study

There are several restrictions on this study. As a single-center study, the sample might not be representative of the entire nation. The absence of a healthy control group precluded extrapolation of these findings to patients free of PCOS.

However, this is the first study of its kind in the nation discussing the quality of life experienced by women with PCOS, and it could provide the foundation for further extensive research on the topic including multiple centers.

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