Awareness on Polycystic Ovarian Syndrome: A Comparative Study on the Health-Related Quality of Life between Diagnosed and Undiagnosed Women Aged 18-49

Jessica Z. Laguitao [1], Gabriel C. Mangaliman[1], Mattheus Paolo V. Marcial[1], Alexandra G. Mendoza[1], Dennis Andrei M. Miranda[1], Pia Isobelle B. Nasayao[1], Felicitas E. Ponciano[2]

[1]Student, Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Manila, Philippines.

[2]Assistant Professor, Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Manila, Philippines.

Corresponding Author: jessica.laguitao@gmail.com

Abstract: - This research is titled "Awareness on Polycystic Ovarian Syndrome: A Comparative Study on the Health-Related Quality of Life between Diagnosed and Undiagnosed Women Aged 18-49" which aimed to identify the difference in the health-related quality of life (HRQoL) among the diagnosed and undiagnosed women ages 18-49 years old within the National Capital Region, who have the signs and symptoms of Polycystic Ovarian Syndrome (PCOS), and are adequately aware of the disorder. The study was comparative and quantitative in nature. It was conducted using the PCOS Awareness and Health Management Questionnaire through the use of Google Forms, with a minimum sample size of 385 respondents that had undergone participant screening. Data analysis involved the measures of central tendency, independent t-test, and paired t-test for data treatment. Majority of the respondents were aged 18-25, single, and lived in Quezon City. The most prevalent among the signs and symptoms of PCOS was irregular menstrual cycle or having no period at all. The psychological effects of PCOS were reported as follows: (1) sometimes, among the Undiagnosed PCOS Group; (2) often, among the Diagnosed PCOS Group Pre-treatment; (3) sometimes, among the Post-treatment. Meanwhile, the physiological effects are as follows: (1) often, among the Undiagnosed PCOS Group; (2) often, among the Diagnosed PCOS Group Pre-treatment; and (3) rarely, among the Post-treatment. There was a significant difference in the psychological and physiological effects between both the Undiagnosed PCOS Group and Diagnosed PCOS Group Pre-treatment ($p<0.05$), and the diagnosed group before and after treatment ($p<0.05$). The most common reasons for rejecting diagnosis for the Undiagnosed and Diagnosed PCOS Groups were due to the fear of getting diagnosed and because the treatment is expensive, respectively. The most common reason for seeking diagnosis for the Undiagnosed PCOS Group is to have a healthier lifestyle, while for the Diagnosed PCOS Group it is to reduce further complications. The improvement in the HRQoL of women after receiving diagnosis suggests that clinical diagnosis is beneficial because a better comprehension of PCOS is obtained after diagnosis. This influences behavior to aim towards health maintenance and an improved health-related quality of life.

Key Words: — ***Polycystic Ovarian Syndrome, PCOS, Health-related quality of life, HRQoL, Awareness, Women.***

I. INTRODUCTION

Polycystic Ovarian Syndrome (PCOS), or polycystic ovary syndrome, is defined as the combination of anovulation (infertility, oligomenorrhea, and dysfunctional uterine bleeding) and hyperandrogenism (acne and hirsutism) (Witchel, Oberfield, & Peña, 2019). It is most often associated with the imbalance of the sex hormones and the presence of obesity, diabetes mellitus, insulin resistance, metabolic syndrome, dyslipidemia, hypertension, cardiovascular disease (CVD), hyperplasia, and endometrial carcinoma (Barbosa et al., 2016). This syndrome involves 6-10% of women in menacme, the time of a woman's life between the first menstruation and menopause, and is considered as the main gynecological disease of the endocrine gland in reproductive age (Fabio &

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Melissa, 2020). Due to anovulation, it is also considered as the leading cause of female infertility.

Three main characteristics are attributed to PCOS: the presence of cysts in the ovaries, high levels of male hormones, and the irregularity of having periods. In individuals who have PCOS, there is not enough threshold to trigger ovulation because the eggs in the sacs or follicles of the ovaries do not mature. The lack of ovulation alters levels of progesterone, estrogen, luteinizing hormone (LH), and follicle stimulating hormone (FSH); thus individuals with PCOS produce higher-than-normal amounts of male hormones which cause the irregularity of menstruation and difficulty to bear a child (Garad & Teede, 2020).

Health-related quality of life (HRQoL) is a multi-dimensional concept, which focuses on the impact of health status on quality of life. Through the use of HRQoL, clinicians and public health officials are able to measure the effects of chronic illness, treatments, and short- and long-term disabilities (Office of Disease Prevention and Health Promotion, 2020).

According to the US National Library of Medicine National Institutes of Health (2018), approximately 75% of women remained undiagnosed for PCOS after visiting a physician due to the variability of patient presentation and lack of provided information. The symptoms of PCOS cannot be easily determined unless after consultation due to complaints related to menstrual irregularities, heavy bleeding, hair growth, acne, weight gain, male pattern baldness, headache, and formation of dark patches in the neck, groin, and under the breast (Watson, 2021). Care provision between health disciplines persists to be fragmented resulting in delays in diagnosis, dissatisfaction with information provision, and variation in clinical assessment and management (Barbosa et al., 2016).

The signs and symptoms of PCOS tend to be disregarded because of their commonality and the lack of information on the long-term consequences. Lack of awareness and health management may lead to infertility, endometrial cancer, obesity, dyslipidemia, hypertension, diabetes, dysfunctional bleeding, and the theoretical increased risk of CVD (Wolf et al., 2018). Between 70-80% of infertility in women was due to having PCOS (Melo et al., 2015). According to the Herdin (2017), 61 out of 487 women with endometrial cancer at the premenopausal age group had PCOS. Of the 487 women, PCOS also displayed a direct correlation with obesity (62.30%). Up to 70% of women with PCOS had abnormal levels of cholesterol and lipids in the blood (Sivanandy, 2019). A study by Chen et al. (2014) also showed that PCOS patients had higher insulin, lipid, and glucose compared to the latter. Additionally, the prevalence of hypertension in women with PCOS was higher compared to normotensive individuals with an 19.2% prevalence rate. Up to 40% of women with PCOS could develop prediabetes and 10% actually lead to having diabetes (Basile & Rodriguez, 2020). According to the US National Library of Medicine National Institutes of Health (2012), PCOS patients are at risk of CVD due to the unusual hormonal patterns.

In a study by Copp et al. (2019), prior to diagnosis, some women experienced struggles to conceive and bothersome symptoms; however, this feeling later on turned to relief of being diagnosed and resulted in an increased understanding on the importance of a healthy lifestyle. Positive coping strategies were developed over time, indicating the importance of timely and accurate diagnosis of PCOS.

This study sought to raise awareness on the long-term outcome of PCOS and to encourage women to undergo clinical diagnosis to avoid further complications. Awareness of PCOS can aid the linkage to care, increased screening for comorbidities, and improvement for patient care. Early diagnosis is also essential in addressing symptoms, identifying infertility, improving quality of life, and avoiding long term sequelae caused by metabolic, cardiovascular, and psychosocial complications associated with the condition.

1.1 Objectives of the Study

The general objective of this study was to compare the health-related quality of life (HRQoL) between women diagnosed with Polycystic Ovarian Syndrome (PCOS) and undiagnosed women who have signs and symptoms of PCOS, aged 18-49 in the National Capital Region.

Specific Objectives:

- Identify and compare the demographic profile of the women who are exhibiting the signs and symptoms of Polycystic Ovarian Syndrome (PCOS) for the past three months. Identify the prevalence of the psychological and physiological effects of the signs and symptoms of PCOS among:

a. Undiagnosed PCOS Group

b. Diagnosed PCOS Group Pre-treatment

c. Diagnosed PCOS Group Post-treatment

- Identify the significant difference in the psychological and physiological effects of the signs and symptoms of PCOS between:

d. Undiagnosed PCOS Group and Diagnosed PCOS Group Pre-treatment

e. Diagnosed PCOS Group Pre-treatment and Diagnosed PCOS Group Post-treatment

- Identify the most common factors that affect the decision to seek and reject diagnosis of PCOS among the Undiagnosed PCOS Group and Diagnosed PCOS Group.

1.2 Hypothesis of the Study

Ho: There is no significant difference in the health-related quality of life among the diagnosed and undiagnosed women experiencing the signs and symptoms of Polycystic Ovarian Syndrome, aged 18-49 in the National Capital Region.

Ha: There is a significant difference in the health-related quality of life among the diagnosed and undiagnosed women experiencing the signs and symptoms of Polycystic Ovarian Syndrome, aged 18-49 in the National Capital Region.

1.3 Research Impediments

The study was limited to the comparison of women who were clinically diagnosed with Polycystic Ovarian Syndrome (PCOS) and women who were not diagnosed but are experiencing the indicative signs and symptoms of the disorder concerning their perception of their overall health management.

The study was conducted to a minimum of 385 qualified respondents experiencing the indicative signs and symptoms of PCOS. The minimum number of respondents needed for the study was determined through the Raosoft sample size calculator, where a targeted 5% margin of error and 95% confidence interval yielded the value of the said sample size. Women selected for participation in this study were only those within the reproductive age (18-49 years old) and who were residents of the National Capital Region, Philippines. The Undiagnosed PCOS Group was selected using the additional criteria: had an adequate level of awareness of PCOS and its signs and symptoms, had at least one sign or symptom of hyperandrogenism, and had one sign or symptom of oligoovulation. All criteria were assessed through participant screening before the questionnaire proper. The study was conducted during the second semester of the Academic Year 2020-2021 through Google Forms. Usage of strictly non-face-to-face measures of data gathering and participant recruitment were done for the entirety of the research process.

1.4 Significance of the Study

This study aimed to compare the health-related quality of life between women diagnosed with Polycystic Ovarian Syndrome (PCOS) and undiagnosed women who have the signs and symptoms of PCOS. It also aimed to recognize and promote awareness among women of reproductive age on the medical significance, clinical symptoms of PCOS, and its long-term complications. With varying clinical manifestations, PCOS remains to be a diagnosis of exclusion; it is difficult to identify unless a proper course of laboratory tests have been performed to confirm the diagnosis. The disorder tends to be overlooked due to its commonality of symptoms and lack of information on long-term complications. This study aimed to increase patient engagement by promoting an environment for addressing misconceptions, raising awareness, and improving quality of life. Collecting significant data such as the extent of knowledge on the disorder and reasons for being undiagnosed will help encourage platforms of information and proper patient counselling among health and educational institutions.

1.5 Conceptual Framework

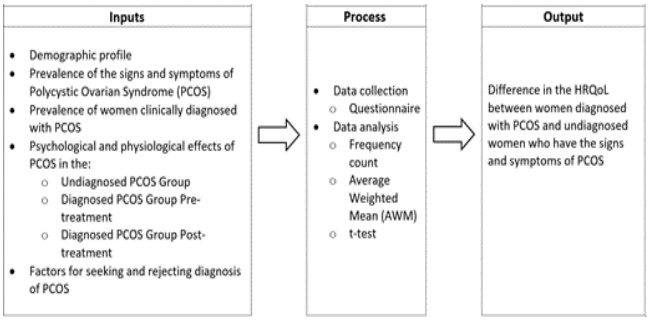

Fig.1. The conceptual framework of the study about the health-related quality of life between women diagnosed with PCOS and undiagnosed women who have the signs and symptoms of PCOS.

The conceptual framework displayed the input, process or methodology, and the expected output of the study. The inputs comprise the responses of the subjects in the provided questionnaire. These responses include the demographic profile of the subjects, prevalence of the common signs and symptoms of PCOS, prevalence of respondents clinically diagnosed with PCOS, the psychological and physiological effects of the signs and symptoms of PCOS on the Undiagnosed PCOS Group, the psychological and physiological effects before and after treatment of the Diagnosed PCOS Group, and the factors that affect the health-seeking and rejecting behavior towards diagnosis between the two subject groups.

The process included data collection and data analysis. The assessment tool that was used for data collection was the PCOS Awareness and Health Management Questionnaire. A participant screening was utilized to obtain eligible respondents for the study. Data analysis utilized frequency count, measure of central tendency (average weighted mean), and t-test treatment on the data obtained from the respondents.

The expected output of the study on PCOS discussed the difference in the HRQoL between diagnosed and undiagnosed women with PCOS. The difference in HRQoL between the two subjects was based on the comparison of the frequencies of the effects of the signs and symptoms of PCOS and the factors that affect their decision towards diagnosis. Specifically, to assess HRQoL, the following were determined: the significant difference in the effects of the signs and symptoms of PCOS among the Undiagnosed PCOS Group, the Diagnosed PCOS Group before treatment, and the Diagnosed PCOS Group after treatment; and the factors and reasons affecting the reasons for accepting or rejecting diagnosis. Through this, HRQoL among the Undiagnosed and Diagnosed PCOS Groups was assessed and differentiated to determine if there are possible advantages or disadvantages of health-seeking behavior and diagnosis.

II. METHODOLOGY

2.1 Research Design

The study was comparative and quantitative in nature, where it aimed to identify a difference of the health-related quality of life (HRQoL) between diagnosed and undiagnosed women with Polycystic Ovarian Syndrome (PCOS) through quantitative means. This was determined through the administration, scoring, and interpretation of a PCOS awareness and health management questionnaire through an online form. Collection of data employed the use of snowball and convenience non-probability sampling in order to collect samples that were most useful to the purposes of the research, that passed the sample criteria, and that were most accessible to the researcher. Factors that were identified were the presence of factors that may affect HRQoL and the prevailing signs and symptoms. Quantitative methods such as frequency count and percentage frequency, measure of central tendency (AWM), independent t-test, and paired t-test treatments were used to compare the groups.

2.2 Subjects and Study Site

The study required the respondents to be females within reproductive age (18-49 years old) and are residing within the National Capital Region (NCR), Philippines. The respondents must be aware of the medical condition of PCOS and must be experiencing at least one symptom of oligoovulation, and exhibiting at least one of the observable signs and symptoms of PCOS.

There were two significant subject groups in this study: women clinically diagnosed with PCOS (Diagnosed PCOS Group) and women who are experiencing the signs and symptoms of PCOS but are not clinically diagnosed (Undiagnosed PCOS Group). The former group was subdivided into the effects of PCOS before treatment (Pre-treatment) and after treatment (Post-treatment).

The Diagnosed PCOS Group Pre-treatment is the group of women who have been diagnosed with PCOS but have not yet undergone treatment, while the Diagnosed PCOS Group Post-treatment is the group of women who have already undergone treatment. A minimum of 385 qualified samples from both groups were evaluated for this study. Using a 5% margin of error and 95% confidence interval, a total of 385 respondents was the determined minimum sample size using the Raosoft sample size calculator.

The Diagnosed PCOS Group was required to present a medical certificate or medical laboratory report as evidence of diagnosis after answering the questionnaire.

The collection of respondents was done through online means specifically, Google Forms. The use of social platforms such as

Facebook, Twitter, and Google Mail were used to gather and select samples, and to disseminate the questionnaire.

2.3 Polycystic Ovarian Syndrome (PCOS) Awareness and Health Management Questionnaire

The Polycystic Ovarian Syndrome (PCOS) Awareness and Health Management Questionnaire was adapted from the Journal of Clinical Endocrinology and Metabolism (Cronin et al., 1998) article, "Development of Health-Related Quality-of-Life Questionnaire (PCOSQ) for women with Polycystic Ovary Syndrome (PCOS)". This assessment tool was distributed using Google Forms and through the means of social platforms such as Facebook, Twitter, and Google Mail. Since the questionnaire was adapted, it has already been used by several researchers and evaluated in previous studies; hence, there was no need to test for its validity.

The questionnaire was composed of two parts; the first part contained the participant screening while the second part was about the PCOS awareness and health management questionnaire. The first part served as the screening of willing respondents who fall under the following sample criteria: within the ages of 18-49, living in the National Capital Region, have an awareness of PCOS, currently experiencing at least one symptom of oligoovulation, and exhibiting at least one of the observable signs and symptoms of PCOS. The second part or the questionnaire proper was composed of questions regarding the participants demographic profile (age, civil status, and location) and contained eight sections: signs and symptoms, psychological and physiological signs and symptoms, prevalence of diagnosed and undiagnosed respondents, post-psychological and post-physiological signs and symptoms, factors or reasons for rejecting diagnosis, factors or reasons for seeking diagnosis, confirmation, and referral. Questions regarding the psychological and physiological effects of the signs and symptoms of PCOS, and the factors for rejecting and seeking diagnosis were used as an assessment to check the impact of PCOS on the respondents' health-related quality of life.

A brief introduction on the purpose of the study as well as an assurance that participating in the study will include full confidentiality of their identity was stated before the questionnaire proper. The questionnaire contained questions with a list of choices and 4-point Likert scale questions. It was also available in English and Filipino languages. The estimated time needed to accomplish the questionnaire was 10-15 minutes and participants were instructed to answer all applicable questions. At the end of the questionnaire, an overview on the definition of PCOS and its associated long-term health effects were stated. In addition, referral links and contact numbers of the National Center for Mental Health, Medgate Philippines, and Globe Telehealth, Inc. were indicated should the participants have inquiries or concerns regarding mental health and consultation.

2.4 Data Gathering Procedure

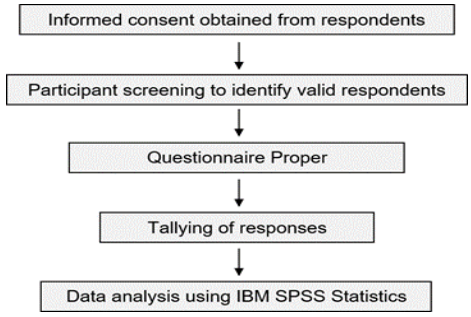

Fig.2. Data gathering and analysis procedure performed throughout the course of the study.

Questionnaires were employed as the method of data collection. The target respondents were females diagnosed with Polycystic Ovarian Syndrome (PCOS) and females undiagnosed with the disorder but exhibit its signs and symptoms; respondents must also be within 18-49 years of age and reside in the National Capital Region (NCR), Philippines at the time of answering the questionnaire. The study was conducted for 10 months, one month of which was used for data gathering. The estimated time for answering the questionnaire was 10-15 minutes. The study excluded minors, women outside the reproductive age (aged 50 years and above), and women living outside of NCR, Philippines. The level of awareness of PCOS was measured on a scale of 0-5; those who have an answer of number 2 or above in the participant screening of the questionnaire are included in the study as it guarantees that respondents are knowledgeable of at least the symptoms of PCOS. Additionally, those who presented as diagnosed but failed to submit proof of their diagnosis without a valid reason within two weeks from the submission of the questionnaire proper were excluded from the study.

To initiate the recruitment of respondents, convenience sampling was employed in which publication materials and the

Google Forms questionnaire were posted in Facebook, Twitter, and Google Mail, and were propagated via shares, and retweets. A consent form which outlines the objectives of the study in detail and ensures confidentiality was included in order to minimize pressures that would urge respondents to either forfeit from the study or not give their honest responses. A participant screening was employed to identify the eligible respondents. Other potential respondents were determined through snowball or chain-referral sampling to increase the likelihood of finding women that fit the target population. The survey was distributed to more than 385 respondents. Among the participants who underwent participant screening, a minimum of 385 qualified samples from the Diagnosed PCOS Group and Undiagnosed PCOS Group were evaluated. Once a respondent has given her informed consent and has been qualified, she will then answer the PCOS Awareness and Health Management Questionnaire. Women categorized under the Diagnosed PCOS Group were asked to present proof of their diagnosis. They are given two weeks from the submission of the questionnaire proper to submit a file of their medical certificate or proof of being diagnosed with PCOS. No study-related treatments or medical procedures were performed on the study. The data was analyzed using the appropriate statistical measure.

2.5 Ethical Considerations

An informed consent was provided to all participants prior to their involvement in the study. The participant's involvement is completely voluntary. In the event that the respondents have a concern regarding the content of the questionnaire, contact details of the National Center for Mental Health, Medgate provided at the end of the questionnaire. The anonymity of the participants was strictly observed throughout the study and the researchers ensured that their identities and the information that were collected was solely for the purpose of the study. The study did not have a source of financial support and the authors declared no conflict of interest.

2.6 Data Analysis

The data analysis of the collected results from the respondents was conducted with the use of IBM SPSS Statistics (Version 23) in order to determine the indications of the collected data to the study. Treatment for the data collected from the participants involved the use of descriptive statistics such as frequency count and percentage frequency for the demographic profile, and the factors for rejecting and seeking diagnosis. A measure of the central tendency, particularly average weighted mean (AWM), was utilized for the prevalence of the psychological and physiological effects of the signs and symptoms of Polycystic Ovarian Syndrome (PCOS). The determination of the mean was performed on the basis of a 4-point Likert scale. A Descriptive Equivalent (DE) with ranges was utilized to describe each mean.

The Independent t-test was applied to compare the Undiagnosed PCOS Group and Diagnosed PCOS Group before treatment. Independent t-test was applicable for the data because the two groups being compared were separate and independent of each other. A level of significance of 95% was applied to this test. On the other hand, the Paired Samples t-test was used to compare the Diagnosed PCOS Group before and after their treatment. The test evaluated the responses to measure two different intervals from a related group. A level of significance of 95% was applied to this test.

III. RESULTS

Table 1

Frequency Count of the Demographic Profile of the Respondents

Demographic Profile	Frequency	%
Age		
18-25	364	90.3
26-33	31	7.7
34-41	7	1.7
42-49	1	0.2
Total	403	100.0
Civil Status		
Single	389	96.5
Married	13	3.2
Separated	1	0.2
Total	403	100.0
Location within National Capital Region, Philippines		
Caloocan	12	3.0
Las Pinas	22	5.5
Malabon	15	3.7
Makati	23	5.7
Mandaluyong	17	4.2
Manila	68	16.9
Marikina	11	2.7
Muntinlupa	15	3.7
Navotas	9	2.2
Parañaque	20	5.0
Pasay	13	3.2
Pasig	30	7.4
Pateros	13	3.2
Quezon City	74	18.4
San Juan	13	3.2
Taguig	27	6.7
Valenzuela	21	5.2
Total	403	100.0

Note. The most prevalent age, civil status, and location are highlighted in yellow.

Table 2

Frequency Count of the Undiagnosed PCOS Group and Diagnosed PCOS Group

	Frequency	%
Undiagnosed PCOS Group	245	60.8
Diagnosed PCOS Group	158	39.2
Total	403	100.0

The 403 respondents of the study were initially assessed through their demographic profile. Table.1. shows that the majority of the respondents' age, civil status, and location within the National Capital Region (NCR) are 18-25 (90.3%), *Single* (96.5%), and *Quezon City* (18.4%), respectively. They were also divided into the Diagnosed PCOS Group and the Undiagnosed PCOS Group. As seen in Table 2, 245 (60.8%) of the 403 respondents belong to the *Undiagnosed PCOS Group* while 158 (39.2%) belong to the *Diagnosed PCOS Group*. Frequency count was utilized as the data treatment for Tables 1 and 2.

Table 3

Frequency Count of the Signs or Symptoms of PCOS of the Respondents

Symptoms	Frequency	%
Weight gain	196	48.6
Excessive hair growth around the face, chest, etc.	120	29.8
Irregular menstrual cycle or having no period at all	331	82.1
Thinning hair or hair loss	176	43.7
Oily skin/ Acne	272	67.5
Difficulty getting pregnant	19	4.7
Painful periods or having menstrual cramps	263	65.3
Psychological disturbances (moody, depressed, having anxiety, Etc.)	304	75.4
Headache	233	57.8
Skin discoloration	69	17.1

Note. The most prevalent sign or symptom is highlighted in yellow.

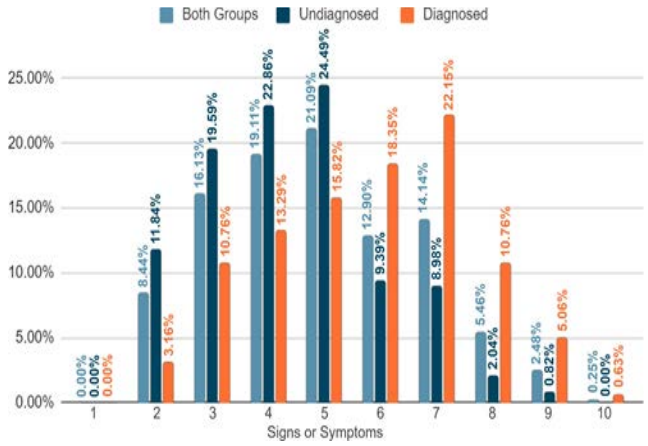

Fig.3. Frequency Count of the Number of the Signs or Symptoms Experienced by the Respondents.

The most prevalent signs or symptoms of PCOS in all of the respondents were identified in Table 3 through frequency count, where Irregular menstrual cycle or having no period PCOS. Additionally, in Figure 3, it was noted how many signs or symptoms are experienced by a respondent and they were grouped based on whether they are diagnosed or not. Majority of the diagnosed respondents reported having 7 signs or symptoms of PCOS (22.15%), while the undiagnosed group commonly had 5 (24.49%).

The psychological and physiological effects of the signs and symptoms of PCOS were identified. In the succeeding tables, respondents from the Diagnosed PCOS group were asked for two separate data, their current experiences and their experiences before receiving treatment for PCOS, thus dividing the group into Pre-treatment, and Post-treatment.

All in all, this resulted in three groups for data analysis: Undiagnosed PCOS Group, Diagnosed PCOS Group Pre-treatment, and Diagnosed PCOS Group Post-treatment. Data treatment determined the average weighted mean (AWM) of the psychological and physiological effects with a descriptive equivalent and a corresponding set of ranges.

The following ranges were indicated for the mean scores in increasing order: 1.00-1.75 for *Rarely*; 1.76-2.50 for *Sometimes*; 2.51- 3.25 for *Often*; and 3.26-4.00 for *Always.*

Table 4.1

Mean Score of the Psychological Effects of PCOS on the Respondents

Psychological Effects	Undiagnosed & Diagnosed		Undiagnosed		Diagnosed			
					Pre-Treat.		Post-Treat.	
	Mean	DE*	Mean	DE*	Mean	DE*	Mean	DE*
Have difficulties staying and dealing with your ideal weight	2.89	Often	2.66	Often	3.25	Often	2.16	Sometimes
Low self-esteem due to probability of PCOS	2.43	Sometimes	2.20	Sometimes	2.78	Often	1.94	Sometimes
Feel concerned in gaining weight	3.07	Often	2.89	Often	3.35	Always	2.28	Sometimes
Feel sad because of infertility problems that arise or may arise due to Polycystic Ovarian Syndrome (PCOS)	2.57	Often	2.35	Sometimes	2.92	Often	2.00	Sometimes
Afraid of not being able to have children	2.64	Often	2.46	Sometimes	2.91	Often	2.38	Sometimes
Feel frightened of getting cancer	3.17	Often	3.16	Often	3.18	Often	2.82	Often
Crying for no reason	2.82	Often	2.70	Often	3.02	Often	2.17	Sometimes
Feel guilty for being overly aggressive	2.94	Often	2.85	Often	3.06	Often	2.14	Sometimes
Not a real woman	1.68	Rarely	1.64	Rarely	1.76	Sometimes	1.50	Rarely
Worrying about PCOS	2.61	Often	2.45	Sometimes	2.93	Often	2.22	Sometimes
Embarrassed about excessive body hair	2.17	Sometimes	2.00	Sometimes	2.44	Sometimes	2.31	Sometimes
AWM	2.64	**Often**	2.48	**Sometimes**	2.87	**Often**	2.18	**Sometimes**

Note. The most prevalent psychological and physiological effects are highlighted in yellow. DE= descriptive equivalent.
[a]The descriptive equivalent of the mean scores were based on their respective mean intervals. [b]1.00-1.75 = "Rarely", 1.76-2.50 = "Sometimes", 2.51- 3.25 = "Often", 3.26-4.00 = "Always".

Table 4.1 displays that, in general, psychological effects *Often* affected the respondents, as shown by an AWM of 2.64. *Feel frightened of getting cancer* (3.17) was the most common psychological effect. When it comes to the specific groups, the Undiagnosed PCOS Group was *Sometimes* affected (2.48) by psychological effects with *Feel frightened of getting cancer* being the most common (3.16); the Diagnosed PCOS Group Pre-Treatment was *Often* affected (2.87) with *Feel concerned in gaining weight* as the most common (3.35); lastly, the Diagnosed PCOS Group Post-Treatment was *Sometimes* affected by these effects (2.18) with *Feel frightened of getting cancer* as the most prevalent effect.

Table 4.2 shows that physiological effects *Often* affected the respondents as a whole (2.67). *Irregular menstrual periods* (2.67) was the most common physiological effect. For the specific groups, all three had *Irregular menstrual periods* as the most prevalent effect. The Undiagnosed PCOS Group, Diagnosed PCOS Group Pre-Treatment, and Diagnosed PCOS Group Post-Treatment had an AWM of 3.30, 3.53, and 1.98, respectively. In terms of burden from all the physiological effects combined, the Undiagnosed PCOS group was *Often* affected (2.58), the Diagnosed PCOS Group Pre-Treatment was also *Often* affected (2.81), while the Diagnosed PCOS Group Post-Treatment was *Rarely* affected (1.69).

An Independent Sample t-test was used in order to determine the significant difference in the psychological and physiological effects between the Undiagnosed PCOS Group and Diagnosed PCOS Group Pre-treatment as seen in Table

For the psychological effects, the results showed that the t-computed (6.186) is greater than the critical value (1.96). On the other hand, the results showed that the t-computed (3.96) is greater than the critical value (1.96) for the physiological effects. Both the psychological and physiological effects presented a p-value or significant value of 0.000 which is less than 0.05. This means that there is a significant difference in the psychological and physiological effects of the signs and symptoms between the Undiagnosed PCOS Group and Diagnosed PCOS Group Pre-treatment.

Table 4.2

Mean Score of the Physiological Effects of PCOS on the Respondents

Physiological Effects	Undiagnosed & Diagnosed		Undiagnosed		Diagnosed			
					Pre-Treat.		Post-Treat.	
	Mean	DE*	Mean	DE*	Mean	DE*	Mean	DE*
Growth of visible hair on face	1.85	Sometimes	1.69	Rarely	2.10	Sometimes	1.47	Rarely
Visible growth of hair on any part of the chest and back	1.66	Rarely	1.58	Rarely	1.78	Sometimes	1.43	Rarely
Excessive growth of hair in the upper and lower extremities	2.07	Sometimes	1.89	Sometimes	2.35	Sometimes	1.61	Rarely
Abdominal bloating	3.00	Often	2.85	Often	3.22	Often	1.61	Rarely
Late menstrual period	3.31	Always	3.24	Often	3.42	Always	1.76	Sometimes
Menstrual cramps	3.15	Often	3.19	Often	3.09	Often	1.85	Sometimes
Headaches	2.94	Often	2.91	Often	2.99	Often	1.77	Sometimes
Irregular menstrual periods	3.39	Always	3.30	Always	3.53	Always	1.98	Sometimes
AWM	2.67	**Often**	2.58	**Often**	2.81	**Often**	1.69	**Rarely**

Note. The most prevalent psychological and physiological effects are highlighted in yellow. DE= descriptive equivalent.
[a]The descriptive equivalent of the mean scores were based on their respective mean intervals. [b]1.00-1.75 = "Rarely", 1.76-2.50 = "Sometimes", 2.51- 3.25 = "Often", 3.26-4.00 = "Always"

Table 5

Independent Samples Test Scores on the Psychological and Physiological Effects of PCOS on the Undiagnosed PCOS Group and Diagnosed PCOS Group Pre-treatment

		Mean	SD	t computation (equal variances assumed)	Significant value of p-value	Decision
Psychological	Undiagnosed	2.50	0.663	**6.186[b]**	**0.000[c]**	Reject Ho, Accept Ha
	Diagnosed Pre-treatment	2.91	0.616			
Physiological	Undiagnosed	2.63	0.604	**3.960[b]**	**0.000[c]**	Reject Ho, Accept Ha
	Diagnosed Pre-treatment	2.87	0.584			

Note. SD = standard deviation; equal variances assumed in t-computation
[a]Critical value: 1.96. [b]significant at critical value of greater than 1.96. [c]significant at p-value of less than 0.05.
*p < 0.05

Table 6

Paired Samples Test Scores on the Psychological and Physiological Effects of PCOS on the Diagnosed PCOS Group Pre-treatment and Diagnosed PCOS Group Post-treatment

		Mean	Sd	t computation (equal variances Assumed)	Significant value of p-value	Decision
Psychological	Pre-treatment	2.91	0.616	**18.399**[b]	**0.000**[c]	Reject Ho, Accept Ha
	Post-treatment	2.03	0.356			
Physiological	Pre-treatment	2.87	0.584	**22.193**[b]	**0.000**[c]	Reject Ho, Accept Ha
	Post-treatment	1.82	0.430			

Note. SD = standard deviation; equal variances assumed in t-computation
[b]Critical value: 1.96. [c]significant at critical value of greater than 1.96. [c]significant at p-value of less than 0.05.
*p < 0.05

In Table 6, a Paired Sample t-test was used in order to determine the significant difference in the psychological and physiological effects of the signs and symptoms of PCOS between the Diagnosed PCOS Group Pre-treatment and Diagnosed PCOS Group Post-treatment. For the psychological effects of PCOS on both groups, the results showed that the t-computed (18.399) is greater than the critical value (1.96). The same goes for the physiological effects of PCOS on the Diagnosed PCOS Group Pre-treatment and Post-treatment, where the results displayed that the t–computed (22.193) is greater than critical value (1.96). Both the psychological and physiological effects of the signs and symptoms of PCOS on the two groups had a p-value or significant value of 0.000, which is less than 0.05. Given the data, it can be inferred that there is a significant difference in the psychological and physiological effects of the signs and symptoms of PCOS between the Diagnosed PCOS Group Pre-treatment and Post-treatment.

Tables 7 and 8 determined the reasons for rejecting and seeking diagnosis between the Undiagnosed PCOS Group and Diagnosed PCOS Group, respectively. Frequency count and percentage frequency were used to quantify the responses. Additionally, one part of the questionnaire was designed exclusively for the Diagnosed PCOS Group Post-Treatment, which contained follow-up questions regarding their perspective on the reasons for rejecting diagnosis after treatment. These follow-up (FU) questions are placed after every reason for rejecting diagnosis in Table 7.

The most common reason for rejecting diagnosis in both groups, as seen in Table 7, was *Scared of being diagnosed with Polycystic Ovarian Syndrome* (56.3). For the Undiagnosed PCOS Group, their most common reason for rejecting diagnosis was also due to fear of getting diagnosed with PCOS (62.0%). On the contrary, *The treatment is expensive* (64.6%) was the most common reason that led the Diagnosed PCOS Group to hesitate getting diagnosed in the past.

In Table 8, the most common reasons that would lead the respondents to seek diagnosis of PCOS were determined. For both groups, the most common reason was *to reduce further complications* (87.8%). Similarly, majority of the Diagnosed PCOS Group sought to be diagnosed in the past to reduce further complications from the disorder (95.6%). Meanwhile, *To have a healthier lifestyle* (84.9%) was the most common reason that would lead the Undiagnosed PCOS Group to seek diagnosis.

Table 7

Frequency Count of the Reasons for Rejecting Diagnosis of the Respondents

	Both Groups				Undiagnosed PCOS Group				Diagnosed PCOS Group			
	Yes		No		Yes		No		Yes		No	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Scared of getting diagnosed with Polycystic Ovarian Syndrome (PCOS)	227	56.3	176	43.7	152	62.0	99	38.0	75	47.5	83	52.5
[FU] Was getting diagnosed worth it?									146	92.4	12	7.6
Afraid of the procedure that will be performed in diagnosing Polycystic Ovarian Syndrome (PCOS)	207	51.4	196	48.6	135	55.1	100	44.9	72	45.6	86	54.4
[FU] Was undergoing the treatment procedure worth it?									129	81.6	29	18.4
The treatment is expensive	203	50.4	200	49.6	101	41.2	144	58.8	102	64.6	56	35.4
[FU] Was paying the price of the treatment worth it?									120	75.9	38	24.1
It is a hassle to go to the hospital	217	53.8	186	46.2	128	52.2	117	47.8	89	56.3	69	43.7
[FU] Was going to the hospital worth it?									139	88.0	19	12.0
I have no available time to get diagnosed	144	35.7	259	64.3	116	47.3	129	52.7	28	17.7	130	82.3
[FU] Was it worth taking up your time to get diagnosed?									147	93.0	11	7.0

Table 8

Frequency Count of the Reasons for Seeking Diagnosis of the Respondents

	Both Groups				Undiagnosed PCOS Group				Diagnosed PCOS Group			
	Yes		No		Yes		No		Yes		No	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
To have a healthier lifestyle	342	84.9	61	15.1	208	84.9	37	15.1	134	84.8	24	15.2
To reduce further complications	354	87.8	49	12.2	203	82.9	42	17.1	151	95.6	7	4.4
To plan childbirth	160	39.7	243	60.3	88	35.9	157	64.1	72	45.6	86	54.4
To confirm diagnosis	295	73.2	108	26.8	170	69.4	75	30.6	125	79.1	33	20.9

Note. The most prevalent reason for rejecting diagnosis for each group is highlighted in yellow.

3.1 Demographic Profile of the Women who are Exhibiting the Signs and Symptoms of Polycystic Ovarian Syndrome (PCOS)

In the study of Ding, Baio, Hardiman, Petersen, and Sammon (2016), only around 50% of the women who met at least two of the three criteria for the diagnosis of PCOS are diagnosed. Similarly, from the results gathered, the researchers also

noticed the disparity between the Undiagnosed and Diagnosed PCOS Group, wherein 60.8% of the respondents were undiagnosed but are experiencing at least one symptom of oligoovulation and at least one of the observable signs and symptoms of PCOS. In the study of Hillman and Dale (2018), they mentioned that such under-diagnosis may be due to lack of awareness regarding the condition, only women with severe phenotype consult their doctors, and general practitioner's avoidance of overmedicalization. In the study conducted, included in the participant screening is their level of awareness, wherein only those who had an awareness level of 2-5 were included. Based on the participant screening, only a few of the whole Undiagnosed PCOS Group had an awareness level of 5 which is knowing how PCOS happens, its signs and symptoms, treatment, and further complications that might arise from it. Such indicates that even though the respondents were aware of PCOS, only a few know all the information regarding the said condition. Similar to what Hillman and Dale (2018) discovered, this may imply that women consult their doctors only when the PCOS has become more severe or they begin to experience more signs and symptoms of the condition.

According to the National Institute of Health (NIH), the adult diagnostic criteria for definitive symptoms of PCOS includes (1) hyperandrogenism and/or hyperandrogenemia, (2) Oligoovulation, and (3) Polycystic Ovarian Morphology (PCOM). In the study, the researchers made use of the first two criteria in screening the participants. From the data gathered, the top three most prevalent symptoms include *Irregular menstrual cycle or having no period at all*, *Psychological disturbances*, and *Oily skin/acne*, consecutively. Both the top one and three symptoms recorded coincides with what the study of Rebar (2018) discovered to be the most common symptoms manifested by women with PCOS; which are irregular menstruation cycle and hyperandrogenism. From these findings, it can be observed that the significant affinity of *Irregular menstruation or having no period at all* with PCOS is attributed to the condition's nature of hormonal imbalances such as the abundance of male hormones caused by hyperandrogenism. This is further supported by Zeng, Xie, Liu, Long, Lian, and Mo (2020), who identified hyperandrogenism as the most significant manifestation of PCOS. Furthermore, aside from the hormonal imbalance that may also cause oily skin that can result in acne, the age of the majority of the respondents (18-25) may have contributed as well. This is supported by Reese (2018) who mentioned that although acne can affect people of all ages, the most affected group are those in between the ages of 12 to 24. In Table 3, 75.4% of the population said that they have experienced *Psychological disturbances* associated with their condition. This clearly indicates that mental health may be affected when a person has PCOS or is experiencing the signs and symptoms of PCOS. Similar findings were also observed from the study conducted by Chaudhari, Mazumdar, and Mehta (2018), wherein they concluded that anxiety and depression are prevalent in patients with PCOS. Additionally, in Figure 3, all of the patients experienced more than one of the signs and symptoms of PCOS, thus it can be deduced that the coexisting physiological problems may have also contributed to the psychological disturbances, affecting the confidence and personality of the woman with PCOS or exhibiting its signs and symptoms. This is further supported by Kubacky (as cited by Parker, 2015), who mentioned that the disorder has indeed had a significant impact on mental health of a person with PCOS in both situational and chemical levels. In addition, aside from the cosmetic issues and other symptoms such as having acne, male-pattern baldness, and weight gain, the hormonal imbalances brought by the condition also cause real neurobiological effects on the brain which can be linked to depression.

Difficulty getting pregnant has been identified as the least common symptom of PCOS in the study. Although in other studies, difficulty in getting pregnant is generally one of the common symptoms of PCOS; the study conducted was not able to witness a high frequency in the said symptom. According to Bersales (2018) of the Philippine Statistics Authority, the median age of mothers giving birth in the Philippines during 2017 was 26 years old. Given this, the reason for low frequency may possibly be attributed to having the majority of the respondents being within the age bracket of 18-25 (90.3%). Additionally, the majority of the respondents also had a civil status of Single (96.5%), which may imply that most of them have not yet conceived a child.

3.2 Prevalence of the Psychological Effects of the Signs and Symptoms of Polycystic Ovarian Syndrome (PCOS)

The fear of cancer is one that is seen throughout the general population, as it is feared more than any other disease (Vrinten, van Jaarsveld, Waller, Wagner, & Wardle, 2014). As PCOS is known to increase the risk of developing cancer (Harris & Terry, 2016; Barry et al., 2014), its presence would cause a great amount of worry in women once educated on the possible complications of the disorder. Murphy, Malrow, Waller and

Vrinten (2018) have noted that there is a higher frequency of cancer worry in younger age groups and in women, both of which describe the majority of the respondents to this study. This fear is a common reaction to PCOS, as Copp et al. (2019) have associated the reaction of shock and anxiety upon hearing of associated long-term risks (inclusive of endometrial cancer) of the disease. The difference of the means of the Diagnosed PCOS Group before treatment (3.18) and after treatment (2.82) indicates a lower occurrence of the psychological effect that may be due to diagnosis, yet it became the most prevalent for the Diagnosed PCOS Group Post-treatment. The fear of cancer is seen as a general health concern and was the most prevalent for the Undiagnosed PCOS Group; it can be then understood that there was a lack of immediate health issues and they had perceived themselves as healthy. Meanwhile in the Diagnosed PCOS Group Pre-treatment, there was a concern from weight gain; a manifestation of PCOS that is hard to control without proper intervention (i.e. no knowledge that it is caused by the disorder). Without any noticeable threat to their health, it had allowed the Undiagnosed PCOS Group to worry more about diseases that could occur at any time regardless of their current health status such as cancer, a highly variable disease in its causality. While PCOS in its less severe manifestation could also fit this criteria, cancer is comparatively more well-known. The fact that fear of cancer became once again prevalent in those who were diagnosed after their treatment could be because of effective intervention, leading to their biggest concern being the long-term risks of the disorder instead of the immediate complications.

The Undiagnosed PCOS Group from Table 4.1 also reported the psychological effect caused by the signs and symptoms of PCOS that they are most concerned with is being afraid of getting cancer, which is a complication of PCOS. According to Copp et al. (2019), women who have received clinical diagnosis of PCOS have had negative feelings such as shock and fear when they were diagnosed with PCOS and informed of its complications, particularly its associated risk to endometrial cancer. Thus, diagnosis and awareness of PCOS can be associated with an individual's fear of the disorder. The Undiagnosed PCOS Group does not present the same case as the study by Copp et al. (2019) because no diagnosis has been conducted to provide them with information about the complications of PCOS. However, on the basis of the eligibility criteria of the study, the Undiagnosed PCOS Group was expected to at least know PCOS and some of its symptoms despite not receiving any form of medical consultation as the basis of diagnosis. Among the group of participants, it can be determined that the level of awareness of some of the women of Undiagnosed PCOS Group extended to having an idea of PCOS and its association to risk of endometrial cancer, a possible explanation as to why the most common psychological effect of the sign of PCOS is the fear of getting cancer. Based on the initial participant screening, the Undiagnosed PCOS Group was indicated to have sufficient awareness on PCOS and its symptoms and complications. In addition, there was a general fear of getting cancer which has been indicated to be the greatest health fear (Vrinten, van Jaarsveld, Waller, von Wagner, & Wardle, 2014), providing evidence as to why the prevalent psychological concern among the group is the risk of cancer development, whether it is due to its association of PCOS or due to general fear of cancer.

As for the Diagnosed PCOS Group Pre-treatment, the concern about gaining weight was the most prevalent psychological effect felt. Jones et al. (2004) had found that weight gain had the highest negative impact in association with PCOS due to the difficulty of managing the particular manifestation. Barber, Hanson, Weickert and Franks (2019) second the association, as their collection and analysis of studies on the relationship between obesity and PCOS showed a complex relationship influenced by multiple factors, one of which includes mental health. In addition, the study had found that women with PCOS are prone to developing mental health issues such as anxiety and depression, which together with the lower self-worth and negative perception of their own body image due to other symptoms of PCOS (i.e., manifestations of hormonal imbalance such as hirsutism), lead to crippled attempts of weight management through lifestyle choices (lowered physical activity, ineffective/inconsistent dieting, sleep deprivation). The fear of weight gain also may be attributed to the fact that the respondents are women. In a study by Lillis, Thomas, Levin and Wing (2017), the researchers stated that weight self-stigma (referred to as the internalization of bias, ridicule and discrimination due to their weight) stems from both self-devaluation and fear of enacted stigma (anticipating to receive stigma from others). Results from the study show a higher occurrence of this phenomenon in women, while also having a positive correlation with symptoms of anxiety and depression; which then coincide with the previously mentioned study. The high concern for weight gain among those diagnosed with PCOS may then be attributed to PCOS itself compounding inherent social bias towards women regarding their weight. Thus as the most prevalent reason for seeking diagnosis for the

Diagnosed PCOS Group was *To reduce further complications* (95.6%) the lowered mean score for the concern of weight gain before (3.38) and after (2.28) treatment may indicate an effective intervention.

3.3 Prevalence of the Physiological Effects of the Signs and Symptoms of Polycystic Ovarian Syndrome (PCOS)

Irregular menstruation is the physiological sign or symptom of PCOS that had the most effect on all groups with a score of 3.39 which translates to *often* experienced. This is in line with the results of Table 3 where it is the most prevalent among the signs or symptoms of PCOS. *Irregular menstrual cycle or having no period* at all is experienced by 82.1% of the respondents. Oligoovulation is a condition that is directly related to irregular or infrequent menstruation and in the study, one of the requirements to be eligible to participate is to have at least one symptom of oligoovulation. Moreover, the choices given under oligoovulation in the participant screening part of the questionnaire included only *Painful and/or irregular menstruation* and *Difficulty in pregnancy* as the individual symptoms. Given that 96.5% of the respondents were single, it can be inferred that the respondents had *Painful and/or irregular menstruation* as their symptom for oligoovulation.

The Rotterdam criteria for PCOS Diagnosis includes hyperandrogenism, oligoovulation, and PCOM, where having at least two of the three conditions is enough to be diagnosed with the disorder (Rosenfield & Ehrmann, 2016, p. 469). With that, it is probable that the Diagnosed PCOS Group Pre-treatment experienced oligoovulation which led to their diagnosis. Treatment for the symptoms of PCOS is not accomplished in an instant, as addressed in "Polycystic Ovary Syndrome Treatment in Philippines" (2016). For example, in irregular menstruation, a regimen of oral contraceptives or intermittent progesterone tablets must be taken every 3-4 months or monthly. The time that it takes to achieve a regular menstruation cycle may contribute to the burden given by the symptom even after diagnosis.

The existing diagnostic criteria for PCOS are all inclusive of irregular menstruation or ovulation cycles (Capozzi, Scambia, & Lello, 2020; Rebar, 2018). However, the Undiagnosed PCOS Group have no clinical or biochemical tests to utilize as the basis for determining that the cause of irregularities to their menstrual cycle is due to PCOS; therefore, there is no definitive and direct association of irregular menstruation to PCOS among the group. In order to determine if irregular menstruation is indirectly caused by PCOS, its associated factors that can also cause oligomenorrhea or oligoovulation must be taken into consideration. According to Park, Shin, Jeon, Cho and Kim (2021), irregular menstruation can be influenced by factors such as body weight and sleep. In terms of body weight, PCOS can be indirectly associated with irregular menstruation experienced by undiagnosed women because of hyperandrogenism, a biochemical symptom of PCOS which manifests through elevated free or total testosterone in women. Increased testosterone levels can lead to excessive weight gain, which can then influence irregular menstruation cycles (Basile & Rodriguez, 2020). Similarly, irregular menstruation among the Undiagnosed PCOS Group can be indirectly associated to PCOS based on the factor of sleeping behavior, as PCOS has been reported to increase the risk of obstructive sleep apnea ("Health Risks Associated with PCOS - UChicago Medicine," 2018). In order to explain the prevalence of irregular menstruation cycles among undiagnosed women as a possible indirect manifestation of PCOS, it is important to take note of said factors and how they relate to PCOS, when there is not clinical or biochemical basis for determining that PCOS is the primary cause of the aforementioned physiological concern.

3.4 Significant Difference in the Psychological and Physiological Effects of the Signs and Symptoms of Polycystic Ovarian Syndrome (PCOS)

The Undiagnosed PCOS Group presented an AWM of 2.48 (*sometimes*) for the psychological effects and 2.58 (*often*) for the physiological effects, while the Diagnosed PCOS Group Pre-treatment presented an AWM of 2.87 (*often*) and 2.81 (*often*), respectively. The latter group showed a higher AWM in both psychological and physiological effects. The significant difference between the two groups is attributed to the higher impact of the psychological and physiological effects of the signs and symptoms of PCOS on the Diagnosed PCOS Group Pre-treatment respondents compared to the Undiagnosed PCOS Group respondents. This may suggest that the former group chose to undergo clinical diagnosis because the psychological and physiological effects experienced were more prevalent and were negatively affecting their lives. The varying clinical manifestations among patients tend to be overlooked due to the commonality of symptoms of PCOS. This, along with the insufficient knowledge on PCOS contribute to delayed diagnosis. Additionally, Hillman and Dale (2018) mentioned

that mostly women with a more severe phenotype go through medical consultation. Several diagnostic tests and laboratory procedures need to be conducted in order to diagnose PCOS (Mayo Clinic Staff, 2020). Individuals do not immediately present themselves to consultation unless the effects of the symptoms have negatively affected their health-related quality of life. This may explain as to why the Diagnosed PCOS Group is associated with a higher AWM compared to the Undiagnosed PCOS Group.

With an AWM of 2.18 and 1.69, the psychological and physiological effects of PCOS post-treatment *sometimes* and *rarely* affect the group, respectively. These results were lower as compared to the respondents' results before they received treatment, which were depicted as *often* affected. As indicated in Tables 4.1 and 4.2, the impact of the psychological and physiological symptoms of PCOS were lesser after the Diagnosed PCOS Group received treatment. Such is also supported by the result of the t-test seen in Table

There is no definite treatment for PCOS; however, its symptoms can be managed through lifestyle improvements (Rocha et al., 2019) or through the use of hormonal contraceptives such as oral pills, dermal patches or vaginal rings to control menstrual irregularities, hirsutism and acne (Williams et al., 2016). Supporting the results acquired from the data treatment, it was mentioned in "Polycystic Ovary Syndrome: What Is It and How Do You Treat PCOS" (2018) that through the introduction of hormones by medications such as birth control, the body's hormone levels return to normal and thus help minimize the symptoms of PCOS. Managing PCOS helps regulate periods and lessen the pain associated with menstruation, decrease acne formation through reduced testosterone and inflammation, and stop amenorrhea which decreases the risk of developing ovarian cysts.

3.5 Most Common Factors that Affect the Decision to Reject Diagnosis of Polycystic Ovarian Syndrome (PCOS) between the Undiagnosed PCOS Group and Diagnosed PCOS Group

For both groups, majority of the respondents said that their reason for rejecting diagnosis is because of their fear of getting diagnosed with the PCOS condition. However, by separating the answers of the two groups, it can be recognized that most of the respondents who were afraid of being diagnosed came from the Undiagnosed PCOS Group. These findings can imply that even though the chosen respondents for the undiagnosed group had some knowledge about PCOS, such fear may suggest that they still do not fully understand what the condition is and how it can affect their health in the long-term. There is also a possibility that they are not aware of how the process of diagnosis is done and the benefits that can be achieved from being diagnosed and receiving treatment for their condition. Another reason may also be brought by the lack of accessible information that promotes the awareness and understanding of the PCOS condition in the public. Taber, Leyva, and Persoskie (2015) also mentioned that other reasons why people avoid medical care is due to low perceived need to do so and traditional barriers such as high cost, lack of health insurance, or time constraints.

There were three reasons which were selected by majority or more than 50% of the Undiagnosed PCOS Group as the factors for rejecting diagnosis; the following are: *Scared of getting diagnosed with Polycystic Ovarian Syndrome* (62.0%), *Afraid of the procedure that will be performed in diagnosing Polycystic Ovarian Syndrome* (55.1%), and *It is a hassle to go to the hospital* (52.2%). The objective of the follow-up questions was to identify if there is an advantage to diagnosis despite such impediments. The results of the follow-up questions answered by the diagnosed group after treatment found in Table 7 were correlated to the common reasons for rejecting diagnosis of the undiagnosed group. For *Scared of getting diagnosed with Polycystic Ovarian Syndrome*, 92.4% of the respondents claimed that getting diagnosed was worth it despite the existing fears. Next, in *Afraid of the procedure that will be performed in diagnosing*

Polycystic Ovarian Syndrome, 81.65% of the respondents said that undergoing the treatment procedure was worth it despite the risk. Lastly, for *It is a hassle to go to the hospital*, 88.0% of the respondents answered that going to the hospital was worth it despite the inconvenience.

The Diagnosed PCOS Group hesitated to get diagnosed for PCOS mostly because the treatment is expensive. This could be attributed to the majority of the respondents being at a point in their lives where they were financially unable to shoulder the expenses of treatment. According to Table 1, 90.3% of all respondents are aged 18-25. The Philippine Statistics Authority (2017) categorizes the population aged 5-24 years old as the "school-age"; this implies that the majority of the respondents are either students or newly hired workers. Additionally, as

stated by Taber, Leyva, and Persoskie (2015), high cost of medical care is one of the traditional barriers that could deter a person from seeking medical attention. Treatment options for PCOS vary depending on the symptoms a patient has (NHS Choices, 2017).

3.6 Most Common Factors that Affect the Decision to Seek Diagnosis of Polycystic Ovarian Syndrome (PCOS) between the Undiagnosed PCOS Group and Diagnosed PCOS Group

Among the Undiagnosed PCOS Group, *To have a healthier lifestyle* was the factor that had the highest frequency (84.9%), while for the Diagnosed PCOS Group, it was *To reduce further complications* (95.6%). These two factors ranked not far from one another, with their frequencies only differing by small values. PCOS is characterized by irregular menstruation and symptoms of hyperandrogenism. The presence of these clinical symptoms may have prompted those affected to seek diagnosis in order to alleviate the manifestations and to achieve health management. According to Copp et al. (2019), an increase in understanding of PCOS was obtained after diagnosis. This may indicate that women diagnosed with PCOS have more knowledge on the possible complications brought by the hormonal disorder, and thus look towards diagnosis to reduce the risk of developing long-term health risks. In addition, the symptoms obtained from the hormonal imbalance of PCOS may progress to further complications if not maintained. These may justify why reducing further complications has a high frequency percent, ranging from 83-96%. The clinical intervention for PCOS is focused on the management of the symptoms and manifestations of PCOS. This applies to the Undiagnosed and Diagnosed PCOS Group as they are both affected by the symptoms of PCOS. As stated by Rocha et al. (2019), lifestyle improvement is one of the standard maintenance in controlling hormonal imbalance, thus explaining why having a healthier lifestyle was consistently obtained at a high frequency percent among the respondents.

As there is no absolute cure for PCOS, treatment options vary and are aimed towards maintenance of symptoms, lifestyle improvement, and prevention of further complications. PCOS is also considered as the leading cause of female infertility (Fabio & Melissa, 2020). This shows that having a healthier lifestyle, reducing further complications, planning childbirth, and confirming diagnosis are all applicable reasons for diagnosis which may vary among women depending on their area of concern.

3.7 The Difference in the Health-Related Quality of Life (HRQoL) between the Undiagnosed PCOS Group and Diagnosed PCOS Group

There is a significant difference in the HRQoL between the Undiagnosed PCOS Group and Diagnosed PCOS Group based on a correlation of the findings of the study. The difference in HRQoL is indicated through two specific pairs for comparison: (1) Undiagnosed PCOS Group and the Diagnosed PCOS Group Pre-treatment, (2) the Diagnosed PCOS Group Pre-treatment and the Diagnosed PCOS Group Post-treatment. Based on the findings of Table 5, a significant difference was seen on the first comparison through the use of an Independent sample t-test, which identified that the diagnosed women were *often* affected by both the psychological and physiological effects of Polycystic Ovarian Syndrome before their treatment. However, while it had been reported that the Diagnosed PCOS Group Pre-treatment was more affected, the undiagnosed women also had an AWM describing that they were still affected by the effects of PCOS to some degree. Specifically, their AWM determined that they are *sometimes* affected by the psychological effects and *often* affected by the physiological effects. Moreover, the findings of Table 8 presented that 84.9% of the undiagnosed group felt that seeking diagnosis was necessary to have a healthier lifestyle, while 82.9% wanted to reduce further complications. It is important to note that although the undiagnosed group are not often affected by both aspects of PCOS as compared to the more affected Diagnosed PCOS Group Pre-treatment, more than 50% of these undiagnosed women admitted to having a need to seek diagnosis. The correlation of these findings are indicative that although there is a higher negative impact on the diagnosed women, the undiagnosed women still present similar signs and symptoms. These findings also imply the need for the Undiagnosed PCOS Group to seek medical consultation. This recommendation is further strengthened by the second comparison, which focuses on the effects of PCOS on the diagnosed women before and after their treatment. There is a difference in the HRQoL between the Diagnosed PCOS Group Pre-treatment and Post-treatment as observed in the results of Table 6. The Paired sample t-test demonstrated a significant difference in the psychological and physiological effects of PCOS between the two groups. This difference is also supported by the lower AWM of the diagnosed respondents after they received

treatment. These results suggest that there is an improvement in the HRQoL of women due to the effects of the symptoms of PCOS getting lower after receiving treatment. The improvement in the HRQoL of the Diagnosed PCOS Group after receiving treatment signifies that identification of PCOS and health maintenance of its symptoms can help reduce the health risks associated with PCOS. This is supported by the positive outlook of women after diagnosis as observed in the results. There are several factors that discourage women from getting diagnosed, with the most common ones being scared to get diagnosed with PCOS, afraid of the diagnostic procedure of PCOS, and that going to the hospital is a hassle. Diagnosed women after treatment were given the opportunity to answer follow-up questions regarding these factors, and a high percentage demonstrated that these impediments towards diagnosis are worth going through. Additionally, it is depicted in Table 8 that the actions towards health maintenance are influenced by the effects of PCOS on their lives. Reducing further complications of PCOS and having a healthier lifestyle were the most common reasons for seeking diagnosis for the Diagnosed PCOS Group, and this may be attributed to their knowledge regarding the disorder, which is usually obtained after going through a medical consultation. They are more informed of the long-term health risks and have a better understanding of the importance of a healthy lifestyle.

IV. CONCLUSIONS

Based on the data gathered, there was a significant difference in the the health-related quality of life (HRQoL) between women diagnosed with Polycystic Ovarian Syndrome (PCOS) and undiagnosed women who have the signs and symptoms of PCOS, aged 18-49 in the National Capital Region (NCR). The Diagnosed PCOS Group Pre-treatment chose to undergo clinical diagnosis because the psychological and physiological effects of PCOS had a higher negative impact on their HRQoL as compared to the Undiagnosed PCOS Group. Moreover, the effects of the signs and symptoms of PCOS were lessened after the diagnosed group received treatment. Nevertheless, even if the impact is lesser on the undiagnosed group, the effects of the symptoms of PCOS still affected them. The impact of these effects on the Undiagnosed PCOS Group's HRQoL may have contributed to their reason to possibly seek diagnosis for a healthier lifestyle. The improvement in the HRQoL of women after receiving diagnosis suggests that awareness among women of reproductive age on the medical significance and clinical symptoms of PCOS helps encourage women to undergo immediate diagnosis of PCOS in order to reduce the associated complications and to have a healthier lifestyle. This is supported by the response of the Diagnosed PCOS Group Post-treatment where they denoted that clinical diagnosis is advantageous despite the common factors that inhibit diagnosis. A better understanding on PCOS is achieved after clinical diagnosis as women who have been diagnosed take measures towards health maintenance and improving their health-related quality of life.

Recommendations:

PCOS affects women that are within reproductive age and the reproductive age range is 15-49 years old. This study focused only on women aged 18-49 years old and did not include minors due to ethical considerations. The whole reproductive age range of women may be included (ages 15-17), with research ethics in consideration. Including them in the study would be beneficial to providing a more comprehensive understanding on the effect of PCOS on the HRQoL of diagnosed and undiagnosed women. Such can help in promoting awareness on PCOS to younger demographics.

The psychological aspect of PCOS is not frequently emphasized on existing literature. Some factors brought about by PCOS have been associated with higher rates of anxiety and depression. Additional studies on the link of PCOS with its psychological aspects and how it affects the quality of life (QOL) are recommended for further studies. The current studies on the prevalence of physiological signs and symptoms may be correlated to the psychological signs and symptoms of PCOS; therefore, it is important to conduct future studies on how the identified physiological manifestations of PCOS also function as factors contributing to the psychological conditions of Filipino women with PCOS. Some of the psychological disorders associated with PCOS which can be evaluated may include depression, anxiety, and eating disorders.

Numerous researches have studied and proved the relation of PCOS with many long-term health risks. This has also been an objective of the study which was only mentioned but not focused on the questionnaire. It is recommended that questions regarding the long-term health problems associated with PCOS should be incorporated into the data instrumentation to further provide knowledge and awareness on the disorder. In addition, the association of PCOS and cardiovascular disease has long been debated and thus the results of the future researchers may

be used as supplemental information regarding their connection.

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Due to the limitations of this study, some of the results indicated in the appendices were not shown in this journal.

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