Awareness of Lifestyle Modifications in the Management of PCOS: A Population-Based Descriptive Cross-Sectional Study

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Research Article

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Abstract

Introduction: Polycystic ovarian syndrome(PCOS) is a rapidly emerging endocrine disorder affecting women of all ages. Simple lifestyle modifications can help women to combat the disorder.

Objective: To assess the knowledge among reproductive women regarding the risk factors, symptoms, complications, and management of PCOS and their source of knowledge to develop an educational tool to be used at the community level.

Results: A total of 334 women participated. The mean age was 28.70 ± 6.29 years. Around 9.3% of the participants were already diagnosed with PCOS. Around 43.4% of women have heard about PCOS. The Source of their information was a doctor (26.6%), internet (6.28%), teachers (5.6%), and friends (4.7%). Knowledge regarding risk factors revealed that obesity (33.5%), unhealthy dietary habits (35%), and genetic predisposition (40.7%) were thought as risk factors. Regarding complications participants were aware that PCOS is associated with increased risk of subfertility (40.1%), abortions (34.4%), diabetes (28.7%), hypertension (31.7%), cardiovascular disease (33.5%), endometrial carcinoma (35.9%) and psychological (37.1%). Total 37.1% were aware that eating healthy and 41% knew that weight reduction can help in the management of PCOS. Around 60.5% of women showed poor knowledge, 14.7% fair knowledge, and 24.9% good knowledge regarding PCOS. Education and occupation status was significantly related to the knowledge score ($P \leq 0.001$) about the PCOS.

Conclusion: To reduce the burden of PCOS behavioral changes in terms of regular exercise, healthy dietary habits and stress management techniques need to be incorporated from very early life.

Introduction

Polycystic ovarian syndrome (PCOS) has emerged as a new epidemic in the last few decades. The prevalence of PCOS varies between 6-25% globally¹⁻⁶. Due to the complex presentation of the disease diagnosis is difficult and is often delayed⁷⁻⁹. Women with PCOS may present with menstrual irregularities, subfertility, obesity, dermatological manifestations like hirsutism and acne. The long-term sequelae of the disorder include metabolic disorders, impaired glucose tolerance, diabetes, hypertension, and cardiovascular disorders. Due to chronic anovulation and the unopposed effect of estrogen on the uterus these women are at higher risk of developing endometrial cancer later in life. Adolescent women with PCOS may suffer from various psychological issues like depression, anxiety and sleep disturbances, and body image disorders which significantly affect their quality of life. The exact etiology of the disorder is not known however oxidative stress, genetic predisposition, certain gene polymorphism are thought to be the culprit for PCOS¹⁰⁻¹⁴. Various environmental factors, sedentary lifestyles, unhealthy eating habits are also seen to be related. Rotterdam criteria, National Institute of Health (NIH) and androgen excess and PCOS Society criteria are used to diagnose the disorder. No permanent cure for PCOS is possible. The management is usually targeted to treat the symptoms and to prevent long-term sequelae. Lifestyle modifications in terms of adopting an active lifestyle, healthy and balanced diet, avoiding junk and

unhealthy eating habits, weight reduction in those who are overweight and stress management has been seen to be effective. Even in those who need pharmacotherapy, drug therapy coupled with lifestyle modification has shown better results¹⁵⁻¹⁶.

This study was planned to assess the level of knowledge among the reproductive age woman about PCOS, risk factors and complications, and the source of information about the disease so that an education-level tools to disseminate the awareness regarding PCOS at the community level can be formulated.

Methodology

A population-based descriptive cross-sectional study was done in reproductive age women attending the Gynaecological OPD at a tertiary care hospital. Ethical committee clearance was taken from the ethical committee of the institute. Participants were briefed about the purpose of the study in the local language and a written informed consent was then taken. A pre-validated well-structured questionnaire containing 40 items was administered. The purpose of the study was explained to the participants. A total of 350 women participated. Out of all-around 16 forms were incomplete so were not included in the final analysis. Question 1-7 included the basic demographic data of women, 8-11 included related to the menstrual history of the women, 12-18 included a question related to the presence of any symptom related to PCOS, 19-30 regarding knowledge about PCOS, source of information, its symptoms and complications related to it, 31-36 included questions regarding their knowledge about the prevention and treatment of the PCOS related symptoms and complication. Questions 37-40 include the information regarding the healthy lifestyle they are practicing in their routine life.

Statistical Methods: In the present study descriptive and inferential statistical analysis has been carried out. Results on continuous measurements are presented as Mean $\pm$ SD (Min-Max). Results on categorical measurements are presented as Number (%). Significance is assessed at a 5 % level of significance. The one-way analysis of variance (ANOVA) is employed to determine whether there are any statistically significant differences between the means of three or more independent (unrelated) groups. The significance of the parameters on the categorical scale between two or more groups has been calculated using Chi-square/ Fisher Exact test. The non-parametric setting was used for Qualitative data analysis. Fisher Exact test is used when cell samples are very small. P-value: $0.05 < P < 0.10$ was taken as suggestive significant, P value: $0.01 < P \leq 0.05$ as moderately significant and P-value: $P \leq 0.01$ as strongly significant. Statistical software namely SPSS 22.0, and R environment ver.3.2.2 were used for the analysis of the data, and Microsoft Word and Excel have been used to generate graphs, tables, etc.

Results

The mean age of the study population was 28.70 ± 6.29 years. Most of the women in the study group were between 21-30 years (61.4%) followed by 31-40 years (30.5%), 41-50 years (5.4%), and 15-20 years (2.7%). Around 49.4% of the women had normal BMI (18.5-24.9), 13.5 % were underweight (< 18.5), 28.7%

overweight (25.0-29.9) and 8.4% obese (>30). Most of the women in the study group were graduates (42.8%), 8.4% postgraduates, 22.2% high school pass and 8.1% had received primary education. Around 18.6% of the participants were illiterate. Most of them were housewives (49.4%), around 26.95 % were working and 23.6% were students. The majority were married (61.7%). When asked about the menstrual history mean age of menarche was found to be 13.48 ± 1 years. Mean cycle length was 21.56 ± 3.28 days with most of them having cycle length of 21-35 days (64.37%), <21 days (8.9%), 35-60 days (23.35%) and > 60 days (1.49%) (Tablet I). Among all 35.6% of the participants experienced a change in the cycle length in the past 6 months. Around 9% said they were having frequent cycles (<21 days), 24.8% reported delayed cycles (>35 days), 1.5 % scanty flow, and 0.3% heavy flow. Out of all 9.8% of the participants had taken medication for regularisation of their menstrual cycles. Among the study participants, 6.3 % experienced weight gain, 1.2% weight loss in the past 6 months. However, the majority experienced no change in their weight in the previous three months. Around 2.4% of women experienced excessive hair growth on the body, 9% said they were having excessive hair fall, 8.7% reported acne and needed treatment. Around 8.1 % of the women were desirous of pregnancy however 6.6% were having some difficulty in spontaneous conception and 4.4% were already on treatment (Table II). In the study group, 9.3% of the participant were already diagnosed to have PCOS. While assessing the knowledge about PCOS researchers found that only 43.4% of the women had heard about PCOS and the most common source of their information was a doctor (26.6%) followed by the internet (6.28%), teachers (5.6%), and friend (4.7%). Assessment of knowledge for risk factors showed that a significant proportion of women were aware of the association of obesity (33.5%), unhealthy dietary habits (35%), and genetic predisposition (40.7%) with PCOS. When asked about complications and long term sequelae of PCOS 40.1% of women said that patients with PCOS can have problems in conception, 34.4% said there can be increased chances of abortion in PCOS patients, 28.7% said women with PCOS are prone to develop diabetes, 31.7% said they can have hypertension, 33.5% said it can raise the chances of cardiovascular disease, 35.9% said there could be an association with endometrial carcinoma and 37.1 % said it could be related to psychological problems, sleep disturbances, body image disorder and anxiety in women (Table III). While assessing their knowledge regarding management researchers found that around 37.1% were aware that eating a healthy and balanced diet can be one of the management methods, 41% believed weight reduction could help and 35.6 % said trying ways to reduce stress could be one of the methods to manage the symptoms of PCOS. However, 34.1% said only medications can treat the condition and 2.7% believed only surgery can treat PCOS (Table III). Around 60.5% of women scored <5 out of 14 (poor knowledge), 14.7% scores between 6-10 (fair knowledge), and 24.9% scored between 11-14 (good knowledge). When we analyzed the score categories with the education and occupation status of the women it was seen that those who are graduate and postgraduates have scored better and the results are statistically significant ($P \leq 0.001$) and those who are working had better knowledge followed by students ($P \leq 0.001$) (Table IV & V). Lastly, we inquired about the healthy lifestyle practices they are routinely following in their day-to-day life. It was found around 23.9% of women were doing some kind of exercise. Out of all 9.8% go for walk daily, 1.76% were taking weight training, 2.69% were doing aerobic exercises, 23% were doing yoga and 2.64% were doing swimming. Around 11.7% of the study population

was practicing meditation as stress-relieving management. Only 14.67% of the women said they eat junk rarely however 27.54% said they very often eat junk food and 57.78 said they sometimes eat junk food.

Discussion

Polycystic ovarian syndrome is a complex endocrine disorder affecting women across all the stages of their life. Adolescent girls often present with menstrual irregularities, acne, hirsutism, and obesity which can further lead to body image disorders, low self-esteem, anxiety, and depression in them. Women with PCOS may have difficulty in spontaneous conception and often need fertility treatment. These women can also experience repeated pregnancy losses. Later in life, they are at increased risk of diabetes, hypertension, and cardiovascular disorders. Due to the unopposed estrogen, they are at risk of development of endometrial hyperplasia and endometrial cancer. Management often includes measures targeted to reduce the symptoms or to prevent the complications associated with the disorder. There is no permanent cure but the lifestyle modifications in PCOS women like weight reduction, exercise, meditation, and a healthy diet is seen to help them to fight their symptoms. Hence it is very important to spread knowledge and awareness in the community regarding the risk factors, symptoms, complications when to seek help and whom to seek help from. Along with this importance adopting a healthy lifestyle in today's world where stress, sedentary lifestyle, and preserved food have become the new norm should also be stressed upon.

In the present study, researchers found that a significant proportion of women (43.4%) have heard about the term PCOS. The above findings are similar to the findings published by Alessa et al.¹⁷ where researchers found that 56.7% of the women had heard about PCOS. These findings show that a significant percentage of women had heard about the disorder but still it is not 100% and there is a lot that needs to be done to disseminate this knowledge among the community. The most common source of information in our study was health care provider/doctor (26.6%) followed by internet (6.28%), teacher (5.6%), and friends (4.7%) however the most common source of information in the study conducted by Alessa et al. was internet (21.3%) followed by patients (10.4%), doctors (10.8%) and books (3%). Another study by Rao et al. found that 83.7% of women got the information from doctors, 29.4% family, 25% friends. Government websites and PCOS support groups were the other mentioned sources in the study. The difference could be because in our study the study participants were those attending the Gynaecological OPD for various reasons however the study done by Alessa et al. and Rao et al. included college students. Around 9.3% of the study population was already diagnosed to have PCOS in contrast to 15.3% of the women in the Study by Alessa et al. and 28.5% in a study by Rao et al.¹⁸ The difference can be explained by the regional variation in the distribution and variation in the sample size of the studies. In the present study, researchers found that the women who were not diagnosed with PCOS also had certain symptoms which need evaluation to rule out PCOS as 35.6% had change in their cycles, 6.3% reported weight gain, 2.4% had excessive hair growth, 9% had excessive hair fall, 8.7% had acne, 6.6% had a problem in conception. Rao et al. in their study also found that around 40.5% of women not formally diagnosed with PCOS had PCOS-like symptoms. While assessing knowledge regarding risk factors

associated with PCOS 33.3% were aware that excess weight is associated with PCOS and 35% knew unhealthy eating habits can be related to PCOS. Around 32 % said it is familial. When asked regarding complications related to PCOS it is seen that similar to the study by Alessa et al. in the present study participants are aware regarding its association with subfertility (40% Vs 39%), diabetes (28.7% vs 14.5%), endometrial cancer (35.9% vs 30.2%) and psychological disturbances (37.1%vs 34.1%). Assessment about management knowledge showed that in both the studies (37.1% vs 39.9%) the participants are aware that exercise and losing weight can help reduce the symptoms and related complications. Around 41% of the women are aware that eating a healthy and balanced diet is helpful and the findings are similar to the finding in the study by Alessa et al where 34.2% were aware of the benefits of eating healthy food. In the present study around 34%, of women said that medications and surgery are the other options to manage PCOS while in a study by Alessa et al around 29.4% of women were aware of the medical management. In the Study done by Alessa et al. author has not mentioned the awareness about the surgical procedures for PCOS. In both the studies it is seen that more the level of education more was the knowledge score.

With increasing education level the percentage of women who know about the risk factors, symptoms, complications, and management is also rising across the globe but is this knowledge getting translated into actual practice? In this study only 23.95% of the study participants were exercising daily, only 11.7% were meditating and 14.7% said they rarely take junk food. The finding suggests that only disseminated knowledge and awareness are not enough it requires a tremendous effort to bring about the behavioral changes at the community level.

To bring about these behavioral changes authors suggest that the knowledge and awareness about a healthy lifestyle need to be incorporated right from the beginning so that they become an integral part of our lives. Behavioral modification can start from home for which the parents need to be educated, schools where teachers need to be educated to disseminate the knowledge, and then social media, the internet, government websites, and television advertisements can play an important role. At community levels, teams of volunteers can arrange nuked Natak and stage shows. Hospitals and support groups should provide educational material regarding the benefits of lifestyle modifications.

Limitation of the Study: This study is done in the hospital setting so the study population is not the true representative of the general population. The knowledge regarding PCOS is assessed only in female participants. Since PCOS management starts way before the appearance of the symptoms it requires a behavioral change at the community level to incorporate healthy lifestyle changes at an early age. Hence educating both males as well as the female is necessary. The sample size is also small so the findings cannot be generalized to the whole population.

Conclusion

Lifestyle modification in terms of exercise and healthy eating habits has got many benefits in a woman with PCOS. In those already diagnosed to have PCOS lifestyle modification is the first line of

management. It can cause a marked improvement in the symptoms and reduce the chances of complications in those already diagnosed with PCOS. Those requiring medical management will also benefit from a continued healthy lifestyle.

Awareness about improving lifestyle, healthy eating habits, avoiding a sedentary lifestyle from a young age will help in lowering the incidence of the disease and complications related to the disorder.

Declarations

The Study was approved by the Institutes ethical committee with approval number IEC/11/2021.. Participation in the study was voluntary and a written informed consent was obtained from the participants after explaining them the purpose of the study.

Availability of data and materials:

The data used and /or analysed during this study are available from the corresponding author on reasonable request.

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Contributions

1.AK: Concept and planning of the study, preparation of questionnaire, data collection and analysis, drafting the manuscript

2.PR: Proof reading and approval of the questionnaire, data collection, proof reading and final approval of the manuscript

3.RK: Data collection, proof reading of manuscript

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Human rights statements and informed consent :

All procedures were performed in accordance with the ethical standards of the relevant committees on human experimentation (institutional and national) and the Helsinki Declaration of 1964 and its later amendments. Informed consent was obtained from all patients included the study.

References

1. Lauritsen MP, Bentzen JG, Pinborg A, et al. The prevalence of polycystic ovary syndrome in a normal population according to the Rotterdam criteria versus revised criteria including anti-Mullerian hormone. *Hum Reprod.* 2014;29:791–801. DOI: 10.1093/humrep/det469. Epub 2014 Jan 16.
2. Knochenhauer ES, Key TJ, Kahsar-Miller M, et al. Prevalence of the polycystic ovary syndrome in unselected black and white women of the southeastern United States: a prospective study. *J Clin Endocrinol Metab.* 1998;83:3078–3082. DOI: 10.1210/jcem.83.9.5090.
3. Chen X, Yang D, Mo Y, et al. Prevalence of polycystic ovary syndrome in unselected women from southern China. *Eur J Obstet Gynecol Reprod Biol.* 2008;139:59–64. Jul;139(1):59–64. DOI: 10.1016/j.ejogrb.2007.12.018. Epub 2008 Apr 2.
4. Diamanti-Kandarakis E, Kouli CR, Bergiele AT, et al. A survey of the polycystic ovary syndrome in the Greek island of Lesbos: hormonal and metabolic profile. *J Clin Endocrinol Metab.* 1999;84:4006–4011. DOI: 10.1210/jcem.84.11.6148.
5. Bozdag G, Mumusoglu S, Zengin D, et al. The prevalence and phenotypic features of polycystic ovary syndrome: a systematic review and meta-analysis. *Hum Reprod.* 2016;31:2841–2855. DOI: 10.1016/j.ejogrb.2007.12.018.
6. Lowe P, Kovacs G, Howlett D. Incidence of polycystic ovaries and polycystic ovary syndrome amongst women in Melbourne, Australia. *Aust N Z J Obstet Gynaecol.* 2005;45:17–19. DOI: 10.1111/j.1479-828X.2005.00334.x.
7. Gibson-Helm M, Teede H, Dunaif A, et al. Delayed Diagnosis and a Lack of Information Associated With Dissatisfaction in Women With Polycystic Ovary Syndrome[J]. *J Clin Endocrinol Metab.* 2017;102(2):604–12. DOI: 10.1210/jc.2016-2963.
8. Hillman SC, Bryce C, Caleyachetty R, et al. Women's experiences of diagnosis and management of polycystic ovary syndrome: a mixed-methods study in general practice[J]. *Br J Gen Pract.* 2020;70(694):e322–9. DOI: 10.3399/bjgp20X708881
9. Gibson-Helm ME, Lucas IM, Boyle JA, et al. Women's experiences of polycystic ovary syndrome diagnosis[J]. *Family practice.* 2014;31(5):545–9. DOI: 10.1093/camera/cmu028

10. Panda PK, Rane R, Ravichandran R, Singh S, Panchal H. Genetics of PCOS: A systematic bioinformatics approach to unveil the proteins responsible for PCOS. *Genom Data* 2016; 8: 52–60. DOI: 10.1016/j.gdata.2016.03.008
11. Franks S, McCarthy MI, Hardy K. Development of polycystic ovary syndrome: Involvement of genetic and environmental factors. *Int J Androl* 2006; 29: 278–85.
12. Kosova G, Urbanek M. Genetics of the polycystic ovary syndrome. *Mol Cell Endocrinol* 2013; 373: 29–38. DOI: 10.1111/j.1365-2605.2005.00623
13. Rajender S, Carlus SJ, Bansal SK, Negi MPS, Sadasivam N, Sadasivam MN, et al. Androgen receptor CAG repeats length polymorphism and the risk of polycystic ovarian syndrome 76. (PCOS). *PLoS One* 2013; 8: e75709. DOI: 10.1371/journal.pone.0075709
14. Deepika MLN, Reddy KR, Yashwanth A, Rani VU, Latha KP, Jahan P. TNF- α haplotype association with polycystic ovary syndrome – A South Indian study. *J Assist Reprod Genet* 2013; 30: 1493–503. DOI: 10.1007/s10815-013-0080-4
15. Harrison CL, Lombard CB, Moran LJ, Teede HJ. Exercise therapy in polycystic ovary syndrome: a systematic review. *Hum Reprod Update*. 2011; 17(2):171–183. DOI: 10.1093/humupd/dmq045
16. Lass N, Kleber M, Winkel K, Wunsch R, Reinehr T. Effect of lifestyle intervention on features of the polycystic ovarian syndrome, metabolic syndrome, and intima-media thickness in obese adolescent girls. *J Clin Endocrinol Metab* 2011;96:3533–40. DOI: 10.1210/jc.2011-1609.
17. Alessa A, Aleid D, Almutairi S, Alghamdi R, Huaidi N, Almansour E, Youns S. Awareness of the polycystic ovarian syndrome among Saudi Females. *International Journal of Medical Science and Public Health*. 2017;6(6)1013–1019. DOI:10.5455/ijmsph.2017.0202507022017
18. Rao M, Broughton KS, LeMieux MJ. A cross-sectional study on knowledge and prevalence of PCOS at a Multiethnic University. *Pross in preventive medicine*. 2020;1–9. DOI: 10.1097/pp9.0000000000000028

Tables

Table I. Demographic Profile of Study Population

Variable	N=334	% age	Mean ± SD
Age (in years)			
15-20	09	2.7	28.70±6.29
21-30	205	61.4	
31-40	102	30.5	
41-50	18	5.4	
BMI			
< 18.5	45	13.5	23.61±4.54
18.5-24.9	165	49.4	
25.0-29.9	96	28.7	
>30.0	28	8.4	
Education			
Illiterate	62	18.6	
Primary	27	8.1	
High School	74	22.2	
Graduate	143	42.8	
Postgraduate	28	8.4	
Occupation			
House wives	165	49.4	
Working (private/Government/Self)	79	23.6	
Students	90	26.95	
Marital Status			
Married	206	61.7	
Unmarried	128	38.3	
Age at Menarche			
< 13 years	24	7.2	13.48±1
13-15 years	271	81.1	
16-18 years	31	9.3	
>18 years	none	none	

Cycle Length			
<21 days	30	8.9	21.56±3.28SD
21-35 days	215	64.37	
35- 60 days	78	23.35	
>60 days	05	1.49	
Totally invariable	06	1.79	

Table II. Presence of Symptoms related to PCOS

S.No.	Symptom Present	N=334(% age)
1.	Change in cycle length in previous 3 months	
	Yes	119 (35.6))
	No	215 (64.4)
2.	What change	
	Frequent cycle	30 (9)
	Delayed Cycles	83 (24.8)
	Heavy Cycles	1 (0.3)
	Scanty Cycles	5(1.5)
3.	Treatment taken to correct menstrual irregularity in past 3 months	
	Yes	33(9.8)
	No	301(90.1)
4.	Change in weight in previous 3 months	
	Yes	25(7.5)
	No	307(91.9)
5.	What Change	
	Weight Gain	21(6.3)
	Weight Loss	4(1.2)
	No Change	307(91.9)
6.	Excessive hair growth on body in past 3 months	
	Yes	8(2.4)
	No	326(97.6)
7.	Excessive hair fall	
	Yes	30(9)
	No	304(91)
8.	Acne	
	Yes	29 (8.7)
	No	305(91.3)
9.	Are you trying to conceive	

	Yes	27(8.1)
	No	307(91.9)
10.	Any problems in conception	
	Yes	22 (6.6)
	No	312 (93.4)
11.	Taking any fertility treatment	15(4.4)

Table III: Awareness regarding Symptoms, Risk Factors, complications and management of PCOS

Question	N=334 (%age)
Heard about PCOS	
Yes	145 (43.4)
No	189(56.6)
Have you been diagnosed as PCOS	
Yes	31(9.3)
No	303 (90.7%)
Source of Information	
1. Teacher	19(5.6)
1. Doctor	89(26.6)
1. Friend	16(4.7)
1. Television	0(0)
1. Newspaper	0(0)
1. Internet	21(6.28)
Symptoms: PCOS can manifest as	
1. Menstrual Irregularity	142 (42.5)
1. Hirsutism	90 (26.9)
1. Acne	70 (20.9)
1. Weight gain	119 (35.6)
1. Difficulty in conception	117(35.02)
1. Abortions	115 (34.4)
1. Hair fall	82 (24.8)
Risk Factor	

1. Obesity	112(33.5)
1. Unhealthy eating habits	117(35)
1. Sedentary life style	121(36.2)
1. Genetic	136(40.7)
Complications	
1. Infertility	134 (40.1)
1. Abortions	115 (34.4)
1. Diabetes	96(28.7)
1. Hypertension	106(31.7)
1. Cardiovascular Disorders	112(33.5)
1. Endometrial Carcinoma	120 (35.9)
1. Psychological problem, anxiety, sleep disturbances	124(37.1)
Management	
1. Avoiding junk food & Healthy eating habits	124 (37.1)
1. Exercise and weight loss	137(41)
1. Stress management	119(35.6)
1. Medications	114 (34.1)
1. Surgery	96 (2.7)

Table IV. Correlation between Education System and Knowledge Score

Total Score	Education					Total
	ILLITERATE	PRIMARY	HIGH SCHOOL/PUC	GRADUATE	POST GRADUATE	
0	59(95.2%)	27(100%)	52(70.3%)	44(30.8%)	8(28.6%)	190(56.9%)
1-5	0(0%)	0(0%)	4(5.4%)	8(5.6%)	0(0%)	12(3.6%)
6-10	0(0%)	0(0%)	7(9.5%)	32(22.4%)	10(35.7%)	49(14.7%)
11-15	3(4.8%)	0(0%)	11(14.9%)	59(41.3%)	10(35.7%)	83(24.9%)
Total	62(100%)	27(100%)	74(100%)	143(100%)	28(100%)	334(100%)
Mean $\pm$ SD	0.68 $\pm$ 3.03	0 $\pm$ 0	2.99 $\pm$ 4.83	7.41 $\pm$ 5.67	7.89 $\pm$ 5.71	4.62 $\pm$ 5.71

$P \leq 0.001^{**}$, Significant, Student t Test

Table V Correlation of Knowledge Score and Occupation Status of the women

Total Score	OCCUPATION			Total
	HOUSEWIFE	STUDENTS	Working Women	
0	151(91.5%)	16(20.3%)	23(25.6%)	190(56.9%)
1-5	0(0%)	4(5.1%)	8(8.9%)	12(3.6%)
6-10	1(0.6%)	26(32.9%)	22(24.4%)	49(14.7%)
11-15	13(7.9%)	33(41.8%)	37(41.1%)	83(24.9%)
Total	165(100%)	79(100%)	90(100%)	334(100%)

$P \leq 0.001^{**}$, Significant, Chi-Square Test

Supplementary Files

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- [1.1.PCOSQuestionnaire.docx](#)