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## Quality of life, general health status and related factors in women of polycystic ovary syndrome in Yazd (IRAN) 2014

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### ABSTRACT

polycystic ovary syndrome leads to augmentation of behavioral disorders among women and the affects their quality of life. The present study is being carried out in order to assess the quality of life and the level of general health in women suffering polycystic ovary syndrome in Baghayipour Treatment Center customers in the city of Yazd in IRAN 2013-14 and its relevant factors. This descriptive-analytical study has been done in a cross-sectional method during nine months on seventy three women who were suffering polycystic ovary syndrome through convenience sampling technique. For data collection PCOSQ and GHQ-28 surveys are used. Factors to enter the study involve the age range of 15-49, affliction with PCO, satisfaction of taking part in a study and the factors for leaving it including being affected with galactorrhoea (i.e. automatic lactation from breasts), thyroid problems, Cushing syndrome or the consumers of corticosteroid drugs. The data were analyzed by means of SPSS software and the descriptive statistics tests and regression. The results of descriptive statistics tests indicated that the average age of  $26.28 \pm 5.59$  years, body mass index (BMI) of  $28.09 \pm 5.06$ , %5.5 of the participants are illiterate, %17.8 of them are people with less than high school diploma, %24.7 have high school diploma degree, and %52.1 of them have university degrees. The average score for the quality of life among women was  $111.36 \pm 21.39$  as well. The greatest factor influencing the quality of life according to the achieved score in these patients were menstruation problems, hirsutism, emotional problems, weight, and finally infertility respectively. By means of regression test there was a meaningful statistical correlation with significance level value of ( $p < 0.05$ ) between the quality of life with BMI, number of pregnancy, intervals between menstruation cycles, and the extent of satisfaction with body image. Polycystic ovary syndrome has a negative impact on the patients' quality of life. The symptoms of PCOs may be affecting the patients due to their perceptions, values and culture.

**Keywords:** polycystic ovary syndrome, quality of life, general health.

### INTRODUCTION

Polycystic ovary syndrome is the most prevalent endocrine disorder among women in their reproductive period [1-3] and affects between 5 to 10 percent of individuals in this age range [3]. There is a gap in defining this disease and its several pathophysiological aspects and history and nature have still remained unknown. [4]. But it seems that a series of factors such as genetic, environmental, and behavioral factors are influential in its outbreak [5].

Polycystic ovary syndrome is a disorder in the function of ovary [4]. The factor for diagnosing according to Rotterdam criteria (2003) is having the two factors out of the three factors of oligomenorrhea or amenorrhea, clinical symptoms or biochemical hyper-androgenism and the sonography results on having polycystic ovaries. [6]

Clinical manifestations in this disease involves lacking menstrual cycles or menstrual irregularities, overweight, infertility [4], hirsutism (i.e. excessive hairiness in the face, breast, back part of body, and organs), male pattern baldness, pelvic pain, anger, and depression [7]. Also, PCO may lead to having impaired glucose tolerance, suffering from insulin resistance, arterial blood hypertension, and other metabolic syndromes [3].

Lots of symptoms of this syndrome are annoying and unpredictable and symptoms which are naturally defined for it (e.g. hirsutism, overweight, acne, and infertility) are contrary to the feminine nature and are unfavorable. Also, this syndrome is in relation to a series of biochemical disorders which can lead to behavioral disorders [2]. A reduction in the quality of life [2-3, 8-12], sexual satisfaction [3 & 8], and an increase in psychological complications [10] in individuals suffering PCO is reported in a way that women who are suffering PCO in comparison with women suffering some somatic problems such as asthma, epilepsy, diabetes, and backache and mental health problems which are relevant to the quality of life are weaker [13] and have higher prevalence rates of depression [14, 15, 16], and anxiety and stress are also probable to be prevalent in these women [13]. Also, spousal incompatibility, social incompatibility, sexual dysfunction are observed in these patients. [3]

Although the level of the quality of life in PCO patients reduces, but it isn't clear that which aspect of this disorder has the most impact on changes in the quality of life [17]. On the one hand although studies clearly has proven the existence of psychological problems and their vastness in this group of patients, but there is little data on the role of clinical symptoms in the outbreak of psychological disorders in PCO [8]. On the other hand, in a study which was carried out by Ghoreishi et al. [18], on the teens suffering from PCO the influence of this syndrome in the outbreak of psychological disorders wasn't supported. Noting that studies and the assessments of the quality of life of individuals suffering PCO in Iran has negligibly caught the attention; thus, this study was designed with an aim of assessing the quality of life and the general health of PCO sufferers among Baghayipour Treatment Center customers in Yazd in 2013-14 and its relevant factors and using the results of the study for policy making, services management, education management, and treatment and research management toward the improvement of the quality of life.

## MATERIALS AND METHODS

This descriptive-analytical study was carried out through cross-sectional method in the year 2012-13 on patients referring to Baghayipour Treatment Center in Yazd by noting the following formula on seventy two (72) women suffering from PCO.

The sample volume was measured by noting the previous studies as follows:

$$n = \frac{(Z_{1-\alpha/2} \cdot \delta)^2}{d}$$

$$\delta = R/6 = 26 \delta$$

By noting  $\alpha=0.05$  and considering  $d=6$ , the number of seventy three (73) samples are needed.

Identifying the individuals suffering polycystic ovary syndrome according to Rotterdam criteria (which was carried out by having two factors out of three oligomenorrhea or amenorrhea criteria, sonography pictures about having polycystic ovaries and clinical symptoms of hyperandrogenism [6]. Sampling was done through convenience method during nine months in the way that the whole sufferers referring to Baghayipour Treatment Center who were efficient and applicant for attending the study were entered into it. Factors for entrance into the study involved being in the age range of 15-49, suffering PCO and the voluntary attendance in the study and the factors to exit the study involved suffering galactorrhoea, thyroid problems, Cushing syndrome or consuming corticosteroid drugs based on questions from patients themselves. The surveys which were completed by a midwifery expert involved three sections which the first section involved demographic data such as age, number of pregnancy, number of child delivery, marital status, educational level, weight, height, waist circumference, hip circumference, blood pressure, and the rate of satisfaction from body image based on a zero to ten (0-10) criteria (0 for the maximal and 10 for the minimal rate of satisfaction). Weights of participants were measured by a scales with Seca brand name made in Iran, and height, waist circumference, and the hip circumference were measured by measuring tape with Leica brand name and for measuring the blood pressure a barometer with gauge pointer with ABN brand name made in Indonesia was used. The second part of survey was on the quality of the life of polycystic ovary (Polycystic Ovary Syndrome Questionnaire) which this questionnaire involves twenty six (26) questions in five fields of health which are relevant to the quality of life in which seven questions are on feelings (point 7-49), five questions are on the growth of hairs (point 5-35), five questions on the body weight (points 5-35), five questions on infertility (points 5-35), and four questions on menstruation cycles (point 4-21). The mentioned questionnaire was designed by Cronin et

al. [19] and the reliability and validity of its Farsi version were measured and approved by Dr. Amini *et al.* [20] in a way that the overall Cronbach's Alpha coefficient of 0.9 in emotional and sentimental domains, hirsutism, weight, and infertility was above 0.7 and also the whole questions in any domain is appropriately correlated with its relevant domains ( $r > 0.4$ ). Any question has seven choices in which choice one indicates the worst level of health in relation to the quality of life and in relation to that subject and number seven indicates inexistence of problem and a higher point indicates a better quality of life [20]. In assessing the quality of life for participants total achieved score in the domain was divided by the number of questions in that domain and the comparative scores were measured (between 1-7). The third section was on General Health Questionnaire (GHQ) Criticality and the feature of this questionnaire in Iran were calculated as  $70.5 \pm 2.4$  and  $92.3 \pm 2.4$ . Thus, this questionnaire can be successfully used in screening mental diseases. [21] This questionnaire involves twenty eight (28) questions with four (4) mini-tests on somatic condition, anxiety and insomnia, disorder in social function and depression and each section involves seven questions. Each question is in the form of a 4-point Likert scale from zero to three. Thus, the total test score is from zero to eighty four and the lowest point indicates the best mental condition. Also, achieving the point 23 and the above requires referral and pursuing and it is considered to be under the title of individuals suspicious to have disorder. [21] Sampling was done during nine months and the obtained data was analyzed statistically by SPSS software version 16 and by means of descriptive statistics tests and regression.

It should be noted that this paper is the result of a research project which is adopted by the university students' research committee in Yazd University of Medical Sciences numbered 2225 and the ratification of Ethics Committee with the code of ethics of IR.SSU.REC.1394.164.

### Limitations

Assessing the entrance factors was done for entering a research by noting the patient questioning and in the form of self-report.

## RESULTS

This study was carried out on seventy three (73) women who were suffering PLO (polycystic ovary syndrome) whose average age was  $26 \pm 5.59$ . In table No.1 mean and standard deviation for some of the personal features were mentioned. %5.5 of participants are illiterate, %17.8 of them are people with less than high school diploma, %24.7 have high school diploma degree, and %52.1 of them have university degrees. %68.5 of participants are married and the rest are single. %84.9 of them had irregular menstruation cycles, %68.49 of them had hirsutism on chin, %39.72 of sufferers had hairiness on face, acne, and infertility, and %35.61 of them had hirsutism on thighs and %31.35 of them had chest hirsutism.

**Table No.1-Mean and standard deviation for some of the personal features in the units under study (n=73)**

	Minimum	maximum	Mean +/- standard deviation
Age (year)	18	46	26.68+/- 5.59
Weight (kg)	44	105	71.75+/- 14.17
Height (cm)	139	176	159.54+/- 6.76
BMI (kg/square of height)	16.36	39.06	28.08 +/- 5.06
Waist circumference(cm)	65	102	84.9+/- 9.06
Hip circumference (cm)	84	185	104.28+/- 14.24
Systolic blood pressure (mmg)	100	130	115.82+/- 8.08
Diastolic blood pressure (mmg)	50	90	71.79 +/- 8.48
Menstruation intervals(day)	36	240	61.06 +/- 34

The results indicated that the total score average for the quality of life in women in this study was  $111.36 \pm 21.39$ . The average comparative score of subgroups in the whole domain of the quality of life and the average total comparative score ranges from 3.97 to 4.45 in a way that the least score for the rate of satisfaction from quality of life in the domain which is relevant to menstruation problems and the highest score for the quality of life was achieved in the domain of infertility. (Table No.3)

From among the factors under study, weight with ( $p=0.002$  &  $r=-0.36$ ), menstruation interval with ( $p=0.005$  &  $r=-0.327$ ), and body mass index with ( $p=0.003$  &  $r=-0.339$ ) have a statistically significant negative and meaningful relationship with the average point for the quality of life in women who are suffering PLO (polycystic ovary syndrome) and the number of pregnancy ( $p=0.04$  &  $r=-0.237$ ) and the rate of satisfaction has a statistically positive and meaningful relationship with body image with an average score for the quality of life ( $p=0.002$  &  $r=0.362$ ) Also, the results indicated that the majority of individuals under the study (%69.8) had overweight and obesity.

**Table No.2. Average score for the quality of life in several aspects in the units under study**

Several aspects of Life quality	Mean of comparative score+/- standard deviation (score limit of 1-7)	Maximal measurable score	Mean of raw score+/- standard deviation
Emotional	4.38+/- 0.86	56	35.06+/- 6.8
hirsutism	4.10 +/- 1.02	35	2.53+/- 5.12
weight	4.40 +/- 1.02	35	22+/- 5.14
Infertility	4.45 +/- 1.21	28	17.83 +/- 4.86
Menstruation problems	3.97 +/- 1.01	28	15.91 +/- 4.04
Total	4.28 +/- 0.82	182	111.36 +/- 21.36

The average score for the general health of participants under study was 25.28 +/- 9.65. There was a negative and meaningful relationship between the score of the quality of life in PLO sufferers and the average score of general health in participants by means of Pearson test ( $r=-0.453$  &  $p<0.001$ ).

## DISCUSSION

In this study the average score for the general health in PCO sufferers was achieved as 25.28+/- 9.65 in a way that %53.84 of the individuals under study achieved the general health score of 23 and above and it needed pursuance and referral to for more investigation for disorder in general health. In a study by Ching et al. and by means of GHQ-28 questionnaire it became clear that the outbreak of psychiatric disorders in PLO sufferers was %62.4 [10], while the quantity of outbreak of psychological disorders in women who are over the age of fifteen was %17.5 [22]. The results of studies by Noorbala et al. indicated that %34.2 of participants who are over the age of fifteen in Tehran [23] and also according to the results of studies by Soleimani et al. %25.1 of university students of the University of Bam [24] were suspicious to be mental disorder sufferers. Thus, it seems that the level of general health in individuals suffering PLO is less than the whole society.

In a study by Ching et al. an increase in the psychiatric complications was reported. The results of studying the table indicates that women who are suffering PCO have a weaker health relevant to the quality of life in comparison with women who are suffering a series of physical conditions such as asthma, epilepsy, diabetes, and waist ache and weaker mental health in relation to the quality of life. [13] In a study by Drosdzal et al. [3], it was reported that the parameters of the quality of life in women suffering PCO increases in comparison with non-sufferers. Studies indicated that [3 & 8], PCO leads to an increase in sexual satisfaction which the results of this study are all compatible with the results of the present study.

In this study it was reported that there is a meaningful relationship between the score of the quality of life and the general health ( $p<0.05$ ) It means that parallel to a decrease in the level of the quality of life the general health level decreases as well. In a study by Drosdzal et al [3] it was reported that the parameters of the quality of life in women suffering PCO in comparison with the control group was lower in terms of general health, physical health limitations, limitations due to emotional problems, social performance, level of energy, and fatigue, and sensational health which were compatible with the present study.

In the present study the average score for the quality of life among women suffering PLO (polycystic ovary syndrome) was in relation with weight, menstruation interval, number of pregnancy, and the satisfaction rate from body image while it wasn't in relation with age, height, waist circumference, and blood pressure of individuals, duration of diagnosis, educational level, and marital status. In a study by Ghoreishi et al. [18], it was reported that the age of individuals influences the affectivity of polycystic ovary syndrome in the outbreak of psychiatric complications. This contradiction is probably due to this issue that the present study was done on women in the age range of 18 to 46 years while Ghoreishi et al. studied the teens suffering PCO. In the study by Amini et al. [25], weight influenced the whole aspects of the quality of life except for menstruation disorders which to some extent is compatible with the present study. In a study by Kolahi et al. [7], the marital status had a direct relation with the quality of life which is incompatible with the present study in a way that in that study marital status had no influence on the aspects ( $p>0.05$ ) In a study by Deeks et al. [14], it was reported that anxiety in PCO sufferers was influenced by factors which as duration of diagnosis which was incompatible with the present results.

Results of the present study indicates that the lowest score for several domains of the quality of life among women suffering PCO was related to menstruation disorder, pubic hairs disorder, emotional disorder, weight, and finally infertility.

In a study by Pehlivanor [11] et al. the most vast domain which leads to a reduction in the quality of life was weight and after that the domains of pubic hairs and emotions respectively. In a study by Barnard et al. [2] the vastest

domain which leads to a reduction in the quality of life was weight. In a study by Trent et al [17] which was carried out on teens suffering PCO the results indicated that BMI acts as a primary mediator in the relation between polycystic ovary syndrome and the reduction in the level of health which is relevant to the quality of life in the girls suffering this syndrome which is incompatible with the present study.

In a study by Han et al. [8], it also became evident that the appearance changes such as overweight, and hirsutism lead to the reduction in the quality of life and sexual satisfaction and the role of biochemical parameters, endocrine, and the metabolic parameter such as irregular menstruation cycles and infertility were less significant; while, in a study by McCook et al. [26], the role of infertility in the outbreak of psychiatric disorders was supported. The results of a study by Georgina et al. [27] also indicated that the most concern in both groups was infertility and weight. In the present study menstrual disorders and after that the domain of pubic hairs took the lowest score while the domain of infertility was affected by the least impact. Perhaps one reason for this is that about thirty percent (%30) of single persons sand only %39.72 of the individuals under study had infertility and therefore the rest weren't worried for this issue. McCook et al. [26] also reported the most prevalent concern by means of the specific questionnaire on the quality of life for PCO sufferers in which the most prevalent concern out of PCO was reported in the domains of weight, menstruation cycle problems, infertility, emotions, and finally body hair while in this study after the menstruation cycle disorder and pubic hairs the most concern was for emotions.

Despite that lots of studies have supported the role of overweight in the outbreak of mental problems but there is a split concerning the significance of the role of overweight in the outbreak of the mental problems in PCO sufferers in a way that Amini et al. [25] reported the most concerns which were relevant to menstruation cycle disorders, hirsutism, infertility problems, emotional and sensational problems, and finally weight. In the present study the domain of weight was of less significance in comparison with other aspects. In the study by Jones et al. [9] it was also reported that the social and emotional performance of sufferers receive the most influence in comparison with physical performance.

In a study by BahriKhomami et al.[28], it was reported that in the Iranian women who are suffering PCO the most powerful factor which influences their health in relation to the quality of life is hirsutism. Bazarganipour et al. [29] in a met analysis assessment reported that the most effective aspects on health are relevant to the quality of life and menstruation problems which the results of the two recent studies are to some extent compatible with one another in a way that in the present study menstruation problems and them hirsutism had the most impact on the level of health in relation to the quality of the life of individuals.

As it became clear there is a split on the prioritization and the extent of the impact of clinical symptoms of polycystic ovary syndrome on the quality of the life of individuals. In fact any region proportionate to its culture, customs, and values receives a different influence from each of clinical symptoms of this syndrome on their life and in any region a series of symptoms have more prominent role in the reduction of the quality of life among women in way that as it was said in the whole above-said studies there are only two studies which were probably done in Iran. Menstruation cycle problems were presented as the first influential factor in the quality of life of women which are probably due to culture and religion of the Iranian society to say one's prayers. In a study by Amini et al. [25] the role of regional culture, customs and habits and values in the quantity of the impact by each of clinical symptoms of PCO which influence the quality of life was supported. In a study by Kapadia et al. [30] it was also stated that the impact of PCO on the health which is relevant to the quality of life may be different proportionate to sensation, value, and culture of each patient while in a study by Georgina et al. [27] which was carried out on Asian and European women it became evident that a difference in health in relation to the quality of life of women suffering PCO doesn't exist and the only branch of questionnaire of PCOSQ which was meaningfully different from other two groups was menstruation problems.

### CONCLUSION

Noting that half of PCO sufferers are susceptible to a disorder in the level of general health and are suspicious of a mental disorder, it seems that in any region by noting the culture, customs, any certain aspect or aspects of clinical symptoms of this syndrome have a more impact on the reduction of the quality of PCO sufferers it is necessary to do more studies in this area and the role of these factors and other influential variables on the quality of life of PCO sufferers in any culture and some policies to be made about them.

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