

## Psychological Distress in Women with Polycystic Ovary Syndrome from Imam Khomeini Hospital, Tehran

Farideh Zafari Zangeneh<sup>1\*</sup>, Mina Jafarabadi<sup>1</sup>, Mohammad Mehdi Naghizadeh<sup>2</sup>, Nasrine Abedinia<sup>1</sup>, Fedyeh Haghollahi<sup>1</sup>

1- Vali-e-Asr Reproductive Health Research Center, Tehran University of Medical Sciences, Tehran, Iran

2- Department of Community Medicine, Faculty of Medicine, Fasa University of Medical Sciences, Fasa, Iran

### Abstract

**Background:** Polycystic ovary syndrome (PCOS) is a complex, multifaceted, heterogeneous disorder, affecting 4%–18% of reproductive-aged women and it is associated with reproductive, metabolic and psychological dysfunctions. PCOS affects quality of life and can worsen anxiety and depression either due to the features of PCOS or due to the diagnosis of a chronic disease.

**Methods:** In this descriptive-analytical study, 81 patients with PCOS were recruited from Vali-e-Asr Reproductive Health Research Center. A questionnaire with items related to pieces of information about stress was used for data collection. Stress symptoms were assessed using the Understanding Yourself questionnaire. Statistical analyses were performed using SPSS Ver. 13.0 (SPSS Inc., Chicago, ILL, USA). The data are presented as mean±SD or as frequency with percentages. A p-value less than 0.05 was considered as statistically significant.

**Results:** The descriptive results showed that 8 (9.9%) participants did not have any signs of stress, 32 (39.5%) had neurotic stress, 29 (35.8%) had high and 12 (14.8%) had extremely high levels of stress. The odds of high levels of anxiety in women with hirsutism was 3.1 (95% CI, 1.00–9.59). The odds of high levels of obsession in overweight patients was 3.2 (95% CI, 1.12–9.234). The odds of high levels of worries in patients with touchy personality was 3.4 (95% CI, 1.10–11.19) obsession score.

**Conclusion:** The present study showed that clinical signs of PCOS were most closely associated with psychological distress which has important implications in the diagnosis and treatment of disorders.

**Keywords:** Anxiety, Hysteria, Obsession, Polycystic ovary syndrome (PCOS), Worries.

**To cite this article:** Zafari Zangeneh F, Jafarabadi M, Naghizadeh MM, Abedinia N, Haghollahi F. Psychological Distress in Women with Polycystic Ovary Syndrome from Imam Khomeini Hospital, Tehran. *J Reprod Infertil.* 2012;13(2):111-115.

\* Corresponding Author:  
Farideh Zafari Zangeneh,  
Vali-e-Asr Reproductive  
Health Research Center,  
Tehran University of  
Medical Sciences, P.O.  
Box: 14194, Tehran, Iran  
E-mail:  
Zangeneh14@gmail.com

Received: May. 8, 2011  
Accepted: Sept. 26, 2011

### Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women. Its prevalence among infertile women is 15%–20% (1). The clinical features include reproductive manifestations such as reduced frequency of ovulation, irregular menstrual cycles, reduced fertility, polycystic ovaries on ultrasound, and high concentrations of male hormones such as testosterone which can lead to excess facial or body hair growth and acne. PCOS affects quality of life and can worsen existing anxiety and depression

either due to the features of PCOS or due to the diagnosis of a chronic disease.

Polycystic ovary syndrome (PCOS) is of clinical and public health importance as it is very common, affecting up to one in five women of reproductive age. PCOS has significant and diverse clinical implications including reproductive (infertility, hyperandrogenism, hirsutism), metabolic (insulin resistance, impaired glucose tolerance, type 2 diabetes mellitus, adverse cardiovascular risk profiles) and psychological features (in-

creased anxiety, depression and worsened quality of life). Polycystic ovary syndrome is a heterogeneous condition and, as such, clinical and research agendas are broad enough to involve many disciplines (2).

Hirsutism, menstrual irregularity and infertility have been shown to be the most distressing symptoms in adults with PCOS (3), whereas weight difficulties have been identified as the most distressing symptom in adolescents and young women with the disease (4–6). It has been proposed that women with PCOS might be at an increased risk for eating disorders given the propensity for obesity in PCOS. Obesity and, specifically, central obesity, is a common feature of PCOS that worsens the phenotype (7).

The prevalence of depression in PCOS is high (4, 8). Depressive symptoms and mood disorders are common in most obese patients (9). However, there is varying information about the effects of obesity on risks of depression. Adali et al. showed that BMI and waist-to-hip ratio (WHR) were significantly greater in patients with PCOS, for whom results also showed highly elevated emotional distress and depression compared to the control group (10). These findings support previous studies indicating that obesity may be a risk factor for psychological distress and depression in patients with PCOS (5, 11, 12).

Depression has been associated with increased cortisol levels, increased sympathetic activity and decreased serotonin levels in the central nervous system, features also associated with insulin resistance (13). Depression is about twice as common in people with diabetes compared with healthy individuals and treating depression can improve glucose control, although this is not a consistent finding (14). Roose et al. reported the relationship between insulin resistance and psychiatric distress in PCOS (15).

Women with PCOS have clinical and/or biochemical signs of hyperandrogenism. Several studies have shown a correlation between depression and hirsutism. It has been suggested that women with PCOS have a lower self-esteem, a more negative self-image, and have higher levels of depression and psychological distress owing to the physical appearance characteristics of hyperandrogenism, including obesity, hirsutism, cystic acne, seborrhea and hair loss, possibly by influencing feminine identity (9, 10, 16, 17). PCOS may not only be coinduced by psychosocial factors, its main symptoms such as infertility, men-

strual dysfunctions, hirsutism and obesity can be caused by increased psychosocial stress (17) and mood disorders. Barry et al. showed that patients with PCOS were significantly more neurotic (had difficulty coping with stress), anxious and depressed than the controls (18).

Previous studies have shown that PCOS may cause some psychological disorders. The relationships between the psychological health aspects and the clinical characteristics of PCOS are not yet clear. This study was conducted to determine psychological stressors of PCOS and to clarify the relationship between PCOS symptom and psychological status of the patients.

### Methods

The participants included all women suffering from PCOS who visited Vali-e-Asr Clinic affiliated to Tehran University of Medical Sciences for the first time between February 2010 and April 2011. The diagnosis of PCOS was made according to the joint criteria of the European Society of Human Reproduction and Embryology and the American Society of Reproductive Medicine (ESHRE/ASRM) (19). In this descriptive-analytical study, 81 patients, aged 20–40 years, who were not suffering from any illness except PCOS participated with PCOS. Data were collected from clinical and anthropometric variables, including hirsutism score, body mass index (BMI) and a demographic questionnaire inquiring about age, education, occupation, and duration of illness. BMI was calculated as  $\text{weight (kg)}/\text{height}^2 (m)$ . Stress symptoms were assessed using the Understanding Yourself questionnaire. This questionnaire has been developed by psychologists to provide a comprehensive description of personality. It can be used to rate the personalities of children, adolescents, and adults of any age. Understanding Yourself and Others®: An Introduction to Interaction Styles reveals the four fundamental interaction style patterns for understanding oneself (and others). Within these patterns are clues to the "how" of our behaviors. Find out how you consistently seem to fall into certain roles in your interactions with others and how you can shift your energies to take on other roles when necessary. It includes 6 major questions and every question has several items with multiple choice answers as a self-report questionnaire that measures severity of stress.

Understanding yourself questionnaire determines stress in four dimensions of anxiety, worries, hys-

teria and obsession.

Stress score is calculated by adding scores of each question which range from 0 to 60, where a higher total score indicates more severe stress symptoms. Scores  $\geq 26$  were considered symptomatic stress. Scores below 26 are not indicative of stress. Scores 26–45 indicate neurotic stress, and stress scores higher than 46 indicate high levels of stress which need psychological intervention (20).

Statistical analyses were performed using SPSS 13.0 (SPSS Inc., Chicago, ILL, USA). Data are presented as mean $\pm$ SD or as frequency with percentages.

Scores of four stress dimensions including anxiety, worries, hysteria and obsession were dichotomized in to high (last quartile) and normal (tree first quartiles). Then, they were separately chosen as dependent variables in a stepwise logistic regression model. Variables which remind in the model were reported. A p-value less than 0.05 was considered as statistically significant.

### Results

This study included 81 women with the diagnosis of PCOS. The mean age of the patients was 27.3 $\pm$ 4.6 years. The women had experienced menarche at the age of 13.0 $\pm$ 1.4 years. All were married with marriage age of about 19.5 $\pm$ 3.8 years. They were suffering from PCOS 5.9 $\pm$ 4.0 years.

From 81 women suffering from PCOS, 8 (9.9%) did not have any stress, 32 (39.5%) had stress levels, comparative to neurotic scale 29 (35.8%) had high and 12 (14.8%) had extremely high levels of stress that necessitated emergent intervention.

Adjusted odds ratio based on the stepwise multiple logistic regression for high levels of different psychological problems in PCOS patients are presented in table 1. From all demographic variables and PCOS symptoms just hirsutism was related to anxiety. Woman with hirsutism had high levels of anxiety, 3.1 times (95% CI, 1.002–

9.594) than others. BMI was the only one variable that had a relation with obsession. In patients with BMI  $>26$  had high levels of obsession, 3.314 times (95% CI, 1.120–9.226) greater than the others. Personality was the only one variable that affected worried. Woman with touchy<sup>1</sup> personality had high level of worries, 3.382 times (95% CI 1.022 to 11.194) greater than calm patients. Personality was asked from women as on independent single question (How evaluated your personality calm or touchy?).

### Discussion

Several studies have shown a correlation between psychological distress scores and levels of serum androgen. It has been suggested that women with PCOS have a lower self-esteem, a more negative self-image, higher levels of depression and psychological distress owing to the physical appearance of hyperandrogenism, including obesity (21, 22), hirsutism, cystic acne, seborrhea and hair loss, possibly by influencing feminine identity (23). The relationships between psychological health aspects and the clinical characteristics of PCOS are not yet clearly understood. In the present study, as we did not have a control group, we decided to compare some more intervening factors like demographic (age, education), signs of disease (acne, hirsutism) and economic (salary, house ownership). PCOS is closely associated with psychological distress with important implications that necessitate diagnosis and treatment of the disorders. The results confirm Adali's and Hirschberg's findings (10, 11, 24), suggesting that treatment of PCOS should tackle both physical and psychological complaints. This is because psychological distress reduces motivation, and yet good motivation is the key to agreement with medication and dietary management of PCOS (25).

These results show that stress scores are negatively related with age and illness duration. Evalu-

**Table 1.** Adjusted odds ratio based on separate stepwise multivariate logistic regression of high levels of psychological problems in PCOS patients

Dependent variables	Independent variables	Adjusted Odds Ratio	95% CI for Adjusted Odds Ratio		P-value
High Anxiety levels	Hirsutism	3.100	1.002	9.594	0.049
High Obsession levels	BMI $\geq 26$	3.214	1.120	9.226	0.030
High Worries	Touchy personality	3.382	1.022	11.194	0.046

1- Touchy personality needs to be explained here

ating the relations between stress scores with menarche and time of marriage in PCOS patients often manifests a positive correlation at an age when finding a partner, sexual activity and marriage are important. The associated cosmetic and psychosexual implications are thought to cause profound emotional distress in the affected women. Several aspects of the disorder can potentially cause considerable emotional stress. Our results showed stress to be lower in a younger age for marriage.

Interventions for the treatment of the clinical symptoms of anxiety and depression in PCOS patients should be chosen on a case-by-case basis and should be targeted at the main contributors to both for each woman. For example, effective hair removal in women with hirsutism has been shown to improve self-esteem (26) and decrease anxiety and depression (27). Similarly, reducing acne via treatments will benefit women who are distressed by this symptom. Treatment of anxiety and depression is considered to have a positive effect on other features of the disorder, including weight management (28), insulin resistance and endocrine disturbances. These comorbidities should be assessed during interventional studies for depression (29). Patients can be evaluated by brief questionnaires that can be easily applied in polyclinics; however the most effective way to determine the nature, severity and an appropriate therapy for PCOS is through consultation with psychologists or psychiatrists.

### References

1. Badawy A, Elnashar A. Treatment options for polycystic ovary syndrome. *Int J Womens Health*. 2011; 3:25-35.
2. Teede H, Deeks A, Moran L. Polycystic ovary syndrome: a complex condition with psychological, reproductive and metabolic manifestations that impacts on health across the lifespan. *BMC Med*. 2010;8:41.
3. Kitzinger C, Willmott J. 'The thief of womanhood': women's experience of polycystic ovarian syndrome. *Soc Sci Med*. 2002;54(3):349-61.
4. Trent ME, Rich M, Austin SB, Gordon CM. Quality of life in adolescent girls with polycystic ovary syndrome. *Arch Pediatr Adolesc Med*. 2002;156(6): 556-60.
5. Trent ME, Rich M, Austin SB, Gordon CM. Fertility concerns and sexual behavior in adolescent girls with polycystic ovary syndrome: implications for quality of life. *J Pediatr Adolesc Gynecol*. 2003;16 (1):33-7.
6. Trent M, Austin SB, Rich M, Gordon CM. Overweight status of adolescent girls with polycystic ovary syndrome: body mass index as mediator of quality of life. *Ambul Pediatr*. 2005;5(2):107-11.
7. Gambineri A, Pelusi C, Vicennati V, Pagotto U, Pasquali R. Obesity and the polycystic ovary syndrome. *Int J Obes Relat Metab Disord*. 2002;26(7): 883-96.
8. Hahn S, Janssen OE, Tan S, Pleger K, Mann K, Schedlowski M, et al. Clinical and psychological correlates of quality-of-life in polycystic ovary syndrome. *Eur J Endocrinol*. 2005;153(6):853-60.
9. Dixon JB, Dixon ME, O'Brien PE. Depression in association with severe obesity: changes with weight loss. *Arch Intern Med*. 2003;163(17):2058-65.
10. Adali E, Yildizhan R, Kurdoglu M, Kulusari A, Edirne T, Sahin HG, et al. The relationship between clinico-biochemical characteristics and psychiatric distress in young women with polycystic ovary syndrome. *J Int Med Res*. 2008;36(6):1188-96.
11. Elsenbruch S, Benson S, Hahn S, Tan S, Mann K, Pleger K, et al. Determinants of emotional distress in women with polycystic ovary syndrome. *Hum Reprod*. 2006;21(4):1092-9.
12. Rasgon NL, Rao RC, Hwang S, Altshuler LL, Elman S, Zuckerbrow-Miller J, et al. Depression in women with polycystic ovary syndrome: clinical and biochemical correlates. *J Affect Disord*. 2003; 74(3):299-304.
13. Hollinrake E, Abreu A, Maifeld M, Van Voorhis BJ, Dokras A. Increased risk of depressive disorders in women with polycystic ovary syndrome. *Fertil Steril*. 2007;87(6):1369-76.
14. Brown AJ. Depression and insulin resistance: applications to polycystic ovary syndrome. *Clin Obstet Gynecol*. 2004;47(3):592-6.
15. Roos C, Lidfeldt J, Agardh CD, Nyberg P, Nerbrand C, Samsioe G, et al. Insulin resistance and self-rated symptoms of depression in Swedish women with risk factors for diabetes: the Women's Health in the Lund Area study. *Metabolism*. 2007; 56(6):825-9.
16. Weiner CL, Primeau M, Ehrmann DA. Androgens and mood dysfunction in women: comparison of women with polycystic ovarian syndrome to healthy controls. *Psychosom Med*. 2004;66(3):356-62.
17. Eggers S, Kirchengast S. The polycystic ovary syndrome--a medical condition but also an important

- psychosocial problem. *Coll Antropol*. 2001;25(2):673-85.
18. Barry JA, Hardiman PJ, Saxby BK, Kuczmierczyk A. Testosterone and mood dysfunction in women with polycystic ovarian syndrome compared to subfertile controls. *J Psychosom Obstet Gynaecol*. 2011;32(2):104-11.
  19. Rotterdam ESHRE/ASRM-Sponsored PCOS consensus workshop group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome (PCOS). *Hum Reprod*. 2004;19(1):41-7.
  20. Berens LV. Understanding Yourself questionnaire. Rezakhani Z, translator. Place of publication: Signet Publications; 2001.
  21. Shulman LH, DeRogatis L, Spielvogel R, Miller JL, Rose LI. Serum androgens and depression in women with facial hirsutism. *J Am Acad Dermatol*. 1992;27(2 Pt 1):178-81.
  22. Weber B, Lewicka S, Deuschle M, Colla M, Heuser I. Testosterone, androstenedione and dihydrotestosterone concentrations are elevated in female patients with major depression. *Psychoneuroendocrinology*. 2000;25(8):765-71.
  23. Weiner CL, Primeau M, Ehrmann DA. Androgens and mood dysfunction in women: comparison of women with polycystic ovarian syndrome to healthy controls. *Psychosom Med*. 2004;66(3):356-62.
  24. Benson S, Janssen OE, Hahn S, Tan S, Dietz T, Mann K, et al. Obesity, depression, and chronic low-grade inflammation in women with polycystic ovary syndrome. *Brain Behav Immun*. 2008;22(2):177-84.
  25. Barnard L, Ferriday D, Guenther N, Strauss B, Balen AH, Dye L. Quality of life and psychological well being in polycystic ovary syndrome. *Hum Reprod*. 2007;22(8):2279-86.
  26. Clayton WJ, Lipton M, Elford J, Rustin M, Sherr L. A randomized controlled trial of laser treatment among hirsute women with polycystic ovary syndrome. *Br J Dermatol*. 2005;152(5):986-92.
  27. Keegan A, Liao LM, Boyle M. 'Hirsutism': a psychological analysis. *J Health Psychol*. 2003;8(3):327-45.
  28. Moran LJ, Lombard CB, Lim S, Noakes M, Teede HJ. Polycystic ovary syndrome and weight management. *Womens Health (Lond Engl)*. 2010;6(2):271-83.
  29. Elsenbruch S, Hahn S, Kowalsky D, Offner AH, Schedlowski M, Mann K, et al. Quality of life, psychosocial well-being, and sexual satisfaction in women with polycystic ovary syndrome. *J Clin Endocrinol Metab*. 2003;88(12):5801-7.