

“Depression and Anxiety in Women with Polycystic Ovary Syndrome from Pakistan”

Sitwat Zehra¹, Afsheen Arif¹, Nargis Anjum², Abid Azhar¹, Masood Qureshi³

¹The Karachi Institute of Biotechnology and Genetic Engineering (KIBGE), University of Karachi, Karachi-75270, Pakistan

²Department of Physiology, Karachi Medical and Dental College (KMDC), Karachi Pakistan.

³Department of Physiology, Dow University of Health Sciences, Ojha Campus (DUHS), Karachi Pakistan.
afsheen.arif@kibge.edu.pk

Abstract: Background: Polycystic ovary syndrome (PCOS) is a complex and heterogeneous disorder of young female. It is related to reproductive, metabolic and psychological abnormalities. The aims of the study were to estimate the prevalence of depression in PCOS patients compared with controls and to evaluate the correlation between depression, obesity, clinical marker of hyper-androgenism and other metabolic markers. **Materials and Methods:** It is a Case- Control study, 2.25 years (Dec’ 2010- Mar’ 2013). A total of 225 women who presented with PCOS based on the 2003 Rotterdam criteria were assessed for clinical levels of anxiety and depression along with socio demographic and clinical profiles. All data were analyzed by using SPSS version 17. Statistical significance was defined as $p < 0.05$. **Results:** The study results showed that 42% of PCOS women had anxiety, 31% had depression and 20% had both depression and anxiety. In comparison 11% of control women had anxiety, 9% had depression and 3.5% had both anxiety and depression. **Discussion:** Depression and anxiety scores were higher in PCOS patients than controls ($p < 0.000$) in Pakistan. Depression scores were significantly increase with increase in insulin resistance and lipid profile. The results concluded that depression and anxiety is highly prevalent in PCOS patients as compared to controls. This disorder seems to be related with obesity, infertility, hirsutism, menstrual irregularities and insulin resistance.

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1.Introduction:

Polycystic ovary syndrome (PCOS) is found to be the commonest endocrine disorder of young females (Azziz et al., 2009). The symptoms of PCOS like acne, hirsutism and menstrual abnormalities as well as the increased prevalence of obesity and infertility, may cause psychological dysfunction and affect quality of life (QOL) (Jones et al., 2008). It is also a known to be a risk factor for depression (Brydon et al., 2006) and anxiety (Roy-Byrne et al., 2008). There are some identified experiences of PCOS patients with higher rates of depression and anxiety as compare to the normal females (Mansson et al., 2008; Jedel et al., 2010).

Depression is highly prevalent in PCOS patients with more variation (28–64%) (Bhattacharya and Jha, 2010; Deeks, 2010) than normal women (7.1–8%) (Gwynn et al., 2008). The prevalence of anxiety in PCOS female ranges from 34 % (Deeks et al., 2010) to 57% (Benson et al., 2009), which is higher than normal female (18%) (Gwynn et al., 2008). The variations in prevalence rates may be due to different ethnicities, geographical and racial factors. The employment of different methods for screening the depressive disorder is also an important factor (Cinar et al., 2011).

In PCOS patients the actual reason for a higher rate of anxiety and depression are supposed to be complex. Some reviewers (Eggers and Kirchengast, 2001; Bishop et al., 2009) suggested that psychological distress might be a leading cause of physical symptoms in PCOS patients, however, the specific factor responsible for this is unpredictable. While acne (Benson et al., 2009), hirsutism and BMI (Hahn et al., 2005) have been linked to increased psychological distress in some studies, other studies did not show any link (Kerchner et al., 2009). In some studies it has been observed that the infertile females are more like to be depressed (Deeks, 2010; Benson et al., 2009), while other studies did not show any evidence (Hahn et al., 2005) (Kerchner et al., 2009). Most studies, observed that in PCOS patients the obesity is the major factor that adversely affects the quality of life (Jones et al., 2008).

One of the worst aspects of PCOS is an ovulatory infertility although 60% of PCOS patients are fertile. Ninety percent infertile PCOS patients are overweight and infertility is the second most important factor which negatively affects the quality of life in PCOS patients.

In PCOS patients, hirsutism is also another important factor which reduces the quality of life. (Lipton et al., 2006) studied 88 hirsute women with

excessive growth of hairs on their face due to which interpersonal relationship and quality of life become reduced (Lipton et al., 2006).

The aims of the study were:

- To determine the frequency of depression and anxiety in PCOS patients
- To evaluate the correlation between depression, obesity, clinical marker of hyperandrogenism and other metabolic markers.

2. Materials And Methods:

A total of 543 premenopausal women between the ages of 20-40 years, who presented with the clinical features of the PCOS were assessed. Diagnosis of PCOS was based on 2003 Rotterdam criteria. Women with diagnosed Cushing syndrome, thyroid dysfunctions, congenital adrenal hyperplasia, androgen secreting tumor, advanced liver and renal diseases, women with history of oophorectomy or hysterectomy, postmenopausal and pregnant females were excluded from study. Women who met the inclusion criteria of PCOS and follow the protocol till the end were only 225.

All subjects those were enrolled in the study have provided a written informed consent clearly stating the objectives of our study. The study was approved the Institutional Ethical Committee, KIBGE and KMDC. The history was taken on a customized pre prepared questionnaire with detailed personal, gynecological, medical, family, social (socio-economic status, occupation, education, interfamily marriages and ethnicity) and medication history. After detailed history each individual underwent an anthropometric measurement and detailed physical examination. The hair growth pattern was assessed by Ferriman-Gallwey, mFG (Ferriman and Gallwey, 1961) and hirsutism was defined by a score ≥ 7 .

Psychological assessment for anxiety and depression were performed through the Hospital Anxiety and Depression Scale (HADS) (Bjelland et al., 2002). The maximum score is 21 for depression and 21 for anxiety. We use a cut-off of 8/21 (Bjelland et al., 2002) through a systematic review of a large number of studies identified a cut-off point of 8/21 for anxiety or depression. For anxiety (HADS-A) this gave a specificity of 0.78 and a sensitivity of 0.9. For depression (HADS-D) this gave a specificity of 0.79 and a sensitivity of 0.83.

The data has been analyzed using SPSS v.16, categorical variable of Hospital Anxiety Depression scale were analyzed using chi-square. Statistical significance was defined as $P < 0.05$.

3. Results:

The comparison of socio-demographic characteristics (marital status, education, occupation, socioeconomic status, and ethnicity) of PCOS subjects (PCOS cases) and non-PCOs subjects (control) was made in detail. Significant difference was found between PCOS cases and controls on occupation. Greater proportion PCOS cases were housewife (64.4% vs. 41.5%; p -value < 0.001). Similarly significant difference was found in the ethnic origin of PCOS cases and controls. Greater proportion of PCOS cases were of Punjabi origin (30.7%) whereas majority of controls were migrant from India (30.5%); the p -value was significant at 95% confidence interval (p -value = 0.006) (Table 1).

Table 1: Sociodemographic characteristics of women with Pcos and control.

PARAMETERS	CONTROLS (N=200)	CASES (N=225)	P-value
Age	30.10 \pm 5.97	31.88 \pm 0.33	0.001***
Marital status			
Single	66 (33)	67 (29.8)	0.530
Married	134 (67)	158 (70.2)	
Education			
Illiterate	4 (2)	8 (3.6)	0.911
Primary	13 (6.5)	14 (6.2)	
Secondary	67 (33.5)	73 (32.4)	
Graduate	79 (39.5)	90 (40.0)	
Postgraduate	37 (18.5)	40 (17.8)	
Occupation			
Student	38 (19)	7 (3.1)	0.000***
Job	79 (39.5)	73 (32.4)	
Housewife	83 (41.5)	145 (64.4)	
Socioeconomic Status			
Low	46 (23)	58 (25.8)	0.231
Middle	98 (49)	120 (53.3)	
High	56 (28)	47 (20.9)	
Ethnicity			
Punjabi	69 (30.7)	44 (22.0)	0.006***
Memon	11 (4.9)	12 (6.0)	
Migrants from India	35 (15.6)	61 (30.5)	
Balochi	19 (8.4)	10 (5.0)	
Sindhi	53 (23.6)	46 (23.0)	
Pathan	38 (16.9)	27 (13.5)	

Table 2: Prevalence of Depression and Anxiety among PCOS and control women.

Prevalence	PCO (n=225)	Control (200)	P value
Anxiety	95(42%)	22 (11%)	0.000***
Depression	70 (31%)	12 (6%)	0.000***
Anxiety and Depression Both	46 (20%)	7 (3.5%)	0.000***

In present study, depression and anxiety was found significantly higher in PCOS cases as compared to controls. Greater proportion of PCOS women showed anxiety (42% vs. 11%; p-value <0.000). Similarly, greater proportion of PCOS showed prevalence of depression (31% vs 06%), while presence of depression and anxiety both was also found more prevalent in PCOS women 20% vs 3.5%; p-value <0.000) (Table 2).

4. Discussions:

PCOS is a common reproductive and cosmetic disorder of young women that may cause psychological disorders. Different physical symptoms such as weight gain, acne, hirsutism and hair loss, menstrual irregularities and infertility, also diminished feminine identity might be result in distress (Roberts et al., 2000). These symptoms can lead to feeling of frustration. Depression is a serious complication and which may lead to suicidal attempts.

This study showed prevalence of depression in 31% of our participant with PCOS which is slightly lower than in previous studies ranging from 35 to 67% (McElroy et al., 2004) (Rasgon et al., 2003). The same were reported by Bhattacharya (Bhattacharya and Jha, 2010) and Deeks (Deeks et al., 2010) but prevalence rate were different. This may be due to different racial and ethnical factors and using different method for assessing depression and anxiety. Hirsutism, obesity and infertility possesses negative impact in physical appearance (Farrell and Antoni, 2010) causes more distress to younger women.

In this study our results showed that 70.7% subjects have HAD scale and 29.3 % have HAD scale > 8. 70.7% subjects were normal, 16.9 % had anxiety, 9.3% had depression and 3.9% had both depression and anxiety. Depression is more common in obese people (Bjelland et al., 2002). A positive correlation between depression and obesity has been observed in community based survey (Roberts et al., 2000) (McElroy et al., 2004). However, all studies of obese PCOS patients did not show the same result (Hahn et al., 2005). Our results showed that menstrual irregularities are more common in PCOs subjects with depression (74.3%) as compared to subjects without depression (25.7%). These results were in accordance with study done by Jones et al (Jones et al., 2008) who reported that menstrual irregularities influence the psychological functioning and quality of life and fertility.

The study results showed that 76.3% subjects have hirsutism in PCOS women with depression as compared to 23.7% subjects have hirsutism in PCOS women without depression. It is coincided with study

done by Lipton et al (Lipton et al., 2006) who reported that hirsutism cause reduction in quality of life and interpersonal relationship and also reported that hirsutism is associated with distress in women with PCOS.

Results concluded that depression and anxiety are highly prevalent in PCOS patients and likely contributes to functional impairments and social isolation. These syndrome shows association with obesity, infertility, hirsutism, menstrual irregularities and insulin resistance. It is suggested that women with PCOS should be screened regularly for anxiety and depression and make sure that patients get adequate treatment and counseling. Anxiety and depression is increasing among women in Pakistan for combating and struggling basic necessities along with diseases it could rise up to threatening levels.

Corresponding Author:

Afsheen Arif, Ph.D.

Medical Biotechnology Division, KIBGE

The Karachi Institute of Biotechnology and Genetic Engineering (KIBGE), University of Karachi, Karachi-75270, Pakistan.

Email: afsheen.arif@kibge.edu.pk

afsheenarif2000@yahoo.com.

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