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PSYCHOLOGICAL IMPACT OF POLYCYSTIC OVARIAN SYNDROME AMONG PATIENTS WHO SOUGHT HELP FOR INFERTILITY: A CASE CONTROL STUDY

Gynecology

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ABSTRACT

Polycystic ovarian syndrome (PCOS) is a common hormonal disorders in women which carries both physical and psychological consequences. Current study aims to examine the extent of psychological impact and its associated factors. A case control study was conducted in clinic which focuses on treating infertility. Women with PCOS diagnosis were matched with women without PCOS diagnosis. Self-report questionnaire, the Malay language version of both Beck Depression Inventory-II and Beck Anxiety Inventory were administered to assess psychological impacts of PCOS. 48 participants were assigned into control group (non-PCOS) and case (PCOS) group. Descriptive statistics and chi square test were performed to determine the association. PCOS group were reported to have higher prevalence in depression and significant association with anxiety symptoms as compared with non-PCOS group. None of the socio-demographic factor was associated with depression and anxiety. Psychological intervention to improve well-being of patients should be implemented to ensure optimum treatment outcome.

KEYWORDS

Malaysia, depression, anxiety, infertility, psychology

INTRODUCTION

Infertility which often being associated with PCOS [1] is an endocrine system disorder that is characterized by large ovaries, irregular menstrual cycles, reduced fertility and high concentrations of male hormones such as testosterone which can lead to excess hair growth and acne [2-3]. The exact pathophysiology of PCOS is complex and remains largely unclear. Approximately 90%–95% of an ovulatory women that present in infertility clinics are reported to have PCOS [4]. Treatment for women with PCOS largely emphasized on the changes of lifestyle as no ideal medical therapy can fully reverses the underlying hormonal disturbances and treats all the clinical features [5-6]. Good dietary modification, maintaining ideal body mass index, exercising are proven to have a significant clinical benefit to manage obesity related with PCOS [6-8].

Hence, current study aims to understand the psychological impact among women with PCOS who sought medical help for infertility and to understand their lifestyle and sociodemographic factors, and its impact on depressive and anxiety symptoms.

METHODOLOGY

Study design and setting

This is a case control study conducted from April 2017 to August 2017 in the infertility clinic, Hospital Serdang. The infertility clinic of the hospital was chosen to ensure that the target study population can be reached.

Target population and sampling

The target population included infertile female patient with polycystic ovarian syndrome (PCOS) seeking fertility treatment at the infertility clinic. The control group comprised of infertile women with other causes of infertility seeking fertility treatment. Systematic sampling were applied to recruit study population by first selecting a larger group (50 participants) of each case and control. From the larger group of each case and control, the first participant from each case and control group are selected based on a random starting point and the participants after that are selected by a fixed periodic interval. This is done until each case and control has a size of 24 participants each. Control group was matched based on both age group and ethnicity.

Instrument/Questionnaire

The questionnaire included Beck Depression Inventory (BDI-M; [9]) and Beck Anxiety Inventory (BAI-M; [10]), the Malay language version. Both BDI and BAI questionnaires will have a range of 0 to 3 for each statement with the score of 3 showing most severe signs of depression or anxiety and a score of 0 showing no signs or very minimal signs of depression and anxiety.

Data collection

Data were collected using self-administered questionnaire. Research information sheet and consent form were distributed to patients while waiting for the check-up at the clinic. Patients were given sufficient time to complete the questionnaire, ranging between 15-20 minutes. Not consenting to participate in the research study as well as withdrawal of consent will not affect the medical services entitled as the participation is entirely voluntary.

Statistical analysis

Descriptive statistics were used to analyse the frequency and percentage of the categorical data. Chi-Square test was utilised to determine the association between the socio-demographic factors and psychological impacts. Logistic regression was performed to determine the strength of association between PCOS and psychological impact.

RESULT

In current study, both distribution of BDI and BAI were not normally distributed, as shown in Kolmogorov-Smirnov test of normality (BAI, $p=0.014$; BDI, $p = 0.049$). Hence non-parametric tests were used for data analysis.

Sociodemographic Characteristics of Participants

Majority of the participants were in the group of 31- 40 years old and of Malay ethnicity. Current study did not recruit any Chinese ethnic

patients. Refer to table 1 for details.

Table 1: Sociodemographic Characteristic of Sample

	Non-PCOS Control group n (%)	PCOS Study group n (%)
Age		
20-30	5 (20.8%)	6(25%)
31-40	18 (75%)	18 (75%)
>40	1 (4.2%)	0
Ethnicity		
Malay	21 (87.5%)	21(87.5%)
Indian	3 (12.5%)	3(12.5%)
Chinese	0	0
Others	0	0

Distribution of Depressive and Anxiety Symptoms

Subsequently, current study classified patients' BDI-M and BAI-M scoring based on the recommendation by Smarr & Keefer (2011) [11] and Beck & Steer (1993) [12]. Table 2 shows that PCOS group had a higher prevalence in more severe group.

Table 2: Distribution of Beck Depression Inventory Score and Beck Anxiety Inventory Score among PCOS and Non-PCOS group.

		Variable	
		PCOS n (%)	Non-PCOS n (%)
Anxiety	Minimum	5(20.8)	14(58.3)
	Mild	6(25.0)	5(20.8)
	Moderate	13(54.2)	5(20.8)
	Severe	0(0)	0(0)
Depression	no depression	10(41.7)	16(66.7)
	mild to moderate	8(33.3)	7(29.2)
	clinically relevant depression	6(25)	1(4.2)

Further, participants are grouped into high vs low anxiety / depressive symptoms group. From table 3, it can be observed that anxiety symptoms are doing better at differentiating PCOS and non-PCOS patients, in which more than 50% of PCOS patients were reported to have high anxiety symptoms, whereas only 1 patients in non-PCOS group to have a high anxiety symptoms.

Table 3: Distribution of Depressive and Anxiety Symptoms Group among PCOS and Non-PCOS group.

Variable		Groups	
		PCOS N (%)	non-PCOS N (%)
Depressive symptoms	High	6(25)	5(20.8)
	Low	18(75)	19(79.2)
Anxiety symptoms	High	13(54.2)	1(4.2)
	Low	11(45.8)	23(95.8)

Association with Depressive and Anxiety Symptoms

Table 4 and table 5 shows there was no significant association between sociodemographic characteristics and both depressive and anxiety symptoms.

Table 4: Association between sociodemographic characteristics (age and ethnicity) and anxiety

Sociodemographic			Anxiety	No anxiety	x^2	P <0.05
Age group	Lower age group	n	14	18	1.6	0.206
		%	77.8	60		
	Higher age group	n	4	12		
		%	22.2	40		
Race group	Malay	n	16	26		1
		%	88.9	86.7		
	Non-Malay	n	2	4		
		%	11.1	13.3		

Table 5: Association between sociodemographic characteristics (age and ethnicity) with depression

Sociodemographic			Depression	No depression	x^2	P <0.05
Age group	Lower age group	n	7	25	-	0.079
		%	100	61		
	Higher age group	n	0	16		
		%	0	39		
Race group	Malay	n	5	37	-	0.206
		%	71.4	90.2		
	Non-Malay	n	2	4		
		%	28.6	9.8		

Logistic regression shows no significant relationship between PCOS diagnosis and depressive symptoms. However, significant relationship was found between PCOS and anxiety symptoms, as demonstrated in Table 6.

Table 6: Odds ratio of depression among infertile PCOS women and non-PCOS women

Psychological impact		PCOS		Non-PCOS				
		N	%	N	%	p value	Odds ratio	95% CI
Depressive symptoms	High	6	25	1	4.2	0.097	7.667	(0.8, 69.5)
	Low	18	75	23	94.8			
Anxiety symptoms	High	13	54.2	5	20.8	0.036	4.491	(1.3, 16.0)
	Low	11	45.8	19	79.2			

DISCUSSION

Current study aims to determine the prevalence and its psychological impact of polycystic ovarian syndrome (PCOS). Participants with PCOS were found to have a higher lifetime incidence of depressive and anxiety symptoms than ethnicity and age group matched control group (non-PCOS). However, no association was found between the socio-demographic factors (i.e. age group and ethnicity) and the depressive, anxiety symptoms in current study.

The percentage of high depressive symptoms among the infertile women with PCOS in current study was 58.3% while non-PCOS subjects was only 33.3%. This study reported depression levels to be higher when being compared to a previous work [13], which had reported levels of depression in the infertile women to be 40.8%. High anxiety symptoms is found to be higher in PCOS group (79.2%) as compared to non-PCOS group (41.4%). The findings were nearly as high as in a study conducted in Iran where the levels of anxiety were found to be 86.8% [14].

Infertile women with PCOS were found to have a higher risk of developing anxiety as compared with non-PCOS patients. Current findings are consistent with previous systematic review which revealed an increased odds of anxiety symptoms in women with PCOS and greater risk at experiencing both depressive and anxiety symptoms [15-16]. Nevertheless, current study did not find significant association of PCOS diagnosis and high depressive symptoms.

The study outcome would be benefited from a larger sample size, as well as data related to lifestyle factor. This will provide researcher ample time to recruit an equal distribution of ethnicity and hence gave a much clearer view on the association of ethnicity with the psychological impacts, depression and anxiety.

CONCLUSIONS

In conclusion, PCOS was associated with higher risk of anxiety, but not depressive symptoms. Nonetheless, there was no association between social demographic factors including age and ethnicity with the occurrence of depression and anxiety.

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