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EMPOWERING WOMEN WITH PCOS: THE INFLUENCE OF A NURSING INTERVENTION ON CLINICAL PARAMETERS AND KNOWLEDGE ENHANCEMENT

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Abstract

The purpose of this study was to evaluate the effectiveness of a comprehensive nursing intervention package on understanding and clinical parameters in women with polycystic ovarian syndrome (PCOS). Using a quasi-experimental design, participants were divided into experimental and control groups. A pretest, post-test 1, and post-test 2 were conducted to assess ultrasound findings (USG), thyroid-stimulating hormone (TSH), and knowledge scores. In both experimental and control groups, USG and TSH levels significantly improved following the intervention. There was also a significant improvement in knowledge scores following the intervention. Additionally, a correlation analysis between post-test knowledge and USG/TSH levels indicated significant relationships for both groups. Clinical outcomes and knowledge levels among women with PCOS were positively impacted by the comprehensive nursing intervention package. The effects of such interventions on PCOS management over the long run should be explored in future research.

Keywords: Hormonal Imbalances, PCOS, Nursing Intervention, USG, TSH.

INTRODUCTION

The polycystic ovary syndrome (PCOS) affects women of reproductive age, usually developing in adolescence and manifesting as irregular periods, hormonal imbalances, excess androgen levels, and ovarian cysts[1]. Up to 70% of women of reproductive age go undiagnosed with this syndrome, which poses a significant public health challenge[1]. The risk of metabolic complications is higher among certain ethnic groups. As a result of its effect on obesity, body image, and infertility, PCOS can also cause mental health issues and social stigma. The pathophysiology of polycystic ovaries has evolved over time, with pathophysiological traits including hyperandrogenism, chronic anovulation, and polycystic ovaries. There are a number of symptoms associated with hirsutism, including irregular menstruation, infertility, acne, oily skin, and hirsutism[2]. PCOS patients with obesity and those with lean bodies can both suffer from insulin resistance, and managing PCOS effectively can reduce cardiovascular risk[3]. In addition to lifestyle modifications and medications like metformin, treatment approaches address insulin resistance, oligo-ovulation, and hyper-androgenism. According to the American Thyroid Association (ATA) and Endocrine Society guidelines on thyroid disease during pregnancy, no evidence supports the recommendation to treat women with normal thyroid function who miscarry sporadically or recurrently or undergo IVF-ET with levothyroxine [4,5].There was a 9.13% prevalence rate reported in South India while 22.5% was reported in Maharashtra[6]. While in a large population including 11,254 Danish women, higher TSH level is associated with higher risk of not having children and not getting pregnant in age-adjusted and multi-adjusted models[7]. The present study investigates the effect

of a comprehensive nursing intervention on anthropometrics such as uterine sonography and thyroid-stimulating hormone among women with PCOS[8], as well as their knowledge of PCOS. It emphasizes the importance of a multidisciplinary approach in managing PCOS using a quasi-experimental design, which examines the correlation between post-intervention knowledge and variables (USG and TSH).

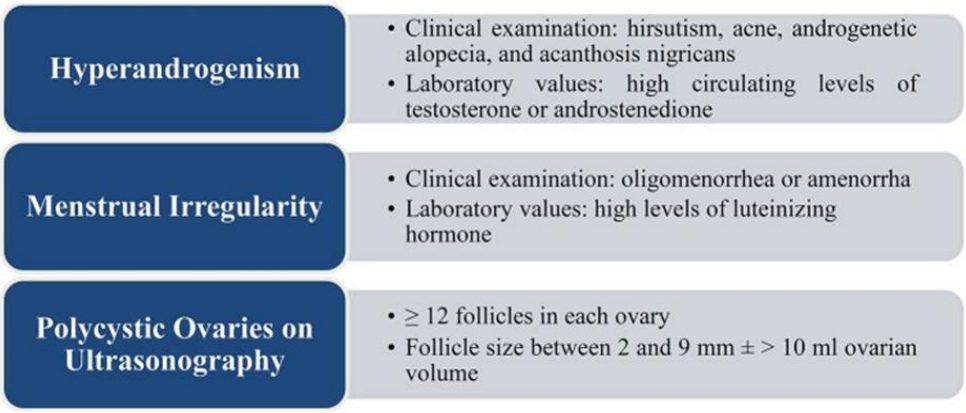

Figure 1: Diagnosis criteria for PCOS

METHODOLOGY

Designing of work methodology

A quasi-experimental pre- and post-test design to assess the effectiveness of a comprehensive nursing intervention package on anthropometric variables, such as ultrasound (USG) findings, thyroid-stimulating hormone (TSH) levels, and knowledge enhancement. Furthermore, the study aimed to explore the correlation between post-intervention knowledge levels and various variables among women diagnosed with Polycystic Ovarian Syndrome (PCOS) at selected hospitals in Chennai.

Ethical approval

In accordance with ethical principles and procedures, all study participants were treated with respect and privacy. Research permission was granted by the relevant authorities and the institutional ethical committee on October 18, 2021. All participants provided informed consent. Information regarding the participants was kept confidential and protected under strict conditions.

Criteria for selection

Included

1) Married women and not conceived
2) Age of women 18 – 33 yrs (Either married/Unmarried)
3) Language known (Tamil/English)
4) Women having PCOS for past 1 year

Excluded

5) Conceived during the period of study
6) Physical challenged women with PCOS
7) Having in treatment in PCOS and usage of Contraceptives
8) Having other compliances like diabetes, hypertension etc.,

Type of tools used

Tools for intervention

Video assisted teaching on PCOS; Investigator guided Aerobic Exercises which includes Progressive Resisted Training and High Intensity Interval Training and Needs based dietary prescription

Size of sample used: A total of 200 participants were selected, with 100 individuals in each of the experimental and control groups

Statistics: The data obtained was analyzed using descriptive and inferential statistics. SPSS (Statistical Package for Social Sciences) Version 28 was used to conduct the statistical analysis.

Table 1: Anthropometric measurement (USG, TSH and Knowledge level)

	TEST	GROUP	MEAN	STANDARD DEVIATON	MEAN DIFFERENCE	't' VALUE Independent -t test	df	'p' VALUE
USG	Pre test	Experimental Group	16.99	2.480	-0.08000	0.2273	594	0.9942
		Control Group	17.07	2.618				
	Post-test-I	Experimental Group	13.58	2.475	-2.990	8.494	594	<0.0001
		Control Group	16.57	2.528				
	Post-test-II	Experimental Group	11.62	1.427	-4.580	13.01	594	<0.0001
		Control Group	16.2	3.101				
TSH	Pre test	Experimental Group	6.75	2.496	-0.1300	0.3862	594	0.9729
		Control Group	6.88	2.648				
	Post-test-I	Experimental Group	5.04	2.386	-1.530	4.545	594	<0.0001
		Control Group	6.57	2.609				
	Post-test-II	Experimental Group	3.42	1.565	-2.950	8.764	594	<0.0001
		Control Group	6.37	2.409				
KNOWLEDGE	Pre test	Experimental Group	13.03	5.149	-0.6000	0.7417	594	0.8413
		Control Group	13.63	6.053				
	Post-test-I	Experimental Group	20.90	5.436	7.120	8.802	594	<0.0001
		Control Group	13.78	6.485				
	Post-test-II	Experimental Group	23.83	4.765	9.920	12.26	594	<0.0001
		Control Group	13.91	6.233				

p<0.001HS- highly significant, NS-Non Significant.

Table 1 presents a comparative analysis of the efficacy of the comprehensive nursing intervention package on knowledge and clinical parameters among women diagnosed with polycystic ovarian syndrome (PCOS) in both the experimental and control groups. Ultrasound findings (USG) showed non-significant differences in the pretest (t = 0.2273) but significant improvements in post-test 1 and 2 (t = 8.494 and 13.01). Thyroid-stimulating hormone (TSH) levels had a non-significant difference in the pretest (t = 0.3862) but significant improvements in post-test 1 and 2 (t = 4.545 and 8.764). Knowledge scores in the pretest were non-significant (t = 0.7417), but post-test 1 and 2 showed significant improvements (t = 8.802 and 12.26). These results indicate the positive impact of the comprehensive nursing intervention package on various parameters in women with PCOS.

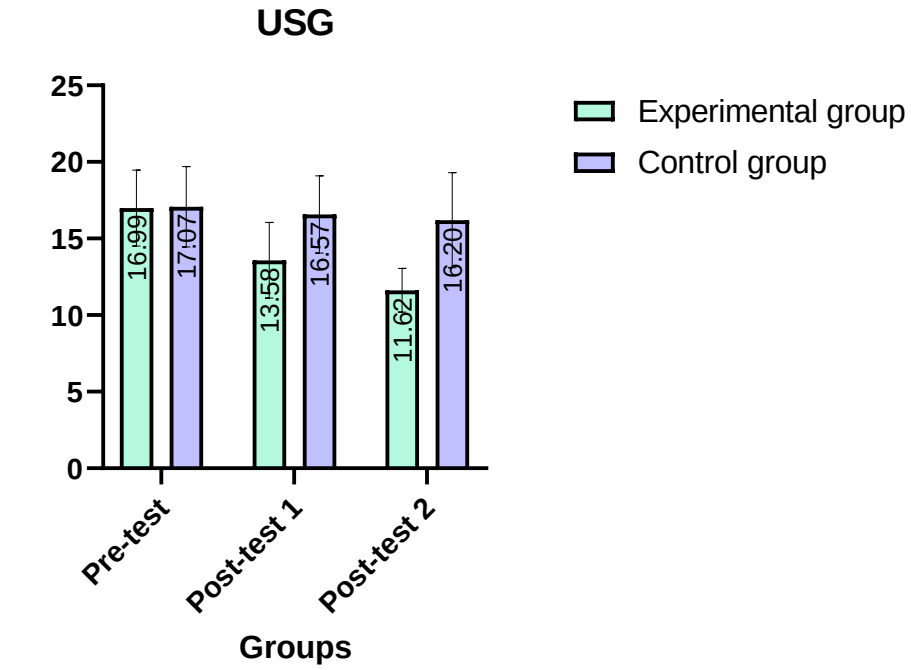

Figure 2: Measurement of USG

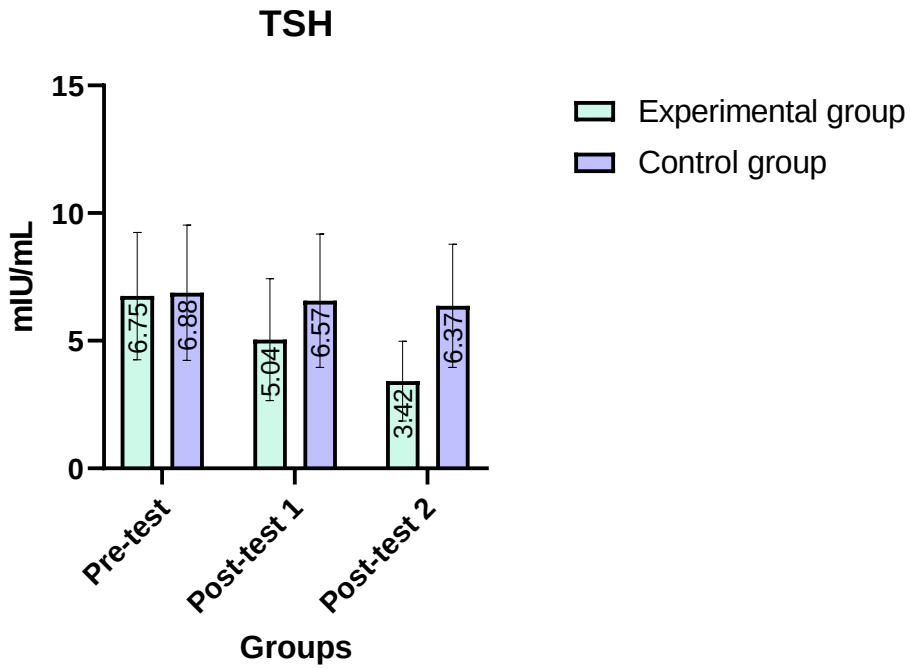

Figure 3: Measurement of TSH

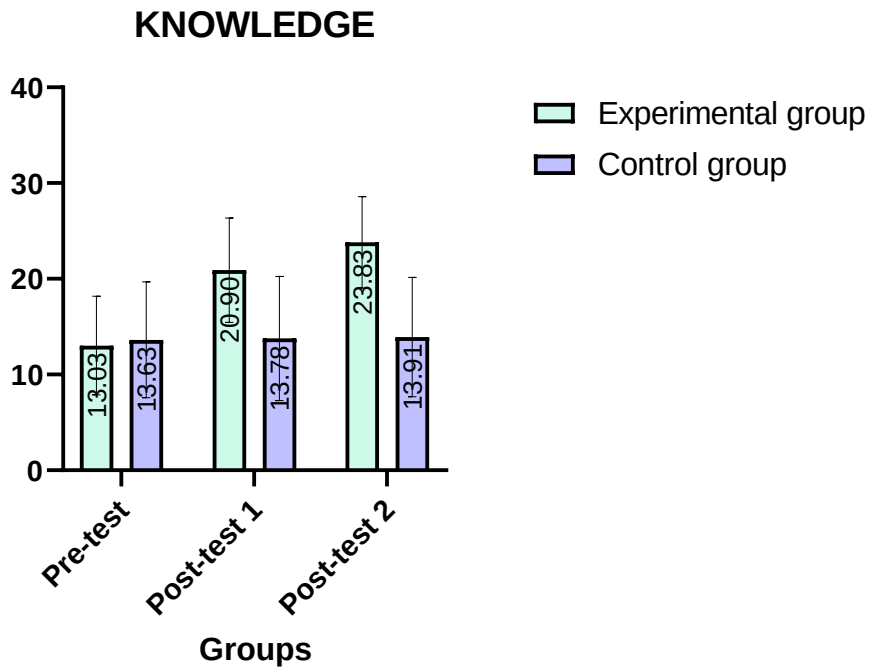

Figure 4: Measurement of Knowledge

Table 2: Correlation between post-test knowledge with USG and TSH among women with polycystic ovarian syndrome in experimental and control group. (N=200 (100+100))

Correlation between post-test knowledge with clinical parameters among women with polycystic ovarian syndrome		'r' VALUE	'p' VALUE	CORRELATION
Experimental group	**KNOWLEDGE**	-0.9946	**0.0259**	**POSITIVE**
	USG			
Control group	**KNOWLEDGE**	-0.9990	**0.0685**	**NEGATIVE**
	USG			
Experimental group	**KNOWLEDGE**	-0.9707	0.0544	**POSITIVE**
	TSH			
Control group	**KNOWLEDGE**	-0.9966	**0.0526**	**NEGATIVE**
	TSH			

-p < 0.05 highly significant. NS-Non significant

Table 2 presents the correlation between post-test knowledge and variables such as USG and TSH among women diagnosed with polycystic ovarian syndrome in both the experimental and control groups. In the experimental group, a positive correlation is observed between post-test knowledge and USG, with an r-value of -0.9946 and a non-significant p-value of 0.0259. Conversely, in the control group, a positive correlation is noted, with an r-value of -0.9990, and the results are not significant with a p-value of 0.0265. Regarding the correlation between post-test knowledge and TSH, a positive correlation was found in the experimental and and negative correlation in control groups. In the experimental group, the results yield an r-value of -0.9707 with a significant p-value of 0.0544. Similarly, in the control group, a negative correlation is observed, with an r-value of -0.9966, and the results are non-significant with a p-value of 0.0526. A normal range of TSH levels was identified in our study.

DISCUSSION

Earlier studies have implicated PCOS women as having a higher risk of subclinical hypothyroidism [9]. An analysis found that PCOS patients are more likely to suffer from thyroid disorders, which highlights the importance of treating hypothyroidism early to manage PCOS-related infertility[10]. Similarly, the size of the ovary in ultrasound was significantly related to a previous diagnosis of PCOS, but the remaining variables were not significantly related[11]. According to previous evidence, women with PCOS who have relatively higher TSH levels are more likely to have the HA phenotype. When differences in age, BMI, thyroid status, and thyroid autoimmunity were corrected for statistically, HA risk was elevated and increased across TSH levels. A 103-woman PCOS cohort study reported that women with TSH > 2.5 mIU/L had significantly increased BMIs, fasting insulin levels, HOMA-IR levels, TC levels, and FAI levels, as well as lower SHBG levels[12-14]. Among individuals with TSH > 2.5 mIU/L, found there was no evidence of an increase in time after intervation[15]. Similarly our findings highlight the complex interplay between knowledge levels and clinical variables in women with PCOS. While higher knowledge levels appear to be associated with certain favorable outcomes, such as USG results and potentially TSH levels, the exact nature of these relationships and their implications for PCOS management require further exploration.

CONCLUSION

An effective nursing intervention package significantly improved both clinical parameters and knowledge levels among women with polycystic ovarian syndrome (PCOS). The results of the study indicate that such interventions can improve ultrasound findings, thyroid-stimulating hormone levels, and knowledge scores. This correlation analysis emphasizes how important it is to understand and address these factors when managing PCOS. In order to help women with PCOS to improve their overall well-being, additional research is necessary to explore the long-term effects and sustainability of such interventions.

Conflict of Interests: Nil

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