RESEARCH PAPER

"Effectiveness of Lifestyle intervention on polycystic ovarian syndrome in Lifestyle Practices and BMI Among Girls at Selected Colleges, U.P."

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ABSTRACT

Introduction: Polycystic ovarian syndrome is a syndrome manifested by amenorrhea, hirsutism and obesity associated with enlarged polycystic ovaries. Globally, the prevalence of PCOS is estimated to be between 5.5% and 12.6% in women in the age group of 17 to 45 years. In India the prevalence estimates are between 8.2% and 22.5 %. An estimated one in five (20%) Indian women suffer from PCOS. (The Hindu, Mumbai, September 26, 2019).

Objective: To evaluate the effectiveness of lifestyle intervention on polycystic ovarian syndrome in terms of lifestyle practices and BMI among girls at selected Colleges, U.P.

Methods: The study was conducted in B.Ed college, Agra among 33 girls by using purposive sampling technique who met the eligibility criteria and written consent was taken from sample. One group pretest and posttest design were adopted. The data was collected with PCOS risk assessment questionnaire, Self-reported practice check list and BMI. After the implementation of interventions for three months the post-test was conducted. Descriptive and inferential statistics were used for data analysis.

Results: Paired t-test was computed to find out the significant mean differences in, life style practices and BMI. It reveals that there was a statically significant difference noted in the mean scores of life style practices at $p<0.05$ between pre-test and post-test among girls as the paired t test life style practice score was 0.0001. There was no statistically significant difference noted in the mean BMI scores at $p>0.05$ between pre-test and post-test among girls. Pearson correlation "r" was computed to find the correlation. There was no significant correlation found between Lifestyle practices and BMI kg/m2 ($r=0.07$, $p>0.05$). There was no significant association found between the Lifestyle practices and selected demographic variable among girls ($p>0.05$) except for Duration of menstruation ($p<0.05$). There was no significant association found between the BMI kg/m2 and selected demographic variable among girls ($p>0.05$) except for occupation of mother and Area of residence ($p<0.05$).

Conclusion: There was a statistically significant difference noted in the mean life style practices between pre-test and post-test among girls. This shows that lifestyle intervention is an effective intervention in improving the lifestyle practices among girls on polycystic ovarian syndrome..

Keywords: Poly Cystic Ovarian Syndrome, lifestyle intervention practice, BMI..

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INTRODUCTION

Polycystic ovarian syndrome was originally described in 1935 by Stein and Laventhal as a syndrome manifested by amenorrhoea, hirsuitism and obesity associated with enlarged polycystic ovaries.

The predisposing risk factors include genetics, neuroendocrine, lifestyle, environment, obesity that contributes to the development of PCOS. The pathophysiological aspect of PCOS mainly focuses on hormonal dysfunction, insulin resistance, and hyperandrogenism leading to impaired folliculogenesis which arise the risk for associated comorbidities like endometrial cancer, type II diabetes etc.

It was not until the early 1990s at a National Institutes of Health (NIH) sponsored conference on PCOS that formal diagnostic criteria were proposed and afterwards were largely utilized. These criteria, known as "the NIH criteria", were published as the conference proceedings and received large scale of acceptance in the research and clinical communities. According to these criteria, PCOS is defined as unexplained hyperandrogenic anovulation. PCOS can be diagnosed in women if the following criteria are found: symptoms of excess of androgens (clinical or biochemical), rare ovulations, exclusion of other disorders with similar clinical symptoms. (Franks S 1991)

The 2004 criteria established by a group of experts during a conference in Rotterdam in the Netherlands held in 2003 are obligatory (The Rotterdam ESHRE/ASRM – Sponsored PCOS Consensus Workshop Group). The subsequent "Rotterdam criteria" incorporated the ultrasound determined size and morphology of the ovary into the diagnostic criteria. According to them the presence of 2 out of 3 following criteria are necessary to make a PCOS. They are rare ovulations or lack of ovulations, 2. Excessive activity of

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androgens confirmed by a clinical or laboratory examination, 3. Features of polycystic ovaries in the ultrasound. (Hum Reprod. 2022)

OBJECTIVES

1.To identify the girls with high risk for polycystic ovarian syndrome by PCOS risk assessment questionnaire.
2. To determine the pretest and posttest level of Life style practices and BMI, among girls.
4. To find out the correlation between the level of lifestyle practices and BMI on polycystic ovarian syndrome among girls.
5. To find out the association between the pretest level of life style practices and BMI among the girls with their selected demographic variables.

RESEARCH METHODOLOGY

The researcher selected 33 girls by using purposive sampling technique who met the eligibility criteria and who were identified as having a risk for developing PCOS with the help of PCOS risk assessment questionnaire. Written consent was taken from sample by describing the purpose of study and convinced for confidentiality of the information provided. One group pretest and posttest design were adopted. Study was conducted from 19-02-2024 to 25-05-2025 at department of B.Ed college, Agra, after the written permission from the Dean/Principal Agra college, Agra and Head of the Department B.Ed Agra college. The data was collected with PCOS risk assessment questionnaire, Self-reported practice check list and BMI. Implementation of lifestyle intervention included all the aspects of PCOS, dietary pattern and exercise interventions. After the implementation of interventions for three months the post-test was conducted. Descriptive and inferential statistics were used for data analysis.

RESULT

The findings of study are presented according to the objectives of the study. The data is prepared under the subsequent sections: -

Table 1 ***Description of background variables of the participants***

(N=33)

Background variables	**Frequency (n)**	**Percentage (%)**
Educational status of the mother		
Primary education	2	6.1
Secondary education	12	36.4
Higher secondary education	5	15.2
Graduate	5	24.2
Post graduate	6	18.2
Occupation of the father		
Government employee	8	24.2
Private employee	5	15.2
Business	15	45.5
Cooli worker	1	3.0
Farmer	4	12.1
Occupation of mother		
Housewife	30	90.9
Govt. Employee	1	3.0
Business	2	6.1
Monthly family income		
Rs.70000/- to Rs.27000/-	7	21.2
Rs.27001/- to Rs.47000/-	10	30.3
Rs.47001- to Rs.67000/-	11	33.3
more than Rs.67000/-	5	15.2
Dietary habits		

Vegetarian	30	90.9
Non vegetarian	3	9.1
Area of residence		
Rural	4	12.1
Urban	29	87.9
Age of menarche		
10-11years	2	6.1
12-13 years	16	48.5
14-15 years	11	33.3
After 15 years	4	12.1
Is your menstrual cycle regular		
Yes	27	81.8
No	6	18.2
Duration of menstruation		
Three days	12	36.4
Five days	9	57.6
Seven days	2	6.1
Number of sanitary pads used in a day		
2-3	23	69.7
4-5	9	27.3
6-7	1	3.0
Do you suffer from dysmenorrhea?		
Yes	25	75.8
No	8	24.2
Is anyone from your family members having history of diabetes mellitus?		
Yes	15	45.5
No	18	54.5
Is anyone from your family members having history of Gestational diabetes mellitus?		
Yes	0	0.0
No	100	100.0
Have you heard about polycystic ovarian syndrome?		
Yes	1	3.0
No	32	97.0

Table 2: ***Frequency and percentage distribution of pretest and posttest level of lifestyle practices among girls.***
N=33

Level of Lifestyle practice	**Score range (Key)**	**Pretest**		**Post test**	
		Frequency (f)	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**
Poor	1-19	20	60.61	2	6.07
Average	20-25	10	30.30	11	33.33

Good	26-40	03	9.09	20	60.60

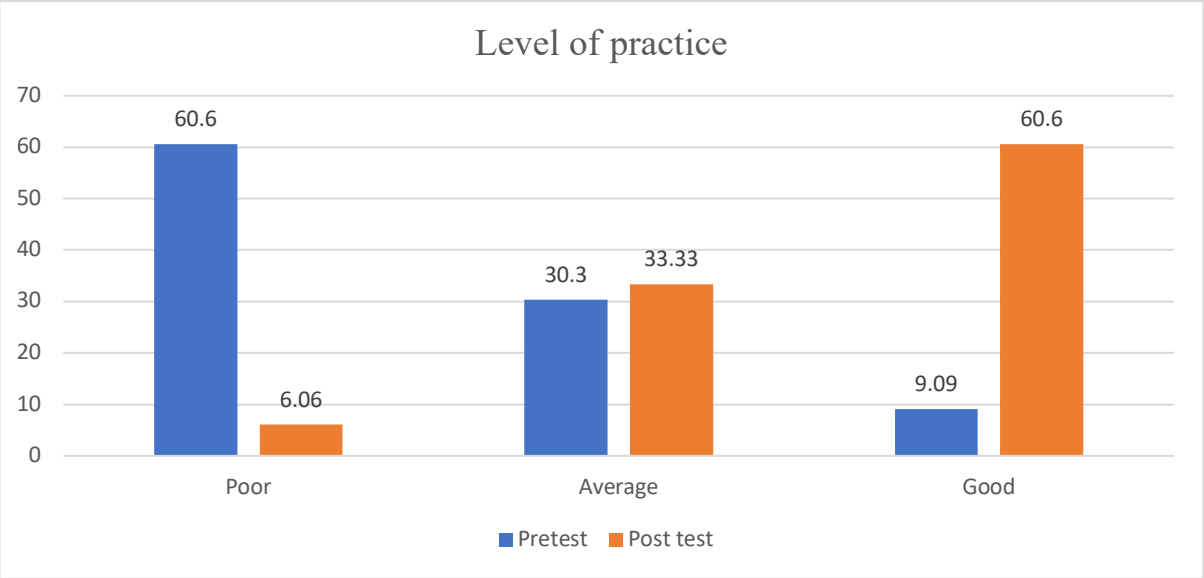

Figure 2: Percentage distribution of pretest and posttest level of practice

Table 3: ***Frequency and percentage distribution of pretest and posttest level of BMI among girls.***
N=33

Level of BMI	**Score range (Key)**	**Pretest**		**Post test**	
		Frequency (f)	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**
Underweight	<18.5	0	0	0	0
Normal weight	18.5-24.9	25	75.75	27	81.82
Over weight	> 25	08	24.25	6	18.18

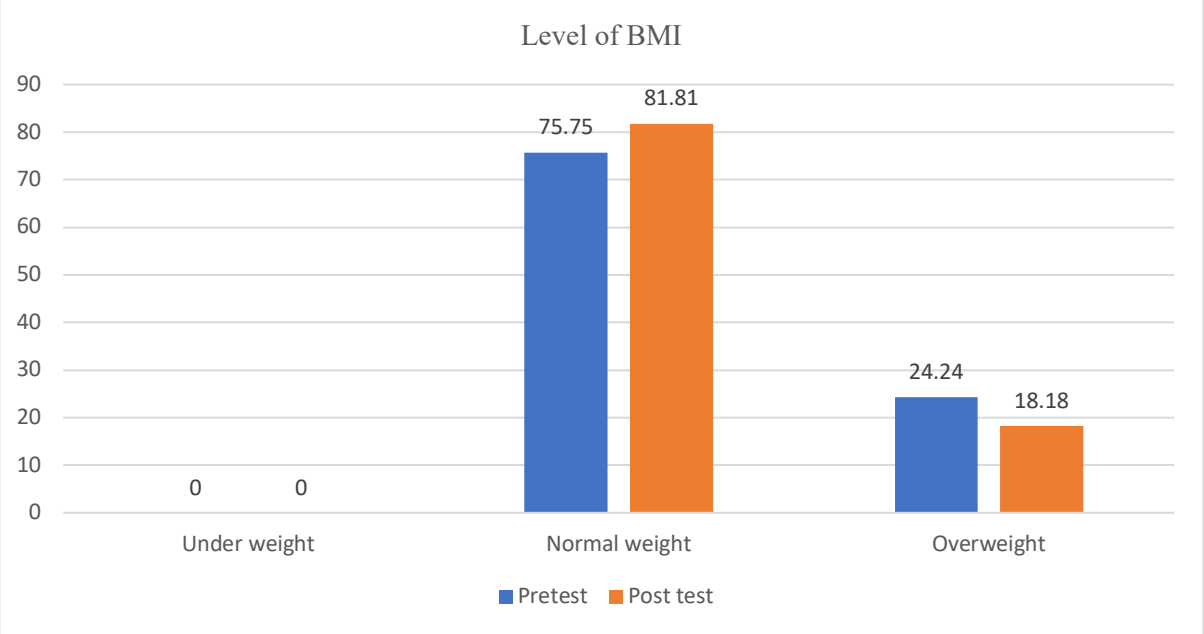

Figure 3: Percentage distribution of pretest and posttest level of BMI

Table 5: ***Comparison of life style practices scores at pre-test and post-test among girls.***

(N=33)

Time Points of study	Life style practices scores			Mean difference	Paired t test	*p* value
	N	Mean	SD			
Pre-test	33	19.36	5.16	7.57	6.08	0.0001(S)
Post-test	33	26.94	5.39			

(p<0.05 significant level) S-Significant

Table 6: ***Comparison of BMI scores at pre-test and post-test among girl***

(N=33)

Time Points of study	BMI scores			Mean difference	Paired t test	*p* value
	N	Mean	SD			
Pre-test	33	23.79	2.48	0.27	0.78	0.43(NS)
Post-test	33	23.52	2.25			

(p<0.05 significant level) NS: Non-Significant

Table 8: ***Relationship between the level of lifestyle practices and BMI on polycystic ovarian syndrome among girls.*****(N=33)**

Variables	Mean	SD	Pearson correlation "r"	*p* value
Lifestyle practices	19.36	5.16	0.07	0.68 (NS)
BMI kg/m^2	23.79	2.48		

(p>0.05: Non-Significant)

Table 8: ***Association between the knowledge, lifestyle practices and BMI on polycystic ovarian syndrome among girls with their selected demographic variable***

(N=33)

Background variables	One-way ANOVA (*F* & *p* value)	
	Lifestyle practices	BMI kg/m^2
Educational status of the mother	*F*=0.81 *p*=0.52 (NS)	*F*=0.49 *p*=0.88 (NS)
Occupation of the father	*F*=0.87 *p*=0.49 (NS)	*F*=1.67 *p*=0.16 (NS)
Occupation of mother	*F*=1.41 *p*=0.25 (NS)	*F*=3.33 *p*=0.09 (S)
Monthly family income	*F*=0.82 *p*=0.48 (NS)	*F*=0.82 *p*=0.62 (NS)
Dietary habits	*F*=0.001 *p*=0.99 (NS)	*F*=1.76 *p*=0.12 (NS)
Area of residence	*F*=0.13 *p*=0.72 (NS)	*F*=0.56 *p*=0.001 (S)
Age of menarche	*F*=1.94 *p*=0.14 (NS)	*F*=1.62 *p*=0.16 (NS)
Is your menstrual cycle regular	*F*=0.01 *p*=0.92 (NS)	*F*=0.57 *p*=0.82 (NS)
Duration of menstruation	*F*=3.91 *p*=0.68 (S)	*F*=0.70 *p*=0.71 (NS)
Number of sanitary pads used in a day	*F*=0.12	*F*=1.08

	p=0.88 (NS)	p=0.41 (NS)
Do you suffer from dysmenorrhea?	F=0.05 p=0.82 (NS)	F=0.19 p=0.66 (NS)

In pretest 9.09 % of the girls were having good practice, 30.30% of them were having average practice, 60.60 % of them were having poor practice on Polycystic cystic ovarian syndrome, whereas in posttest 60.60% were having good practice and 33.33% were having good practice on Polycystic cystic ovarian syndrome.

In pretest 75.75 % of the girls were in normal weight, 24.24 % of them were in overweight, whereas in posttest 81.81% of the girls were in normal weight and 18.18 % were in overweight.

The data presented in table 5 shows that comparison of life style practices scores at pre-test and post-test (before and after the intervention) among girls. Paired t-test was computed to find out the significant mean differences. It reveals that there was a statically significant difference noted in the mean life style practices scores at $p<0.05$ between pre-test and post-test among girls. This shows that lifestyle modification package is an effective intervention in improving the life style practices among girls.

The data presented in table 6 shows that comparison of clinical parameters (BMI) scores at pre-test and post-test (before and after the intervention) among girls. Paired t-test was computed to find out the significant mean differences. It reveals that there was no statistically significant difference noted in the mean clinical parameters (BMI) scores at $p>0.05$ between pre-test and post-test among girls.

Pearson correlation "r" was computed to find the correlation. It shows that there was no significant correlation found between Lifestyle practices and BMI kg/m^2 (r=0.07, $p>0.05$).

One-way ANOVA was computed to find the association. It revealed that, there was no significant association found between the Lifestyle practices and selected demographic variable among girls (p>0.05) except for Duration of menstruation ($p<0.05$).

There was no significant association found between the BMI kg/m^2 and selected demographic variable among girls (p>0.05) except for occupation of mother and Area of residence ($p<0.05$).

DISCUSSION

This study shows in pretest 9.09 % of the girls were having good practice, 30.30% of them were having average practice, 60.60 % of them were having poor practice on Polycystic cystic ovarian syndrome, whereas in posttest 60.60% were having good practice and 33.33% were having good practice on Polycystic cystic ovarian syndrome.

The study is congruent with the study conducted by Jiskoot et al 2020 multi-component lifestyle intervention produced clinically relevant moves participants from moderate to good practice.

This finding is not in agreement with study conducted by Almukhtar, (2019), who studied the effect of an educational program about polycystic ovarian syndrome of adolescent female students in Iraq and indicated that, presence of significant improvement in adolescent female students' weight and their body mass index. In addition, this result is not congruent with study done by Marzouk et al., (2015), who studied the impact of a lifestyle intervention on menstrual irregularity among overweight or obese women with polycystic ovarian syndrome and concluded that, significant improvement in body mass index, and waist circumference post intervention.

The researcher recommends that by increasing the duration of implementation of lifestyle intervention improves BMI significantly

NURSING IMPLICATIONS

Nursing Education

Integrate PCOS management and incorporate lifestyle modification packages as a management strategy for PCOS in nursing curricula. Emphasize the importance of preventive measures, such as healthy eating habits and regular physical activity, in managing PCOS. Illustrate teaching Strategies like case studies, role playing and simulation-based education to teach nursing students how to educate patients about PCOS management.

Nursing Practice

Based on the study's findings, nurses can implement the following strategies in their practice:

- Develop and implement educational programs that focus on healthy eating habits, regular physical activity, and stress management techniques.
- Work with patients to develop personalized lifestyle plans that include regular exercise, healthy eating habits, and stress management techniques.
- Promote healthy weight management strategies, such as regular physical activity and healthy eating habits.
- Encourage patients to participate in regular physical activity and provide guidance on healthy eating habits.

Nursing Management

Implementation of Continuing education to nurses on PCOS, its symptoms, and management strategies, including lifestyle intervention and quality improvement initiatives to improve patient outcomes, including the development of standardized care protocols for patients with PCOS will give better outcome.

Nursing research

Experimental designs, such as randomized controlled trials (RCTs), to evaluate the effectiveness of lifestyle intervention on PCOS outcomes and longitudinal studies can be conducted to examine the long-term effects of lifestyle modification packages on PCOS outcomes.

RECOMMENDATIONS

- Personalized lifestyle intervention can be developed and evaluated will be tailored to individual girls' needs and preferences.
- Examination of the long-term effects of lifestyle intervention on PCOS outcomes and overall health also can be done.

LIMITATIONS

- The sample size of the studies included was not adequate.
- The study suggests high-quality studies with large sample sizes in order to improve the level of evidence.

CONCLUSION:

There was a statistically significant difference noted in the mean life style practices between pre-test and post-test among girls. This shows that lifestyle intervention is an effective intervention in improving the knowledge and lifestyle practices among girls on polycystic ovarian syndrome.

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