

Assessment of the effectiveness of lifestyle modification in polycystic ovary syndrome patients

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Abstract: Polycystic ovary syndrome refers to presence of several cysts or ovaries that seldom mature or produce fertile eggs. PCOS is quite prevalent, particularly among women who are infertile. A hormonal imbalance that results in increased amounts of estrogen, luteinizing hormone and decreased level of Follicle stimulating hormone is called PCOS. The aim of the study is to assess the effect of Lifestyle modification of women suffering from poly cystic ovary syndrome. Methodology used in this study is survey method and Lifestyle management approach. Lifestyle management include diet plan and exercise for 988/ 3 and 6 months. Women's average BMI 24.3 dropped to 23.3 after 3 months of LMs, and then to 21.7 after 6 months (a 10.70% drop). Three-sixths of 37 women in study group who made lifestyle changes had their MCs become more regular (about 28 days) after implementing these changes for 6 months. The efficiency here is measured at 94.75%. Modifying one's lifestyle often results in a significant decrease in PCOS symptoms. Maintaining a balanced diet rich in micronutrients will always enable them to lead and maintain a comprehensive health.

Keywords: *Lifestyle modification; Polycystic ovary syndrome; women; exercise.*

INTRODUCTION

Gynecology is regarded as a medical specialty that deals with women's health concerns. The Polycystic Ovary Syndrome (PCOS) refers to a hormonal issue wherein several 'cysts' are really small, immature follicles that expand ovaries [1]. Menstrual irregularities and infertility are linked to PCOS because the ovary's thickened and fibrosed layer interferes with ovulation and causes fibrosis [2]. Obesity, excessive hair growth acne may all happen. Dysfunctional uterine hemorrhage, Obesity (OBT), Type 2 Diabetes (T2DM) and endometrial cancer, excessive cholesterol, and Cardio-Vascular Disease (CVD) may be linked to it as it worsens [3].

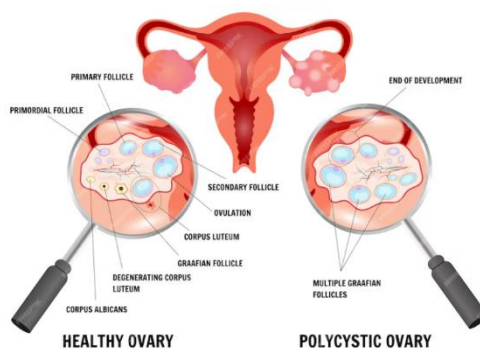


Fig. 1. Normal and polycystic ovary [4]

The development of next generation is affected by health of women throughout their reproductive and fertile years (which span from 15 to 45 years of age) [6]. Worldwide, various chronic disorders, which include ischemic heart disease along with stroke, and also chronic obstructive pulmonary diseases cause 45% of deaths among women [7]. A 15% fatality rate is caused by cancer illness, which mostly affects colon, lung, and breast [8]. Older women often have a variety of health-related issues as a result of threat factors that develop while they are young and as adults [9]. Sedentary habits, smoking and poor diets are threat factors [10].

In particular, childbirth and pregnancy are dangerous for women who are malnourished and anemic [11]. This is also linked to other threat factors that are becoming more prevalent, such as cigarette use, obese, high Blood Pressure (BP), and high cholesterol. Additionally, threat of unfavorable pregnancy outcomes like low birth weight (wt.) babies, stillbirths,

congenital syphilis and neonatal deaths may be increased. In general, faulty lifestyle management can trigger diseases like CVDs, mental disorders, and suicides and deaths in adult women [12]. The aim of the study is to evaluate the impact of Lifestyle modification of women suffering from poly cystic ovary syndrome.

MATERIAL AND METHOD

A survey is a method of analysis utilized to gather data from a predefined group of respondents in order to obtain knowledge and insights into different topics of interest. The Investigator carried out a survey to identify and explored prevalence rate of PCOS among childbearing age women. As a method for collecting data, an interview schedule was utilized among childbearing-aged women. An interview schedule is a list of specified questions that serve as a guide for Researchers, interviewers, investigators to gather information or information on a specific issue or topic

The study began with a survey of 1438 reproductive-age women, aged 18 to 35.

Inclusion Criteria

All 1,438 women who satisfied criteria for PCOS according to Rotterdam Criteria after completing demographic profile, anthropometric measurements, and clinical examination questionnaires. A combined total of 269 females were found to have PCOS.

Exclusion Criteria

Women suffering communicable diseases. 37 patients were managed utilizing lifestyle switches of exercises and diet. The specific interventions were chosen as treatments in second part of study and introduced to encourage a healthier life and treat symptom among women who suffered from PCOS. It was provided for period of 6- months. The subjects were followed throughout intervention and weekly educational sessions were conducted.

Lifestyle Modifications with Diet and Exercises

Women having PCOS should first focus on modifying their diet, increasing their level of physical activity. Lifestyle management approach consists of dietary modification and exercises and was helpful in achieving WR. Participants were encouraged to adopt healthy eating habits they were taught about in weekly interactive classes. The education on dietary management of PCOS represents diets to be taken and avoided as instructed to PCOS women.

Exercises enhance virtually any PCOS parameter. It restores ovulation and pregnancy rates in OB, anovulatory PCOS women, decreases androgen levels while increasing LH, and improves mental well-being. The investigator got trained by as a trainer in Physical therapy for women. Each participant was given five minutes of training that included a 30-second warm-up, 30-second stretch, and 5-minute breathing exercise. The researcher instructed individuals in following activities and continuously motivated them to keep at it throughout weeklong sessions.

Data Analysis

The data collected were carried out using SPSS for Windows and data was entered in MS-Excel (version 22.0). The variables were described using descriptive statistics for example Standard Deviation (SD), percentages and mean.

RESULT AND DISCUSSION

Lifestyle Modifications Impact on PCOS

Impact of LSM interventions is depicted in Table 1, discussed in detail below. After adopting a healthier lifestyle, average

BMI of a group of women dropped from 24.3 to 23.3 after three months and then to 21.7 within six months, a loss of 10.70 percentage points. Allopathic treatment resulted in WR but not a decrease in WHR. Alopecia improved in 3 of 37 women who made lifestyle changes; this represents a 10.81% improvement over course of 6 months. Similarly, 17 of 37 patients who made lifestyle changes had a decrease in acne after 3 months, and 2 more saw a decrease in acne in months that followed. For sample size of 37, this corresponds to a decrease in acne of 51.35%. Considering same changes in lifestyle for 6 months, 36 out of 37 women in sample were able to normalize their menstrual length to roughly 28 days. A 94.75% success rate is assigned to this.

Tab. 1. LSM’s impact on PCOS

Parameters		Pre-Test	Post Test- 3 Months	Post Test - 6 Months
LSM	BMI (Mean)	24.3	23	21.7
	WHR (Mean)	0.84	0.82	0.81
Alopecia (Number of persons)	No	9	12	12
	Mild	24	9	21
	Moderate	3	6	4
	Excessive	1	0	0
Acne (Number of persons)	Yes	14	0	0
	No	16	33	35
	May be	7	4	2
Menstrual Duration (Number of persons)	<26 days	7	0	0
	26-30 days	0	0	20
	>30 days	30	37	17
Hair Growth (Number of persons)	≥7	16	14	14
	<7	21	23	23

Impact of LSM Intervention on PCOS are depicted using these parameters:

- 1. Basic Metabolic Index:** By LSM intervention as shown in Figure 2, effect of BMI was found to be noticeably increased as there were noticeable reductions in wt. of women. The mean BMI got reduced by 11.6% which is found to be significant among all three interventions.

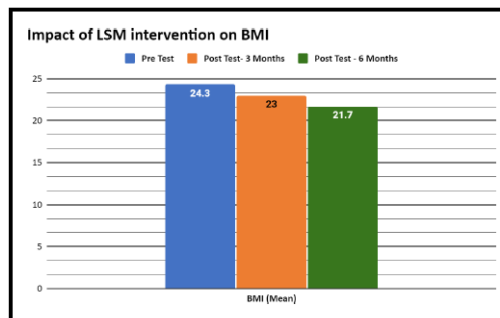


Fig. 2. Impact of LSM intervention on BMI

- 2. Waist Hip Ratio:** There were some noticeable reductions in WC, HC and wt. there is very minimal reduction in Waist Hip Ratio (WHR) found during 6 months period of intervention. Mean WHR value got reduced from 0.84 to 0.81 (3.5%) by following LSM interventions for 6 months as per Figure 3.

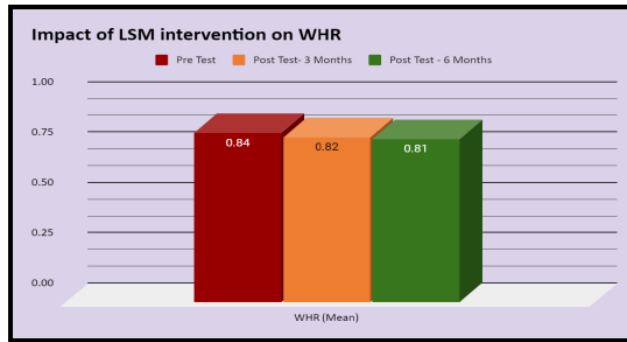


Fig. 3. Impact of LSM intervention on WHR

3. **Alopecia:** Figure 4 shows Impact on alopecia by LSM intervention is found to be effective such that 3 of 37 subjects (8.1%) have betterment in Alopecia.

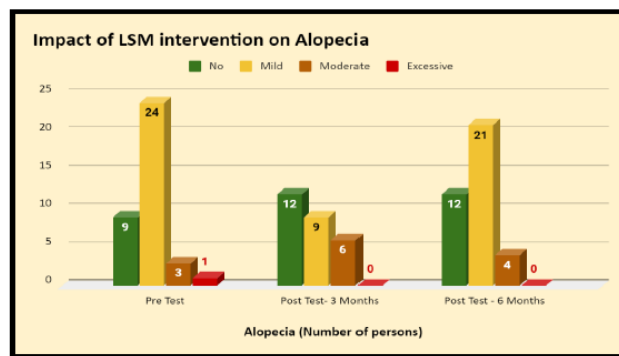


Fig. 4. Impact of LSM intervention on Alopecia

4. **Acne:** Impact of LSM intervention on Acne found to be very effective by 51.35% such that 19 out of 37 women who had Acne got reduced with.

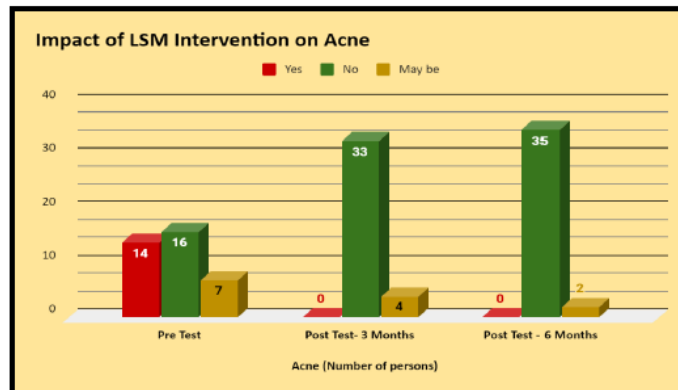


Fig. 5. Impact of LSM intervention on Acne

5. **Menstrual Duration:** In view of reduction on abnormal menstrual duration LSM intervention found to be very effective such that 23 women got regularized in their menstrual duration which is 54.45% effective as shown in Figure 6.

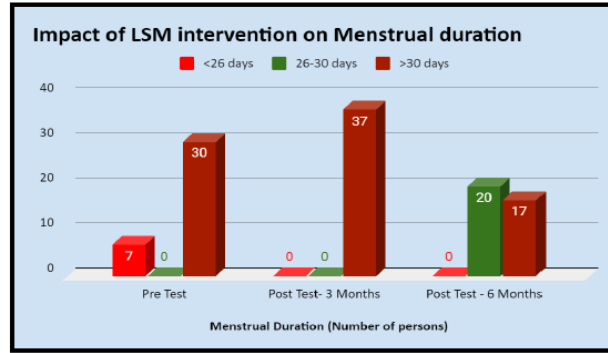


Fig. 6. Impact of LSM intervention on Menstrual duration

6. **Hair Growth:** Based on hair growth per Figure 7, LSM intervention found to be having a significant effect on women. Minimal change (6%) in hair growth found ingroup.

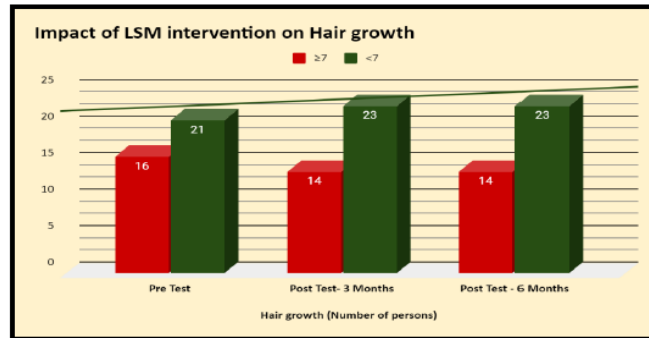


Fig.7. Impact of LSM intervention on Hair growth

LSM Group Pre-and Post-Intervention PCOS Symptom Comparison Using t-test

Table 2 shows that there is a very significant 6.3135pound MD in WR after adopting a healthier lifestyle. The corresponding t-value is 20.591. Changing one's lifestyle results in a SS mean change in BMI of 2.5514 ($t = 22.737$). The t-value for difference in waist sizes is 4.538, which is SS, and average difference is 6.4351. The t-value for decrease in hip circumference (HC) is 3.152, average difference is 5.176, with a SD of 9.989. A statistically notable decrease in WHR ratio ($t=2.246$, $p=0.02054$) occurred. Reduced hair growth, or FOH, was shown to have 1.189 average difference and t-value of 6.723, both of which are SS. Allopathic treatment significantly shortened average MC time, with an average difference of 13.973 days and t-value of 4.7.

Tab. 2. LSM's impact on PCOS Symptoms

Paired Samples Test									
Pre and Post Values	Paired Differences					t	df	Sig. (2-tailed)	S/NS
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of Difference					
				Lower	Upper				
Weight	6.31	1.8651	0.3066	5.6917	6.935	20.5	3	0	S
BMI	2.55	0.6826	0.1122	2.3238	2.778	22.7	3	0	S
Waist	6.43	8.625	1.4179	3.5594	9.310	4.53	3	0	S
Hip	5.17	9.989	1.642	1.845	8.506	3.15	3	0.003	S
Waist-to-hip	0.02	0.05563	0.00914	0.00199	0.039	2.24	3	0.031	S
Hair growth	1.189	1.076	0.177	0.83	1.548	6.723	36	0	S
Menstrual Cycle	13.973	18.082	2.973	7.944	20.002	4.7	36	0	S

Body Mass Index: From our research, Effectiveness of all three interventions over BMI is compared in above table. In terms of BMI LSM interventions are found to be effective since it's showing reduction of mean BMI by 11.6%. There is moderate reduction in ayurvedic intervention which is 1.21 in mean BMI.

Waist Hip Ratio: The height, wt., BMI and WHR were assessed and statistically evaluated. This research indicates women having PCOS consists a greater ubiquity of acne HS and irregular menstruation ($p < 0.0001$), also women having PCOS had a greater average ovarian volume measurement ($11 \pm 1.4cc$) relative to female controls with a lower ovarian volume range ($7.94 \pm 2.34cc$). ($p < 0.0001$) as measured by USG estimated. From research, in terms of WHR, LSM interventions show promising results under 37 women with reduction of 3.5% (0.84 to 0.81).

Alopecia: From research, in view of betterment of subjects over hair loss also known as Alopecia, LSM stands with 8% reduction.

ACNE: In perspective of acne, again LSM interventions stands first and shows effective reduction in acne with 52.35%.

Menstrual Duration: Menstrual cycle irregularity, MC duration and PCOS were collected. In order to measure Odds Ratios (OR) and 95% CIs for overall threat of ovarian cancer and polymorphic logistic regression, unconditional logistic regression models were utilised to determine whether threat differed b/w histologic subtypes. From research, when compared interventions in perspective of menstrual duration, LSM interventions are found to be very effective with 54.45%.

Hair Growth: Unwanted hair growth in females, called HS, is an important symptom of PCOS. By taking LSM interventions, women were able to reduce hair growth in specific places of their body by 8%. PCOS is closely related to obesity, although incidence of obesity varies from one study to another. This investigation compares rates of BMI women had and did not have PCOS and women of different ethnicities, geographical locations, and those who met PCOS diagnostic criteria [9]. The most common endocrinological disorder that leads to reproductive as well as metabolic dysfunction in women is PCOS [1]. PCOS jeopardises a woman's feminine identity in context of HS, acne, alopecia, OBT, menstrual disorders, and infertility due to changes in her beauty standards.

CONCLUSIONS

Women's average BMI 24.3 dropped to 23.3 after 3 months of LMs, and then to 21.7 after 6 months. Three of thirty-seven women who completed lifestyle adjustment had a decrease in their alopecia after six months, or 10.81%. Similarly, 17 of 37 patients whose lifestyles were altered had improvements in their acne within three months, and a further 2 saw improvements in months that followed. For sample size of 37, this corresponds to a decrease in acne of 51.35%. Three-sixths of 37 women in study group who made lifestyle changes had their MCs become more regular (about 28 days) after implementing these changes for 6 months. The efficiency here is measured at 94.75%. Women need to be stressed on importance of a healthy lifestyle. The awareness of emerging diseases and its preventive strategies will help them very much to lead a healthy life.

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