ORIGINAL ARTICLE

Exploring the Awareness of Exercise Benefits among Women with Polycystic Ovarian Syndrome-A Cross-sectional Study

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Abstract

Background: Polycystic Ovarian Syndrome (PCOS) is a common endocrine disorder affecting women of reproductive age. With its increasing prevalence, it is crucial to emphasize effective preventative measures for a healthier life. Exercise is recognized as a primary therapeutic option for managing PCOS. Therefore, increasing awareness of the benefits of exercise among women is essential, as higher awareness is likely to lead to better outcomes through increased participation. This study aims to assess exercise awareness as a treatment option among females diagnosed with PCOS and evaluate the frequency of participation in exercise programs in Karachi.

Methodology: This cross-sectional study involved 100 females diagnosed with PCOS who were visiting various government and private hospitals in Karachi, aged 18-35 years. Pregnant women and those with thyroid diseases were excluded. Data was collected using a self-designed questionnaire. The association between exercise awareness and participation was evaluated using the Chi-square test with SPSS version 20, and frequencies and percentages of qualitative variables were calculated.

Results: 66% of females were aware of the benefits of exercise, with gynecologists being their primary source of information (60.6%). 67% of females were engaged in exercise, with 42 of them preferring walking. Additionally, 72% of females reported different barriers to exercise. The association between exercise awareness and participation was highly significant (p=0.00).

Conclusion: Exercise training is crucial for managing PCOS. However, there needs to be more physical therapists as a critical source of information on exercise benefits for PCOS and in organizing related exercise programs.

Keywords
Awareness, Exercise, Obesity, Polycystic Ovarian Syndrome.

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Introduction

Polycystic Ovarian Syndrome (PCOS) is a condition characterized by a variety of symptoms, including hirsutism, irregular menstruation, anovulation, and increased androgen levels[1-2]. This complex syndrome affects 5%-20% of the female population worldwide, showing varied prevalence across different regions[3]. Remarkably, it is recognized as the leading cause of anovulatory infertility, with around 80% of women experiencing anovulatory infertility having PCOS[4-6]. A notable aspect of PCOS is its association with obesity, where 40-60% of women with PCOS are obese[6]. This prevalence is particularly concerning as being overweight or obese can exacerbate the hormonal imbalances inherent in PCOS, making the symptoms more pronounced[7-9].

The relationship between PCOS and obesity introduces a vicious cycle, where increased body mass index (BMI) is linked to higher insulin resistance, a common trait in obese women with PCOS who typically exhibit an android fat distribution[10]. This cycle underscores the importance of weight management in combating PCOS complications. Studies have demonstrated that a modest weight loss of 5-10% from initial weight can lead to significant improvements for overweight women with PCOS, including changes in Lutenizing Hormone (LH) peak levels, which may reduce androgen production[4].

Exercise emerges as a highly beneficial non-pharmacological intervention to address these challenges. The PCOS Australian Alliance advocates for at least 150 minutes of exercise weekly, suggesting a mix of moderate to high-intensity aerobic activity to enhance clinical outcomes[11]. Various exercises, including daily 1-hour yoga sessions and aquatic high-intensity interval training (HIIT), have shown promise in reducing BMI, insulin resistance, and hirsutism while improving menstrual regularity and ovulation in women with PCOS[11-13]. These findings highlight the crucial role of habitual physical activity in managing PCOS, which has been linked to lower BMI, smaller waist circumference, and lower androgen levels in women who are physically active compared to those who are sedentary[14].

However, despite these potential benefits, many obese and overweight women with PCOS do not participate in structured exercise programs. This gap underscores the need for physical therapists to play an active role in devising and monitoring customized exercise regimens for women with PCOS, ensuring better outcomes and more rapid recovery. Recognizing the critical importance of exercise and lifestyle modifications in managing PCOS, this study aims to evaluate the awareness and engagement of women diagnosed with PCOS in Karachi regarding exercise as a treatment option, assessing the frequency with which these women participate in exercise programs.

Methodology

Study Design and Setting

This research was a cross-sectional survey conducted in Karachi from October 2019 to February 2020. It targeted women diagnosed with PCOS who were visiting gynecologists in both government and private hospitals across the city. The participating hospitals were Civil Hospital Karachi, Sobhraj Maternity Hospital, Memon Hospital, Dr. Ziauddin Hospital (Nazimabad), Seven Days Hospital, Jamalnoor Hospital, Medicare General Hospital, Farzana Hospital and Maternity Home, Malik Medical Center, and Sharfabad Clinic.

Participant Selection and Sampling

Participants were chosen through non-probability purposive sampling and consisted of females diagnosed with PCOS within the 18-35 age group. Pregnant women, those unwilling to provide information, or those diagnosed with both PCOS and thyroid disorders were excluded from the study.

Sample Size

The sample size was calculated using Open EPI version 3 to ensure a representative sample. We aimed for approximately 62% exercise awareness as a management strategy for PCOS at a 95% confidence interval. The final sample size of 100 females with PCOS was estimated with a 10% drop rate.

Data Collection Tool

A self-designed and self-administered questionnaire was utilized to collect the data. The questionnaire explored four main areas: demographic details regarding PCOS, awareness about physical exercise, and the level of physical activity. It also included closed-ended questions across all sections except for demographics[15].

After the questionnaire was constructed, it was translated from English to Urdu to ensure it was accessible to local participants. Before participating in the study, each individual was required to provide informed consent. This was done after they were fully informed about the purpose of the study and its potential benefits to them. Adherence to ethical considerations was a priority throughout the entire duration of the study.

Data Analysis

The collected data was first subjected to descriptive analysis. Frequencies and percentages were utilized for qualitative variables, while mean values were used for quantitative data. Following this, the impact of exercise awareness on participants' exercise performance was examined using the Chi-square test with SPSS version 20. A significance level of $p<0.05$ was applied for this part of the analysis.

Results

This study was conducted on a sample of 100 females diagnosed with PCOS with a mean age of 26.23 years. Among the studied population, 2% were underweight, 24% had normal BMI, 37% were overweight, while 16%, 17%, and 4% fell in obesity class I, II and III, respectively. As shown in Figure-1, 66% of females knew that exercise is crucial in managing PCOS symptoms. Considering the treatment options considered for PCOS, 85% of the population opted for allopathic treatment; only 17% adhered to exercise training, while 19% considered some other treatment options, including cupping therapy or homoeopathic treatment.

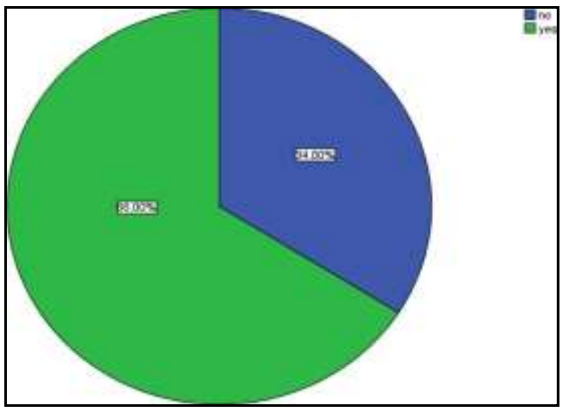

Figure-1 Frequency of awareness of exercise as the treatment option for PCOS

Source of Awareness

The sources of their awareness included gynecologists (60.6%), physical therapists (6.06%), the internet (25.75%) and another source (7.57%). The Figure-2 shows the distribution of this positive response frequency regarding the different benefits of exercise in PCOS.

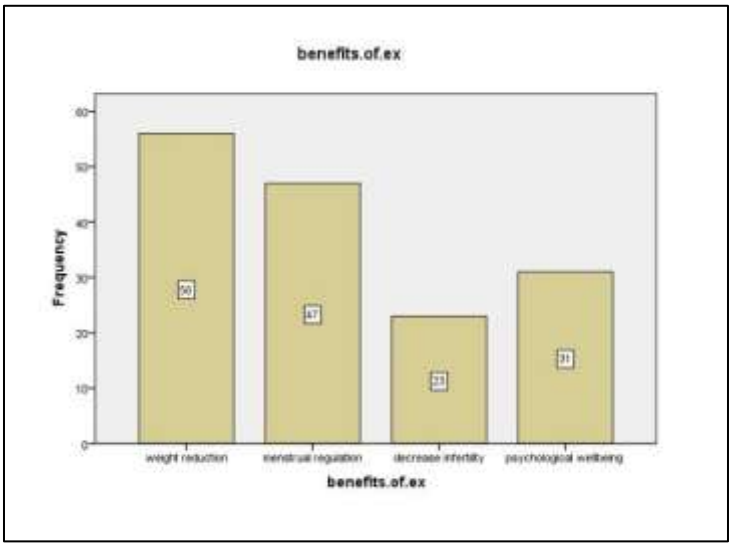

Figure-2 Frequency of awareness of benefits of exercise among females with PCOS

In exercise performance, 67% were engaged in different exercise programs. In contrast, 33% were not involved in any exercise due to certain factors. Out of 67%, daily performance was about 41.8%, twice a week, 14.9%, thrice a week, 28.4%, and 14.9% of females exercised only on weekends. Sixty-five participants were found to be practicing a mild-intensity exercise regimen. Thirty-nine females also practiced moderate-intensity exercise, and 18 females practiced up to a vigorous level. Forty-two participants preferred walking, 20 participants performed aerobics, only two females were involved in resistance training, and 14 participants were engaged in other types of exercise, including yoga or gym training. 72% of the population did not regularly adhere to exercise. Reasons for refraining from exercise included lack of time (44%), lack of awareness (7%), lack of place (2%) and no interest (19%) (Figure-3).

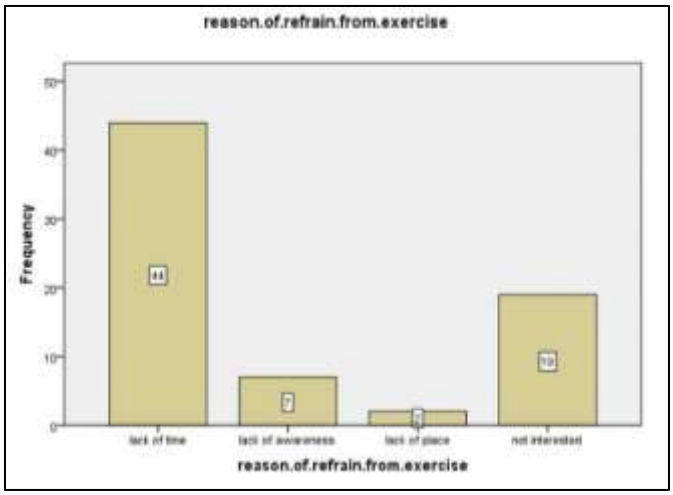

Figure-3 Frequency of refrain factors faced by females with PCOS

Lastly, an association was drawn between awareness of exercise and its performance by females with PCOS. The influence of awareness on the level of performance was highly significant (p=0.00) as shown in Table-1.

Table-1 Association between awareness and exercise performance

Variable		Performance of Exercise		Total	p-value
		No	Yes		
Awareness of exercise as treatment option	No	21 (61.8%)	13 (38.2%)	34 (100%)	0.00
	Yes	12 (18.2%)	54 (81.8%)	66 (100%)	
Total		33 (33%)	67 (67%)	100 (100%)	

Discussion

The study aimed to assess awareness of exercise as a treatment option for PCOS and the frequency of diagnosed females participating in exercise programs in Karachi. The study found that over half of the participants were aware of the benefits of exercise for PCOS. Fortunately, the majority of the respondents followed various exercise programs. The awareness of physical therapists was relatively low, while gynecologists were identified as the primary source of awareness.

A study conducted in India reported that 42% of participants believed exercise helps reduce weight. In comparison, 26% believed that exercise contributes to the regularity of the menstrual cycle. Similarly, in Karachi, the awareness of exercise benefits was even higher. Out of 64 female participants, 56 were aware of the benefits of weight reduction, and 47 were aware of exercise's positive impact on the regular menstrual cycle. The study also gathered data on two other benefits of exercise: psychological well-being and reduction in infertility[15]. According to a study by Pitchai, 61% of females with PCOS in India were not engaging in exercise, despite 21% of participants being well aware of its benefits, especially in the age group of 21-25 years, which mainly consisted of professionals. The study also revealed that 66% of females with PCOS were aware of exercise as a treatment option, with the majority being well-educated. In Karachi, 67% of participants exercised regularly, with 28 exercising. This demonstrates that as awareness about the benefits of exercise for PCOS increases, more individuals are incorporating it into their routines[15].

A 2016 systematic review emphasized the need for studies comparing different types of physical activity, intensity, and setting for participants, as the focus is mainly on weight loss rather than structured exercise programs. This study addresses this gap by providing results about the type, intensity, and frequency of exercise females with PCOS perform[16]. However, further studies will be necessary to compare the effectiveness of exercise as a therapeutic approach to PCOS. According to a 2016 cross-sectional study, 35% of females chose walking as part of their exercise for PCOS management. The current study's results are notably positive, as 62.6% of females in Karachi chose walking[15]. A semi-empirical study conducted in 2015 found that 12 weeks of aerobic exercise improved overall health and lipid profiles in 12 female participants. The study also included 20 females performing aerobics, which may show even better outcomes in the future. The study highlighted that few females were involved in resistance training or yoga exercises[16]. Recent evidence suggests that females should consider participating in yoga and resistance training programs. As reported by Kogure in his study, progressive resistance training alone can effectively improve hyperandrogenism, reproductive functions, and body composition in females with PCOS. A study from Australia, published in October 2019, examined the perceived barriers females encounter when participating in exercise programs. It concluded that females with PCOS face time and cost barriers, limited access to exercise facilities, and a need for more awareness. Additionally, some females reported having no interest in exercise[1]. Their barriers include lack of time being the biggest challenge, lack of access to opportunities for physical activity, lack of awareness, and generally, a lack of interest in exercise[17]. It is well-established that the treatment of PCOS is receiving insufficient attention from physical therapists. According to a

cross-sectional study by Pitchai, 100% of the participants gave a negative response to physical therapists being their source of awareness regarding exercise in managing PCOS symptoms. In this study, physical therapists have a minor impact, as only four participants reported that physical therapists were their source of awareness regarding exercise and its benefits in this condition. This indicates that physical therapists are not directly involved in prescribing exercise plans for PCOS based on the needs and impairments of patients[15].

This study addresses the lack of evidence on women's health in Pakistan's physical therapy field. It focuses on "Awareness of exercise benefits among females with PCOS" and is the first of its kind in the country. The study was conducted in Karachi, and the AoE-PCOS questionnaire used the FITT protocol. However, the results cannot be generalized due to its location-specific nature.

Conclusion

The study emphasizes the importance of exercise training in managing PCOS symptoms. Despite this knowledge, many women do not adhere to regular exercise programs due to various concerns. One major issue is the need for more involvement of physical therapists in creating exercise programs and raising awareness about the benefits of exercise for females with PCOS. The study suggests that physical therapists, in collaboration with other healthcare professionals, should be more active in motivating patients and structuring regular exercise programs to aid in their recovery.

Additionally, it highlights the need for further research on exercise awareness in both rural and urban areas in Pakistan and globally. The ultimate goal is to improve the quality of life for females with PCOS through routine-based exercise programs.

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Conflict of Interest
None.

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None.

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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design: Aslam F, Yaseen HIM, Malik NA, Pervaiz R

Acquisition, Analysis or Interpretation of Data: Aslam F, Yaseen HIM, Malik NA, Pervaiz R

Manuscript Writing & Approval: Aslam F, Yaseen HIM, Malik NA, Pervaiz R

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.