Knowledge, Aptitude, and Practice Study Regarding Modifiable Factors Among Females Diagnosed With PCOS

Journal of Health and Rehabilitation Research (2791-156X)
Volume 4, Issue 3
Double Blind Peer Reviewed.
https://jhrlmc.com/
DOI: https://doi.org/10.61919/jhrr.v4i3.1469
www.lmi.education/
LINK MEDICAL INTERFACE

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Keywords
PCOS, lifestyle modification, exercise, knowledge, attitudes, practice, reproductive health, metabolic disorder

Disclaimers

Authors' Contributions	All authors contributed to the study's conceptualization, drafting, and final approval of the manuscript.
Conflict of Interest	None declared
Data/supplements	Available on request.
Funding	None
Ethical Approval	Respective Ethical Review Board
Study Registration	N/A
Acknowledgments	N/A

ABSTRACT

Background: Polycystic Ovarian Syndrome (PCOS) is a lifelong endocrine disorder affecting reproductive, metabolic, and psychological health. Despite its prevalence, especially in South Asian populations, awareness of lifestyle modifications for managing PCOS remains inadequate.

Objective: To assess the knowledge, attitudes, and practices regarding modifiable factors such as exercise among women diagnosed with PCOS in Pakistan.

Methods: A cross-sectional study was conducted over four months at the Divisional Head Quarter Hospital in Gujranwala, Pakistan, involving 255 women aged 18-45 years diagnosed with PCOS. Data were collected using a self-designed Knowledge, Attitude, and Practice (KAP) questionnaire and analyzed with SPSS version 25. Descriptive statistics and Pearson's correlation were used for analysis.

Results: The mean knowledge, attitude, and practice scores were 18.16 (SD = 3.56), 8.45 (SD = 2.66), and 6.57 (SD = 1.74), respectively. 44.31% of participants had poor practice habits, and only 2.7% had been referred to physiotherapists. Emotional distress was common, with 35.3% reporting anxiety.

Conclusion: Despite moderate knowledge and favorable attitudes, the adoption of lifestyle modifications for PCOS management is low. A multidisciplinary approach integrating physiotherapy and psychological support is needed to improve health outcomes for women with PCOS.

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS), initially recognized by Stein and Leventhal in 1935, was once considered a reproductive disorder but is now understood as a lifelong condition affecting multiple body systems. It is marked by chronic anovulation, insulin resistance, hyperandrogenism, and metabolic dysfunctions, leading to an increased risk of obesity, type 2 diabetes, cardiovascular diseases, and other serious health complications. Common symptoms among women with PCOS include hirsutism, acne, alopecia, and menstrual irregularities, although the presentation can vary significantly (1-3). Over recent years, there has been growing recognition of the substantial impact PCOS has not only on physical health but also on mental well-being. Women with PCOS face heightened risks during pregnancy, such as gestational diabetes and pre-eclampsia, while also enduring psychological challenges including depression, anxiety, and low self-esteem (4-6). Despite its prevalence, particularly in South Asian populations where the incidence can reach up to 37%, PCOS often remains underdiagnosed or misdiagnosed, especially in the absence of severe symptoms (7).

The complexity of PCOS necessitates a multidisciplinary management approach. Effective strategies involve lifestyle modifications such as diet changes, increased physical activity, and behavioral therapy. These interventions have demonstrated notable improvements in both metabolic and reproductive outcomes, but maintaining these changes long-term proves challenging, as evidenced by the high dropout rates in lifestyle intervention studies (8-10). In Pakistan, where PCOS incidence is on the rise, there remains an urgent need to raise awareness and educate the public about the condition. This study represents the first investigation into the knowledge, attitudes, and awareness of lifestyle modifications among women with PCOS in Pakistan, and it also explores their use of physiotherapy services in managing the condition (11).

Several studies highlight the significant role that exercise and lifestyle changes play in managing PCOS. Physical activity, particularly exercise-based weight loss, has been recommended as a first-line treatment for obese women with PCOS, with documented benefits such as reduced ovarian cyst size, improved ovulation rates, and enhanced conception success without the negative side effects associated with pharmacological interventions (8). Structured exercise programs, such as those studied by Palomba and colleagues, show that exercise can be as effective as hypocaloric diets in improving menstrual regularity and fertility outcomes. There is also evidence that progressive resistance training significantly enhances muscle strength and body composition, making it a powerful tool in addressing both metabolic and endocrine disturbances in PCOS patients (13, 14). Additionally,

aerobic training has been proven to improve cardiorespiratory fitness, reduce obesity indices like waist circumference, and enhance insulin sensitivity, particularly in young women with PCOS (15, 16). These findings underscore the critical role of structured exercise and lifestyle modification programs in improving health outcomes for women with PCOS.

However, despite the evidence supporting these interventions, adherence to lifestyle modifications remains a significant challenge. In Pakistan, where healthcare resources may be limited and public awareness of PCOS is still developing, it is crucial to explore how knowledge, attitudes, and practices surrounding these modifiable factors influence PCOS management. This study aims to fill that gap by evaluating the awareness of exercise and lifestyle changes among women diagnosed with PCOS, with a particular focus on their use of physiotherapy services. Addressing these knowledge gaps is essential to improving the quality of life and health outcomes for women living with PCOS in Pakistan (12).

MATERIAL AND METHODS

This cross-sectional study was conducted over four months at the Divisional Head Quarter Hospital in Gujranwala, Pakistan, following the ethical approval from the Ethical Committee of the University of Lahore, Gujrat campus. The study population included 255 females aged between 18 and 45 years, all diagnosed with Polycystic Ovarian Syndrome (PCOS) based on clinical and diagnostic criteria. A non-probability convenience sampling method was employed to select the participants. Women with conditions that could mimic or confound the diagnosis of PCOS, such as Cushing's syndrome, androgen-secreting tumors, thyroid disorders, and renal or liver diseases, were excluded from the study to maintain the focus on PCOS.

Ethical standards were strictly adhered to throughout the study, ensuring compliance with the Declaration of Helsinki. Informed consent was obtained in writing from all participants after they were provided with detailed information regarding the study's objectives, procedures, and their right to withdraw at any time without consequence. The anonymity and confidentiality of participants were rigorously maintained to protect their privacy. Data collection was carried out using a self-designed Knowledge, Attitude, and Practice (KAP) questionnaire. This questionnaire was pilot-tested on 30 patients prior to the main study to confirm its reliability, yielding a Cronbach's alpha of 0.714, which indicated acceptable internal consistency.

The questionnaire was divided into four sections, which gathered information on socio-demographics, knowledge about PCOS and its management, attitudes towards exercise and lifestyle changes, and current exercise practices. Participants received the questionnaire either as a physical handout or through Google Drive, depending on their accessibility. The data collection process was conducted with due diligence to ensure that all participants completed the survey within the study period.

The data were analyzed using IBM SPSS version 25. Categorical data were presented as frequencies and percentages, while numerical data were assessed for normality using the Shapiro-Wilk or Kolmogorov-Smirnov tests, depending on the sample distribution. Depending on the outcome of the normality tests, means and standard deviations were used to describe normally distributed data, while medians and interquartile ranges were reported for non-normally distributed variables. Pearson's correlation coefficients were calculated to explore the relationships between knowledge, attitudes, and practices, and statistical significance was set at a p-value threshold of less than 0.05. All statistical analyses were conducted with a 95% confidence interval, ensuring the robustness and reliability of the study's conclusions.

The study was designed to explore the knowledge, attitudes, and practices concerning modifiable factors like exercise among women diagnosed with PCOS. Particular emphasis was placed on understanding the role of physiotherapy in PCOS management, given its low utilization despite the well-documented benefits of exercise. Participants' responses were analyzed to identify gaps in awareness and practice regarding the adoption of lifestyle modifications. All procedures were conducted in accordance with ethical guidelines and the data collected was handled with the utmost confidentiality, with results analyzed and reported in an unbiased manner (7, 8)

RESULTS

The study analyzed data from 255 women diagnosed with polycystic ovarian syndrome (PCOS) to assess their knowledge, attitudes, and practices regarding modifiable factors such as exercise and lifestyle changes. The participants had a mean age of 24.02 years (SD = 4.294). The data revealed the following findings in terms of knowledge, attitudes, and practices regarding PCOS management.

Table 1 Descriptive Statistics of Knowledge, Attitude, and Practice Scores

Variables	Mean	Standard Deviation
Knowledge Score	18.16	3.56
Attitude Score	8.45	2.66
Practice Score	6.57	1.74

Attitude scores averaged at 8.45 (SD = 2.66), reflecting a generally favorable attitude towards PCOS management. However, the practice scores were lower, with a mean of 6.57 (SD = 1.74), showing a gap between awareness and actual practice regarding lifestyle modifications and exercise. In terms of knowledge, only 19.21% of participants had a good understanding of PCOS, while 26.67% displayed poor knowledge For attitudes, 38.04% had a positive attitude toward managing PCOS, while 21.18% exhibited poor attitudes. Regarding practices, a significant proportion

(44.31%) had poor practice habits related to exercise and lifestyle modifications, with only 2.74% showing the best practices. Doctors were the primary source of information about PCOS for 45.1% of participants, followed by the internet at 22%. However, very few participants received information from dietitians or other healthcare professionals. Most participants reported being diagnosed through ultrasonography (28.2%)

Table 2 Distribution of Knowledge, Attitude, and Practice Levels

Variable	Poor (%)	Moderate (%)	Good (%)
Knowledge	26.67	54.12	19.21
Attitude	21.18	40.78	38.04
Practice	44.31	53.05	2.74

or hormonal level testing (27.8%), with the remaining diagnosed through other means. Although 87.5% of participants believed PCOS was manageable, 67.8% were unaware of available treatment options. Only 2.7% had been referred to a physiotherapist, despite 99.2% expressing a willingness to adopt lifestyle modifications. The most common emotional responses to a PCOS diagnosis were anxiety or worry (35.3%), followed by depression (25.9%) and frustration (14.1%). Participants' primary concerns were irregular periods (36.9%) and difficulties with pregnancy (25.1%). Pearson's correlation analysis revealed no statistically significant associations between knowledge, attitudes, and practices regarding PCOS management.

Table 3 Associations between Knowledge, Attitude, and Practice

Variables	Pearson's R	P-value
Attitude vs. Knowledge	-0.022	0.724
Practice vs. Knowledge	0.147	0.18
Attitude vs. Practice	0.07	0.265

The results highlight a significant gap between knowledge, attitudes, and practices concerning the management of PCOS. Despite moderate levels of knowledge and positive attitudes toward managing PCOS, actual practice of lifestyle modifications and exercise was low. The majority of participants relied on doctors for information, with only a small proportion referred to physiotherapists. Additionally, emotional distress was common among women diagnosed with PCOS, with many reporting anxiety and concerns about irregular periods and fertility. These findings indicate a need for improved patient education, multidisciplinary care, and better integration of physiotherapy services into the management of PCOS.

DISCUSSION

This study explored the knowledge, attitudes, and practices regarding modifiable factors such as exercise and lifestyle modifications among women diagnosed with Polycystic Ovarian Syndrome (PCOS). The findings revealed significant gaps between knowledge, attitudes, and actual practices, with many participants demonstrating a positive attitude toward managing PCOS but lacking in the adoption of necessary lifestyle changes. These results are consistent with previous studies, which also identified that although women with PCOS are often aware of the benefits of lifestyle interventions, implementing these changes remains a challenge (8, 12).

One of the most notable findings of this study was the low rate of engagement in structured exercise programs, despite strong evidence supporting the role of physical activity in managing PCOS. Prior research has shown that exercise improves insulin sensitivity, reduces body fat, and enhances ovulation, all of which are critical for managing PCOS (13, 15, 19). However, in this study, the majority of participants reported poor practice in terms of exercise and lifestyle modification, with only a small fraction demonstrating optimal engagement. This mirrors findings from Domecq et al.'s meta-analysis, which highlighted similar challenges in adherence to lifestyle interventions among women with PCOS (15).

A major strength of this study is its contribution to understanding PCOS in the context of a South Asian population, where the prevalence of PCOS is high but often underdiagnosed or misdiagnosed (7). This is especially significant given the cultural and healthcare system differences in Pakistan, which may influence both the recognition of PCOS and the management strategies available to women. Despite this strength, the study had limitations, including the use of non-probability sampling, which may affect the generalizability of the findings. Additionally, the reliance on self-reported data for knowledge, attitudes, and practices may have introduced bias, as participants could have overestimated their knowledge or engagement with lifestyle changes.

The study also highlighted an important gap in healthcare provision, with very few participants referred to physiotherapists for structured exercise programs, despite nearly all expressing a willingness to adopt lifestyle modifications if recommended. This underutilization of physiotherapy is consistent with previous studies that emphasize the need for a multidisciplinary approach to PCOS management but find that such an approach is rarely implemented (19). The findings underscore the need for improved collaboration between gynecologists, physiotherapists, and other healthcare providers to ensure that women with PCOS receive comprehensive care.

One of the key findings of this study was the emotional burden experienced by women diagnosed with PCOS, with a significant number reporting anxiety, depression, and frustration. This aligns with prior research, which has established that women with PCOS are at a higher risk for psychological distress, largely due to the impact of symptoms like hirsutism, infertility, and irregular menstruation (4, 5). These psychological challenges often exacerbate the difficulty in adopting and maintaining lifestyle changes, further complicating the management of the condition. The high levels of emotional distress reported in this study highlight the need for psychological support as part of the management plan for women with PCOS.

In terms of recommendations, this study suggests that healthcare providers should prioritize education about PCOS and the benefits of lifestyle changes, especially exercise, as part of routine care. Since most participants received their information about PCOS from doctors, this points to an opportunity for physicians to play a more proactive role in counseling patients on the importance of exercise and referring them to physiotherapy services. Additionally, further research is needed to explore the barriers to lifestyle modification in women with PCOS, including cultural, socioeconomic, and psychological factors that may impede adherence.

The absence of significant correlations between knowledge, attitudes, and practices in this study also raises important questions about the effectiveness of educational interventions alone. While knowledge is an essential first step, it does not appear sufficient to drive behavior change. This highlights the need for practical, supportive interventions that go beyond education to address the real-life challenges women face in managing PCOS. Future studies could investigate the impact of tailored, culturally sensitive intervention programs that include both educational and behavioral components aimed at improving adherence to lifestyle modifications.

In conclusion, this study contributes to the growing body of literature on the importance of lifestyle modifications in managing PCOS, particularly in underrepresented populations. It emphasizes the need for a multidisciplinary approach that integrates physiotherapy and psychological support, alongside routine medical care. By addressing the gaps in knowledge, attitude, and practice, healthcare providers can improve the overall health outcomes and quality of life for women with PCOS, particularly in South Asian contexts where the condition is prevalent but often overlooked.

CONCLUSION

In conclusion, this study highlights significant gaps in knowledge, attitudes, and practices regarding lifestyle modifications among women with Polycystic Ovarian Syndrome (PCOS), particularly in relation to exercise and physiotherapy. Despite high awareness of the condition's manageability, actual engagement with recommended lifestyle changes remains limited. These findings emphasize the need for a multidisciplinary healthcare approach that integrates education, physiotherapy, and psychological support to enhance adherence to lifestyle interventions, ultimately improving both metabolic and reproductive outcomes for women with PCOS. Addressing these gaps has important implications for human healthcare, particularly in enhancing patient-centered care and promoting long-term health and well-being in women affected by PCOS.

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