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Comparing Anxiety, Depression, Stress, Eating Behaviour, and Health Promotion in PCOS and Non-PCOS Individuals

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Abstract

According to the World Health Organization 8- 13 % of the women all around the world have PCOS. The physiological effect of PCOS is well known ranging from irregular menstrual cycles to polycystic ovaries, obesity, and hyperandrogenism. However, what gets ignored is the psychological effects and impact of the disease. Studies have shown that individuals with PCOS may experience higher levels of anxiety, depression, and stress compared to those without PCOS. The purpose of the study was to measure and compare the psychological impacts of PCOS mainly focusing on anxiety, depression, stress and eating behaviours with the help of a cross-sectional comparative study. Survey method was used to collect data from 200 participants (100 with PCOS and 100 without PCOS) , using standardized questionnaires

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such as the Anxiety, Depression Stress Scale by Pallavi Bhatnagar, The Eating Disorder Examination Questionnaire by WHO and the Health Promoting Lifestyle Profile. The results indicated that there is a strong correlation between PCOS and psychological impacts, including higher levels of anxiety, depression, and stress. People with PCOS also have higher disrupted eating patterns . The research also aimed to analyse the levels of health promoting lifestyle in people with PCOS and its effects on the psychological factors. This concluded that there is a strong negative correlation between health promoting lifestyle and psychological impacts in individuals with PCOS. On comparing the said variable between the two groups (PCOS and Non PCOS) people with PCOS showed significantly higher levels of anxiety, depression, stress, maladaptive eating behaviours, compared to those without PCOS. No significant differences were found in health promoting lifestyle between the two groups but the findings suggest that people with PCOS had lower levels of health promoting lifestyle as compared to the other group.

Key Words: *PCOS, Polycystic Ovary Syndrome, Anxiety, Depression, Stress, Eating Behaviour, Health Promoting Lifestyle*

INTRODUCTION

Polycystic ovary syndrome has not only physical effects but also important psychological implications. Many individuals with PCOS experience symptoms such as irregular menstrual cycles, excess hair growth, acne, and weight gain, which can have a negative impact on their self-esteem and body image. The visible signs of PCOS along with the hormonal imbalances and metabolic disturbances characteristic of the condition can contribute to feelings of embarrassment, frustration, and anxiety.

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In addition to these challenges associated with managing PCOS like difficulties in achieving a healthy weight or dealing with chronic symptoms; it can also affect mental well-being. Anxiety and depression are common among individuals suffering from PCOS at higher rates than the general population. Concerns about fertility issues combined with long-term health risks further exacerbate psychological distress due to stigma related to conditions such as obesity or infertility.

Anxiety is a prevalent mental health issue characterized by feelings of concern, apprehension, or discomfort that can range from mild to severe and hinder everyday functioning. It typically involves excessive dwelling on potential future events or situations and is accompanied by physical symptoms such as increased heart rate, sweating, tremors, and difficulty focusing (Barton et al., 2014). A variety of anxiety disorders exist, such as generalized anxiety disorder, panic disorder, social anxiety disorder, and specific phobias. The exact link between PCOS and anxiety is intricate and multifaceted. Several factors contribute to the connection between these two condition including things like hormonal imbalances, the burden of the symptoms and fertility concerns.

Depression is a common and serious mental health condition characterized by persistent feelings of sadness, hopelessness, and loss of interest or pleasure in activities that were once enjoyable(Cooney & Dokras, 2017). It can affect individuals of all ages and backgrounds and can have significant impacts on daily functioning, relationships, and overall quality of life. Depression is often accompanied by a range of physical and emotional symptoms, including changes in appetite or weight, sleep disturbances, fatigue, difficulty concentrating, and thoughts of self-harm or suicide (World Health Organization: WHO, 2023).

The relationship between depression and polycystic ovary syndrome (PCOS) is complex and bidirectional, with each condition influencing and exacerbating the symptoms of

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the other. Many individuals with PCOS experience symptoms of depression, likely due to the hormonal imbalances and physical manifestations associated with the disorder (Azizi & Elyasi, 2017).

Eating disorders are severe mental health conditions characterized by disruptions in eating behaviours, attitudes toward food, weight, and body image (Pirotta et al., 2019)
They often involve intense emotions, thoughts, and actions related to food and body weight which can significantly impact physical health, psychological well-being, and social functioning(Eating Disorders, 2023). Common types of eating disorders include anorexia nervosa, bulimia nervosa, and binge-eating disorder as well as other specified feeding or eating disorders (Psychiatry.org, 2023).

The relationship between polycystic ovary syndrome and eating disorders/disordered eating behaviours is intricate due to several factors that contribute to the connection: PCOS symptoms like weight gain, hirsutism (excessive hair growth), acne, and abdominal bloating may lead to dissatisfaction with one's appearance and low self-esteem. Women with PCOS may also experience distress related to changes in their appearance due societal standards regarding thinness hormonal imbalances - elevated levels including insulin resistance could influence appetite regulation, & mood fluctuations –potentially contributing ovarian cysts and emotional instability. Furthermore, metabolic abnormalities including insulin resistance, affecting signals, nutrient metabolism, energy balance play significant role.

The existing literature on PCOS has highlighted the intricate relationship between the physiological manifestations of the condition and its profound impact on mental health. Studies have consistently demonstrated that individuals with PCOS are at an increased risk of experiencing psychological distress, including anxiety, depression, and elevated stress levels. Furthermore, the prevalence of metabolic syndrome in women with PCOS has raised concerns

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about their overall physical health, emphasizing the need for a comprehensive understanding of the intertwined nature of psychological and physical well-being in this population

The purpose of this study by Asdaq et al. (2020) was to analyse the quality of life of individuals with PCOS keeping depression and binge eating disorder as the focus points. The study was conducted on 494 women out of which 116 were diagnosed with PCOS. The study used a self-made questionnaire to measure the desired objectives whose reliability and validity were checked prior the administration. It had four parts which included questions related to demographic details, eating behaviours, depression (subscale from DASS 21 was used) and health related quality of life. The results indicated that people with PCOS show higher odds of binge eating disorder, depression and even abnormal health related quality of life. Health related quality of life being the most influenced with PCOS out of the three.

Stefanaki et al. (2023) study aimed at identifying the relationship between insulin resistance, obesity and hyperandrogenism with eating disorders and mood in women with PCOS. The study was done on forty-nine women diagnosed with PCOS. The Eating Attitudes Test (EAT)-26, Beck Depression Inventory-II(BDI-II), Hamilton Anxiety Scale (HAS) and Food Craving Questionnaire (FCQ-T) were used for data collection. The study concluded that obesity and hyperandrogenism increase the risk of depression and food cravings in women with PCOS which leads to the formation of a vicious cycle of increased obesity and aggravated symptoms of PCOS.

The researchers Dybciak et al. (2022) aimed to determine the prevalence and severity of symptoms of anxiety and depression along with levels of resilience and stress coping methods in women with PCOS. The study also aimed to determine the ways in which socio-demographic characteristics affect the said factors in women with and without PCOS. The study was conducted on 199 PCOS patients and a control group between the age of 20-40. Data

was collected using Hospital anxiety and depression scale (HADs) , ego- resiliency scale for resilience and MINI-COPE inventory to measure the coping strategies of stress. The results indicated that anxiety and depression levels in women with PCOS are higher while resilience is poorer. It also suggested that the PCOS group used Passive stress-coping strategies notably more than the control group. The social demographic study implied that, for the rural population with low levels of education being childless was a major cause of anxiety for the individuals. It also concluded that patients over thirty years of age who live in a rural area have greatly elevated levels of depression due to obesity and childlessness. Hence the study concluded that low ego- resilience and passive stress-coping strategies and marks of high anxiety and depression in PCOS women.

Rationale

Polycystic ovary syndrome is a common endocrine disorder that affects 5-20% of women in the reproductive age. With such a high population being affected by this disease. The level of knowledge and awareness on the topic in both the medical field and to the general population is significantly low. Even the women who are diagnosed with the disorder fail to completely understand their disease and are misled by the doctors and the community. Till date PCOS is thought to be a reproductive disorder rather than an endocrine disorder and the impact of PCOS is just thought to be limited till the reproductive system.

Women suffering from PCOS also remain unaware of the extent to which PCOS takes a toll on the physical and the mental health of the individual. They fail to see their symptoms over irregular periods and as a result are forced to suffer in silence. Most women remain unaware that PCOS can cause sleep disturbances, insulin resistance, osteoporosis, hair loss, weight gain, even in later stages cardiovascular problems. Apart from this PCOS is also

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responsible for inflammation in the body thus increasing joint and muscle pain, high cortisol levels, anxiety, depression, decreased quality of life etc.

This research aims to compare the psychological and health profile of individuals with PCOS to those without the condition. By examining existing literature and conducting empirical research, this study seeks to provide a comprehensive understanding of the unique challenges faced by individuals with PCOS and the potential implications for their overall well-being. Through this research, we hope to shed light on the intersections between psychological health and physical health in the context of PCOS, ultimately contributing to the development of holistic and tailored interventions for this population.

METHOD

The purpose of the study is to understand the relationship between anxiety, depression, stress and eating behaviours in people with and without PCOS. An overview of their lifestyle was also taken to better understand the relationship between the variables.

Research Objectives

- To determine and compare anxiety levels in people with and without PCOS.
- Assess and compare the levels of depression among individuals with PCOS and those without PCOS.
- To assess and compare stress levels of people with and without PCOS
- Explore and compare eating behaviours, including disordered eating patterns, between individuals with PCOS and those without PCOS.
- To Assess and compare various aspects of healthy lifestyle habits, such as nutrition, physical activity, stress management, and interpersonal relationships, between individuals with PCOS and those without PCOS.

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- To examine how anxiety, depression, stress, eating behaviour and healthy lifestyle are interacting with each other.

Hypothesis

- Women with PCOS will have higher levels of anxiety as compared to women without PCOS
- Women with PCOS will have higher depression levels as compared to women without PCOS
- Women with PCOS will have higher stress levels as compared to women without PCOS.
- Women with PCOS will have greater distortion levels in eating behaviours as compared to women without PCOS.
- There is a significant difference in health-promoting lifestyle scores between individuals with PCOS and individuals without PCOS.
- There is a significant relationship correlation between anxiety and depression levels in people with PCOS.
- There is a significant correlation between anxiety levels and eating behaviours in people with PCOS
- There is a significant correlation between anxiety and stress levels in people with PCOS
- There is a significant correlation between anxiety and healthy lifestyle in people with PCOS
- There is a significant correlation between depression and stress levels in people with PCOS
- There is a significant correlation between depression and eating behaviour in people with PCOS

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- There is a significant correlation between depression and healthy lifestyle in people with PCOS
- There is a significant correlation between stress levels and eating behaviour in people with PCOS
- There is a significant correlation between stress and healthy lifestyle in people with PCOS.
- There is a significant correlation between eating behaviours and healthy lifestyle in People with PCOS

Sampling Design

The study was conducted on 200 Indian women between the ages of 18-26 (100 with PCOS and 100 without PCOS). Survey method was used for data collection with the main sampling technique being convenience sampling, self-selection (Volunteer) sampling and snowball.

Measures

To get a comprehensive understanding on the topic three separate scales along with some basic questions for women with PCOS were used. The scales were compiled into one comprehensive questionnaire. which was then used for data collection. The Anxiety, Depression and Stress scale by Pallavi Bhatnagar was used to assess the anxiety, depression and stress levels of the participants. The Eating Disorder Examination questionnaire by WHO was used to measure the eating behaviours of the individuals. Lastly, the English adaptation of the Health Promoting Lifestyle Profile - II was used to get a comprehensive understanding of the individuals health on different domains of life.

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The Anxiety, Depression and Stress Scale by Pallavi Bhatnagar is a 48 item scale which is divided into three parts . There are 19 questions for anxiety. Items 1, 2, 7, 11, 14, 15, 18, 20, 21, 24, 25, 28, 32, 34, 35, 39, 41, 45, 47. The internal consistency was measured using Cronbach's Alpha and Spearman- Brown coefficient and was found to be .76 and .86 respectively. There are 15 items in the scale for depression namely items 3, 6, 9, 10, 12, 22, 26, 27, 31, 33, 37, 38, 42, 44, 48. The internal consistency was found to be .75 and .86 on the two tests. The variable of stress has 14 questions in the scale and is measured at items 4,5,8,12,16,17,19,23,29,30,36,40,43,and 46. The internal reliability of this domain was found to be .61 and .76 on the two tests of reliability.

The Eating Disorder Examination Questionnaire was used to measure the eating behaviours of the individuals. The scale has 28 items and is divided into 4 domains: restraint, eating concerns, weight concerns and shape concerns. Restraint was measured from questions 1, 2, 3, 4, 5. Questions 7, 9, 19, 20, 21 measured eating concerns in the participant. Shape concerns were measured by item number 6, 8,10,11,23,28.26,27. Items 8, 12, 22, 24, 25 measured the weight concerns of the participants. Internal consistency for the four EDE-Q subscales has been reported as Cronbach's α ranging from .74 (Restraint) to .89 (Shape Concern) for men and .75 (Restraint) to .93 (Shape Concern) for women. Test retest reliability was high for the four subscales (r = 0.75 to 0.91) and global score (r = 0.92).

The Health Promoting Lifestyle Profile (HPLP-II) measures the degree to which adults engage in healthy lifestyle habits . The questionnaire contains 52 items which are divided into 6 different dimensions: physical activity, spiritual growth, stress management, nutrition, interpersonal relationship and health responsibility. The internal consistency was found to be .943 while the test- retest validity of the scale was measured at .892.

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Analysis

Qualitative analysis of the data was done to get a comprehensive understanding of the topic. Correlational analysis along with independent sample T tests were used to find the relationship between the two variables

Procedure

The research aim was introduced to the participants and they were presented with the questionnaire in physical form or in the form of an online copy asper their convenience. It was made sure that the participants were made aware that their responses would be kept confidential and would only be used for research purposes. After completing the questionnaire, the participants were thanked for their participation. Data was interpreted methodically after completion.

RESULT

Table 1

Showing the Combined Descriptive Statistics

	Anxiety	Depression	Stress	Overall Eating Behaviour	Overall healthy lifestyle
N	200	200	200	200	200
Mean	8.40	7.00	7.96	13.1	123
Median	9.00	7.00	8.00	12.5	120
Standard deviation	4.77	4.55	3.83	8.76	22.5

Table 2

Showing the correlation between the variables

	Anxiety	Depression	Stress	Overall Eating Behaviour	Overall healthy lifestyle
Anxiety	—				
Depression	**0.700*** **	—			
Stress	**0.768*** **	**0.761*** **	—		
Overall Eating Behaviour	**0.419*** **	**0.481*** **	**0.465*** **	—	
Overall healthy lifestyle	**-0.404*** **	**-0.571*** **	**-0.445*** **	**-0.094**	—

Note. * p < .05, ** p < .01, *** p < .001

Table 3

Comparing t- scores of people with and without PCOS

		Statistic	df	p	Mean difference	SE difference
Anxiety	**Student's t**	**4.52** [a]	**198**	**< .001**	**2.91**	**0.643**
Depression	**Student's t**	**3.74**	**198**	**< .001**	**2.33**	**0.623**
Stress	**Student's t**	**5.38**	**198**	**< .001**	**2.73**	**0.507**
Overall Eating Behaviour	**Student's t**	**5.48**	**198**	**< .001**	**6.35**	**1.158**
Overall healthy lifestyle	**Student's t**	**-1.18**	**198**	**0.240**	**-3.74**	**3.176**

Table 4

Showing correlation between the variables in people with PCOS

	Anxiety	Depression	Stress	Overall Eating Behaviour	Overall Healthy Lifestyle
Anxiety	—				
Depression	**0.612***	—			
Stress	**0.659***	**0.739***	—		
Overall Eating Behaviour	**0.266***	**0.395***	**0.409***	—	
Overall Healthy Lifestyle	**-0.311***	**-0.576***	**-0.446***	**-0.131**	—

Note. *** p < .05, ** p < .01, *** p < .001**

Table 5

Showing the correlation between the variables in people without PCOS

	Anxiety	Depression	Stress	Overall eating habits	Overall Health Lifestyle
Anxiety	—				
Depression	**0.730***	—			
Stress	**0.802***	**0.746***	—		
Overall eating habits	**0.427***	**0.469***	**0.370***	—	
Overall Health Lifestyle	**-0.483***	**-0.568***	**-0.450***	**0.001**	—

Note. * p < .05, ** p < .01, *** p < .001

Table 6

Comparing various eating behaviours among the two groups using t-test

		Statistic	df	p	Mean difference	SE difference
Restraint	Student's t	3.93	198	< .001	0.866	0.220
Eating Concerns	Student's t	5.34 [a]	198	< .001	1.006	0.188
Weight Concerns	Student's t	4.71	198	< .001	1.214	0.258
Shape Concerns	Student's t	5.31	198	< .001	1.264	0.238

Table 7

Comparing Health Promoting lifestyle among the two groups using t-test.

	t	Statistic	df	p	Mean difference	SE difference
Health Responsibility	Student's t	2.469	198	0.014	1.710	0.693
Physical Activity	Student's t	1.086	198	0.279	0.770	0.709
Nutrition	Student's t	1.589	198	0.114	0.950	0.598

Spiritual Growth		**Student's t**		**-1.164**		**198**		**0.246**		**-0.940**		**0.807**	
Interpersonal Relationship		**Student's t**		**0.196**		**198**		**0.845**		**0.130**		**0.663**	
Stress Management		**Student's t**		**10.069**	**a**	**198**		**<.001**		**6.200**		**0.616**	

DISCUSSION

This study aims to address several key aspects related to PCOS and its potential psychological implications. By investigating and comparing the levels of anxiety, stress, depression, and eating behaviours, including disordered eating patterns, between individuals with and without PCOS, we seek to gain a deeper understanding of the psychological impact of this condition. Additionally, the study will assess various aspects of healthy lifestyle habits, such as nutrition, physical activity, stress management, and interpersonal relationships, and compare these between individuals with and without PCOS.

Correlation analysis of the variables suggest that there is a significant relationship between the variables. The results suggest that anxiety and depression have a positive correlation ($r= 0.700$, $p<0.001$). This suggests that people with higher anxiety scores tend to have higher depression scores as well. The results also indicate that there is a significant positive correlation between anxiety and stress ($r= 0.768$, $p<0.001$) , indicating that individuals with higher levels of anxiety also tend to experience higher levels of stress. The relationship between anxiety and eating behaviours' also have the same results, with a positive correlation ($r=0.419$, $p<0.001$) indicating that individuals with higher anxiety levels are more likely to

engage in disordered eating behaviours. Additionally, the study found a significant negative correlation between healthy lifestyle and anxiety ($r=-0.404$, $p<0.001$), indicating that individuals with healthier lifestyle habits tend to have lower levels of anxiety.

The same correlation analysis between depression and stress levels suggested that there is a positive correlation between the two variables ($r= 0.481$, $p<0.001$) this means that higher the depression scores higher will be the stress scores of the individual. The analysis between depression and eating behaviours suggested yet another positive correlation between the two variables ($r= 0.481$, p,0.001) , indicating that individuals with higher levels of depression are mre likely to engage in disordered eating behaviours. Depression and healthy lifestyle were found to have a significant negative correlation ($r=-0.571$, $p<0.001$), indicating that individuals with healthier lifestyle habits tend to experience lower levels of depression.

Stress and eating behaviours of the individuals were found to be positively correlated ($r= 0.465$, $p<0.001$), suggesting that higher levels of stress are associated with a higher likelihood of engaging in disordered eating behaviours. A negative correlation was found between stress and healthy lifestyle ($r=-0.445$, $p<0.001$), indicating that individuals with healthier lifestyle habits tend to experience lower levels of stress.

Only a slight negative correlation was found between the variables of eating behaviour and healthy lifestyle ($r=-0.106$, $p<0.05$), little to no association between disordered eating behaviours and healthy lifestyle habits. It is evident from the correlation analysis that there are significant relationships between anxiety, depression, stress levels, eating behaviours, and healthy lifestyle habits.

Additionally, a T- test was conducted to compare the variable among people with and without PCOS and the following results were obtained. On comparing the anxiety levels between the two groups it was found that there is a significant difference between the scores

of the two groups (t= 4.52, p<0.001) This indicates that women with PCOS experience higher levels of anxiety compared to those without PCOS. Furthermore, the analysis also revealed a significant difference in depression levels between women with PCOS and those without PCOS (t= 3.74, p<0.001), with higher levels of depression observed in women with PCOS. Stress levels were also found to be higher in women with PCOS as compared to the other groups (r= 5.338. p<0.001). Eating behaviours were also significantly different between women with and without PCOS. Women with PCOS were found to have higher levels of disordered eating behaviours (t = 5.48, p < 0.001). The results also revealed that there is no significant difference in the overall healthy lifestyle profile of women with and without PCOS (r= -1.18, p<0.240) Overall, the findings suggest that individuals with healthier lifestyle habits tend to have lower levels of anxiety, depression. These findings suggest that PCOS is associated with higher levels of anxiety, depression, stress, and disordered eating behaviours compared to individuals without PCOS. These findings suggest that PCOS is associated with higher levels of anxiety, depression, stress, and disordered eating behaviours compared to individuals without PCOS (Dybciak et al., 2022).

A correlational analysis of the variables was separately done on the two groups (with and without PCOS) . The results of the correlational analysis in both groups (with and without PCOS) indicated there is a positive correlation in anxiety and depression (r= 0.612 in people with PCOS and r=0.730 in people without PCOS) this suggests that there is a stronger relation between anxiety and depression in people without PCOS than in those with PCOS. The results also suggest that Anxiety and stress have a positive correlation (r= 0.659 in people with PCOS and 0.802 In people without PCOS. This means that as the anxiety levels increase stress levels will also increase and vice- versa. While in the case of anxiety and eating behaviour it was concluded that there is a weak positive correlation (r= 0.266 in people with PCOS and r= 0.427 in people without PCOS), indicating a weak association between anxiety and disordered eating

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behaviours in both groups, but it is stronger among individuals without PCOS. There was a negative correlation between anxiety and healthy lifestyle for both the groups (r= -0.266 in people with PCOS and r= -0.483 in people without PCOS). This suggests that higher anxiety levels will weakly link to a healthy lifestyle.

The correlation analysis revealed that depression and stress have a strong positive correlation with each other (r= 0.739 in people with PCOS and r= 0.746 in people without PCOS). Relationships between depression and eating behaviour on the other hand were found to have a positive relationship but not as intense as that with depression and stress. (r= 0.395 in people with PCOS r= 0.469 in people without PCOS). The most significant negative relationship was found to be between depression and healthy lifestyle (r=-0.576 in people with PCOS and r=-0.568 in people without PCOS) This means that as the healthy lifestyle of an individual increases the depression levels will decrease.

Eating behaviours and stress proved to have a weak to moderate positive correlation with each other (r= 0.409 in people with PCOS and r= 0.370 in people without PCOS) this means that as stress increases the disordered eating will increase. Stress and healthy lifestyle (r=-0.446 in people with PCOS and r=0.450 in people without PCOS) these scores suggest that as a healthy lifestyle increases the stress levels of an individual will decrease.

The only difference in the results that was found in the two groups was in between the relationship of eating Behaviours and healthy lifestyle profile. The r value which is -0.131 for people with PCOS show that there is a weak negative correlation between eating behaviours and healthy lifestyle in individuals with PCOS. While r value for the group without PCOS is 0.001 showing that there is no correlation between the two variables. Overall, the correlation analysis suggests that there are associations between anxiety, depression, stress, eating

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behaviour's, and healthy lifestyle in both individuals with PCOS and individuals without PCOS, but the strength and direction of these relationships may vary.

This variance in the results than the expected as implied from the review of literature can be due to a number of reasons. One possible reason for the variance in the results could be due to differences in the study populations. PCOS is a complex syndrome with diverse clinical manifestations and presentations. Individuals with PCOS may vary widely in their symptom severity, hormonal profiles, and associated comorbidities. This heterogeneity within the PCOS population could lead to variability in the relationships between mental health and lifestyle variables. Another possible reason for the variance in the results could be due to Individuals with PCOS may be more likely to seek healthcare and receive interventions for their mental health and lifestyle concerns compared to those without PCOS. This could potentially attenuate the relationships between variables in the PCOS group, as they may be actively engaged in management and treatment.

Another reason could be that for any psychological condition to manifest there should be a biopsychosocial cause. But it is not necessary that such is the case in people with PCOS. The individual could be just experiencing the psychological issues due to the hormonal imbalance and its effects on the body (just biological reasons) making it an exception from the normal course hence leading to not following the normal path / features of comorbidity.

A further analysis of the subscale of the Eating Disordered Examination Questionnaire using independent sample T- Test, through which could make the following implications. Restraint behaviour of eating ($t= 3.39$, $p<0.001$) , Eating Concerns ($t= 5.34$, $p<0.001$), Weight Concerns ($t= 4.71$, $p< 0.001$) and Shape Concerns ($t= 5.31$, $p< 0.001$) all were significantly higher in people with PCOS as compared to people without PCOS.

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Therefore, it can be concluded that individuals with PCOS may have a higher risk of developing eating disorders due to elevated levels of restraint behavior, eating concerns, weight concerns, and shape concerns. This suggests that there is a strong association between PCOS and eating disorders, highlighting the need for early screening and intervention in individuals with PCOS to prevent the development or worsening of eating disorders.

An t-test analysis of the subscale of the Health Promoting Lifestyle Profile showed only two scales to have significant difference. The first one was Health responsibility in which individuals with PCOS scored higher with a $t= 2.469$ and $p= 0.014$, than individuals without PCOS. The second subscale that was found to have significant difference between the two groups was stress management with $t= 10.069$ and $p<0.001$. This suggests that people with PCOS exhibit higher stress management than people without PCOS. This finding indicates that individuals with PCOS may display higher levels of health responsibility and stress management as compared to those without PCOS. These results emphasize the importance of addressing and supporting individuals with PCOS in managing their overall health, including stress management.

The survey also revealed that the most common kind of management technique in people with PCOS is making lifestyle changes (80.2%) with taking birth control or alternative treatment being the next top two approaches for 42.6% and 41.6 % of the population. The responses suggested that even though they are following the most effective treatment 75% of the population is unable to successfully manage their PCOS. About 87% of patients get treatment and management advice from doctors / medical professionals. According to the statistics 75% of them are unable to manage their disease successfully. This might signify that there is a gap in the knowledge among health care professionals as well on how to manage the disorder successfully.

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The findings of this research failed to reject the hypothesis in fourteen out of fifteen cases . The findings of the research lead to the conclusion that women with PCOS are at a higher risk for developing psychiatric issues, eating disorders, and higher levels of stress and that making lifestyle changes in moderation is the best way to manage the psychological effects of PCOS. The research also shed light on the lack of awareness among people with PCOS regarding the disease and how to successfully manage it. It showed how people still consider it as a reproductive disorder rather than an endocrine disorder which has greater risks than just problems with fertility.

CONCLUSION

The purpose of this study was to measure and compare the psychological impacts of PCOS mainly focusing on anxiety, depression, stress and eating behaviours with the help of a cross-sectional comparative study. Survey method was used to collect data from 200 participants (100 with PCOS and 100 without PCOS) , using standardized questionnaires.

The results indicate that there is a strong correlation between PCOS and psychological impacts, including higher levels of anxiety, depression, and stress. People with PCOS also have higher disrupted eating patterns. The research also aimed to analyse the levels of health promoting lifestyle in people with PCOS and its effects on the psychological factors. This concluded that there is a strong negative correlation between health promoting lifestyle and psychological impacts in individuals with PCOS.

On comparing the said variable between the two groups (PCOS and Non PCOS) people with PCOS showed significantly higher levels of anxiety, depression, stress, maladaptive eating behaviours, compared to those without PCOS. No significant differences were found in

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health promoting lifestyle between the two groups but the findings suggest that people with PCOS had lower levels of health promoting lifestyle as compared to the other group.

Thus, showing that the idea management for PCOS is not just focussing on the physiological aspects of the disease but rather making a holistic management strategy that not only focus on the physical symptoms but also on the psychological impact of the disease. As PCOS has a multifaceted impact on the individual.

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