Journal for ReAttach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 December; Vol 6 (1): 909-913

Unraveling the complex nexus of BMI, Suicidal Ideation, and Employment status among women with Polycystic Ovary Syndrome

Suhani Mathur[1], Dr. Monika Gwalani[2*]

[1]Research Scholar, Amity Institute of Behavioral and Allied Sciences, Amity University Rajasthan
[2*]Assistant Professor, Amity Institute of Behavioral and Allied Sciences, Amity University Rajasthan

***Corresponding Author:** Dr. Monika Gwalani
*Assistant Professor, Amity Institute of Behavioral and Allied Sciences, Amity University Rajasthan

Abstract

Introduction: Polycystic ovary syndrome (PCOS) is a prevalent medical condition affecting approximately one in five women of reproductive age in India. Understanding the Quality of Life (QoL) and Body Mass Index (BMI) of individuals with PCOS is crucial as it mirrors their overall well-being and health status.
Objective: This exploratory research investigates the intricate relationship between Body Mass Index (BMI) and Suicidal Ideation in individuals with Polycystic Ovary Syndrome (PCOS).
Methodology: The study encompasses a sample of 162 participants, comprising 100 with PCOS and 62 without. Statistical techniques, including Mann-Whitney U tests, and Linear regression were applied to analyze the data collected through Google Forms, from Rajasthan OPD offering diverse and representative insights.
Result: The findings reveal a marginally significant association between BMI and Suicidal Ideation, with higher BMI values showing a small yet noteworthy connection to increased Suicidal Ideation among individuals with PCOS. However, the cross-sectional design necessitates careful interpretation and emphasizes the need for longitudinal investigations to comprehend the evolving nature of this relationship over time. The study also employs regression analysis to delve into the nuanced interplay between various socio-demographic factors and the complex dimensions of PCOS. Notably, the Mann-Whitney U test underscores substantial differences between PCOS and non-PCOS groups in terms of Suicide Ideation, BMI, and Employment Status. These disparities emphasize the heightened vulnerability of individuals with PCOS to suicidal thoughts, the association between PCOS and weight-related concerns, and potential challenges faced in the workforce.
Conclusion: The study contributes valuable insights for healthcare interventions, urging a comprehensive and multidisciplinary approach to address the diverse challenges faced by individuals living with PCOS. Future research should delve into additional variables and employ longitudinal designs to enhance our understanding of the complex relationship between BMI, Suicidal Ideation, and PCOS.

Keywords: Polycystic Ovary Syndrome (PCOS), Body Mass Index (BMI), Suicidal Ideation, Mental Health, Women's Health, Socio-demographic Factors

Introduction

Polycystic ovary syndrome (PCOS) is an intricate medical condition impacting one in five Indian women of reproductive age, with prevalence comparable to their Caucasian counterparts (Barry, 2019; Tabassum et al., 2020). Characterized by hyperandrogenism, ovulatory dysfunction, and increased risk of comorbidities like insulin resistance, type 2 diabetes, obesity, infertility, and psychological manifestations, PCOS poses multifaceted challenges (Ozgen Saydam & Yildiz, 2021). The symptoms, often culturally associated with unfeminine attributes (hirsutism, obesity, acne, infertility), contribute to physical and emotional distress, significantly diminishing the quality of life for affected women (Barnard et al., 2007; Neubronner et al., 2021).
Body image encompasses the mental representation of one's physique and the attitude toward various aspects such as physical self, appearance, health, integrity, normal functioning, and sexuality. This multidimensional construct delves into an individual's perceptions and attitudes, encapsulating emotions, thoughts, and behaviors related to their body and overall appearance (Kogure et al., 2019). Additionally, there is a notable correlation between body image and Polycystic Ovary Syndrome (PCOS), a condition that impacts 6–12% of women in their reproductive age (Neubronner et al., 2021).
As per the American Psychological Association (2003), suicidal ideation involves thinking about or being preoccupied with the notion of ending one's own life and is often linked to major depressive episodes. Polycystic Ovary Syndrome (PCOS) is linked to an array of mental health challenges, frequently overlooked and untreated. Women grappling with PCOS face an elevated susceptibility to anxiety and depression, exhibiting rates five to ten times higher than their counterparts without the condition. Suicidal ideation is not confined to specific mental health conditions but can manifest in individuals dealing with major depression, bipolar disorder, or even those without a diagnosed mental illness. The

emergence of such thoughts is often associated with feelings of hopelessness, an overwhelming sense of helplessness, and a perception of life lacking meaning or purpose. Additionally, past traumatic experiences or distressing circumstances may contribute to the anticipation of similar negative events in the future. Disturbingly, women with Polycystic Ovary Syndrome (PCOS) face a particularly heightened risk, being seven times more likely to contemplate suicide compared to those in the control group (Gersh, 2019). This heightened risk underscores the intricate relationship between PCOS and mental well-being, shedding light on the pressing need for comprehensive and targeted interventions to address the mental health aspects associated with this syndrome.

This study aims to delve into the intricate relationship between BMI, Suicide Ideation, and the employment status (working and non-working) of individuals grappling with PCOS and control group.

Methodology

Research design

This study utilized an exploratory research design to assess the Body Mass Index (BMI) and Suicidal Ideation (SI) among women with Polycystic Ovary Syndrome (PCOS) compared to a control group. Additionally, the study aimed to explore the relationship between BMI and SI, specifically examining the impact of BMI on suicidal ideation in PCOS women.

Participants

This research targeted PCOS-afflicted women aged 18-45, selected from the Outpatient Department of various hospitals in Rajasthan, adhering to Rotterdam criteria. The study enrolled a total of 162 participants, comprising 100 PCOS individuals and 62 controls. Prior to participation, informed consent was diligently secured from all subjects.

Tools

- Body Mass Index (BMI) calculations, utilizing the weight (kg)/height (m^2) formula, categorized participants into four groups based on BMI criteria: underweight (<18.50), healthy weight (18.50-24.9), overweight (25.0-29.9), and obesity (>30) (What Is My BMI?, 2022).
- The Suicidal Ideation Scale (SIS), crafted by Dr. Devendra Singh Sisodia and Dr. Vibhuti Bhatnagar, was designed to gauge suicidal ideation utilizing the Likert technique. Comprising 25 statements, the scale includes 21 positive and 4 negative statements. Its purpose is to identify individuals with significantly high levels of suicidal ideation, offering a rapid assessment. The scale's reliability was established through test-retest and internal consistency methods, yielding values of 0.78 and 0.81, respectively (Sisodia & Bhatnagar, 2005; Suthar, 2019).
- Demographic variable: Employment status (working and non-working)

Data Analysis

The data collected for this study underwent analysis using SPSS software version 23. Various statistical tests were applied, including the Mann-Whitney U-Test and Linear Regression. Linear regression was specifically employed to scrutinize the influence of BMI on suicidal ideation among women with PCOS. The statistical analyses conducted enhance our comprehension of how PCOS affects BMI and Suicidal Ideation, underscoring the significance of addressing psychological well-being in women with PCOS.

Ethical Procedure

Ethical protocols were adhered to during the research process, with due consideration given to informed consent, confidentiality, and the overall well-being of participants. Anonymization of data was implemented, and any potential risks were vigilantly monitored and promptly addressed. Throughout the study, transparency and open communication were consistently maintained with the participants.

Result

Among the 162 women, 100 (62%) were PCOS sufferers, 62 (38%) were the control group, aged between 18-35 years.

Table 1 *Comparative Ranks of BMI, Suicidal Ideation, and Employment status: Mann-Whitney U Test*

Ranks				
	Participant	**N**	**Mean Rank**	**Sum of Ranks**
Suicidal Ideation	PCOS	100	92.56	9255.50
	Non-PCOS	62	63.67	3947.50
	Total	162		
BMI	PCOS	100	94.65	9464.50
	Non-PCOS	62	60.30	3738.50

	Total	162		
Employment Status	PCOS	100	90.25	9025.00
	Non-PCOS	62	67.39	4178.00
	Total	162		

The Mann-Whitney U test was employed to analyze the ranks of participants with Polycystic Ovary Syndrome (PCOS) and those without PCOS across a spectrum of variables including body mass index, suicidal ideation and employment status.

Suicidal Ideation: A Mann-Whitney U test revealed a significant difference in the mean ranks of suicidal ideation between PCOS (Mean Rank = 92.56) and non-PCOS (Mean Rank = 63.67) groups.

BMI: A Mann-Whitney U test indicated a significant difference in the mean ranks of BMI between PCOS (Mean Rank = 94.65) and non-PCOS (Mean Rank = 60.30) groups.

Employment status: Mann-Whitney U test demonstrated a significant difference in the mean ranks of employment status between PCOS (Mean Rank = 90.25) and non-PCOS (Mean Rank = 67.39) groups.

Table 2 *Comparative Ranks of BMI, Suicidal Ideation, and Employment status: Mann-Whitney U Test*

Test Statistics[a]			
	Suicidal Ideation	**BMI**	**Employment Status**
Mann-Whitney U	1994.50	1785.50	2225.00
Wilcoxon W	3947.50	3738.50	4178.00
Z	-3.81	-4.53	-3.63
***p* value**	.000	.000	.000

a. Grouping Variable: Participant

For Suicidal Ideation, BMI, and Employment Status, Mann-Whitney U tests were conducted.

Suicidal Ideation: The Mann-Whitney U test revealed a significant difference in the distribution of ranks for suicide ideation between groups (PCOS and non-PCOS), U=1994.50, Z= -3.81, $p< .001$.

BMI: The Mann-Whitney U test indicated a significant difference in the distribution of ranks for BMI between groups (PCOS and non-PCOS), U=1785.50, Z= -4.53, $p< .001$.

Employment status: The Mann-Whitney U test demonstrated a significant difference in the distribution of ranks for employment status between groups (PCOS and non-PCOS), U=2225.00, Z= -3.63, $p< .001$.

Table 3 *Linear Regression Analysis: Predictors of Suicidal Ideation and their effects among PCOS sufferers*

Model Summary[b]					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	.184[a]	.034	.024	13.89627	1.844

a. Predictors: (Constant), BMI
b. Dependent Variable: Suicidal Ideation

Coefficients[a]								
Model		**Unstandardized Coefficients**		**Standardized Coefficients Beta**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
		β	**Std. Error**				**Lower Bound**	**Upper Bound**
1	(Constant)	46.772	8.166		5.728	.000	30.568	62.977
	BMI	.587	.316	.184	1.855	.067	-.041	1.215

a. Dependent Variable: Suicidal Ideation

The results of the regression analysis in Table 3, examining the relationship between Body Mass Index (BMI) and Suicidal Ideation reveal important insights. The constant term, representing the estimated value of Suicidal Ideation when BMI is zero, is statistically significant (B = 46.772, t = 8.166, p < .001). The BMI coefficient (B = 0.587, t = 1.855, p = .067)

suggests a potential association between BMI and Suicidal Ideation, but the significance is only marginally met, falling short of conventional thresholds. The 95% confidence interval for the BMI coefficient ranges from -0.041 to 1.215, indicating the uncertainty around the estimated effect. While there is a hint of a trend, the small effect size and marginal significance emphasize the need for further exploration and consideration of additional variables to comprehensively understand the relationship between BMI and Suicidal Ideation in the context of Polycystic Ovary Syndrome (PCOS).

Discussion and Conclusion

The findings of this study offer crucial insights into the intricate relationship between Body Mass Index (BMI) and Suicidal Ideation among individuals with Polycystic Ovary Syndrome (PCOS). The regression analysis reveals a potential association, albeit marginally significant, indicating that higher BMI values may be linked to increased Suicidal Ideation. However, caution is warranted in interpreting these results due to the marginal significance and the necessity for further exploration.

The observed connection between BMI and Suicidal Ideation is likely influenced by a myriad of factors, including the psychological and emotional impact of PCOS, societal perceptions, and individual coping mechanisms (Almis et al., 2021). The psychological impact of PCOS, including anxiety and depression, may contribute to suicidal ideation, involving factors like body image concerns, self-esteem issues, and societal pressures. Societal norms regarding body weight can lead to stigma and discrimination, affecting the mental health of women with PCOS, particularly those with higher BMIs. Hormonal and metabolic imbalances associated with PCOS can influence mood, while negative healthcare experiences, such as weight bias, can further contribute to mental health challenges. The multifaceted nature of PCOS, encompassing both physical and mental health dimensions, adds layers of complexity to understanding these findings. Moreover, the cross-sectional design of the study limits the ability to establish causation, emphasizing the need for longitudinal research to grasp how BMI and Suicidal Ideation evolve over time.

In conclusion, while this study provides a glimpse into the potential association between BMI and Suicidal Ideation in the context of PCOS, it underscores the necessity for more extensive research. The marginally significant findings highlight the importance of considering various factors contributing to mental health challenges in individuals with PCOS. Healthcare professionals should approach PCOS management holistically, addressing both physical and psychological aspects, and consider personalized interventions tailored to the unique experiences of individuals. Future studies should explore additional variables, such as socio-cultural factors, coping strategies, and the impact of PCOS-specific symptoms, to enhance our understanding of the intricate relationship between BMI and Suicidal Ideation in PCOS individuals. Additionally, the Mann-Whitney U test results emphasize significant disparities between PCOS and non-PCOS groups in terms of Suicide Ideation, BMI, and Employment Status. These nuanced aspects contribute to a comprehensive understanding of the challenges faced by individuals with PCOS, urging the implementation of multidisciplinary approaches in interventions to enhance the overall well-being of this population.

References

1. Almis, H., Orhon, F.Ş., Bolu, S, Almis, B.H. (2021). Self-Concept, Depression, and Anxiety Levels of Adolescents with Polycystic Ovary Syndrome, *Journal of Pediatric and Adolescent Gynecology*. https://doi.org/10.1016/j.jpag.2020.12.011.
2. American Psychiatric Association (2003). Suicidal Ideation. https://dictionary.apa.org/suicidal-ideation
3. Barry, J. A. (2019). Psychological aspects of polycystic ovary syndrome. In *Psychological Aspects of Polycystic Ovary Syndrome*. https://doi.org/10.1007/978-3-030-30290-0
4. Barnard, L., Ferriday, D., Guenther, N., Strauss, B., Balen, A. H., & Dye, L. (2007). Quality of life and psychological well being in polycystic ovary syndrome. Human Reproduction, 22(8), 2279–2286. https://doi.org/10.1093/humrep/dem108
5. Kogure, Gislaine Satyko; Ribeiro, Victor Barbosa; Lopes, Iris Palma; Furtado, Cristiana Libardi Miranda; Kodato, Sérgio; Silva de Sá, Marcos Felipe; Ferriani, Rui Alberto; Lara, Lúcia Alves da Silva; Maria dos Reis, Rosana (2019). Body image and its relationships with sexual functioning, anxiety, and depression in women with polycystic ovary syndrome. Journal of Affective Disorders, 253(), 385–393. doi:10.1016/j.jad.2019.05.006
6. Neubronner, S. A., Indran, I. R., Chan, Y. H., Thu, A. W. P., & Yong, E. L. (2021). Effect of body mass index (BMI) on phenotypic features of polycystic ovary syndrome (PCOS) in Singapore women: a prospective cross-sectional study. *BMC Women's Health*, *21*(1), 1–12. https://doi.org/10.1186/s12905-021-01277-6
7. Ozgen Saydam, B., & Yildiz, B. O. (2021). Weight management strategies for patients with PCOS: current perspectives. *Expert Review of Endocrinology and Metabolism*, *16*(2), 49–62. https://doi.org/10.1080/17446651.2021.1896966
8. Panico, A., Messina, G., Lupoli, G. A., Lupoli, R., Cacciapuoti, M., Moscatelli, F., Esposito, T., Villano, I., Valenzano, A., Monda, V., Messina, A., Precenzano, F., Cibelli, G., Monda, M., & Lupoli, G. (2017). Quality of life in overweight (Obese) and normal-weight women with polycystic ovary syndrome. *Patient Preference and Adherence*, *11*, 423–429. https://doi.org/10.2147/PPA.S119180

9. Tabassum, F., Sinha, H. H., Dhar, K., Jyoti, C., & Akhtar, S. (2020). Assessment of Psycho-emotional Distress Due to Age , Body Mass Index , and Marital Status in Polycystic Ovary Syndrome in North Indian Population. *Aras Part Medical International Press*, *8*(4), 368–375. https://doi.org/10.15296/ijwhr.2020.59
10. *What Is My BMI?* (2022, September 2). Centers for Disease Control and Prevention. https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/english_bmi_calculator/bmi_calculator.html