

Dietary Habits, Lifestyle and Polycystic Ovary Syndrome Among Adult Women Aged 20-39 in Manila City, Philippines

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is more than just a medical diagnosis—it's a reality that many women live with every day. It affects not only their reproductive health but also their overall well-being, from hormonal imbalances to emotional and physical challenges. This study examines the relationship between dietary habits, lifestyle and PCOS among 70 women aged 20 to 39 in Manila, Philippines. Data from the survey revealed that most respondents at 48.6% were aged 20 to 25, with many residing in Pandacan and Quiapo. The majority (92.8%) had at least a college education, most were single 75.7%, and employed 50%. Lifestyle habits showed that 60% did not engage in regular physical activity, 78.6% consumed alcohol, and many reported unhealthy eating habits, such as consuming junk food at 52.9% and sweetened tea/coffee at 35.8%. While 21.7% of respondents regularly consumed fruits and vegetables, many chose less nutritious options, with variability in portion sizes and snacking frequency. The study found a significant association between dietary habits and PCOS, suggesting that dietary patterns may be related to PCOS risk and management among women in Manila. These findings highlight the importance of further research and targeted dietary interventions to better understand and support women affected by PCOS.

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INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder that affects women of reproductive age, often appearing during puberty. It is characterized by irregular menstrual cycles, elevated androgen levels, and ovarian cysts, making it a

leading cause of infertility (WHO, 2023). Studies show that PCOS is more prevalent in certain ethnic groups, with rates exceeding 10–13% in Southeast Asia and the Eastern Mediterranean (Rodriguez-Asuncion, 2023). Women in these regions also face higher risks of metabolic complications, emphasizing the need for increased awareness and targeted healthcare strategies. Moreover, poor lifestyle choices, unhealthy diets, and exposure to infections may further increase the risk of developing PCOS (Ajmal et al., 2019). Effective management primarily involves lifestyle changes,

including proper nutrition and physical activity, to alleviate symptoms and prevent long-term complications (Kaundal et al., 2023). While the exact cause of PCOS remains uncertain, research suggests it results from a mix of genetic and environmental factors. One theory proposes that high androgen levels in early life trigger epigenetic changes, which, combined with lifestyle factors like diet and obesity, contribute to PCOS development (Rodriguez-Asuncion, 2023). Managing symptoms often involves lifestyle modifications, particularly a healthy diet and regular physical activity (WHO, 2023).

Research highlights the potential link between diet and PCOS. Studies suggest that women with PCOS often have nutrient deficiencies, including low levels of vitamin D and fiber, which may worsen metabolic symptoms (Szczyko et al., 2017; Lin et al., 2019). Certain dietary patterns, such as low-carbohydrate and ketogenic diets, have been associated with improved hormonal balance, weight management, and metabolic health (Paoli et al., 2020; Zhang et al., 2019). Additionally, foods rich in resveratrol, like grapes and berries, may help reduce hyperandrogenism (Mirabella et al., 2020; Barrea et al., 2019). Low-glycemic index diets have also been studied for their role in improving insulin sensitivity in women with PCOS (Shishehger et al., 2019). However, the role of diet in PCOS remains debated, with conflicting research findings on its impact. By analyzing dietary patterns in diagnosed women, the research aims to provide insights into PCOS within the Filipino population. Through comprehensive dietary assessments and data analysis, the study seeks to identify dietary factors that may be linked to PCOS, ultimately informing preventive strategies and healthcare interventions tailored to this demographic.

The main objective of this study is to determine the influence of dietary habits on PCOS by obtaining the demographic profile of the respondents with PCOS, record the kind of food they consume, how often do they consume it, the food sources of their diet, as well as, the common relationships between the lifestyle information, types of food, and prevalence of PCOS among women aged 20-39 years old in Manila, Philippines.

METHODOLOGY

Research Design

This quantitative study employs a correlational design to examine the relationship between dietary habits and the prevalence of PCOS among women aged 20 to 39 years in Manila, Philippines. By targeting a defined demographic, the research aims to explore whether there is a correlation between dietary patterns, lifestyle and PCOS. This approach helps identify trends and associations, offering a deeper understanding of potential risk factors contributing to PCOS. To ensure the validity of the results, the study meticulously controls for confounding variables. Participants are selected within the specific age range of 20-39 years, which represents the reproductive years when PCOS is most commonly diagnosed, thereby ensuring that age-related factors do not influence the results. By limiting the study to women residing in Manila, Philippines, the research controls for geographical and environmental factors that could otherwise affect dietary habits and health outcomes. This geographical focus ensures that all participants are exposed to similar cultural, dietary, and healthcare environments. This includes excluding those with chronic illnesses or conditions known to impact metabolic and hormonal functions.

Subjects and Study Site

The study targeted a sample of 50 to 100 women aged 20 to 39, as this demographic is most commonly diagnosed with Polycystic Ovary Syndrome (PCOS). Participants were acquired online through a Google Forms survey, which was disseminated in PCOS support groups and communities based in Manila. This location was selected due to its diverse population and strong online engagement. A purposive sampling method was employed to ensure that only individuals with a confirmed diagnosis of PCOS were included in the study. To achieve the target sample size, the survey was distributed to approximately 500-1000 potential respondents, with an anticipated response rate of 10-20%. This approach ensured a sufficient number of valid responses while accounting for non-responses and incomplete submissions.

Research Instrument

The survey questionnaire was administered online using Google Forms and was structured into six distinct sections. The first section included the informed consent form, ensuring that participants acknowledged and agreed to their involvement in the study. The second section gathered general demographic information, followed by the third section, which focused on lifestyle-related factors. The fourth section examined dietary habits, while the final two sections assessed food consumption and overall dietary patterns, respectively. This structured approach facilitated comprehensive data collection aligned with the research objectives. The use of Google Forms as the research instrument enabled efficient dissemination of the questionnaire within PCOS social groups, allowing for broad participant reach and streamlined data collection.

Data Gathering Procedure

The survey was conducted using a food frequency questionnaire based on the Food History Questionnaire of South Dakota Department of Health. The survey was conducted through Google Forms, distributed across various Facebook support groups dedicated to discussions on PCOS. Prior to distribution, the survey questions underwent a thorough validation process to ensure accuracy and relevance. The survey also included a disclaimer and adhered to established ethical guidelines and considerations, ensuring the protection and privacy of all respondents.

Ethical Considerations

The respondents were provided with a consent form to ensure they understood the nature of the study and their rights as respondents. All information collected was kept anonymous and confidential. The researchers were committed to respecting the privacy of participants and ensured that any data provided was handled with strict confidentiality. Measures were taken to avoid any form of misinformation or bias throughout the study.

Data Analysis

This study employs frequency and percentage distribution to analyze the demographic profile of the participants, including variables such as year, age, city, educational attainment, marital status, and employment status. The frequency distribution effectively summarizes the data, providing a comprehensive overview of the respondents' characteristics. Descriptive statistics are utilized to identify the types of food most frequently consumed by the participants. The Statistical Package for the Social Sciences (SPSS) is used to perform Pearson

correlation (Pearson's r) to test the hypothesis regarding the relationships between dietary habits, lifestyle factors, and the prevalence of Polycystic Ovary Syndrome (PCOS).

RESULTS AND DISCUSSION

To comprehensively understand the relationship of dietary habits, lifestyle and PCOS among women aged 20-39 in Manila City, Philippines, a thorough and detailed analysis of the collected study data is essential. Descriptive statistics were employed to summarize and describe the basic features of the data, providing a clear overview of the demographic characteristics and lifestyle patterns of

the respondents. Following this, correlation analysis is conducted to explore the potential relationships between dietary habits, lifestyle factors, and PCOS among the participants.

Profile of the Respondents

Table 1 provides a detailed profile of the 70 respondents based on several key categories: age, district, educational attainment, marital status, and employment status. This offers insight into the diversity and composition of the sample population and helps in contextualizing the findings within the specific characteristics of the respondents.

Table 1. Demographic profile of the respondents

Profile	Category	Frequency	Percentage
Age	20 to 25 Years Old	34	48.6
	26 to 30 Years Old	22	31.4
	31 to 35 Years Old	8	11.4
	36 and above	6	8.6
District	Pandacan	12	17.1
	Paco	9	12.9
	Quiapo	9	12.9
	San Miguel	9	12.9
	Malate	8	11.4
	Santa Ana	7	10.0
	Santa Cruz	7	10.0
	Ermita Sampaloc	6 3	8.6 4.3
Educational Attainment	College Graduate	32	45.7
	College Level	29	41.4
	Postgraduate with master's degree	4	5.7
	Senior High School Elementary	3 2	4.3 2.9
Marital Status	Single	53	75.7
	Married	17	24.3

Employment Status	Student	21	30.0
	Unemployed	14	20.0

The respondents are predominantly young adults, with most aged 20-30 years, reflecting early career or academic pursuits. The respondents come from a variety of neighborhoods within the city. The largest group, representing 17.1%, resides in Pandacan. A majority 87.1% have pursued higher education, indicating a well-educated sample. Most are single 75.7%, and employment status is evenly split, with 50% employed, 30% students, and 20% unemployed. These factors suggest the survey results will largely reflect the perspectives of educated young adults navigating early career, educational, and socioeconomic experiences.

Lifestyle-related Characteristics

The data provides insights into three lifestyle-related characteristics: smoking habits, alcohol consumption, and engagement in regular physical activity. The overall mean for lifestyle-related characteristics is calculated at 1.50, indicating a moderate overall tendency towards healthy lifestyle habits among the respondents. The relatively low standard deviation of 0.4581 suggests a moderate dispersion of responses around the mean, indicating a fair level of consistency in lifestyle behaviors within the sample. Lifestyle characteristics comes with a follow-up question that aims to provide a clearer understanding of the respondent’s habits and behaviors that may have a relationship with PCOS. The highest percentage in cigarette consumption (68.8%) corresponds to individuals who answered "I answered no," meaning they do not smoke, while the lowest percentage (10.0%) is shared by those who consume either "4-6 cigarette sticks" or "1-3 cigarette

sticks" per day. In terms of alcohol consumption frequency, the highest percentage (54.3%) is for individuals who consume alcoholic beverages "sometimes," whereas the lowest percentage (12.9%) represents those who consume alcohol "seldom."

Regarding alcohol consumption per drinking day, the highest percentage (41.4%) is for individuals who consume "more than 7 glasses of drinks," while the lowest percentage (18.6%) is for those who answered "I answered no," meaning they do not drink. When it comes to sleep duration, the highest percentage (31.4%) is for individuals who sleep between "6-7 hours" per night, while the lowest percentage (5.7%) is for those who sleep "more than 8 hours." Lastly, in terms of preferred physical activities, the highest percentage (58.6%) is for those who answered "I answer no," indicating they do not engage in physical activities, while the lowest percentage (4.3%) is shared by individuals who prefer "weightlifting," "strength training," and "cycling."

Dietary Habits and Preferences

The dietary preferences show varying consumption patterns across different food categories. The highest percentage (20.4%) is for protein sources, indicating it is the most commonly consumed food group, while the lowest percentage (9.4%) is for fruits, suggesting it is the least preferred. In terms of dietary habits, the majority (57.1%) consume meals in moderation (about 1 cup), whereas only 11.4% chose small portions (about ½ cup). Additionally, 85.7% do not track their portion sizes, showing a lack of calorie monitoring.

Regarding snacking habits, junk food is the most commonly consumed (62.9%), while nuts are the least preferred (8.6%). Most respondents (58.6%) eat at home, while the lowest percentage (5.7%) dine in carinderias. When it comes to diet perception, 51.4%

consider their diet "Moderately Healthy," while only 5.7% rate it as "Very Healthy." Lastly, frying is the most preferred cooking method (36.0%), while boiling is the least used (16.4%).

Table 2. Preference for Specific Category of Dietary Habits

Category	N	Percentage	Percent of Cases
Protein Sources	65	20.4 %	92.9 %
Wholegrains	61	19.2 %	87.1 %
Processed Foods	49	15.4 %	70.0 %
Vegetables	39	12.3 %	55.7 %
Junk food	37	11.6 %	52.9 %
Dairy Products	37	11.6 %	52.9 %
Fruits	30	9.4 %	42.9 %
Total	318	100.0 %	454.3 %

Food Consumption

The consumption patterns of various food categories among respondents, detailing the frequency and percentage of each item, along with the percentage of cases they represent. The highest consumed items in each category are sweetened tea/coffee (35.8%) for sugary beverages, rice (37.9%) for grains, onions (29.9%) for vegetables, bananas (37.2%) for fruits, milk (34.8%) for dairy products, chicken (32.4%) for protein sources, ice cream (30.9%) for sweets or desserts, and vegetable oil (33.6%) for oils or fats. The least consumed items are "others" in various categories, including 1.5% for sugary beverages, 1.4% for vegetables, 5.1% for fruits, 0.8% for dairy, 0.5% for protein, 0.7% for sweets, and 16% for oils (coconut oil).

Among the highest, grains were most commonly consumed three times a day (58.6%), followed closely by protein sources at the same frequency (57.1%). Vegetables were also frequently consumed three times a day by a significant portion of respondents (34.3%). Whereas, the lowest consumption rates were observed in certain food categories. While fewer respondents reported consuming fruits more than three times a day or not at all, the same trend was seen for vegetables. Similarly, dairy product consumption showed lower frequencies at more than three times a day or not at all. Sweets/desserts and sugary beverages followed a similar pattern, with fewer respondents consuming them more than three times a day. Overall, staple foods such as rice, poultry, and meat were consumed most frequently, likely due to cultural preferences and necessity, whereas vegetables, fruits, and dairy products were consumed less often but remained important for nutritional balance.

Dietary Frequency

The data highlights the highest and lowest consumption frequencies for various food categories.

Table 3. Dietary Habits and Preferences

Questions	Frequency	Percentage
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How would you evaluate your portion sizes during meals?		
In Moderation (about 1 cup)	40	57.1
Large Portion (about 1 ½ cup or up)	22	31.4
Small portion (about ½ cup)	8	11.4
Do you track your portion sizes to keep your calorie consumption under control?		
No	60	85.7
Yes	10	14.3
How frequently do you snack between meals?		
Sometimes	30	42.9
Rarely	17	24.3
Very Often	12	17.1
Always	9	12.9
Never	2	2.9
What kind of snacks do you normally eat?		
Junk Food	44	62.9
Healthy snacks	11	15.7
Fruits	9	12.9
Nuts	6	8.6
Where do you typically eat?		
Home	41	58.6
Fat foods, restaurants, convenience store	15	21.4
Work/school cafeteria	10	14.3
Carinderia	4	5.7
Do you normally eat alone or with others?		
With family	39	55.7
Alone	16	22.9
With friends	15	21.4
How frequently do you eat out or order takeout each week?		
Once a week	34	48.6
2-3 times per week	22	31.4
More than once a day	7	10.0
4-6 times per week	4	5.7
None	3	4.3
How would you assess the overall quality of your diet?		
Moderately Healthy	36	51.4
Unhealthy	30	42.9
Very healthy	4	5.7
Are you satisfied with your current dietary habits?		
No	56	80.0
Yes	14	20.0

Relationship between Lifestyle, Diet and PCOS

Table 4 presents the results of an analysis examining the relationship between lifestyle information, types of food consumed, and the prevalence of Polycystic Ovary Syndrome (PCOS) among women aged 20-39 in Manila, Philippines. The analysis shows that there is a statistically

significant association between dietary habits, lifestyle factors, and PCOS respondents with a low positive variability that have a definite but small relationship with each other. The findings show correlation coefficient of 0.253, with a significance level of 0.035, suggests a meaningful but modest relationship at the 5% significance level. This means

that variations in dietary habits among respondents are associated with corresponding differences in PCOS prevalence. While this association does not establish causation, it underscores the importance of further exploring the role of nutrition in PCOS management and awareness in this demographic. Conversely, the analysis presents a different outcome for lifestyle factors.

Despite examining various aspects such as physical activity, sleep patterns, and stress management, the correlation coefficient of 0.202 and

a significance level of 0.093 indicate that lifestyle factors, as measured in this study, do not show a statistically significant association with PCOS prevalence. This suggests that, within this sample, variations in lifestyle habits may not have a distinct relationship with PCOS. While this result may seem unexpected, it encourages further research to better understand the complexity of lifestyle's role in PCOS development and management among women in this age group.

Table 4. Association between Dietary Habits and Lifestyle of PCOS Respondents

Parameter	r	Sig.	Conclusion	Interpretation
Dietary	0.253*	0.035	Reject Ho	Significant
Lifestyle	0.202	0.093	Fail to Reject Ho	Not Significant

Note: ns- Not significant, *-Significant at 5% level of significance.

DISCUSSION

The result of this correlation proved that dietary habits could be associated with PCOS. This is possibly due to the food trends and staple food within the demographic. One of the believed complexes that could cause PCOS is dietary factors which can contribute to the development and progression of PCOS and addressing these factors is essential for effective management of the condition and reducing its broader health impacts according to Kshetrimayum et al. (2019). The respondent's diet (mostly aged 20 - 25) also highlighted the consumption of high amount of unhealthy food which could be supported by the study of Hajivandi et al., (2020) which stated that high amounts of unhealthy foods, such as fast food, sugary snacks, and high-fat or high-salt foods is a contributing factor to their condition. Eating healthy and making the right choices could help mitigate the complication

associated with PCOS and improve reproductive health.

However, the study did not establish a strong correlation between lifestyle factors—such as physical activity, alcohol consumption, and sleep—and the prevalence of PCOS. While lifestyle choices are widely recognized as influential in overall health, the findings of this study did not demonstrate a definitive association with PCOS occurrence. The result is contrary to The American Society for Reproductive Medicine (ASRM) suggests lifestyle changes, as the first-line treatment for PCOS. However, the weak correlation might possibly be due to the respondents being highly active in terms of exercise and mostly not smoking. Even so, when looked at a bigger picture, the respondent's lifestyle is still leaning on unhealthy habits, specifically having not enough sleep, which points out the complex interaction between dietary habits, sleep problems, and lifestyle choices, highlighting the need for good

sleep in improving the efficacy of dietary treatments for PCOS control according to Bennett et al., (2021). It is essential to acknowledge that correlation does not imply causation. This study does not assert that specific dietary habits directly cause PCOS, nor does it suggest that dietary modifications alone can serve as a cure. Rather, the findings indicate observable patterns, suggesting that women with PCOS may exhibit distinct dietary behaviors that could potentially influence their symptoms.

CONCLUSION

The study provides valuable insights into the relationship between dietary habits and PCOS among women aged 20-39 in Manila, Philippines. It examines the profiles of women with PCOS based on age, location, educational attainment, marital status, and employment status. The findings emphasize the importance of promoting healthier eating habits and raising awareness about lifestyle choices to support PCOS management and overall well-being. Women with PCOS exhibit diverse dietary patterns, but unhealthy eating habits, such as frequent consumption of junk food and sugary beverages, are notably prevalent. Encouraging a higher intake of fruits, vegetables, and whole grains, while reducing processed and sugar-laden foods, may contribute to better PCOS management. Additionally, the study explores the associations between lifestyle factors, dietary habits, and PCOS prevalence. While the correlation between dietary habits and PCOS is statistically significant, the relationship between lifestyle factors and PCOS remains inconclusive. This highlights the need for targeted interventions focusing on education and awareness, empowering women with PCOS to make informed health decisions. These measures could play a key role in

enhancing PCOS management strategies among women in Manila.

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DECLARATION REGARDING GENERATIVE AI IN SCIENTIFIC WRITING

The authors declare that no generative artificial intelligence (AI) or AI-assisted technologies were used at any stage of the study.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest relevant to this study.

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