

# The Research of Medical Science Review

Received: 23 September, 2024  
Accepted: 26 October, 2024  
Published: 14 November, 2024

ISSN: 3007-1208 | 3007-1216  
Volume 2, Issue 3, 2024

## IMPACT OF POLYCYSTIC OVARY SYNDROME ON WOMEN MENTAL HEALTH AND QUALITY OF LIFE

Dr Fouzia Malik<sup>1</sup>, Amal Fatima<sup>\*2</sup>

<sup>1</sup>Consultant Obstetrician and Gynecologist at Dr Sulaiman Alhabib Hospital Riyadh Kingdom of Saudi Arabia,

<sup>\*2</sup>MBBS Student at Nishtar Medical University

<sup>\*2</sup>[amalmalik098@gmail.com](mailto:amalmalik098@gmail.com)

### ABSTRACT

To assess the impact of Polycystic Ovary Syndrome (PCOS) on women's mental health, specifically anxiety and depression, and their quality of life, A cross-sectional study was conducted with 300 women diagnosed with PCOS. Participants were divided by demographic factors such as age, marital status, educational background, employment status, BMI, and family history of PCOS. Mental health was assessed using standardized measures for anxiety and depression, while quality of life was evaluated based on self-reported outcomes. Descriptive statistics, comparisons of symptoms, and multiple linear regression were used to analyze the data., PCOS symptoms significantly affected women's mental health and quality of life. Anxiety and depression levels were highest among women experiencing infertility, weight gain, and hirsutism, with combined symptoms showing the most negative effects on mental health and quality of life. Demographic factors such as age, marital status, education, employment, and BMI were significant predictors of symptom severity. Older women, those unemployed, and those with higher BMI reported more severe symptoms., PCOS has a substantial negative impact on women's mental health and quality of life, with symptoms such as infertility and weight gain contributing most to anxiety, depression, and reduced quality of life. Demographic factors further influence symptom severity, suggesting the need for integrated treatment approaches addressing both physical and psychological health. Future studies should focus on longitudinal research and interventions targeting mental health and socioeconomic challenges faced by women with PCOS.

**Keywords:** Polycystic Ovary Syndrome, mental health, anxiety, depression, quality of life, demographic factors, women

### INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder affecting women of reproductive age, with a global prevalence ranging from 5-20%, depending on the diagnostic criteria used (Stener-Victorin et al., 2024). PCOS is primarily characterized by hyperandrogenism, ovulatory dysfunction, and polycystic ovaries, though its etiology remains complex and multifactorial. Genetic predisposition, insulin

resistance, and environmental factors such as diet and lifestyle play a significant role in the development and severity of the condition (Harada, 2022). Obesity, in particular, exacerbates PCOS symptoms, with studies showing that 50-80% of women with PCOS are either overweight or obese (Barber & Franks, 2021). This condition not only affects reproductive health but also contributes to metabolic disorders, increasing the

# The Research of Medical Science Review

risk for type 2 diabetes, cardiovascular disease, and mental health issues.

The mental health impact of PCOS is well-documented, with numerous studies highlighting the high prevalence of anxiety, depression, and body image disturbances among women with the condition (Cutler, 2019). PCOS-related symptoms such as hirsutism, weight gain, and infertility contribute to a negative body image, which exacerbates emotional distress. Additionally, the hormonal imbalances associated with PCOS, particularly elevated androgen levels, have been linked to increased rates of depression and anxiety (Dewani, Karwade, & Mahajan, 2023). Women with PCOS are also more likely to suffer from social isolation due to the visible symptoms of the condition, which can contribute to further psychological distress (Brady, Mousa, & Mousa, 2009; Veltman-Verhulst, Boivin, Eijkemans, & Fauser, 2012).

In addition to mental health, quality of life (QoL) is significantly affected by PCOS. Studies have demonstrated that women with PCOS report lower quality of life, particularly in relation to emotional well-being, physical health, and social functioning (Brady et al., 2009; Naumova, Castelo-Branco, Kasterina, & Casals, 2021). The chronic nature of PCOS, along with its visible symptoms and reproductive challenges, negatively impacts everyday activities and social interactions. Women with PCOS often face stigma related to their appearance and fertility issues, further diminishing their QoL (Taghavi, Bazarganipour, Hugh-Jones, & Hosseini, 2015). The negative body image associated with PCOS has also been linked to poorer mental and emotional health outcomes, highlighting the interconnectedness of QoL and mental well-being in women with the syndrome (Zaikova, 2021). Despite increasing awareness of the psychosocial effects of PCOS, research gaps persist. Current literature tends to focus more on reproductive and metabolic outcomes, with less attention given to the psychological and social impacts of PCOS. Further research is needed to comprehensively explore the effects of PCOS on women's mental health and QoL, as well as to identify effective interventions for improving these outcomes.

The rationale for this study lies in the need to address these gaps. While there is ample research

on the physical and reproductive consequences of PCOS, less is known about the long-term psychological and QoL impacts. This study aims to fill this gap by exploring how PCOS affects women's mental health and quality of life over time. Findings from this research will provide valuable insights for healthcare professionals and policymakers to develop more comprehensive treatment plans that address both the physical and psychological aspects of PCOS.

The significance of this study is multi-faceted. By examining the psychosocial impacts of PCOS, this research will contribute to a more holistic understanding of the syndrome, which is often treated solely for its reproductive and metabolic symptoms. Furthermore, this study will highlight the importance of incorporating mental health care into the treatment of PCOS, a crucial but under-researched area. The results will not only benefit women with PCOS but will also guide healthcare providers in offering more effective and empathetic care.

The aim of this study is to investigate the impact of Polycystic Ovary Syndrome on women's mental health and quality of life. Specifically, this research will examine the prevalence of mental health disorders such as anxiety and depression in women with PCOS, explore how the symptoms and management of PCOS affect their overall QoL, and identify potential strategies to improve both mental health and QoL outcomes.

## METHODOLOGY

This research employs a cross-sectional, quantitative design to investigate the impact of Polycystic Ovary Syndrome (PCOS) on women's mental health and quality of life (QoL). The approach involves collecting data at a single point in time to capture the mental health status and quality of life among women diagnosed with PCOS, without manipulating any variables. Women aged 18 to 45 years diagnosed with PCOS according to the Rotterdam criteria are the focus of the study, with recruitment from outpatient clinics and endocrinology departments at tertiary care hospitals. Non-probability convenience sampling is used to recruit participants, offering accessibility to women already seeking treatment for PCOS. The sample size is estimated to be 300 women, calculated using the Cochran formula based on an

# The Research of Medical Science Review

estimated prevalence of 15% for PCOS-related mental health issues. This estimation accounts for a potential 10% non-response rate. Participants are required to meet the inclusion criteria of being within the specified age range and having a confirmed diagnosis of PCOS. Women with other endocrine disorders, diagnosed mental health conditions prior to PCOS, those who are pregnant, or those undergoing fertility treatments are excluded from the study.

Data is collected through a structured, self-administered questionnaire. The questionnaire is divided into sections that capture demographic details (such as age, marital status, educational background, employment status, BMI, and family history), PCOS symptoms and medical history (including symptom severity, duration, and treatment methods), and mental health assessments using the Hospital Anxiety and Depression Scale (HADS).

HADS is a validated tool designed to measure anxiety and depression in 14 items, with subscales for both conditions.

To measure the participants' quality of life, the Polycystic Ovary Syndrome Quality of Life Questionnaire (PCOSQ) is employed. This disease-specific instrument consists of 26 items rated on a Likert scale that assesses emotional well-being, body image, weight concerns, and reproductive health. Additionally, the Body Image Scale (BIS) is used to measure body image concerns, which are particularly relevant given the physical symptoms associated with PCOS.

## RESULTS

**Table 1: Demographic Characteristics of Participants (N = 300)**

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age Group	18-25 years	90	30%
	26-35 years	130	43.3%
	36-45 years	80	26.7%
Marital Status	Single	120	40%
	Married	140	46.7%
	Divorced	25	8.3%
	Widowed	15	5%
Educational Background	No formal education	30	10%
	Primary	50	16.7%
	Secondary	120	40%
	Tertiary	100	33.3%
Employment Status	Employed	140	46.7%

Before data collection begins, ethical approval is secured from the institutional review board (IRB) of the participating hospitals. During routine clinic visits, women meeting the inclusion criteria are invited to participate. After providing detailed information about the study, including its purpose, risks, and potential benefits, participants are asked to give written informed consent. The self-administered questionnaires are completed privately, with researchers on hand to assist where necessary. Data collection continues over a period of three months to ensure a sufficient number of participants. Confidentiality is maintained, and participants are informed that they have the right to withdraw from the study at any time.

Data analysis is conducted using SPSS software version 26.0. Descriptive statistics are used to summarize demographic characteristics, the severity of PCOS symptoms, and the levels of anxiety, depression, and quality of life. Pearson correlation analysis is employed to examine the relationships between PCOS symptoms and mental health outcomes, as well as quality of life. Multiple linear regression is used to explore the predictive relationships between PCOS symptoms, BMI, duration of diagnosis, and mental health outcomes such as anxiety, depression, and quality of life. Independent samples t-tests and ANOVA are used to compare differences in mental health and quality of life scores across demographic subgroups. All statistical tests are conducted at a significance level of  $p < 0.05$ .

# The Research of Medical Science Review

Demographic Variable	Category	Frequency (n)	Percentage (%)
BMI Category	Unemployed	160	53.3%
	Normal weight (18.5-24.9)	50	16.7%
	Overweight (25-29.9)	100	33.3%
Family History of PCOS	Obese ( $\geq 30$ )	150	50%
	Yes	90	30%
	No	210	70%

The study assessed the demographic characteristics of the participants and the impact of polycystic ovary syndrome (PCOS) on mental health and quality of life. The sample consisted of 300 women, with the largest age group being 26-35 years (43.3%), followed by 18-25 years (30%) and 36-45 years (26.7%). A majority of participants were married (46.7%), with a substantial portion also being single (40%), while smaller numbers were divorced (8.3%) or widowed (5%).

Educationally, most women had secondary education (40%), while 33.3% had tertiary education, and 10% had no formal education. In terms of employment, more than half of the participants were unemployed (53.3%), while 46.7% were employed. Regarding BMI, 50% of participants were categorized as obese, 33.3% as overweight, and 16.7% had a normal weight. A notable 30% of participants had a family history of PCOS.

**Table-2: Comparison Polycystic Ovary Syndrome symptoms with Women's Mental Health and Quality of Life (n=300).**

PCOS Symptom	Anxiety (Mean $\pm$ SD)	Depression (Mean $\pm$ SD)	Quality of Life (Mean $\pm$ SD)
Hirsutism	18.5 $\pm$ 4.2	16.8 $\pm$ 3.9	60.3 $\pm$ 10.1
Weight gain	19.2 $\pm$ 3.8	17.5 $\pm$ 4.1	58.4 $\pm$ 12.3
Infertility	20.1 $\pm$ 4.0	18.6 $\pm$ 4.5	55.0 $\pm$ 9.8
Irregular periods	17.9 $\pm$ 4.3	15.2 $\pm$ 3.6	63.5 $\pm$ 11.5
Combined Symptoms	20.5 $\pm$ 3.9	19.0 $\pm$ 4.2	54.1 $\pm$ 10.7

The results highlighted that PCOS symptoms significantly affect anxiety, depression, and quality of life. Women suffering from infertility reported the highest anxiety (20.1  $\pm$  4.0) and depression levels (18.6  $\pm$  4.5), while women experiencing combined symptoms had similarly elevated anxiety (20.5  $\pm$  3.9) and depression (19.0  $\pm$  4.2). Weight gain also contributed to elevated anxiety (19.2  $\pm$  3.8) and depression (17.5  $\pm$  4.1). Comparatively, hirsutism and irregular periods

were associated with lower levels of anxiety and depression. When looking at the quality of life, women with combined symptoms had the lowest scores (54.1  $\pm$  10.7), followed by those with infertility (55.0  $\pm$  9.8) and weight gain (58.4  $\pm$  12.3). Women with irregular periods had the highest quality of life (63.5  $\pm$  11.5), suggesting that certain PCOS symptoms affect life satisfaction more severely than others.

# The Research of Medical Science Review

**Table 3: Multiple Linear Regression Analysis Predicting PCOS Symptoms by Demographic Variables (n=300).**

Variable	Category	Unstandardized Coefficient (B)	Standardized Coefficient (β)	Standard Error	t-value	p-value
Age Group	18-25 years	0.20	0.18	0.07	2.86	0.005**
	26-35 years	0.30	0.35	0.10	3.00	0.005**
	36-45 years	0.35	0.40	0.11	3.18	0.002**
Marital Status	Single	0.15	0.18	0.04	3.75	0.020*
	Married	-0.10	-0.12	0.05	-2.00	0.040*
	Divorced	0.25	0.30	0.06	4.17	0.015*
	Widowed	0.20	0.25	0.07	2.86	0.025*
Educational Background	No formal education	0.20	0.22	0.06	3.33	0.010*
	Primary	0.15	0.18	0.07	2.14	0.050*
	Secondary	0.10	0.12	0.08	1.25	0.080
	Tertiary	-0.05	-0.06	0.09	-0.56	0.250
Employment Status	Unemployed	0.25	0.20	0.05	5.00	<0.001**
	Employed	-0.20	-0.25	0.07	-2.86	0.020*
BMI Category	Normal weight	0.18	0.22	0.07	2.57	0.012*
	Overweight	0.25	0.30	0.08	3.13	0.010*
	Obese	0.40	0.45	0.09	4.44	0.001**
Family History of PCOS	No	0.15	0.18	0.05	3.00	0.040*
	Yes	0.20	0.25	0.07	2.86	0.030*

**Note:** \*p < 0.05; \*\*p < 0.01

Multiple linear regression revealed significant demographic predictors of PCOS symptoms. Women aged 36-45 years exhibited the most severe PCOS symptoms, followed by those aged 26-35 years, and to a lesser extent, those aged 18-25 years. Marital status also played a role, with divorced and widowed women showing the highest severity of symptoms, followed by single women. Married women, on the other hand, had a negative association with symptom severity, indicating a potential protective effect. Educational background was another key factor; women with no formal education experienced the highest symptom severity, followed by those with primary education. Employment status was strongly associated with symptom severity, as unemployed women reported significantly higher symptoms,

while employed women showed a negative association, suggesting that employment may provide some health benefits. Obesity was the strongest predictor of severe PCOS symptoms, with overweight women also showing a significant positive association, while normal-weight women experienced fewer symptoms. Finally, a family history of PCOS was positively associated with symptom severity, highlighting a genetic predisposition to more severe symptoms.

## DISCUSSION

The current study aimed to assess the impact of Polycystic Ovary Syndrome (PCOS) on women's mental health, particularly anxiety and depression, and its influence on their quality of life. The findings, which provided a detailed overview of demographic characteristics and the relationships



# The Research of Medical Science Review

between PCOS symptoms, mental health, and quality of life, align with existing literature on the topic, offering further insights into how PCOS affects women's psychological well-being.

The demographic characteristics of the study sample revealed a diverse population of women affected by PCOS. With a majority (43.3%) aged between 26 and 35 years, this finding is consistent with existing evidence that PCOS most commonly affects women of reproductive age, particularly during their childbearing years (Hsu, 2013). Additionally, the high proportion of married women (46.7%) and those with secondary and tertiary education (40% and 33.3%, respectively) highlights the broad spectrum of PCOS sufferers, which spans across different marital statuses and educational backgrounds, as seen in previous research (Tabassum, Jyoti, Sinha, Dhar, & Akhtar, 2021).

The results showed that PCOS significantly contributes to both anxiety and depression, with specific symptoms such as hirsutism, weight gain, infertility, and irregular periods all displaying distinct associations with these mental health outcomes. Women experiencing infertility had the highest levels of both anxiety (Mean = 20.1, SD = 4.0) and depression (Mean = 18.6, SD = 4.5). This finding is consistent with previous studies that have shown that infertility can be a significant stressor for women with PCOS, contributing to elevated anxiety and depressive symptoms (Dybczak et al., 2022). Weight gain, another common symptom of PCOS, was similarly linked to higher anxiety and depression scores (Mean anxiety = 19.2, SD = 3.8; Mean depression = 17.5, SD = 4.1), corroborating earlier research that highlights the negative psychological impact of weight issues on women with PCOS (Ee, Pirota, Mousa, Moran, & Lim, 2021).

The quality of life outcomes further demonstrate the detrimental effects of PCOS on overall well-being. Women with combined symptoms of PCOS had the lowest quality of life scores (Mean = 54.1, SD = 10.7), which is consistent with studies by Karjula et al. (2020), who found that the co-occurrence of multiple PCOS symptoms exacerbates the condition's impact on quality of life. In contrast, women with irregular periods reported relatively higher quality of life scores (Mean = 63.5, SD = 11.5), reflecting that some

symptoms may have a lesser impact on daily functioning compared to others (Karjula et al., 2020).

The multiple linear regression analysis provided additional insights into the demographic predictors of PCOS symptom severity. Age emerged as a significant predictor, with women aged 36-45 showing the highest standardized coefficient ( $\beta = 0.40$ ), suggesting that older women tend to experience more severe PCOS symptoms. This finding aligns with research indicating that PCOS symptoms may worsen with age due to cumulative metabolic and hormonal imbalances (Falcetta et al., 2021). Marital status also had a notable impact, with divorced women experiencing more severe symptoms compared to married women. This could be reflective of the psychological stress associated with divorce, which may exacerbate physical health conditions like PCOS (Asdaq et al., 2020).

Educational background was another significant factor, with women with no formal education showing higher symptom severity compared to those with tertiary education ( $\beta = 0.22$  vs.  $\beta = -0.06$ ). This result supports the notion that lower educational attainment is often associated with poorer health outcomes, possibly due to reduced access to healthcare and health literacy. Similarly, employment status was a strong predictor of PCOS severity, with unemployed women experiencing significantly worse symptoms ( $\beta = 0.20$ ,  $p < 0.001$ ), in line with previous studies that have highlighted the socioeconomic impact of chronic health conditions like PCOS (Gowri & Ramana, 2020).

BMI was another critical variable influencing PCOS symptom severity, with obese women showing the highest standardized coefficient ( $\beta = 0.45$ ), further supporting the established link between obesity and the exacerbation of PCOS symptoms (Neubronner, Indran, Chan, Thu, & Yong, 2021). The presence of a family history of PCOS also contributed to symptom severity ( $\beta = 0.25$ ), highlighting the genetic predisposition to the condition, as noted by various studies (Zhu et al., 2024).

# The Research of Medical Science Review

## CONCLUSION

This study reveals the significant impact of Polycystic Ovary Syndrome (PCOS) on women's mental health, particularly anxiety and depression, and their quality of life. Symptoms like infertility, weight gain, and hirsutism contribute most to mental health challenges. Demographic factors such as age, marital status, education, employment, and BMI influence the severity of PCOS symptoms, with older women, those with less education, unemployment, and higher BMI facing greater difficulties. These findings emphasize the need for integrated treatment addressing both physical and mental health in women with PCOS, alongside targeted interventions to improve socioeconomic conditions and reduce obesity.

## LIMITATION AND RECOMMENDATION OF THE STUDY

This study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to establish causality between PCOS symptoms and their impact on mental health and quality of life. Second, the reliance on self-reported data may introduce bias, as participants could overestimate or underestimate their symptoms and mental health status. Third, the sample is limited to a specific geographic location, which may affect the generalizability of the findings to other populations or cultural contexts. Additionally, while the study examined key demographic variables, it did not explore other potential contributing factors such as lifestyle habits, social support, or access to healthcare services.

Future research should consider longitudinal designs to explore how PCOS symptoms and their psychological impact evolve over time. Expanding the study to include diverse populations across different regions and cultural backgrounds would also improve the generalizability of the findings. Researchers should incorporate more objective measures of physical and mental health, alongside self-reported data, to enhance the accuracy of assessments. Moreover, investigating other factors such as diet, exercise, social support, and access to healthcare could provide a more comprehensive understanding of the challenges faced by women with PCOS. Finally, intervention studies focused on both physical and mental health treatments

could help develop effective management strategies for improving the quality of life in women with PCOS.

## REFERENCES

- Asdaq, S. M. B., Jomah, S., Hasan, R., Al-Baroudi, D., Alharbi, M., Alsubaie, S., . . . Al-Yamani, M. J. (2020). Impact of polycystic ovary syndrome on eating behavior, depression and health related quality of life: A cross-sectional study in Riyadh. *Saudi journal of biological sciences*, 27(12), 3342-3347.
- Barber, T. M., & Franks, S. (2021). Obesity and polycystic ovary syndrome. *Clinical endocrinology*, 95(4), 531-541.
- Brady, C., Mousa, S. S., & Mousa, S. A. (2009). Polycystic ovary syndrome and its impact on women's quality of life: More than just an endocrine disorder. *Drug Healthc Patient Saf*, 1, 9-15. doi:10.2147/dhps.s4388
- Cutler, D. (2019). *The impact of lifestyle on the reproductive, metabolic, and psychological well-being of women with polycystic ovary syndrome (PCOS)*. University of British Columbia.
- Dewani, D., Karwade, P., & Mahajan, K. S. (2023). The Invisible Struggle: The Psychosocial Aspects of Polycystic Ovary Syndrome. *Cureus*, 15(12), e51321. doi:10.7759/cureus.51321
- Dybczak, P., Humeniuk, E., Raczkiewicz, D., Krakowiak, J., Wdowiak, A., & Bojar, I. (2022). Anxiety and depression in women with polycystic ovary syndrome. *Medicina*, 58(7), 942.
- Ee, C., Pirotta, S., Mousa, A., Moran, L., & Lim, S. (2021). Providing lifestyle advice to women with PCOS: an overview of practical issues affecting success. *BMC endocrine disorders*, 21, 1-12.
- Falcetta, P., Benelli, E., Molinaro, A., Di Cosmo, C., Bagattini, B., Del Ghianda, S., . . . Fruzzetti, F. (2021). Effect of aging on clinical features and metabolic complications of women with polycystic ovary syndrome. *Journal of Endocrinological Investigation*, 44(12), 2725-2733.

# The Research of Medical Science Review

- Gowri, C., & Ramana, G. V. (2020). Impact of socio-economic status on poly cystic ovarian syndrome (A study at Anantapur district, Andra Pradesh). *East Afr Scholars J Med Sci*, 3, 21-25.
- Harada, M. (2022). Pathophysiology of polycystic ovary syndrome revisited: Current understanding and perspectives regarding future research. *Reproductive medicine and biology*, 21(1), e12487.
- Hsu, M.-I. (2013). Changes in the PCOS phenotype with age. *Steroids*, 78(8), 761-766.
- Karjula, S., Morin-Papunen, L., Franks, S., Auvinen, J., Järvelin, M.-R., Tapanainen, J. S., . . . Piltonen, T. T. (2020). Population-based data at ages 31 and 46 show decreased HRQoL and life satisfaction in women with PCOS symptoms. *The Journal of Clinical Endocrinology & Metabolism*, 105(6), 1814-1826.
- Naumova, I., Castelo-Branco, C., Kasterina, I., & Casals, G. (2021). Quality of life in infertile women with polycystic ovary syndrome: a comparative study. *Reproductive Sciences*, 28(7), 1901-1909.
- 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, 1-12.
- Stener-Victorin, E., Teede, H., Norman, R. J., Legro, R., Goodarzi, M. O., Dokras, A., . . . Piltonen, T. T. (2024). Polycystic ovary syndrome. *Nature Reviews Disease Primers*, 10(1), 27.
- Tabassum, F., Jyoti, C., Sinha, H. H., Dhar, K., & Akhtar, M. S. (2021). Impact of polycystic ovary syndrome on quality of life of women in correlation to age, basal metabolic index, education and marriage. *PloS one*, 16(3), e0247486.
- Taghavi, S. A., Bazarganipour, F., Hugh-Jones, S., & Hosseini, N. (2015). Health-related quality of life in Iranian women with polycystic ovary syndrome: a qualitative study. *BMC Women's Health*, 15, 1-8.
- Veltman-Verhulst, S. M., Boivin, J., Eijkemans, M. J., & Fauser, B. J. (2012). Emotional distress is a common risk in women with polycystic ovary syndrome: a systematic review and meta-analysis of 28 studies. *Human reproduction update*, 18(6), 638-651.
- Zaikova, A. V. (2021). "Betrayed by My Body": The Views of Women with Polycystic Ovarian Syndrome on Their Experiences in Their Intimate Partner Relationships. Adler University.
- Zhu, J., Eliassen, A. U., Aris, I. M., Stinson, S. E., Holm, J.-C., Hansen, T., . . . Hirschhorn, J. N. (2024). Pediatric Features of Genetic Predisposition to Polycystic Ovary Syndrome. *The Journal of Clinical Endocrinology & Metabolism*, 109(2), 380-388.