

A Study to Evaluate the Influence of Dietary Patterns on Polycystic Ovary Syndrome (Pcos)

Maham Urooj

BS Zoology, Department of Zoology Government Postgraduate College for Women Mandian Abbottabad

Maimona Shahid

BS Zoology, Department of Zoology Government Postgraduate College for Women Mandian Abbottabad

Adeena Zulfiqar

BS Zoology, Department of Zoology Government Postgraduate College for Women Mandian Abbottabad

Zainab (Corresponding author)

Lecturer Government Postgraduate College for Women Mandian Abbottabad
Zainarf2@gmail.com

Author Details

Keywords: PCOS, Dietary habits, Abbottabad, Mediterranean diet, Low GI

Received on 10 May 2026

Accepted on 16 Jun 2026

Published on 22 Jun 2026

Corresponding E-mail & Author*:

Zainab

Lecturer Government Postgraduate College for Women Mandian Abbottabad
Zainarf2@gmail.com

Abstract

Polycystic Ovary Syndrome (PCOS) is a hormonal disorder influenced by dietary and lifestyle factors. This study evaluates the dietary habits, lifestyle practices and consciousness of PCOS management among women in Abbottabad. This study recognized the importance of a balanced diet and lifestyle changes, unhealthy eating patterns, including frequent consumption of fried foods and refined carbohydrates, continued common. Limited use of evidence-based dietary approaches, such as low-glycemic index and low-carbohydrate diets, along with insufficient nutrition knowledge, was observed among many respondents. Most women preferred a combined treatment approach involving diet, exercise, and medication for managing PCOS symptoms. The findings highlight the need for improved nutrition education and improved lifestyle to promote healthier behaviors and

enhance PCOS management in the region.

1. INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is one of the common disorders affecting women of reproductive age. The condition was first characterized by Irving and Michael (1935), who identified a group of women presenting with ovarian expansion, menstrual irregularities, and symptoms of hyperandrogenism. This ailment was primarily termed Stein–Leventhal syndrome. Over time, several names, including sclerocystic ovarian syndrome and polycystic ovarian disease, were used before the term *Polycystic Ovary Syndrome (PCOS)* gained official recognition in the early 1990s. According to the present grouping system, Phenotypes A and B are considered the classic forms of

PCOS, while Phenotype C is referred to as ovulatory PCOS and Phenotype D as non-hyperandrogenic PCOS (Joham *et al.*, 2022). Polycystic ovary syndrome (PCOS) is associated with numerous reproductive, dermatological, and metabolic problems, including irregular menstrual periods, hirsutism, infertility, and weight gain. Lifestyle changes, mainly dietary changes and regular physical activity, are recommended as first-line management strategies for women with Polycystic Ovary Syndrome (Teede *et al.*, 2018). Polycystic ovary syndrome is one of the common endocrine disorders affecting women with probable prevalence of about 11–13% worldwide. The condition affects women during their reproductive years, from menarche to menopause, and is associated with reproductive, metabolic (Stener-Victorin *et al.*, 2024). The specific dietary patterns, including low-glycemic index (GI), Mediterranean, ketogenic, and plant-based diets, may improve insulin sensitivity, hormonal balance, and metabolic outcomes among women with PCOS. Nutrients such as dietary fiber, omega-3 fatty acids, monounsaturated fats, and other nutrient-dense foods have been shown to reduce oxidative stress and support androgen regulation. Therefore, dietary intervention is considered one of the effective non-pharmacological strategies for managing PCOS, although further long-term studies across diverse populations are needed to strengthen existing indication (Shabbir *et al.*, 2026). A diet rich with fiber and carbohydrates can help regulate blood glucose levels, improve insulin function, and reduce the risk of developing type 2 diabetes among women with PCOS. Low-GI foods, including whole grains, fruits, and vegetables, are beneficial because they prevent rapid spikes in blood sugar levels and contribute to improved metabolic control. A balanced diet may also help reduce excess androgen production and lessen several PCOS-related symptoms (Khan & Zulfiqar, 2024). Despite the growing body of literature on dietary management of PCOS, limited research has been conducted in District Abbottabad regarding the relationship between dietary patterns and PCOS. Therefore, the present study aims to assess dietary patterns and their association with PCOS among women in District Abbottabad. Following objectives will be discussed in this study.

Objectives:

1. To study the impact of different dietary patterns on the management of Polycystic Ovary Syndrome (PCOS).
2. To relate the efficacy of the Mediterranean, low-glycemic index, and ketogenic diets in improving PCOS-related outcomes.

Research Methodology:

This study was conducted from September 2025 to May 2026 in District Abbottabad. A quantitative research design was employed to collect and analyze data on “The Influence of Dietary Patterns on PCOS among Women in District Abbottabad.” The study population included women diagnosed with PCOS and those presenting with related conditions who attended the Gynecology Department of Ayub Teaching Hospital, Abbottabad. Data were collected through interviews using a structured questionnaire. A total of 58 participants were included in the study. The questionnaire was divided into four sections covering demographic information, dietary patterns, lifestyle and perceptions, and PCOS symptoms and related health outcomes. The results have been presented in graphical representation.

Literature Review:

Polycystic Ovary Syndrome is a hormonal disorder in which many small, immature glands develop in the ovaries due to long-term problems (Su *et al.* 2025). It is linked to changes in hormone regulation in the ovaries, including irregular release of reproductive hormones. These hormonal changes prevent normal ovulation and lead to irregular ovarian function and the appearance of polycystic ovaries. Lifestyle changes, mostly diet and physical activity, are very important for managing PCOS, mainly in overweight women. Weight loss is considered the first step in treatment because it helps improve hormone balance and restore ovulation. In addition to lifestyle variations, medicines may also be used to support weight loss and improve insulin sensitivity

(Pasquale and Gambineri, 2004). A stable diet is vital for controlling insulin levels, reducing excess hormones, and improving PCOS indications (Khan & Zulfiqar, 2024). Another study found that more than half of women with PCOS (52%) were overweight and many did not involve in physical activity. Their diets were often high in fat, particularly saturated fat, and more high-glycemic foods than recommended. Obese women had a higher intake of high-GI foods compared to women with a healthy weight. Some findings also showed that poor diet quality and low physical activity are common in women with PCOS, but improving eating habits and carbohydrate feature can help manage symptoms healthier (Barr *et al.*, 2011). Research also suggests that health diets combined with regular physical activity are beneficial for women with PCOS, while unhealthy Western-style diets may increase metabolic dangers (Derda *et al.*, 2023). A balanced diet containing about 40% carbohydrates, 30% fats, and 30% protein, along with regular exercise, is recommended to reduce PCOS symptoms. Generally, improving diet and lifestyle habits plays a key role in managing PCOS efficiently (Shahid *et al.*, 2022). Objectives of the study have been analyzed below.

1: Influence of Dietary Patterns on the Prevalence of PCOS

In this study patients' perceptions were analyzed to determine the impact of a healthy diet on PCOS. This was to get a general idea as to the consensus or disconsensus of participants regarding the influence of diet on condition. It was observed that 27 females (47.3%) agreed that diet has an impact on PCOS and 15 females (26.3%) were neutral. Of the females, 11 (19.29%) agreed strongly while 4 females (7.01%) disagreed. The majority of participants feel that diet is a factor in PCOS, and very few disagree (Fig. 1).

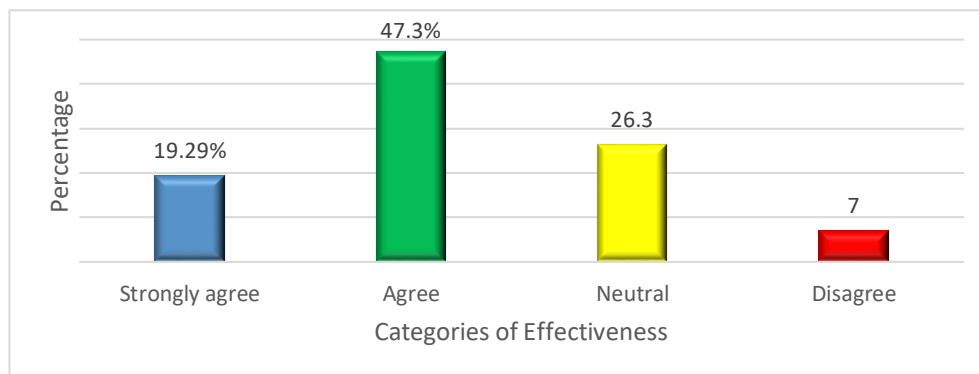


Fig. 1: Graph representing the effect of a healthy diet on PCOS

2: Awareness about the Influence of Dietary Patterns on the Prevalence of PCOS

The analysis was done in order to measure the awareness of participants on the effect of healthy diet in PCOS. This required ascertaining if patients are told about diet and its effect on the condition. Of the total sample 29 females (50.8%) stated they are not aware of the effect of diet on PCOS, 28 females (49.1%) stated they are aware (Fig. 2).

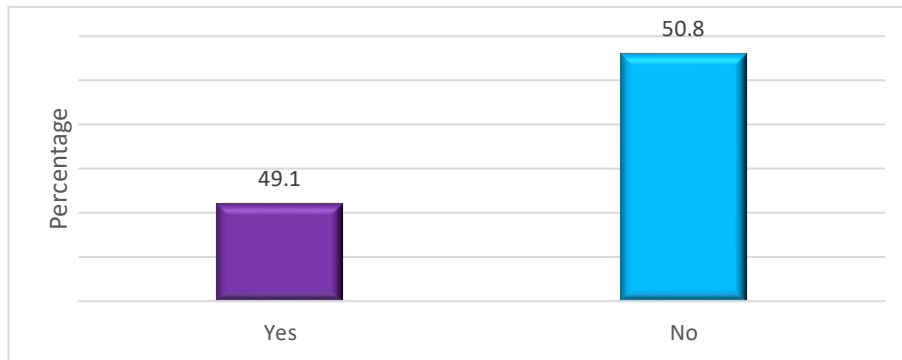


Fig. 2: Graph showing the awareness about the influence of dietary patterns on the prevalence of PCOS

3 : Prevalence of Dietary Patterns Followed by PCOS Patients

The distribution of dietary patterns among the study participants was done through descriptive analysis. The results showed that the balanced diet was the most common diet, with 27 females (47.3%) reporting that they followed it. The high protein diet (22.8%) and the Mediterranean diet (17%) were the next most commonly reported dietary patterns respectively. The pair of diets least popular were the low glycemic index (GI) (5%) females and the low carbohydrate diet with (8%) respectively (Fig. 03).

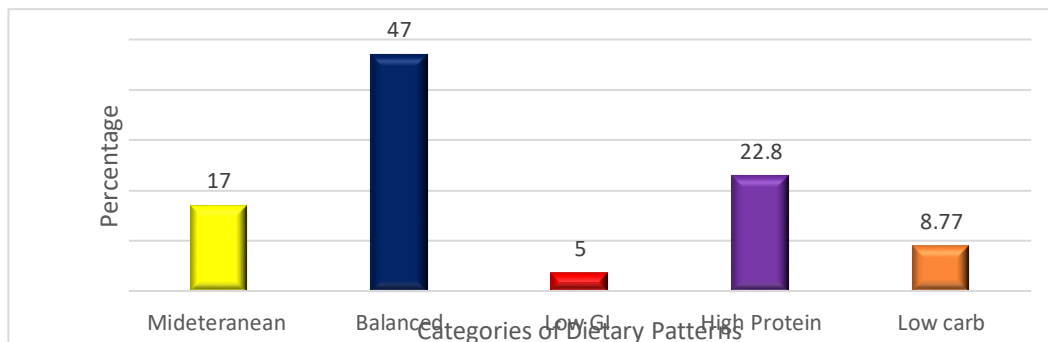


Fig 3: Graph showing dietary patterns followed by PCOS patients

4: Rate of Daily Fried Item Consumption among Patients

The data analyzed the consumption of fried foods by female participants. When asked about how often they ate fried items, the highest number of female respondents 30 (52.60%) reported eating fried items 2-3 times per week. 17 females (29.80%) reported eating every day. The smallest group 10 females (17.50%) reported that they seldom or never ate anything fried. In general, the results showed that most respondents ate fried food at least several times a week (Fig.4)

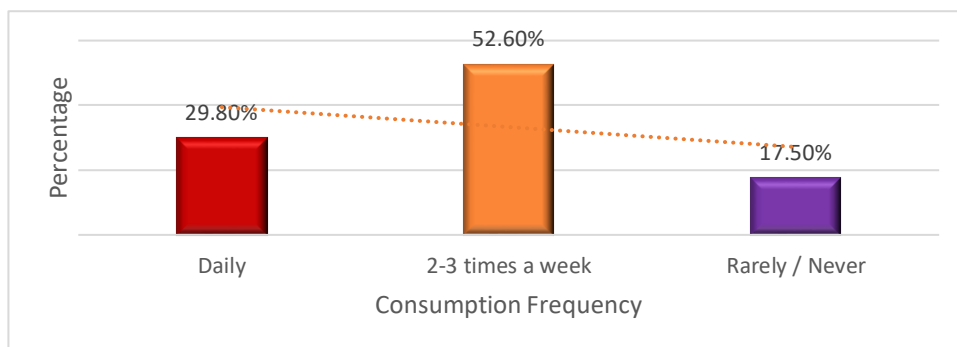


Fig. 4: Graph showing rate of fried items consumption

5 : Percentage of Protein Consumed on a Daily Basis by Patients

In this study 22 females (38.5%) reported eating protein 3-4 times a week, and 18 females (31.5%) consumed protein daily. Fewest females, 17 (29.8%) ate protein seldom or not at all. These results suggested that most subjects ate protein regularly, with frequency of protein consumption being slightly more common for weekly intakes compared to daily (Fig.5).

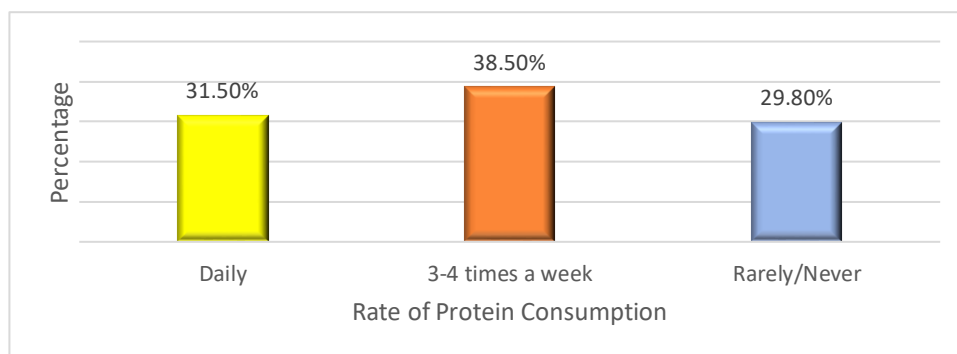


Fig. 5 Graph showing rate of protein consumption

6: Number of Women Consuming Refined Carbohydrates on a Daily Basis

The analysis was designed to explore the frequency of consumption of carbohydrates among female, specially the frequency of use by day. The greatest number of females, 27 (47.36%) said they ate refined carbohydrates sometimes, and 16 females (28.07%) ate them every day of the week. There was also a similar number of females, 14 (24.56%) who rarely consumed refined carbohydrates, representing 24.56% of the sample. Occasional consumption (1–7 days a week) was the most common frequency, followed by daily consumption (7 days a week), with both "daily" and "rare" having the same percentage (Fig.6).

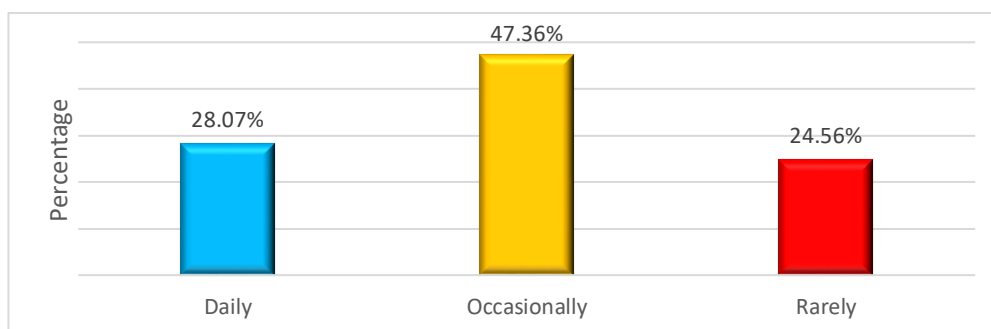


Fig 6: Graph showing percentage of refined carbs consumption

7: Perception of Dietary Changes in Reducing Medication Dependence of PCOS patients

Most respondents expressed positive attitudes about the importance of nutrition changes to reduce the need for drugs. The 31 females (54.3%) agreed and 6 females (10.5%) strongly agreed, indicating a favorable opinion. In the meantime, 21.05% of the females were neutral and 14.03% disagreed. From these results, it is found that a majority of the participants think that diet changes could play a role in reducing dependence on medications in the treatment of PCOS (Fig. 7).

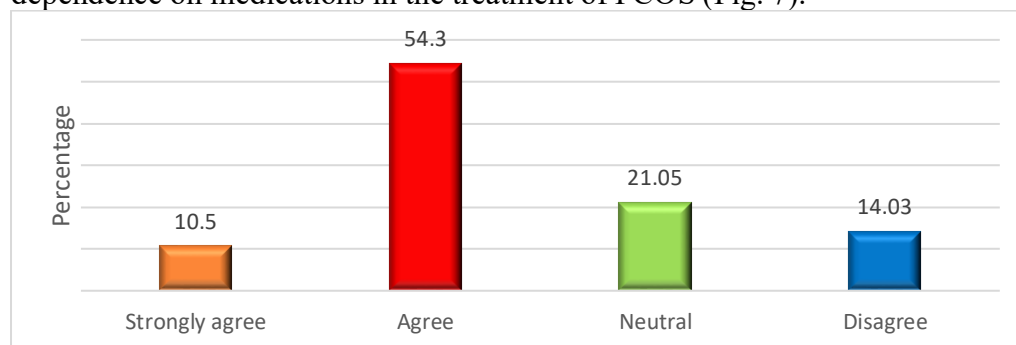


Fig. 7: Graph representing the perception of dietary changes in reducing medication

8: Patients Willingness to Recommend a Healthy Diet for Managing PCOS

This analysis investigated that participants would recommend making a healthy eating strategy part of the management of Polycystic Ovary Syndrome. Of the entire sample, the highest number of females (45.6%) answered "Yes" and (38.5%) answered "Maybe" while (15.7%) reported "No." (Fig. 8).

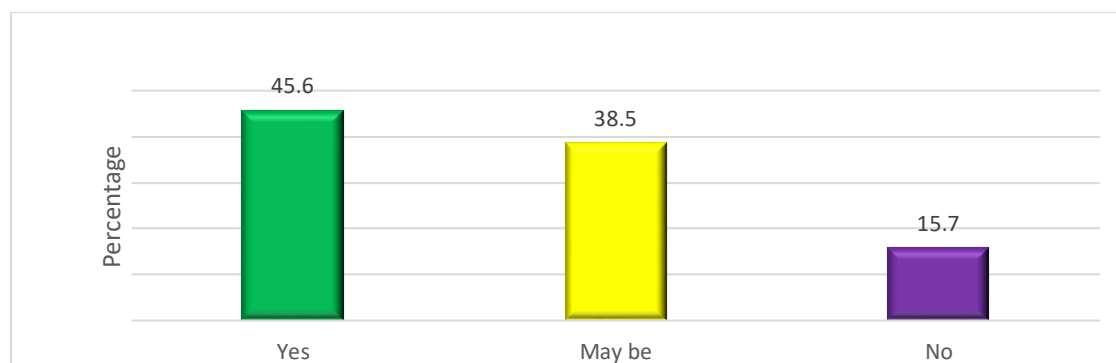


Fig. 8: Graph representing patients' willingness to recommend a healthy diet for managing PCOS.

Results and Discussion

The findings of the study indicate that women generally think that a balanced diet can help them manage their PCOS symptoms. Constant with this, Walter Futterweit *et al.* (2008) reported the same that the dietary and lifestyle changes for the improvement of clinical and metabolic parameters in women with PCOS. The present findings revealed a comparatively poor knowledge among the participants regarding the need of a balanced diet in managing PCOS with only half of females being unaware about the effect of food on PCOS. Another study also revealed that there was lack of awareness regarding nutrition and lifestyle management in women with PCOS (Deswal *et al.*, 2020). Our research has presented important insights into how a healthy diet can affect the severity of PCOS in women from Abbottabad. Other diets, such as low-GI and low-carb diets were less popular than high-protein and Mediterranean diets. The same has been observed by Barrea *et al.* (2021) and Kazemi *et al.*, (2022), which indicates that a balanced Mediterranean diet is easier for women with PCOS to follow and can help reduce metabolic issues. Results indicated that most of the females with Polycystic Ovary Syndrome consumed fried meals 2–3 times per week (52.6%) and a substantial

proportion consumed them on a daily basis. Very few people reported that they consumed fried food items very rarely or not at all, suggesting a very high intake of fried foods. Moran *et al.*, (2013) reported similar findings including high intakes of foods that are fried and high in energy. In the same vein, Hutchison *et al.* (2011) found that there were poor eating habits in PCOS and these habits can aggravate the metabolic risk. This finding is similar to the results found in the current investigation, which showed that the subjects frequently eat fried meals. Our studies found that 38.5% of female patients with Polycystic Ovary Syndrome consumed 3-4 times of protein per week and 31.5% every day. Protein consumption was a bit higher weekly than daily in general. Similar findings have been reported by Douglas *et al.*, (2006), who reported that a key feature of dietary patterns in PCOS is the abnormal consumption of macronutrients, particularly protein. This survey reveals that the highest frequency food group consumed by women was refined carbohydrates (47.36%), followed by everyday (28.07%) and seldom (24.56%) intakes of this food group. Y.-A. Cho and J.-H. Choi found that women were also likely to show high consumption of refined carbohydrates, which were associated with risks to metabolic health (Cho & Choi, 2021). The study indicates that most of the participants believed that the best approach to treating PCOS was a combination of diet, exercise and medication. Lim *et al.* (2019) also reached a similar conclusion that women suffering from PCOS experienced better metabolic and reproductive results when they were treated with a combination of pharmacological treatment.

Conclusion:

The study found that dietary patterns influence the management of Polycystic Ovary Syndrome (PCOS) among women in Abbottabad. While most participants recognized the importance of a balanced diet and lifestyle modifications, many continued to consume fried foods and refined carbohydrates frequently, and healthier dietary approaches such as low-GI diets were rarely followed. Protein consumption was also inadequate for many women. These findings suggest that although awareness of healthy eating exists, dietary practices remain suboptimal for effective PCOS management. The study highlights the need for greater nutritional education and recommends adopting balanced dietary patterns, diet, exercise, and medication as the most effective approach for improving PCOS symptoms.

Recommendations

- ✧ Seminars and workshops should be conducted to increase awareness in managing PCOS.
- ✧ Nutrition education initiatives need to be established in educational institutions and community health centers to increase awareness of the importance of a balanced diet and how it affects PCOS symptoms.
- ✧ Women who have PCOS should be encouraged to pursue a holistic approach to management including healthy nutrition, exercise and specifically medication.
- ✧ There is dire a need to encourage the professional collaboration between dietetic professionals and gynecologists and fitness professionals to provide holistic care to women with PCOS.
- ✧ Social media and digital health platforms can be employed to circulate information about the accurate management of PCOS.

REFERENCES

- Barr, S., Hart, K., Reeves, S., Sharp, K., & Jeanes, Y. M. (2011). *Habitual dietary intake, eating pattern and physical activity of women with polycystic ovary syndrome. European Journal of Clinical Nutrition, 65*(10), 1126–1132.
- Barrea, L., Arnone, A., Annunziata, G., Muscogiuri, G., Laudisio, D., Salzano, C., & Colao, A. (2021). Adherence to the Mediterranean diet, dietary patterns and body composition in women with polycystic ovary syndrome. *Nutrients, 13*(2), 429.

- Bykowska-Derda, A., Kałużna, M., Ruchała, M., Ziemnicka, K., & Człapka-Matyasik, M. (2023). *The significance of plant-based foods and intense physical activity on the metabolic health of women with PCOS: A priori dietary-lifestyle patterns approach*. *Applied Sciences*, 13(4), 2118.
- Cho, Y.-A., & Choi, J.-H. (2021). Association between carbohydrate intake and the prevalence of metabolic syndrome in Korean women. *Nutrients*, 13(9), 3098.
- Deswal, R., Narwal, V., Dang, A., & Pundir, C. S. (2020). The prevalence of polycystic ovary syndrome: A brief systematic review. *Journal of Human Reproductive Sciences*, 13(4), 261–271.
- Dokras, A., Stener-Victorin, E., Yildiz, B. O., Li, R., Ottey, S., Shah, D., Epperson, N., & Teede, H. (2017). Androgen Excess-Polycystic Ovary Syndrome Society: Position statement on depression, anxiety, quality of life, and eating disorders in polycystic ovary syndrome. *Fertility and Sterility*, 109(5), 888–899.
- Douglas, C. C., et al. (2006). Dietary intake and nutritional status in women with polycystic ovary syndrome. *Journal of the American College of Nutrition*, 25(6), 529–538.
- Futterweit, W., et al. (2008). Polycystic ovary syndrome: Clinical perspectives and management approaches. *Endocrine Practice*, 14(5), 612–622.
- Hutchison, S. K., Moran, L. J., Norman, R. J., & Teede, H. J. (2011). *Dietary intake and eating patterns in women with polycystic ovary syndrome*. *Journal of Human Nutrition and Dietetics*, 24(6), 572–579.
- Irving F. Stein Sr. & Michael L. Leventhal. (1935). *Amenorrhea associated with bilateral polycystic ovaries*. *American Journal of Obstetrics and Gynecology*, 29(2), 181–191.
- Joham, A. E., Piltonen, T., Lujan, M. E., Kiconco, S., & Tay, C. T. (2022). Challenges in diagnosis and understanding of natural history of polycystic ovary syndrome. *Clinical Endocrinology*.
- Kazemi, M., McBreaity, L. E., Chizen, D. R., Pierson, R. A., Chilibeck, P. D., & Zello, G. A. (2022). A review of dietary interventions for women with polycystic ovary syndrome. *Nutrients*, 14(9), 1774.
- Khan, A. S., & Zulfiqar, N. (2024). Role of diet therapy in the treatment of polycystic ovary syndrome (PCOS). *Biomedical Journal of Scientific & Technical Research*, 55(3), Article BJSTR.00871.
- Lim, S. S., Hutchison, S. K., Van Ryswyk, E., Norman, R. J., & Teede, H. J. (2019). Lifestyle changes in women with polycystic ovary syndrome. *Cochrane Database of Systematic Reviews*, 2019(3), CD007506.
- Moran, L. J., Hutchison, S. K., Norman, R. J., & Teede, H. J. (2011). *Lifestyle modifications in polycystic ovary syndrome*. *Human Reproduction Update*, 17(2), 171–183.
- Pasquali, R., & Gambineri, A. (2004). Role of changes in dietary habits in polycystic ovary syndrome. *Reproductive BioMedicine Online*, 8(4), 431–439.
- Shabbir, J., Aiza, F. A., Awan, F., & Imran, A. (2026). *Exploring the impact of dietary intervention on polycystic ovary syndrome management*. *Pakistan Journal of Medical & Cardiological Review*, 5(1), 432–449.
- Shahid, R., Iahtisham-Ul-Haq, Mahnoor, Awan, K. A., Iqbal, M. J., Munir, H., & Saeed, I. (2022). Diet and lifestyle modifications for effective management of polycystic ovarian syndrome (PCOS). *Journal of Food Biochemistry*, 46(e14117)
- Stener-Victorin, E., Teede, H., Norman, R. J., Legro, R., Goodarzi, M. O., Dokras, A., Laven, J., Hoeger, K., & Piltonen, T. T. (2024). Polycystic ovary syndrome. *Nature Reviews Disease Primers*, 10, Article 27.
- Stener-Victorin, E., Teede, H., Norman, R. J., Legro, R., Goodarzi, M. O., Dokras, A., Laven, J., Hoeger, K., & Piltonen, T. T. (2024). Polycystic ovary syndrome. *Nature Reviews Disease Primers*, 10(1), Article 27. <https://doi.org/10.1038/s41572-024-00511-3>

- Su, P., Chen, C., & Sun, Y. (2025). Physiopathology of polycystic ovary syndrome in endocrinology, metabolism and inflammation. *Journal of Ovarian Research*, *18*(1), Article 34.
- Teede, H. J., Misso, M. L., Costello, M. F., Dokras, A., Laven, J., Moran, L., Piltonen, T., & Norman, R. J. (2018). Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome. *Human Reproduction*, *33*(9), 1602–1618.
<https://doi.org/10.1093/humrep/dey256>