

Effect of Socio-demographic Characteristics for Infertile Overweight and Polycystic Ovary Syndrome on Lifestyle Habits

Enas Kasem Ali Kasem ¹, Fatema Hosny Abdelhakam ², Hanan Elzeblawy Hassan ^{3*}

¹Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Menoufia University, Egypt.

²Lecturer of Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt.

³Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt.

***Corresponding Author:** Hanan Elzeblawy Hassan, Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt.

Received Date: 26 March 2026 | Accepted Date: 2 April 2026 | Published Date: 8 April 2026

Citation: Ali Kasem EK, Fatema H. Abdelhakam, Hanan E. Hassan, (2026), Effect of Socio-demographic Characteristics for Infertile Overweight and Polycystic Ovary Syndrome on Lifestyle Habits, *Journal of Clinical and Laboratory Research*, 9(2); DOI:10.31579/2768-0487/203

Copyright: © 2026, Md Tashiquil Islam. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Background: Polycystic ovary syndrome (PCOS) is a significant and common obesity-related comorbidity that manifests in girls and women who are genetically prone to it

Aim: This study aims to investigate the effect of socio-demographic characteristics for infertility, overweight, and polycystic ovary syndrome on lifestyle habits.

Subjects and Methods: A purposive sample of 116 women with infertility, overweight, and obesity with polycystic ovary syndrome who attended Beni-Suef University Hospital was used. An Arabic structured interviewing questionnaire contains sociodemographic characteristics and data about nutrition habits.

Results: Figure 5 shows 77.4% & 77.8% of poor nutrition habits of the study group women are 20-25 years old & have primary education before intervention, compared to 25.8% & 84.4% of good habits & higher education after intervention.

Conclusion: Socio-demographic characteristics positively affected lifestyle habits for infertile, overweight, and polycystic ovary syndrome women.

Recommendations: Design and disseminate brochures. Work on the health effects and importance of lifestyle modification among women in health centers and hospitals.

Key words: socio-demographic; infertility; overweight; polycystic ovary syndrome; lifestyle habits

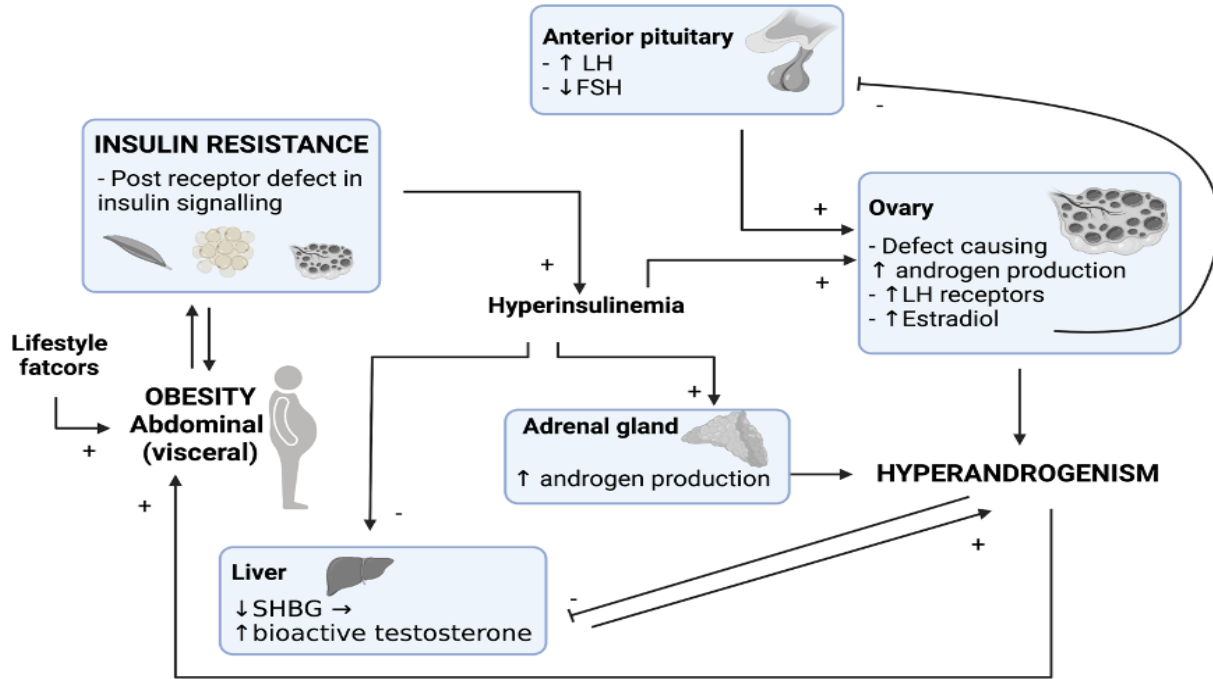
Introduction

It is common to hear estimates of PCOS prevalence ranging from 2% to 26%. Many potential reasons could have contributed to the significant geographic discrepancies in the prevalence rate, including differences in diagnostic criteria, sample heterogeneity, socioeconomic status, and access to healthcare, the prevalence of important risk factors, health, and education/awareness. Natural selection and environmental adaptations cause the physical, social, and behavioral characteristics of the world's populations to vary based on ancestral or geographic isolation; these conditions then have a significant impact on the disease's phenotype [1-4].

The etiology of PCOS is still largely unclear, and because of its intricately intertwined pathophysiology, it is challenging to pinpoint the causes of this multifactorial disorder. Environmental toxins, dietary and lifestyle choices

(diet), genetic factors, obesity, and others may have an impact on the genesis, prevalence, and regulation of the PCOS phenotype [5-8].

It is commonly known that many PCOS-affected women are obese, but not all of them. There is a growing belief that PCOS in certain women develops as a result of obesity since adipose tissue is thought to be an endocrine organ that produces androgens [9-12]. Polycystic ovary syndrome (PCOS) is a significant and common obesity-related comorbidity that manifests in girls and women who are genetically prone to it [13]. Epidemiological studies, which show that between 38% and 88% of women with PCOS are either overweight or obese, demonstrate the tight relationship between obesity and PCOS. According to a meta-analysis of relevant research mentioned in the literature, women who were obese had a 2.77 odds ratio for developing PCOS when compared to women who were not obese [14]. An Egyptian study (2019) revealed that at least 30% of women with PCOS are obese [4].



Aim of the study:

This study aims to investigate the effect of socio-demographic characteristics for infertile overweight and polycystic ovary syndrome on lifestyle habits

Subjects And Methods

A quasi-experimental design, the study was conducted at gynecological and infertility outpatient and inpatient clinics at Beni-Suef University Hospital. A purposive sample of 116 women with infertility, overweight, and obese with polycystic ovary syndrome who attended the previously mentioned sitting will be selected, and fulfilled the following criteria:

Instruments of data collection

Instrument one: Arabic Structured interviewing questionnaire contains Sociodemographic characteristics and Basic data: Telephone number, Age, Residence, marital status, employment, Length in centimeters, Weight in kilograms, Waist circumference, and Thigh circumference

Instrument two: Lifestyle and habits characteristics: Part I Data about Nutrition Habits: It includes data about food and soft drinks. The responses of the women were measured on five points, ranging from (0=daily, 1=4-5 per week, 2= 2-3 times a week, 3=once, and 4=rarely). The total score was adopted from (Shahar, et al., 2003) and assessed by summation of sub-scores as follows [15]:

- Poor habits if score < 60% of total scores that mean (0-24).
- Good habits if score ≥ 60 % of the total score, that means (25-40).

Statistical Analysis: -

Data were collected, tabulated, and statistically analyzed using an IBM personal computer with Statistical Package of Social Science (SPSS) version 25 (SPSS, Inc, Chicago, Illinois, USA)

Results

Figure 1 It revealed that 53.4% and 48.3% of the study and control groups had 25-30 years old.

Figure 2 displayed that 55.2% and 46.6% of the study and control groups had higher education, respectively.

Figure 3 presented terms of residence, 55.2% and 53.4% of the study and control groups are urban residents, respectively.

Figure 4 presented that 51.7% and 55.2% of the study and control groups are unemployed, respectively.

Figure 5 showed relationship between age and total nutrition habits levels among the study group of infertile overweight and obese women with polycystic ovary Syndrome. About 77.4%, of poor nutrition habits of the study group women are 20-25 years before intervention, compared to 25.8% after intervention.

Figure 6 showed relationship between educational level and total nutrition habits levels among the study group of infertile overweight and obese women with polycystic ovary Syndrome. About 77.8% of poor nutrition habits of the study group women are in primary education before intervention. Compared to 84.4% of good habits are higher educations.

Figure 7 showed relationship between residences and total nutrition habits levels among the study group of infertile overweight and obese women with polycystic ovary Syndrome. About 77% of poor nutrition habits of the study group women are rural residence before intervention. Compared to 84.4%, of good habits are urban residence after intervention.

Figure 5 showed relationship between Employment and total nutrition habits levels among the study group of infertile overweight and obese women with polycystic ovary Syndrome. About 78.6% of poor nutrition habits of the study group women are employed before intervention. Compared to 89.3% of good habits are employed after intervention.

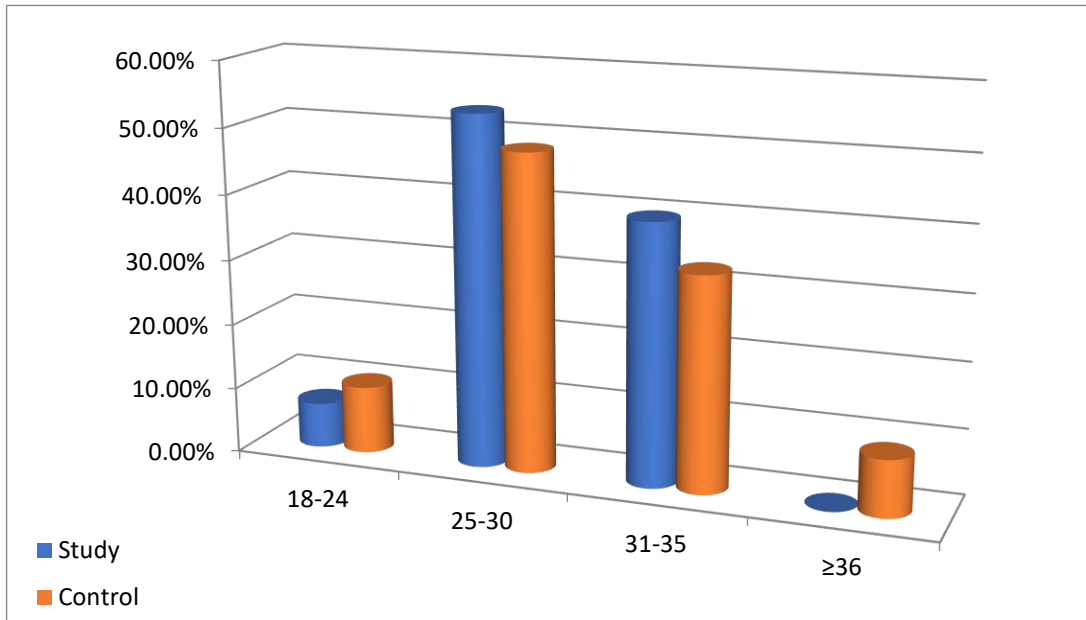


Figure 1: Ages of the Studied Infertile Overweight and Obese Women with Polycystic Ovary Syndrome

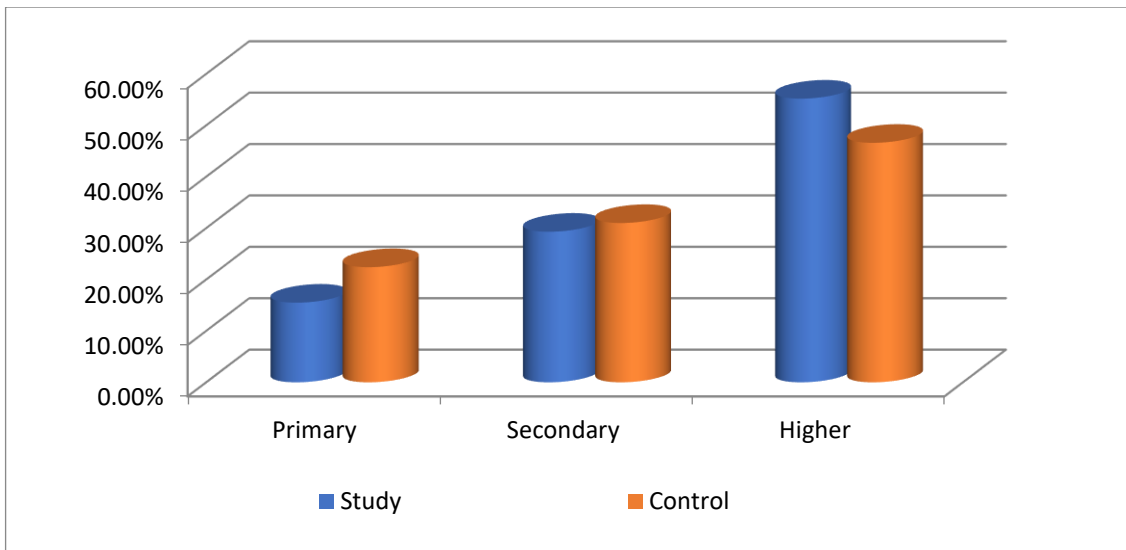


Figure 1: Educational Level of the Studied Infertile Overweight and Obese Women with Polycystic Ovary Syndrome

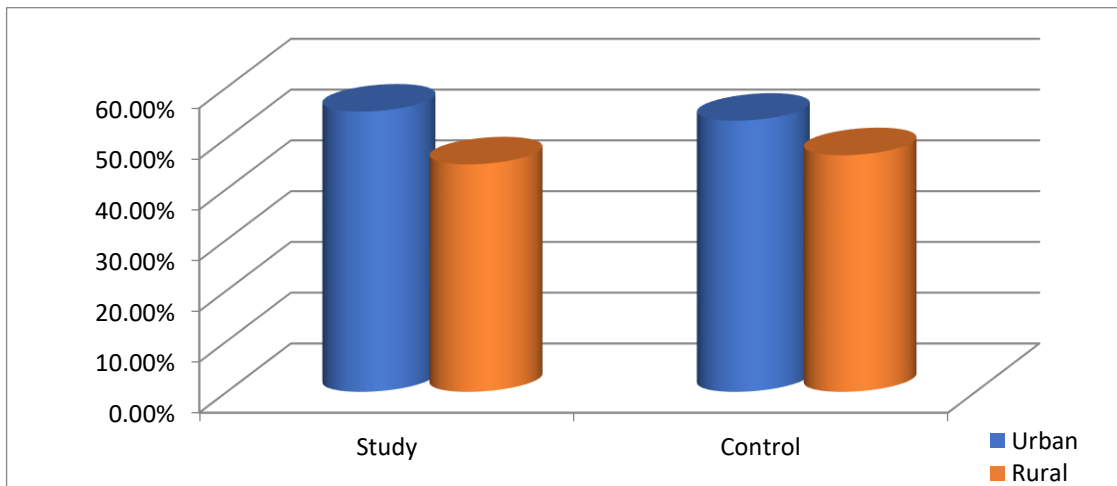


Figure 1: Residences of the Studied Infertile Overweight and Obese Women with Polycystic Ovary Syndrome

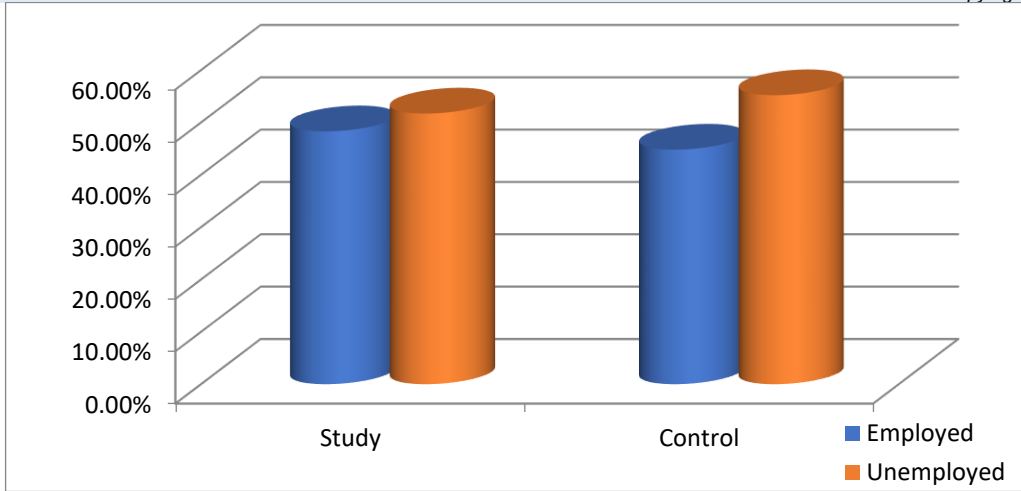


Figure 1: Employment of the Studied Infertile Overweight and Obese Women with Polycystic Ovary Syndrome

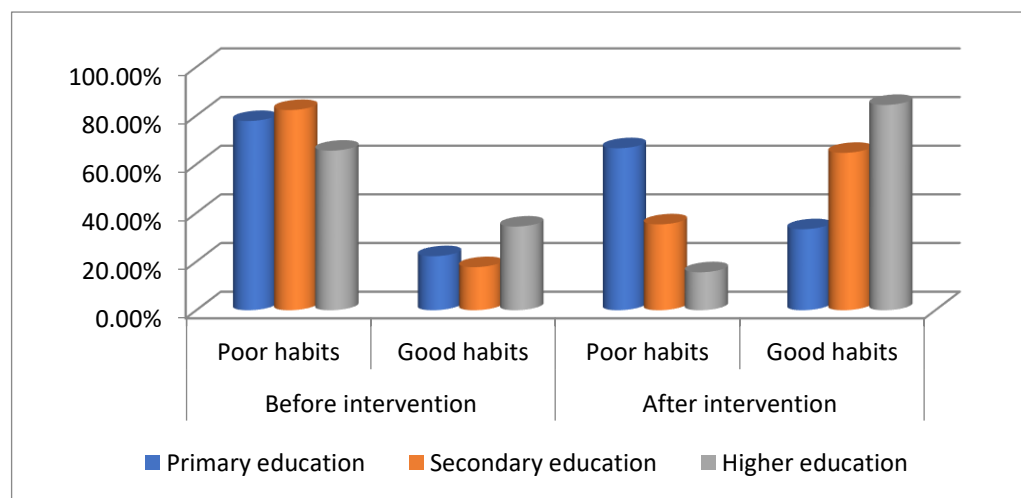
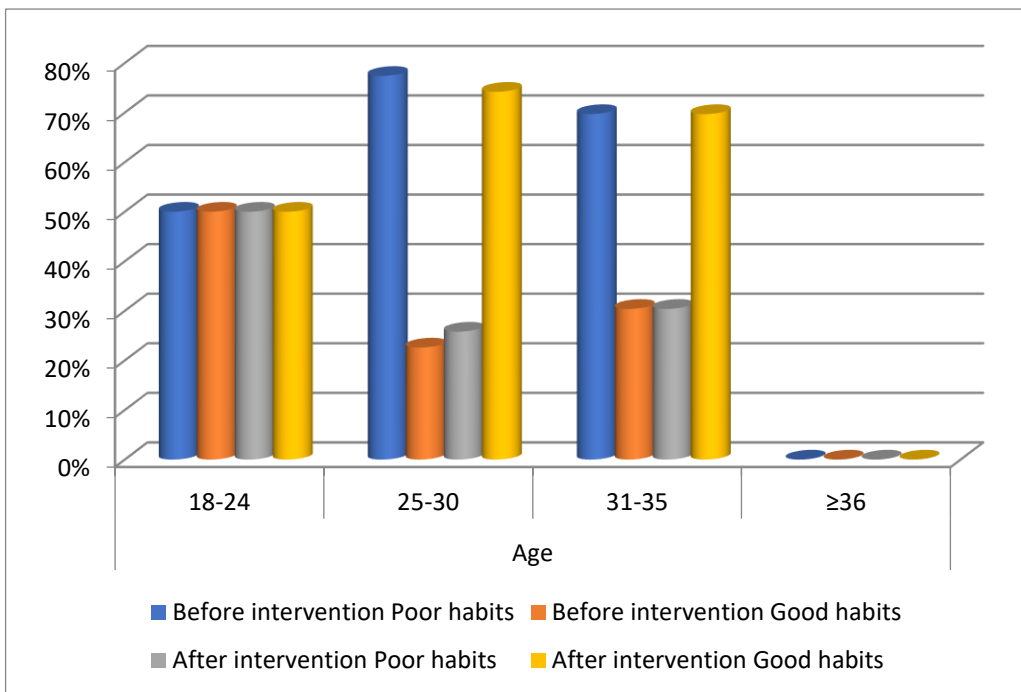


Figure 4 Relationship Between the Educational Level and Total Nutrition Habits Levels Among The Study Group Of Infertile Overweight And Obese Women with Polycystic Ovary Syndrome (N=58)

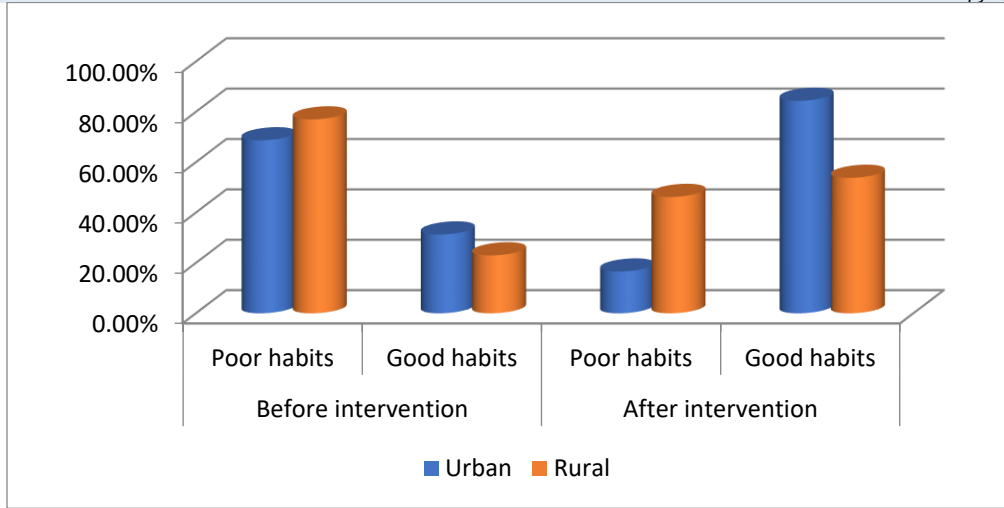


Figure 4: Relationship between the Residences and total Nutrition Habits levels among the Study group of Infertile Overweight and Obese Women with Polycystic Ovary Syndrome (n=58)

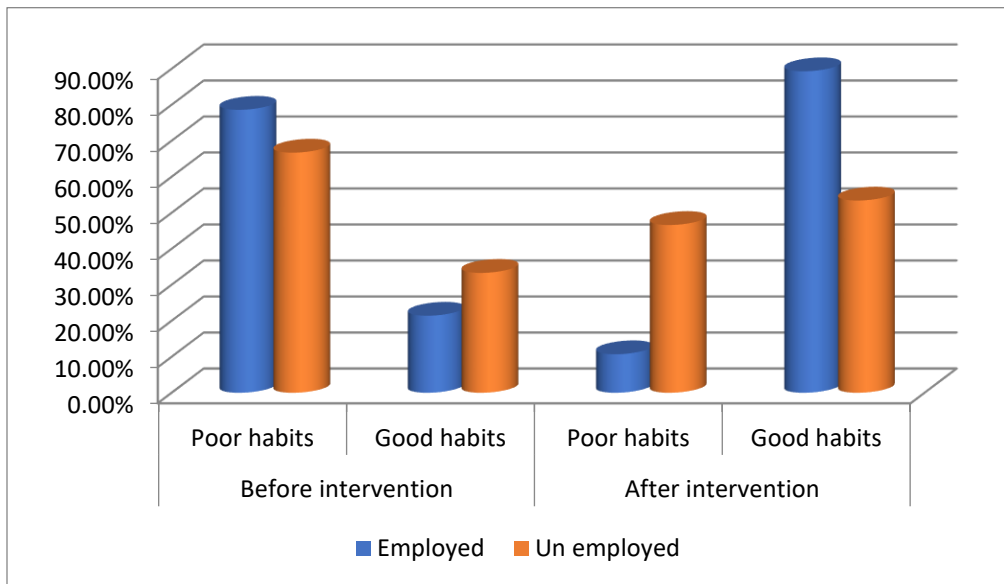


Figure 4: Relationship between Employment and Total Nutrition Habits levels among the Study group of Infertile Overweight and Obese Women with Polycystic Ovary Syndrome (n=58)

Discussion

The findings of the current study revealed that the mean age in the study and control groups was 28.7±2.87 and 28.8±3.00 before and after the intervention, respectively. This finding came in agreement with Amirjani, et al., (2019), who studied the “Dietary intake and lifestyle behavior in different phenotypes of polycystic ovarian syndrome”, which concluded that the mean age of the studied patients with infertile, overweight, and obese women with polycystic ovary syndrome is (29.03 ±3.31) (29.85 ±6.40) [16]. From the researcher’s point of view; these results may be justified that PCOS is a very common endocrine disorder among women of reproductive age.

This finding was incongruent with Liu, et al., 2021, who studied the “Lifestyle intervention for overweight/obese women with polycystic ovarian syndrome. They revealed that the mean age of the study participants was 31.79±3.38, and 32.31±3.79 [17]. According to the researcher’s point of view, this discrimination in mean age between the current study and those previous studies could be attributed to differences in settings. Previous studies were conducted in urban areas.

Likewise, the current study findings revealed that most of the studied patients had high education, lived in urban areas, and were not working; these

findings mean that both study groups were homogenous and comparable in educational level, place of residence, and employment status. These findings came in agreement with PRAMOD (2023), who studied "Dietary and physical activity pattern IN PCOS women". They revealed that most of the studied patients have high education, urban residence, and no work [18]. According to the researcher’s point of view, this agreement may be explained by the cultural background of patients living in urban areas; they usually prefer to have high education. This can be interpreted by educated women getting more information sources about their condition through the internet or media than illiterate women. Also, the educational level can highly affect patients ‘perception of their condition, thus influencing the level of early detection, diagnosis, and treatment [19-29].

Meanwhile, these findings were incongruent with those of Al Anwar, et al., (2022), who concluded that most of the studied participants were secondary and primary education and rural residents. This incongruence between the current and previous studies may be related to patients living in rural areas; they usually prefer to have secondary education and to get married at an early age [30].

Regarding lifestyle and daily dietary habits, in the present study, there was a highly statistically significant difference between data for habits and lifestyle modification of the pre and post-intervention after 6 months. The current study findings revealed that there is a significant association between the Socio-personal data and their total nutrition habits levels among the study group of infertile overweight and obese women with polycystic ovary syndrome. In which lower educated women, rural residents had poor lifestyle habits and less compliance to live lifestyle modification program.

These results came in agreement with Tay, et al., (2023), who studied “High prevalence of medical conditions and unhealthy lifestyle behaviors in women with PCOS during preconception, and found out that better-educated women may be more proactive in healthcare engagement and adopt healthier lifestyle choices [31]. According to the researcher’s point of view, this may be justified as educated women getting more information sources about their condition through the internet or media than illiterate women. Also, the educational level can highly affect patients’ perception of their condition, thus influencing the level of early detection, diagnosis, and treatment [32-42].

Conclusion:

Socio-demographic characteristics positively affected lifestyle habits for infertile overweight and polycystic ovary syndrome women.

Recommendations:

Design and disseminate brochures work on the health effect and important of lifestyle modification among women in health centers and hospitals.

Reference

- 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.
- Hassan H., Ahmed W., Ahmed Arafa A. (2019). Physical Activity and Menstrual Disorders Among School Girls in Southern Egypt. *International Journal of Studies in Nursing*, 4(3): 54-59.
- Mohamed W., Hassan H. (2020). Effect of Instructional Supportive Guideline for Improving Women's Awareness towards Endometriosis. *American Journal of Nursing Research*, 8(1): 38-47.
- Hassan H & Farag D. (2019). The impact of polycystic ovary syndrome on women's quality of life: Nursing guidelines for its management. *Clinical Nursing Studies*, 7(3):42-57.
- Street, M. E., Cirillo, F., Catellani, C., Dauriz, M., Lazzeroni, P., Sartori, C., & Moghetti, P. (2020). Current treatment for polycystic ovary syndrome: focus on adolescence. *Minerva Pediatrica*, 72(4), 288-311.
- Hassan H., Abd-ELhakam F., Ali E. (2025). Effect of Life Style Modification Implemented Program Among Infertile Women with Poly Cystic Ovary Syndrome on Obesity and Menstrual Regulation. *Journal of Clinical and Laboratory Research*, 8(2): 1-7.
- Abd-ELhakam F., Kasem E., Hassan H. (2026). Effect of Physical Activity Habit Modifications on Gynecological Features among Studied Infertile Overweight and Polycystic Ovary Syndrome. *American Journal of Nursing Research*, 14(1): 1-7.
- Hassan H., Abd-ELhakam F., Kasem E. (2025). Effect of Dietary Habit Modification on Ovulatory Features and Symptoms Experienced among Studied Infertile Overweight and Polycystic Ovary Syndrome. *Journal of New Medical Innovations and Research*, 6(7): 1-8.
- Ajmal, N., Khan, S. Z., & Shaikh, R. (2019). Polycystic ovary syndrome (PCOS) and genetic predisposition: A review article. *European journal of obstetrics & gynecology and reproductive biology*: X, 3(1), 10-60.

- Hassan H., Abd-ELhakam F., Kasem E. (2025). Androgen-related Alopecia and Infertility: Impact of Lifestyle Modifications. *International Journal of Clinical Research and Reports*, 4(2): 1-6.
- Abd-Elhakam F., Ali E., Hassan H. (2025). Life Style Modification Intervention among Infertile Obese Women with Poly Cystic Ovary Syndrome. *Menoufia Nursing Journal*, 10(2):167-186.
- Hassan H., Abd-ELhakam F., Kasem E. (2025). Hirsutism among Infertile Women: Impact of Lifestyle Modifications. *Journal of New Medical Innovations and Research*, 6(5): 1-7.
- Stener-Victorin, E. (2022). Update on animal models of polycystic ovary syndrome. *Endocrinology*, 163(12), bqac164.
- Zhang, J., Xu, J. H., Qu, Q. Q., & Zhong, G. Q. (2020). Risk of cardiovascular and cerebrovascular events in polycystic ovarian syndrome women: a meta-analysis of cohort studies. *Frontiers in cardiovascular medicine*, 7, 552421.
- Shahar, D., Shai, I., Vardi, H., Brenner-Azrad, A., & Fraser, D. (2003). Development of a semi-quantitative Food Frequency Questionnaire (FFQ) to assess dietary intake of multiethnic populations. *European journal of epidemiology*, 18, 855-861.
- Amirjani, S., Asemi, Z., Bazarganipour, F., Aramesh, S., Allan, H., Sayadi, M., & Khashavi, Z. (2019). Dietary intake and lifestyle behaviour in different phenotypes of polycystic ovarian syndrome: A case-control study. *Journal of Human Nutrition and Dietetics*, 32(4): 413-421.
- Liu, C., Zhang, L., Zheng, W., Liang, X., Zhang, L., Tian, Z., & Li, G. (2021). Lifestyle intervention for overweight/obese pregnant women with polycystic ovarian syndrome: lessons and challenges. *Obesity Facts*, 14(4): 405-414.
- PRAMOD, A. (2023). Dietary and physical activity pattern IN PCOS women (Doctoral dissertation, St Teresa's College (Autonomous), Ernakulam). 4(12):1-50
- Hassan H. (2020). Quality of Life with Gestational Diabetes. *American Research Journal of Public Health*, 3(1): 1-4.
- Mohammed F., Shahin M., Youness E., Hassan H. (2018). Survivorship in Women Undergoing Gynecological and Breast Cancer Treatment in Upper Egypt: The Impact of Quality of Life Improvement Educational Program”. *American Research Journal of Gynaecology* 2(1): 1-28.
- Hassan H. (2019). The Impact of Evidence-Based Nursing as The Foundation for Professional Maternity Nursing Practices. *Open Access Journal of Reproductive System and Sexual Disorder*, 2(2): 195-197.
- Nady F., Said M., Youness E., Hassan H. (2017). Impact of Tailored Educational Program of Quality of Life Improvement on Women Undergoing Breast Cancer Treatment at El-Minia Region, Egypt. *American Research Journal of Gynaecology*, 1(1): 1-17.
- Mostafa H., Yousef F., Hassan H. (2018). Health Related Quality of Life Educational Interventions: Effect on Chronic Hepatitis C Patients'. *Saudi Journal of Nursing and Health Care*, 1(2): 56-67.
- Hassan H., Hassan S., Baraka M. A (2015). Survey of Relationship between Duration of Infertility and Depression among Infertile Women in Beni Suef Governorate. *International Journal of Science and Research*, 4(10): 1170-1177
- Sheha E., Hassan H., Gamel W. (2018). Association between pre-pregnant overweight and obesity and periodontal disease during pregnancy: a cross sectional study. *International Journal of Studies in Nursing*, 3(1): 1-21.
- Hassan H., Abd-ELhakam F., Ali E. (2025). Poly Cystic Ovary Syndrome: Impact of lifestyle modifications among overweight and obese infertile women. *ARC Journal of Nursing and Healthcare*. 11(1):1-13
- Ramadan I., Mohamed S., Omran A., Hassan H. (2024). Relationship between body mass index and frequency of urinary

- incontinence: Implication of Kegal and Breathing Exercise. *Healthcare Issues*, 3(1): 50-63.
28. <https://jpub.org/journal-admin/uploads/articles/jahsm433.pdf>
29. Hassan H., Abd-ELhakam F., Ali E. (2025). Infertility and Obesity: Impact of Lifestyle Modification. *American Journal of Nursing Research*, 13(3): 59-67. doi: 10.12691/ajnr-13-3-1.
30. Al Anwar, A. M., El Sayed, M. L. M., Salim, A. M. A., & Abd Al Salam, H. S. (2022). Polycystic Ovary Syndrome Phenotypes among Infertile Women in Zagazig University Hospitals. *The Egyptian Journal of Hospital Medicine*, 87(1): 1436-1441.
31. Tay, C. T., Loxton, D., Bahri Khomami, M., Teede, H., Harrison, C. L., & Joham, A. E. (2023). High prevalence of medical conditions and unhealthy lifestyle behaviours in women with PCOS during preconception: findings from the Australian Longitudinal Study on Women's Health. *Human Reproduction*, 38(11): 2267-2276.
32. Hassan H., Abd-ELhakam F., Kasem E. (2025). Hyper-Androgenic Symptoms and Infertility in Northern Upper Egypt: Impact of Lifestyle Modification. *Journal of General medicine and Clinical Practice*, 8(6): 1-10.
33. Nady F., Zahran K., Youness E., Hassan H. (2014). Women's Knowledge and Perception about Benefits of Folic Acid Intake Before and During Pregnancy According to Health Belief Model in Beni-Suef City. *Assuit Scientific Nursing Journal*, 2(3): 1-13.
34. Emem E., Hassan H. (2017). Correlation between Quality Of Life and Dysmenorrhea among Nursing Schools Students. *International Journal of Nursing Science*, 7(6): 123-132.
35. Hassan H., Abd-ELhakam F., Kasem E. (2025). Relationship between Infertile Overweight and Polycystic Ovary Syndrome Women's Characteristics and Lifestyle Habits: An Interventional Study. *Journal of General medicine and Clinical Practice*, 8(8): 1-7.
36. Nady F., El-Sherbiny M., Youness E., Hassan H. (2018). Effectiveness of Quality of Life Planned Teaching Program on Women Undergoing Gynecologic Cancer Treatment. *American Research Journal of Oncology*, 1(1): 1-17.
37. Hassan H., Zahran K., Youness E., Nady F., (2015). Pregnant Women's Awareness, Intention and Compliance regarding Folic Acid Usage for Prevention of Neural Tube Defects According to Health Belief Model in Beni-Suef City. *Pyrex Journal of Nursing and Midwifery*, 1(3): 13-26.
38. Nady F., Said M., Youness E., Hassan H. (2018). Effect of Nursing Intervention Program on Quality of Life Improvement for Women Undergoing Gynecological and Breast Cancer Treatment. *Assuit Scientific Nursing Journal*, 6(15): 62-77.
39. Hassan H. (2020). Evidence-Based Practice in Midwifery and Maternity Nursing for Excellent Quality of Care Outcomes. *American Journal of Nursing Research*, 8(6): 606-607.
40. Mohamed S., Omran A., Ramadan E., Hassan H. (2024). Effect of Body Mass Index on Urinary Incontinence among Menopausal Women. *Journal of Women Health Care and Issues*, 7(3): 1-6.
41. Hassan H., Nady F., Youns E., Zahran K. (2016). Call for Change Level of Knowledge, Awareness and Attitude to Follow A High Folate Diet Among Pregnant Women. *IOSR Journal of Nursing and Health Science*, 5(1): 93-100.
42. Abd-Elhakam F., Ali E., Hassan H. (2025). Effect of Lifestyle Modifications on Fertility and Menstrual Regularity among Infertile Obese Women with Polycystic Ovarian Syndrome. *Menoufia Nursing Journal*, 10(2):187-205.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here:

[Submit Manuscript](#)

DOI:10.31579/2768-0487/203

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://auctoresonline.org/journals/journal-of-clinical-and-laboratory-research>