



To assess the impact of imparting nutrition education on knowledge gain of young women with PCOS

Raveena Rani¹, Dr. Veenu Sangwan², Shikha³, Priyanka⁴, Meenu⁵ and Dr. Varsha Rani⁶

¹PhD scholar, Department of Foods and Nutrition, Chaudhary Charan Singh Haryana Agricultural University Hisar, Haryana, 125 004.

²Assistant Professor, Department of Foods and Nutrition, Chaudhary Charan Singh Haryana Agricultural University Hisar, Haryana, 125 004.

³MSc scholar, Department of Foods and Nutrition, Chaudhary Charan Singh Haryana Agricultural University Hisar, Haryana, 125 004.

⁴PhD scholar, Department of Foods and Nutrition, Chaudhary Charan Singh Haryana Agricultural University Hisar, Haryana, 125 004.

⁵PhD scholar, Department of Extension Education and Communication Management, Chaudhary Charan Singh Haryana Agricultural University Hisar, Haryana, 125 004.

⁶DES, Home Science, Dept. of Foods and Nutrition, CCS HAU, Hisar, Haryana, 125 004.

¹Corresponding author: raveenajyani123@gmail.com

Received: 05 Jun 2024; Received in revised form: 07 Jul 2024; Accepted: 15 Jul 2024; Available online: 21 Jul 2024

©2024 The Author(s). Published by Infogain Publication. This is an open access article under the CC BY license

(<https://creativecommons.org/licenses/by/4.0/>).

Abstract— The present study was conducted in Fatehabad district, Haryana to determine the impact of nutrition education on knowledge gain of young women with PCOS. Among PCOS respondents 52.0, 44.0 and 4.0 percent were in the age group of 19 to 25, 26 to 32 and 33 to 40 years, respectively. It was observed that 52.0 percent of the PCOS respondents were students, whereas 46.0 and 2.0 percent were housewife and in service, respectively. After imparting nutrition education to them there was increase in their knowledge scores. From the present study it is concluded that early diagnosis and treatment of PCOS is pivotal for normal health, well-being and improved nutritional status of young women suffering from PCOS.



Keywords— Polycystic ovary syndrome (PCOS), young women, nutrition education, knowledge, diagnose.

I. INTRODUCTION

Polycystic ovary syndrome (PCOS) is a widespread disorder with negative effects on both physical and mental health. It affects women throughout their reproductive lives and is linked to pregnancy issues such gestational diabetes, preeclampsia and large-for-gestational-age newborns. The health burden of PCOS is made worse by its association with excessive weight gain (Brennan *et al.* 2017). Menstrual cycle anomalies affect biochemical and anthropometric features in patients with PCOS (Christodouloupoulou *et al.* 2016). PCOS status continued to be independently correlated with an elevated body mass index (BMI). A 1000 kJ increase in energy intake was linked to a 0.44 kg/m² increase in BMI, while a 1000 MET/min increase in physical activity was linked to a 0.42 kg/m² drop in BMI. Age, glycaemic index, alcohol intake, smoking status and reduced BMI all remained

independently related with each other (Moran *et al.* 2013). Comprehensive yoga programme is preferable in adolescent girls with PCOS for 12 weeks because it dramatically decreased AMH, LH, testosterone, the m F-G hirsutism score and monthly irregularity (Nidhi *et al.* 2011). Participants' knowledge of disease-related nutritional behaviors grew more in the intervention group has beneficial effect of educational intervention on increasing students' nutritional knowledge and positive behavioral changes (Amirjani *et al.* 2019). Consumption of low-glycemic load versus low-fat diets on biochemical hyperandrogenism and cardiovascular risk factors has a beneficial effect on BMI of overweight and obese PCOS women (Wong *et al.* 2016). There is increase in knowledge, attitude and practice score of respondents who participated in nutrition education and behavior

modification programs and better manage and worked for mitigation of PCOS related symptoms (Katte *et al.* 2021).

II. MATERIALS AND METHODS

The study was carried out in city and villages of Fatehabad district, Haryana. The rural and urban areas of Fatehabad district were selected purposively depending on the availability of respondents and convenience of the researcher. For this study 50 young women with polycystic ovary syndrome (PCOS) above 18 years of age were selected purposively.

Imparting and assessing the impact of nutrition education on gain in knowledge of young women with PCOS

Knowledge is a collection of comprehended information that a person possesses. A questionnaire was developed and pre-tested on subjects before being modified and used for impact assessment. Nutritional education module was prepared for prevention of PCOS and imparting nutrition education to young women with PCOS and included 7 components and total 50 statements on nature of disorder, symptoms of disorder, diagnostic test of PCOS, complications of PCOS, recognize glycemic index of food and management of PCOS. The nutritional education was imparted to young women with PCOS on an interval of 15 days for 3 months. Pre and post knowledge scores were noted for assessing the impact of nutrition education on knowledge gain. The nutrition education was improved through lectures and distribution of leaflets, pamphlets and booklet on prevention and management of PCOS.

Statistical analysis

The qualitative and quantitative data were tabulated to draw meaningful inferences. The data was analyzed with the help of frequency, percentage and paired t-test using SPSS software.

Table 1 Assessment of nutritional knowledge of the young women with PCOS before and after imparting nutrition education (n=50)

Characteristics	Pre knowledge scores			Post knowledge scores		
	Adequate (76% and above)	Marginally adequate (50-75%)	Inadequate (Below 50%)	Adequate (76% and above)	Marginally adequate (50-75%)	Inadequate (Below 50%)
Nature of disorder	25(50)	20(40)	5(10)	50(100)	-	-
Symptoms of disorder	36(72)	14(28)	-	46(92)	4(8)	-
Diagnostic test of PCOS	10(20)	36(72)	4(8)	50(100)	-	-
Complications of PCOS	44(88)	6(12)	-	45(90)	5(10)	-
Recognize glycemic index (GI) of foods	15(30)	14(28)	21(42)	47(94)	3(6)	-

III. RESULT

Personal and socio-economic profile of young women with and without PCOS

Personal and socio-economic profiles of young women with PCOS (50.0) were selected purposively. PCOS respondents 52.0, 44.0 and 4.0 percent were in the age group of 19 to 25, 26 to 32 and 33 to 40 years, respectively. Results highlighted that 46.0 percent of PCOS respondents were 10+2 followed by graduate (36.0%), PG (10.0%) and diploma holder (8.0%). It was observed that as many as 52.0 percent of the PCOS respondents were students, whereas 46.0 and 2.0 percent were housewife and in service, respectively. Maximum percentage (76.0%) of PCOS respondents belonged to nuclear families, whereas 22.0 and 2.0 percent were from joint and extended families, respectively. As far as family income was concerned, it was found that 68.0 per cent of PCOS respondents had family monthly income between Rs. 15,000 to 30,000 and 12.0, 12.0, 6.0 and 2.0 percent respondents had family monthly income between Rs. 31,000 to 45,000, 46,000 to 60,000, 61,000 to 75,000 and 76,000 to 90,000, respectively.

The impact of imparting nutrition education on knowledge gain of young women with PCOS

Information related to nutrition knowledge of women with PCOS has been presented in Table 1. Before imparting nutrition education, the 50.0, 72.0, 20.0, 88.0, 30.0, 60.0 and 88.0 percent respondents had adequate nutritional knowledge about the nature of disorder, symptoms of disorder, diagnostic test of PCOS, complications of PCOS, recognize glycemic index (GI) of foods, dietary guidelines for PCOS and management of PCOS, respectively.

Dietary guidelines for PCOS	30(60)	20(40)	-	45(90)	5(10)	-
Management of PCOS	44(88)	6(12)	-	46(92)	4(8)	-

Values in parentheses indicate percentage

It was found that 40.0, 28.0, 72.0, 12.0, 28.0, 40.0 and 12.0 per cent respondents had marginally adequate nutrition knowledge about the nature of disorder, symptoms of disorder, diagnostic test of PCOS, complications of PCOS, recognize glycemic index (GI) of foods, dietary guidelines for PCOS and management of PCOS, respectively. As many as 10.0, 8.0 and 42.0 per cent of the respondents had inadequate knowledge about the nature of disorder, diagnostic test of PCOS and recognize glycemic index (GI) of foods, respectively. After imparting nutrition education to them with the help of media package, there

was increase in their knowledge scores. It was noted that 100.0, 92.0, 100.0, 90.0, 94.0, 90.0 and 92.0 per cent of the respondents had adequate knowledge about the nature of disorder, symptoms of disorder, diagnostic test of PCOS, complication of PCOS, recognize glycemic index (GI) of foods, dietary guidelines for PCOS and management of PCOS, respectively. It was observed that there was an increase in the number of PCOS women who had adequate and marginally adequate nutrition knowledge after imparting nutrition education.

Table 2 Gain in knowledge scores obtained by selected young women with PCOS (n=50)

Sr. No.	Component	No. of statements	Pre scores	Post scores	Gain in knowledge scores	t-value
1.	Nature of disorder	7	5.18±1.35	6.74±0.44	1.5	7.86*
2.	Symptoms of disorder	9	7.22±1.35	8.58±0.75	1.36	7.45*
3.	Diagnostic test of PCOS	2	1.12±0.52	2.00±0.00	0.88	11.95*
4.	Complications of PCOS	6	5.18±0.59	5.86±0.45	0.68	8.19*
5.	Recognize glycemicindex (GI) of foods	5	2.84±1.09	4.66±0.62	1.82	12.56*
6.	Dietary guidelines for PCOS	13	10.80±1.34	12.32±1.01	1.52	8.60*
7.	Management of PCOS	8	7.48±0.70	7.96±0.19	0.48	5.01*

Values are Mean ± SD *Significant at 5% level

The pre and post knowledge scores of with PCOS women before and after imparting nutrition education to them were calculated. Post-scores indicated a highly significant gain in the knowledge scores of respondents (Table 2). It was found that there was a significant gain in the knowledge of the respondents regarding the nature of disorder (1.5), symptoms of disorder (1.36), diagnostic test of PCOS (0.88), complications of PCOS (0.68), recognize glycemic index (GI) of foods (1.82), dietary guidelines for PCOS (1.52) and management of PCOS (0.48).

IV. DISCUSSION

Information related to nutrition knowledge of women with PCOS has been presented in Table 1. Before imparting nutrition education, the 50, 72, 20, 88, 30, 60 and 88 percent respondents had adequate nutritional knowledge about the nature of disorder, symptoms of disorder,

diagnostic test of PCOS, complications of PCOS, recognize glycemic index (GI) of foods, dietary guidelines for PCOS and management of PCOS, respectively. After imparting nutrition education to them with the help of media package, there was increase in their knowledge scores. It was noted that 100, 92, 100, 90, 94, 90 and 92 per cent of the respondents had adequate knowledge about, the nature of disorder, symptoms of disorder, diagnostic test of PCOS, complication of PCOS, recognize glycemic index (GI) of foods, dietary guidelines for PCOS and management of PCOS, respectively. It was observed that there was an increase in the number of PCOS women who had adequate and marginally adequate nutrition knowledge after imparting nutrition education.

Garag and Malagi (2019) reported a similar study to evaluate the effects of education intervention on the knowledge and practices of PCOS-affected women. Prior to the intervention, the majority of the subjects fell into the

category of knowledge and practice scores with less than 30 percent, but following the intervention, none of them achieved scores below 50 percent. The classification of the intervention group revealed that knowledge and practices significantly increased after the session. Therefore, nutrition education interventions are particularly efficient at enhancing PCOS women's awareness, habits, and management of the disease.

The pre and post knowledge scores of with PCOS women before and after imparting nutrition education to them were calculated. Post-scores indicated a highly significant ($p \leq 0.01$) gain in the knowledge scores of respondents (Table 2). It was found that there was a significant gain in knowledge of the respondents regarding the nature of disorder (1.5), symptoms of disorder (1.36), diagnostic test of PCOS (0.88), complication of PCOS (0.68), recognize glycemic index (GI) of foods (1.82), dietary guidelines for PCOS (1.52) and management of PCOS (0.48). Ding *et al.* (2016) also advocated that to overcome the prevalence of PCOS, there is need to create awareness among young women and strengthen the primary health care centers, diagnosis and treatment facilities. Kim *et al.* (2018) also reported that the education and treatment of PCOS improved the quality of life of young women. There was improvement in stress, infertility and menstrual problems associated with PCOS.

V. CONCLUSION

It was observed that there was an increase in the number of PCOS women who had adequate and marginally adequate nutrition knowledge after imparting nutrition education. It was found that there was a significant gain in the knowledge of the respondents regarding the nature of disorder, symptoms of disorder, diagnostic test of PCOS, complications of PCOS, recognize glycemic index (GI) of foods, dietary guidelines for PCOS and management of PCOS.

REFERENCES

- [1] Amirjani, S., Asemi, Z., Bazarganipour, F., Aramesh, S., Allan, H., Sayadi, M and 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.
- [2] Brennan, L., Teede, H., Skouteris, H., Linardon, J., Hill, B. and Moran, L. (2017). Lifestyle and behavioral management of polycystic ovary syndrome. *Journal of Women's Health*, 26(8), 836-848.
- [3] Christodouloupoulou, V., Trakakis, E., Pergialiotis, V., Peppas, M., Chrelias, C., Kassanos, D. and Papantoniou, N. (2016). Clinical and biochemical characteristics in PCOS women with menstrual abnormalities. *Journal of Family & Reproductive Health*, 10(4), 184.
- [4] Ding, T., Baio, G., Hardiman, P. J., Petersen, I. and Sammon, C. (2016). Diagnosis and management of polycystic ovary syndrome in the UK (2004–2014): a retrospective cohort study. *BMJ open*, 6(7), e012461.
- [5] Garag, V. and Malagi, U. (2019). Nutritional status and complications of women with polycystic ovarian syndrome. *Education*, 30(12), 11-76.
- [6] Katte, M. M., Vijayalakshmi, D. and Jyothi, G. (2021). Food habits and dietary intake of women with polycystic ovarian syndrome.
- [7] Kim, E. J., Jang, M., Choi, J. H., Park, K. S. and Cho, I. H. (2018). An improved dehydroepiandrosterone-induced rat model of polycystic ovary syndrome (PCOS): Post-pubertal improve PCOS's features. *Frontiers in endocrinology*, 9, 735.
- [8] Moran, L. J., Ranasinha, S., Zoungas, S., McNaughton, S. A., Brown, W. J. and Teede, H. J. (2013). The contribution of diet, physical activity and sedentary behaviour to body mass index in women with and without polycystic ovary syndrome. *Human reproduction*, 28(8), 2276-2283.
- [9] Vidhaliya, Y., Singh, B., & Kumar, A. (2024). Enhancement of Nutritional Value of Fermented Buttermilk using Vitamin A and D. In *International Journal of Horticulture, Agriculture and Food science* (Vol. 8, Issue 2, pp. 26–31). AI Publications. <https://doi.org/10.22161/ijhaf.8.2.4>
- [10] Nidhi, R., Padmalatha, V., Nagarathna, R. and Amritanshu, R. (2011). Prevalence of polycystic ovarian syndrome in Indian adolescents. *Journal of pediatric and adolescent gynecology*, 24(4), 223- 227.
- [11] Yousif, Dr. T., Dizay, Dr. S. K., & Anwer, Dr. R. N. A. (2021). Chronic Rhinosinusitis and Its Impact on Pregnancy. In *International Journal of Chemistry, Mathematics and Physics* (Vol. 5, Issue 4, pp. 1–6). AI Publications. <https://doi.org/10.22161/ijcmp.5.4.1>
- [12] Wong, J. M., Gallagher, M., Gooding, H., Feldman, H. A., Gordon, C. M., Ludwig, D. S. and Ebbeling, C. B. (2016). A randomized pilot study of dietary treatments for polycystic ovary syndrome in adolescents. *Pediatric obesity*, 11(3), 210-220.