ABSTRACT

Polycystic ovarian syndrome is a gynecological endocrine disorder affecting women of reproductive age and is most commonly seen in young adult women. Women with PCOS might have problems like irregular menstruation, obesity, acne, hirsutism, hyperinsulinemia, etc. due to hyperandrogenemia which results in oligoovulation/anovulation. It is also considered as a lifestyle disorder which can be preventable using appropriate health and nutrition strategies. Though the incidence of PCOS is rapidly increasing, adolescent girls and young adult women are unaware and have inadequate knowledge about PCOS and its complications. Hence, the present research has focused on searching for new alternative medical nutrition therapy options for the management of symptoms of polycystic ovarian syndrome with the prime objective of assessing the efficiency of dietary intervention strategies on signs and symptoms of PCOS among the selected group of Reproductive age women. The secondary objectives were to find out the prevalence of PCOS among women in the Reproductive age (20-45 years),identification of women having PCOS for collection of Socioeconomic profile, dietary and lifestyle pattern, Nutritional status and Reproductive health status, formulation and evaluation of micronutrient-dense health mix supplement powder , development of Nutrition and health education modules for nutrition interventions and finally to find out the Impact of Nutrition interventions on Nutritional status and Nutritional knowledge among the selected Women of Reproductive age (20-45 years).

In the first phase of the present study, a quick screening of symptoms of PCOS carried out among the 810 women who came for consulting the Gynecologist. Among the 810 subjects, 284 subjects were identified with PCOS using the Rotterdam criteria(2003) .The survey was carried out among the selected 284 subjects to collect the data related to demographic profile, age, educational, marital status, income levels, family history, medical and reproductive profile including disease history such as diabetes mellitus, hypertension, menstrual irregularities, hirsutism and alopecia, dietary pattern , food frequency pattern ,24 hour recall and food consumption details. The next phase, for Nutrition Intervention, 93 subjects were identified from 284 subjects on the basis of their willingness, cooperation and nutritional and health status. They were systematically grouped into three, named Experimental Group I (Nutrition Supplementation and Nutrition Education), Experimental Group II (Nutrition Education), and Control Group (Medication) respectively .Simultaneously formulation and nutritional evaluation of micronutrient-dense Health mix powder was carried out. The acceptability trials were executed and the highest-scored variation in terms of sensory evaluation score, nutrient content and cost-effectiveness was selected for the Nutrition Intervention. The present study was also focused on the development

and validation of health and nutrition education modules which were tailor-made to fulfill the nutritional care and support of the selected PCOS participants. All the selected participants in Experimental Group I (N=32) were properly instructed to consume the Nutrient-dense Health mix powder 30g daily without any wastage for three months. Selected 32 women in Experimental Group I and 31 women in Experimental Group II were also provided Nutrition education using the developed booklet, leaflets and PowerPoint presentation and nutrition education sessions provided as one-to-one counseling initially. Before and after the nutrition interventions, anthropometric measurements, biochemical estimation, clinical examination and individual dietary intake were assessed to find out the effect of Interventions on the nutritional status and Nutritional knowledge of the selected participants.

ANOVA was performed to analyze the effectiveness of nutrition intervention strategies. Post hoc comparison confirmed as significantly higher mean difference between Experimental group I and control group with weight difference (MD= 4.9), waist circumference (MD=1.41), Hip Difference(M=1.26),body fat (MD=1.27)and BMI difference (MD=1.98)respectively. There was a significant mean difference in the values of cholesterol (p=0.004) ,Triglycerides(p=0.05) ,Cholesterol to HDL ratio (p=0.017) and testosterone levels (p=0.000). Between the group comparison using post hoc analysis showed significant mean difference of cholesterol (MD=20.58), Triglycerides(MD=24.78) between Experimental group I and Control group. There was also significant mean difference of cholesterol to HDL ratio (p=0.012) and VLDL (P=0.004) between Experimental group I and Control group. The difference in rate of change was compared between the interventions also confirmed the same results. The regularization of menstrual cycle showed that participants in the Experimental group I had 4.3 times higher chance of experiencing regular periods compared to the control group (OR=4.33 Cl1.385-13.552). Participants in the Experimental group I had 9.1 times higher chance of experiencing regular periods compared to those who only received nutrition education alone in Experimental group II (OR=9.1,Cl2.84-29.146)

From the research study, it is evident that the nutrition intervention strategies including nutrition education, supplementation, adoption of physical activities and stress management were proven to be effective in the Experimental group I and II during the study period of 90 days.The highest significant changes in nutritional status and nutritional knowledge was among the participants in the Experimental group I . Screening provides an opportunity for the target group of the population to promote healthy lifestyles and early nutrient intervention for the prevention of future co-morbidities.