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A cross sectional study of polycystic ovarian syndrome among pharmacy students

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ABSTRACT



Polycystic ovarian syndrome [PCOS] is a common disorder, often complicated by chronic an ovulatory infertility and hyperandrogenism with the clinical manifestation of oligomenorrhoea, hirsutism and acne. The aim of this research is to evaluate polycystic ovarian syndrome which includes sign and symptoms, lifestyle and diet conditions along with their common treatment and self-medication practice for dysmenorrhoea among pharmacy students, which are more prone to PCOS. A cross-sectional Questionnaire survey was conducted by online survey forms among pharmacy students in Ezhuthachan College of Pharmaceutical Sciences, Trivandrum. This study investigates the pattern of physical activity, daily dietary intake, the frequency of PCOS symptoms and other previously diagnosed diseases in normal women with and those having PCOS. In this study, most of the students were in the age of 22 [n=17]. About 23.5% of students had acne and it can be worsen during menstrual period. And also about 19.6% of students had hair loss, which are the main symptoms of PCOS. About 15.2% of students were engaged in regular exercise. The benefits of weight reduction in PCOS are well documented, and the use of meal replacements and structured dietary patterns with higher protein content and/or lower glycemic carbohydrates shows promise. Alternative dietary compositions increase the range of dietary options, and could also potentially lead to greater weight loss, maintenance of weight loss or greater improvements in reproductive and metabolic features of PCOS. However continued follow-up is required to sustain weight loss, and probably outweighs the effects of dietary composition.

Keywords: Patient; PCOS; Disease; Oligomenorrhoea; Menstruation.

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INTRODUCTION

Polycystic ovarian syndrome [PCOS] is a common disorder, often complicated by chronic an ovulatory infertility and hyperandrogenism with the clinical manifestation of oligomenorrhoea, hirsutism and acne. It is recognized as the most common endocrinopathy in reproductive women, frequently becomes manifest during adolescence^[1]. Most women with PCOS are also overweight or obese, further enhancing androgen secretion while impairing metabolism and reproductive functions and possibly favoring the development of the PCOS phenotype^[2]. Many women with this condition are obese and have a higher prevalence of impaired glucose tolerance, type 2 diabetes and sleep apnea that is observed in the general population. They exhibit an adverse cardiovascular risk profile, characteristic of the cardio metabolic syndrome as suggested by a higher reported incidence of hypertension, dyslipidaemia, visceral obesity, insulin resistance and hyperinsulinaemia^[3]. Family history of PCOS is the main risk factor. The chance of getting

PCOS is higher if other women in the family have the disease, irregular menstrual cycle or diabetes mellitus. PCOS can be inherited from either the mother's or father's side. Ultrasonography is one of the main investigations that helps in the differential diagnosis and may demonstrate the polycystic ovaries that have recently been vetted as an alternative to oligo-anovulation as a diagnostic criterion^[1]. Lifestyle modification (LSM) programs, comprising diet and/or physical activity, are recommended for high-risk patients (prediabetic) to delay the onset of adult type 2 diabetes, one of the most serious complications of PCOS. In addition, overweight and obese women with PCOS may benefit from LSM through adiposity reduction, improved ovulatory function, and a reduction in overall cardiovascular risk. Whether LSM may improve some aspects of the phenotype in normal-weight women with PCOS is still unclear. However, sustained weight loss achieved after bariatric surgery or long-term dietary intervention has been found to significantly improve the phenotype in most women with PCOS^[4]. It is important that there is a good understanding of the long-term implications of the diagnosis in order to offer a holistic approach to the disorder. Because the symptoms of PCOS emerge insidiously and are coincident with changes that accompany normal pubertal development, subtle features may not be realized in the early stages; this may account for the failure to identify the disorder in young girls.

The aim of this research is to evaluate polycystic ovarian syndrome which includes sign and symptoms, lifestyle and diet conditions along with their common treatment and self-medication practice for dysmenorrhea among pharmacy students, which are more prone to PCOS.

METHODOLOGY

Study Design and Site: A cross-sectional Questionnaire survey was conducted by online survey forms among pharmacy students with PCOS who willingly participated in this study, after approval from the institutional ethical committee at Ezhuthachan College of Pharmaceutical Sciences.

Study Sample: 52 females of age group between 18-25 were included in this study for a period of 1 month. The self-medication practice and features of dysmenorrhea and treatment for PCOS was assessed with a 22 pre-validated questionnaire and the data is analyzed using descriptive statistics.

Data collection: Data were collected during the 2018-2019 academic year. Respondents completed the online structured questionnaire forms which composed of check box questions regarding socio-demographic data, lifestyle routine, menstrual history, presentation of dysmenorrhea and PCOS with its treatment strategies and its impact on daily routine and social activities. Various remedial treatment

methods practiced and health care seeking behavior to relieve dysmenorrhea and PCOS were recorded. The study was descriptive and data was summarized as counts and percentages.

Design of Questionnaire: Initially, the questionnaire comprised of 24 inventories, modified to 23 in final by 02 step validation process. In step 01, Questionnaire Validation are done by three pharmacy lecturers with experience in drug use research and pharmacology were asked to evaluate the clarity, relevance and conciseness of items included in the questionnaire. The observations and comments of the lecturers were taken in to the account. In step 02, Questionnaire Validation to test the validity and reliability of the questionnaire, the survey form was pilot tested by administering it to sample of 10 pharmacy students who did not participate in the study. The overall Cronbach's alpha value calculated was 0.70, which required no further modifications in questionnaire. The final questionnaire consisted of 22 questions out of which includes demographics, history of menarche and regularity of menstrual cycle, dysmenorrhea and its self-medication practice, occurrence of PCOS, life style and diet conditions and treatment for PCOS.

Data Analysis and Evaluation: The responses to the questionnaire were analyzed performing descriptive statistics. Data were analyzed using SPSS version 11.0. The level of statistical significance was set at $p < 0.05$.

RESULT

A total of 52 students responded through Google forms. The majority were Pharm D students. Among which 48.07% [n=25] had irregular periods and 51.9% [n=27] had regular periods with an interval of 28-30 days. About 80.4% [n=41] of students have experienced dysmenorrhea during their menstruation [fig 1]. In this study 35.3% [n=18] preferred self-medication for dysmenorrhea. The most commonly used drug was Mefanamic acid [fig 2]. About 36.5% [n=19] had PCOS and 63.5% [n=33] doesn't. 23.07% [n=12] students are obese and 76.9% [n=40] are not [fig.4]. In this study, about 26.9% [n=14] were in treatment of PCOD and 73.1% [n=38] were not treated.

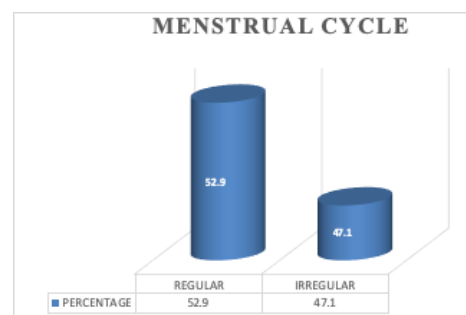


Figure 1: Among 52 responders, 52.9% of students had regular menstrual cycle and 47.1% of students had irregular menstrual

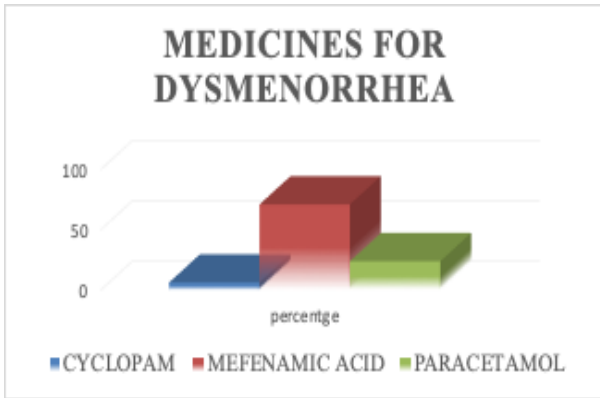


Figure 2: 5.9% of students were taken Cyclopam, 70.6% of students were taken Mefenamic acid and 23.5% of students were taken Paracetamol.

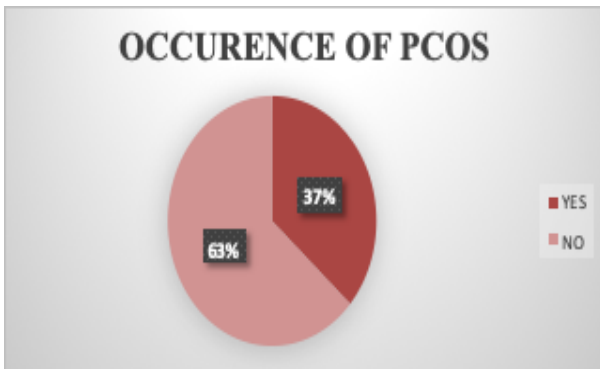


Figure 3: Among 52 students, 63% of students had no PCOS and 37% of students had PCOS

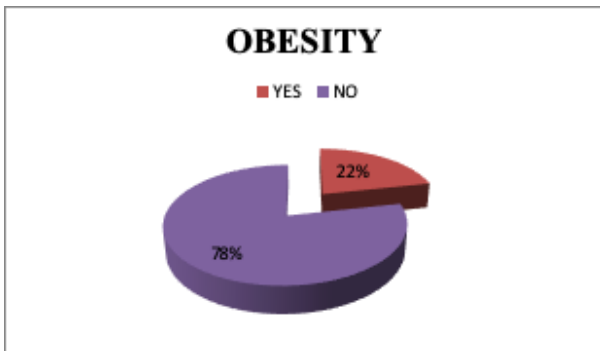


Figure 4: Among 52 students, 22% of students were obese and 78% of students were not



Figure 5: Among 52 students, 66% of students were taken Fried foods

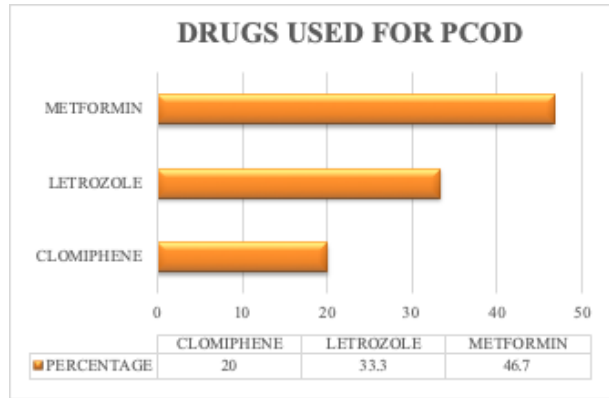


Figure 6: 46.7% of students were taken Metformin, 33.3% of students were taken Letrozole and 20% of students were taken Clomiphene

DISCUSSION

PCOS is becoming a common syndrome among females in the reproductive age. The main aim of this study is to estimate the relationship between the students' lifestyle with the different symptoms of PCOS between students with and without PCOS. This cross sectional study investigates the pattern of physical activity, daily dietary intake, the frequency of PCOS symptoms and other previously diagnosed diseases in normal women with and those having PCOS. It aimed to identify the possible unproven risk factors in relation to the disease as well as to estimate the level of general knowledge about PCOS in students [1].

The present study was a questionnaire-based study, which attended about 52 pharmacy students in Ezhuthachan College of Pharmaceutical Sciences, Trivandrum. In this study, most of the students were in the age of 22 [n=17]. About 23.5% of students had acne and it can be worsen during menstrual period. And also about 19.6% of students had hair loss, which are the main symptoms of PCOS. About 15.2% of students were engaged in regular exercise.

In the present study, most of the participants were young adults, which might be inconsistent with the presence of hypertension and osteoporosis. This explains why the frequency of hypertension was insignificant in contrast to results in other studies showing significant relation between hypertension and women with PCOS.

In 1910, Fogue and Massabuau described three potential mechanisms of PCOS: inflammation, congestion, and dystrophy. The inflammation theory proposed that the microcystic ovary was the result of infection either of internal or external provenance. The congestion theory suggested that the lesion was the result of pressure, partial torsion, or other interruption in circulatory flow to the ovary. Finally, the dystrophy theory proposed that the abnormalities were caused by modifications or abnormalities in the nutrition of the ovary [1].

Limitations of the Study: The major limitation of this study was the essentially small number of participants. In addition, some other factors such as communication problem to the participants, lack of interest to answer the questionnaire by the participants due to their own reasons, could also have affected the results of this study in some ways.

CONCLUSION

The benefits of weight reduction in PCOS are well documented, and the use of meal replacements and structured dietary patterns with higher protein content and/or lower glycemic carbohydrates shows promise. Alternative dietary compositions increase the range of dietary options, and could also potentially lead to greater weight loss, maintenance of weight loss or greater improvements in reproductive and metabolic features of PCOS. However continued follow-up is required to sustain weight loss, and probably outweighs the effects of dietary composition. Exercise increases energy expenditure, assists weight control and normalizes insulin resistance independently of weight loss, and is an alternative and additional strategy in the treatment of PCOS. Long-term adoption of these principles in a primary healthcare setting will improve reproductive and endocrine parameters and help reduce the risk of IGT and type 2 diabetes mellitus in women with PCOS. Women with PCOS may also represent a population with unique barriers to weight loss and weight maintenance. Focusing on protocols emphasizing satiety, structure and support and physical activity behaviors, in addition to reducing energy intake may also aid in improving retention and adherence.

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CONFLICTS OF INTEREST

The author declares no conflict of interests.

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