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Prevalence of probable risk of polycystic ovarian syndrome in community dwelling women

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ABSTRACT

Background and aim

Polycystic ovary syndrome (PCOS) is one of the most common metabolic disorder and endocrine dysfunction in women of reproductive age. Due to the logistics of diagnosis and lack of consensus on the diagnostic criteria, there are very insufficient studies on prevalence in the community. This study was aimed to assess the prevalence of probable risk of PCOS in women 18-25 years of age.

Methodology

Cross-sectional study with simple random sampling. Females between 18-25 years of age were involved with sample size 100. Demographic information and clinical evaluation was obtained from questionnaire. Results were obtained on the basis of graphs and analysis of the data was done

Results and conclusion

A total 100 questionnaires were distributed among the women and all were assessed for the probable prevalence of high risk of PCOS. Mean age of the women was 20 years, BMI was 21.43 kg/m² and menarche age was 13 years. The study revealed that probable prevalence of risk of PCOS was 30%

Keywords: Polycystic ovary syndrome (PCOS), Community, Women

INTRODUCTION

Polycystic ovary syndrome (PCOS) is one of the most common metabolic disorder and endocrine dysfunction in women of reproductive age [1]. PCOS is a complex, heterogeneous disorder of uncertain etiology, [1]. With a wide spectrum of clinical signs affecting about 6-8% of women of reproductive years [2, 3]. The principal features of

PCOS is categorized by hyperandrogenism, hyperinsulinemia, hyper secretion of LH, menstrual dysfunction, hirsutism, infertility and pregnancy and neonatal complications [2, 4]. In the long term PCOS contributes to other health risks, metabolic problems and psychological complication, such as type 2 diabetes mellitus (DM2), cardiovascular disease (CVD), poor self-esteem, venous thromboembolism and anxiety [2]. Etiology of

PCOS is still unknown and prevalence of this disease varies due to the differences in genetic traits and living environment of its victims [5]. The various manifestations of PCOS begins at an early age when a girl is budding into a young woman. During this pubertal changes, several features may be in progress and thus many findings may be transient which get steady later during adolescence. Still, it is important to make an early diagnosis in order to avoid early and late development of the syndrome [2].

Globally, prevalence estimates of PCOS are highly variable, ranging from 2.2% to as high as 26% [2, 6, 7]. Community-based studies using Rotterdam criteria among reproductive age group women have demonstrated varied prevalence figures in few Asian countries ranging from 2% to 7.5% in China [2, 8] to 6.3% in Srilanka. [2, 9]. The National Institute for Health (NIH) Criteria 1990 was revised in 2003 and Rotterdam criteria [10] has been adopted world over. However, recently in 2006, Androgen Excess Society (AES) has come up with a consensus statement, defining PCOS as a hyperandrogenic state and emphasises the presence of either clinical and/or biochemical features of hyperandrogenism along with other features of PCOS for diagnosis [11]. Although there are limited studies of PCOS in India population. Prevalence of obesity and diabetes mellitus in most industrialized countries including India is also on the rise owing to urbanization and change in lifestyle. Most of the young population do not visit health facilities until they have late sequel of the problem [2]. Most prevalence studies in India are in hospital set-ups and recently a few studies among adolescents in schools report prevalence of PCOS as 9.13% to 36% [12, 13]. Gainie and Kalra pointed in their studies [14] that the health budget of India is questionable to meet the costs stood for undertaking the associated multiple consequences of PCOS. It is time that this warning is heeded and at national level the disease is recognized as an important non communicable disease [15]. Studies have demonstrated that the cost of diagnostic

evaluation accounts only for a relatively minor part of the total costs of managing PCOS (approximately 2%). Hence, more prevalent and generous screening for the disorder appears to be a profitable strategy, helping for earlier diagnosis and intervention and possibly the enhancement and prevention of serious consequence [3].

MATERIALS AND METHODS

A community-based cross-sectional study was conducted using simple random sampling method. 100 Women aged between 18-25 years, who had attained menarche more than 2 years before the study, who were unmarried and were willing to participate in the study were enrolled.

A self-structured questionnaire was used for which both content and face validation was done by the experts of Faculty of Physical Therapy and Gynecology. Before distributing the questionnaire a pilot study was done to assess the reliability.

The questionnaire consists of two domains. First part had demographic data with BMI and activity level was also assessed and second part had clinical questions regarding PCOS to evaluate the risk of PCOS among the students. Data was analyzed using descriptive statistics in the form of percentages, graphs are used wherever necessary.

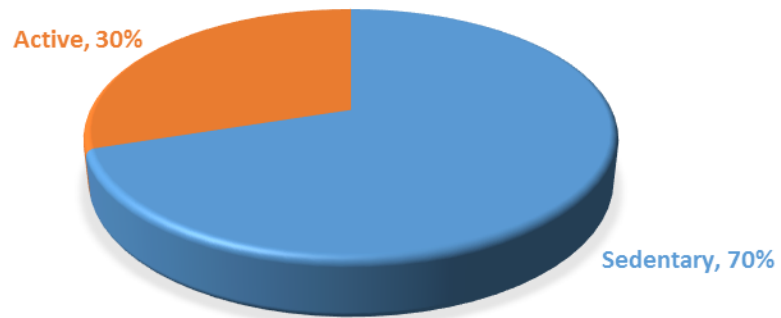
RESULTS

A total 100 questionnaires were distributed among the women and all were assessed for the probable prevalence of risk of PCOS. Mean age of the women was 20 years, BMI was 21.43 kg/m² and menarche age was 13 years. Assessment of probable prevalence of risk of PCOS was done by the questionnaire is given in table 1. Most of the participant gave negative answer. But after considering total score of individual participant we found that 30% of the participant were at risk of PCOS and of that 34% were having sedentary lifestyle and 17% were having active lifestyle

GRAPH: 1 PREVALENCE OF HIGH RISK OF PCOS

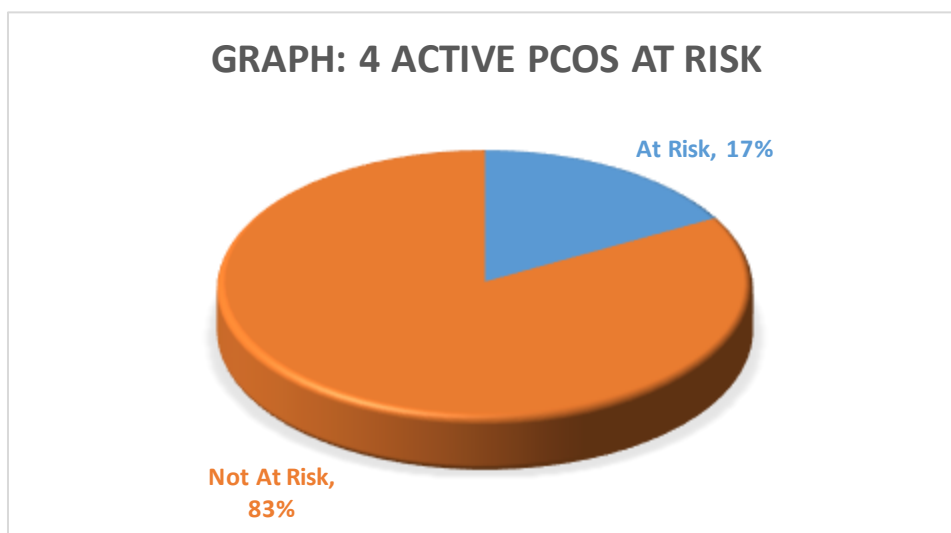


GRAPH: 2 SEDENTARY AND ACTIVE LIFE STYLE



GRAPH: 3 SEDENTARY AT RISK OF PCOS





DISCUSSION

PCOS among young and childbearing age is an emerging problem that needs careful assessment, timely intervention, and appropriate treatment. This study estimated the probable prevalence of PCOS among younger population, 13 % participant were diagnosed with PCOS and 17 % were having hormonal imbalance similar result were reported in earlier studies. [1, 2, 12]. This prevalence is relatively higher than that reported by most studies, mainly due to use of only one questionnaire, and small sample size. Majority of our participants were lean the average BMI reported was 21.43 kg/m² only 11 % were overweight or obese. 16% were carrying excess weight around waist which is one of the major reason for metabolic disorder in PCOS and 10 % were experiencing difficulty in losing weight [16,17]. Asian Indians have higher percentage body fat, abdominal adiposity at lower or similar BMI levels as compared to white Caucasians. Asian Indians are more predisposed to develop insulin resistance and cardiovascular risk factors at lower levels of BMI as compared to other ethnic groups. [17, 18].

7 % reported for irregular menses or menstruation less than 8 times in a year as persistent menstrual irregularities (resulting from anovulation) seem to be better predictors compared to biochemical parameters [17]. 6 % participant reported for excess hair growth on your upper lip, chin, neck, chest or abdominal area, 38 % complained about thinning of head hair, 32 % were suffering with acne and 10 % reported for the darkening of the skin underarms and around neck [17]. Hirsutism is a common syndrome resulting from androgen action specified in women as

unnecessary growth of hair in certain regions of the body. The cause of hirsutism in most women is PCOS. Androgens is partly responsible for promoting the anagen phase (growth phase) of hair cycle, leading to larger hair follicles. The anagen phase is influenced by insulin-like growth factor (IGF-I). IGF-I is carried in the circulation by IGF-BPs (IGF binding protein). The action of this growth factor depends on a number of factors including binding proteins, which is also influenced by the actions of insulin. [17, 19]. 30 % participants reported depression and anxiety [20] as depression in PCOS may be related to change in physical appearance as obesity, acne, and hirsutism lead to negative perception of self and social withdrawal, which culminates into depression [20]. 29 % participant reported family history of diabetes Iram Shabir et al reported in their study that the serum fasting insulin is elevated in index patients and their family members [21]. 35% family members were obese and overweight, 8% family member had difficulty in conceiving, 9% participant reported having acne and hirsutism in female family members, 13 % participant had history of PCOS in immediate female family member It was observed that the participants with family history of PCOS carry a little higher risk of development of PCOS compared to participants without a family history [22]. PCOS is greatly influenced by genetic factor and lifestyle. The preferred first line of treatment for many women with PCOS is lifestyle modifications including dietary changes, exercise and weight loss. Pharmaceutical treatment including metformin, lipid lowering agents and oral contraceptives should be personalized to the individual's risk profile and treatment goals

CONCLUSION

The finding of this study revealed that probable prevalence of risk of PCOS is increasing and women with sedentary life style, overweight or obese and with family history are at risk of PCOS.

So to minimize the problem, awareness program should be conducted at community level.

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REFERENCES

- [1]. Rong Li, Qiufang Zhang, Dongzi Yang, Shangwei Li, Shulan Lu⁴, Xiaoke Wu, Zhaolian Wei, Xueru Song, Xiuxia Wang, Shuxin Fu, Jinfang Lin, Yimin Zhu, Yong Jiang, Huai L. Feng, and Jie Qiao Prevalence of polycystic ovary syndrome in women in China: a large community based study *Human Reproduction*, 28(9), 2013, 2562–2569.
- [2]. Joshi B, Mukherjee S, Patil A, Purandare A, Chauhan S, Vaidya R A cross-sectional study of polycystic ovarian syndrome among adolescent and young girls in Mumbai, India *Indian J Endocrinol Metab* 8(3), 2014.
- [3]. Azziz R, Marin C, Hoq L, Badamgarav E, Song P. Health care-related economic burden of the polycystic ovary syndrome during the reproductive life span. *J Clin Endocrinol Metab.* 90, 2005, 4650–8.
- [4]. Toulis KA, Gouli DG, Farmakiotis D, Georgopoulos NA, Katsikis I, Tarlatzis BC, Papadima I, Panidis D. Adiponectin levels in women with polycystic ovarysyndrome: a systematic review and a meta-analysis. *Hum Reprod Update* 15, 2009, 297 – 307
- [5]. Bao Shan, Jun-hong Cai, Shu-Ying Yang, Zhuo-Ri Li Risk factors of polycystic ovarian syndrome among Li People *Asian Pacific Journal of Tropical Medicine* 8(7), 2015, 590–593
- [6]. Knochenhauer ES, Key TJ, Kahsar-Miller M, Waggoner W, Boots LR, Azziz R. Prevalence of the polycystic ovary syndrome in unselected black and white women of the southeastern United States: A prospective study. *J Clin Endocrinol Metab.* 83, 1998, 3078–82.
- [7]. Diamanti-Kandarakis E, Kouli CR, Bergiele AT, Filandra FA, Tsianateli TC, Spina GG, et al. A survey of the polycystic ovary syndrome in the Greek island of Lesbos: Hormonal and metabolic profile. *J Clin Endocrinol Metab.* 84, 1999, 4006–11.
- [8]. Chen X, Yang D, Mo Y, Li L, Chen Y, Huang Y. Prevalence of polycystic ovary syndrome in unselected women from southern China. *Eur J Obstet Gynecol Reprod Biol.* 139, 2008, 59–64.
- [9]. Kumarapeli V, Seneviratne R de A, Wijeyaratne CN, Yapa RM, Dodampahala SH. A simple screening approach for assessing community prevalence and phenotypes of polycystic ovary syndrome in semiurban population in Sri Lanka. *Am J Epidemiol.* 168, 2008, 321–7
- [10]. Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. *Fertil Steril.* 81, 2004, 19–25
- [11]. Azziz R, Carmina E, Dewailly D, Diamanti-Kandarakis E, Escobar-Morreale HF, Futterweit W, et al. Androgen Excess Society. Position statement: Criteria for defining pcos as a predominantly hyperandrogenic syndrome: An Androgen Excess Society guideline. *J Clin Endocrinol Metab.* 91, 2006, 4237–45
- [12]. Nidhi R, Padmalatha V, Nagarathna R, Amritanshu R. Prevalence of polycystic ovarian syndrome in Indian adolescents. *J Pediatr Adolesc Gynecol.* 24, 2011, 223–7.
- [13]. Nair MK, Pappachan P, Balakrishnan S, Leena ML, George B, Russell PS. Menstrual irregularity and polycystic ovarian syndrome among adolescent girls: A two year follow-up study. *Indian J Pediatr.* 79(1), 2012, S69–73
- [14]. Gainie MA, Kalra S. Polycystic ovary syndrome A metabolic malady, the mother of all lifestyle disorders in women Can Indian health budget tackle it in future? *Indian J Endocrinol Metab.* 15, 2011, 239–41.
- [15]. Vaidya RA. Polycystic Ovarian Syndrome, a Public Health Issue: Indian perspective oration delivered at the national institute for research in reproductive health ICMR- on the occasion of NIRRH 24th Foundation Day
- [16]. Amar Nagesh Kumar, M.Sc, Jupalle Nagaiah Naidu, M.D, Uppala Satyanarayana, Ph.D, Krishnan Ramalingam, Ph.D, and Medabalmi Anitha, M.D Metabolic and Endocrine Characteristics of Indian Women with Polycystic Ovary Syndrome *Int J Fertil Steril.* 10(1), 2016, 22–28.
- [17]. Ramanand SJ, Ghongane BB, Ramanand JB, Patwardhan MH, Ghanghas RR, Jain SS. Clinical characteristics of polycystic ovary syndrome in Indian women. *Indian J Endocrinol Metab.* 17(1), 2013, 138–45.

- [18]. McKeigue PM, Shah B, Marmot MG. Relation of central obesity and insulin resistance with high diabetes prevalence and cardiovascular risk in South Asians. *Lancet*. 337, 1991, 382–6.
- [19]. Yildiz BO, Bolour S, Woods K, Moore A, Azziz R. Visually scoring hirsutism. *Hum Reprod Update*. 16, 2010, 51–64.
- [20]. Suneet Kumar Upadhyaya, Archana Sharma, Atul Agrawal Prevalence of anxiety and depression in polycystic ovarian syndrome *International Journal of Medical Science and Public Health*. 5(4), 2016.
- [21]. Shabir I, Ganie MA, Zargar MA, Bhat D, Mir MM, Jan A, Shah ZA, Jan V, Rasool R, Naqati A. Prevalence of metabolic syndrome in the family members of women with polycystic ovary syndrome from North India. *Indian J Endocrinol Metab*. 18(3), 2014, 364-9.
- [22]. Gulam Saidunnisa Begum, Atiqulla Shariff, Ghufran Ayman, Bana Mohammad, Raghad Housam, Noura Khaled Assessment of Risk Factors for development of Polycystic Ovarian Syndrome *International Journal of Contemporary Medical Research* 4(1), 2017. ICV 77.83
- [23]. Gordon W.BatesRichard S.Legro Longterm management of Polycystic Ovarian Syndrome (PCOS) *Molecular and Cellular Endocrinology* 373(1-2), 2013, 91-97.

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