

Review Article

Polycystic ovarian syndrome: need for life course approach

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ABSTRACT

Polycystic ovarian syndrome (PCOS) is one of the leading but treatable causes of infertility among women. PCOS is a heterogeneous condition therefore it involves multiple disciplines and there is a wide research and clinical agenda. The prevalence of PCOS in India among 15-24 year old adolescents and young girls was found by Rotterdam criteria to be 22.5% and by Androgen Excess Society criteria to be 10.7%. Earlier it was considered only as a reproductive disorder but now it includes metabolic and psychological features as well. Under diagnosis of PCOS remains to be problematic. This is a complex syndrome and has an influence throughout the lifespan and requires multidisciplinary treatment approach as well as self-management. The life course approach or life course theory or the life course perspective was explored in 1960's. In this approach individual's lives are analyzed within structural, social, and cultural contexts.

Keywords: Life cycle approach, Polycystic ovarian disease, Polycystic ovarian syndrome

INTRODUCTION

Polycystic ovarian syndrome (PCOS) is one of the leading but treatable causes of infertility among women.¹ Other common names are polycystic ovarian disease, functional ovarian hyperandrogenism, chronic hyperandrogenic anovulation, ovarian hyperandrogenic dysfunction, hirsutism-anovulation syndrome, stein leventhal syndrome.

Primarily characterized by ovulatory dysfunction and hyperandrogenism, it has diverse clinical spectrum including reproductive complications, such as infertility, hirsutism, hyperandrogenism, metabolic impairments like impaired glucose tolerance, insulin resistance, diabetes mellitus type 2, psychological effects and cardiovascular risk profile, including depression, anxiety and impaired

quality of life. The phenotype varies according to ethnicity, genotype, life stage, lifestyle and environmental factors. PCOS prevalence varies globally and ranges from 2.2% to 26% which depends on the studied population and the criteria used for diagnosis.²⁻⁴ The prevalence of PCOS in India among 15-24 year old adolescents and young girls was found by Rotterdam criteria to be 22.5% and by Androgen Excess Society criteria to be 10.7%.⁵ The aetiology of PCOS is not yet known, but PCOS is considered a lifestyle disease in which genetic predisposition plays a major role.⁶⁻⁸ Earlier PCOS was considered as a reproductive disorder, but now but now it includes metabolic and psychological features as well.^{9,10} Under diagnosis of PCOS remains to be problematic. This is a complex syndrome and has an influence throughout the lifespan and requires multidisciplinary treatment approach as well as self-management. The overarching

goal of this review was to summarize influence of PCOS on the life cycle of women.

METHODS

An open search for relevant articles was undertaken in MEDLINE and google search using keywords like 'PCOD', 'Life cycle approach', 'PCOS', 'Life course approach' with their corresponding MeSH terms, if any, joined by OR/AND operators, where applicable. In addition, the reference lists of the preliminary search result articles were used to further gather relevant papers using the snowball method. Articles were limited to those published in English language only.

SITUATION IN INDIA

In India only limited number of studies have been done till date which can be accounted to insufficiency of health budget to tackle the associated multiple consequences of PCOS.¹¹ Most of the studies conducted were in hospital setting and a very few studies were conducted in schools among adolescents, PCOS prevalence ranged from 9.13% to 36%.^{12,13} Screening for PCOS at a larger scale is a more cost effective method for earlier diagnosis of the disorder and in turn preventing serious sequel. It has been shown in many studies that the cost of diagnosing PCOS accounts for approximately 2% of the total cost of managing PCOS.¹⁴ It is time that the disease must be recognized as an important non-communicable disease at the national level.¹⁵

DEFINITION AND DIAGNOSTIC CRITERIA OF PCOS

As PCOS is diagnosed by exclusion criteria, it is a topic for debate leading to many co definitions. The two criteria which are accepted for diagnosing PCOS across the world are National Institute for Health (NIH) Criteria and Rotterdam criteria.¹⁶ Androgen Excess Society (AES) define PCOS as a hyperandrogenic state and uses clinical and/or biochemical features of hyperandrogenism along with other salient features of PCOS for diagnosis.¹⁷ Adolescent obesity and PCOS are two important issues which have come up as important public health issues in India. Comprehensive strategy on prevention and management of PCOS is urgently required to combat the upcoming surge of obesity and PCOS associated with obesity in India.¹⁸

Aetiology

PCOS is a complex syndrome which presents with wide spectrum of clinical symptoms and exact pathophysiology is unclear. A number of factors like environmental, genetic, hormonal contribute to aetiology of PCOS. Other contributing factors are ovarian dysfunction, hypothalamic pituitary abnormalities and obesity. In around 60 to 80% of cases hyperandrogenism and insulin resistance is seen.¹⁸ Insulin resistance is known to affect

metabolic and reproductive features by two methods, firstly androgen production is increased and secondly sex hormone binding globulin is decreased which in turn increases free androgens. Excess weight and obesity increases infertility, hirsutism, hyperandrogenism and pregnancy related complications by aggravating PCOS. PCOS also increases risk for diabetes mellitus type 2, and cardiovascular diseases.^{19,20}

LIFE COURSE APPROACH FOR HOLISTIC MANAGEMENT

The life course approach or life course theory or the life course perspective was explored in 1960's. In this approach individual's lives are analyzed across various contexts like structural, social, and cultural.²¹ This approach keenly scans the history of an individual's life and explores, things like, how previous events in a person's life has influenced important decisions and events such as marriage, pregnancy, new roles (as parents), or transition through different phases of life, including early childhood, adolescent phase, adult life, mid-life and old age.^{22,23} The life course approach has several fundamental principles. They include perspective of human development; life timing; linked lives and social ties to others; human agency and personal control; and; how the past shapes the future.³¹⁻³³

PERSPECTIVE OF HUMAN DEVELOPMENT

A combination of bio-psycho-social factors affect the human development over time.^{24,25} Many studies have shown that PCOS can affect a wide age range of development starting from the uterine phase to even the post reproductive years.^{26,27} As PCOS is a complex disease, its symptoms and severity vary across the life course and vary widely in different individuals. The typical features of (PCOS) that is hyperandrogenism and anovulation can affect sexuality and psychological wellbeing of a person in addition to being a stressor. Studies have significantly shown the association of Amenorrhoea with decreased self-esteem ($p=0.03$), increase fear of negative appearance ($p=0.01$) and early initiation of sexual activity ($p=0.004$). Acne ($p=0.03$) and hyperandrogenism ($p=0.02$) were also found to be significantly associated with poor body satisfaction. Factors like obesity and hirsutism were associated negatively with many psychological factors and also lead women to avoid outdoor activities like swimming.²⁸ PCOS is also associated with depression, anxiety and eating disorders.^{29,30} Women with PCOS and menstrual and hormonal irregularities contributing to infertility suffer more commonly with depression. In long-term also, these women are more prone to various depressive episodes and its recurrence and suicide attempts.²⁸ Mental health in turn affects the behaviour of women with PCOS in carrying out lifestyle modifications and therapeutic treatment with metformin or oral contraceptive pills.^{31,32} There is very little information on different stages of development during adolescence or during post-

menopausal span as most of the studies have been undertaken during adulthood of women. Therefore there is a need to study PCOS comprehensively in the context comprehensive life course perspective for management of this heterogeneous disease. Starting from the adolescence when the PCOS is first diagnosable, symptoms such as irregular periods are very common in first 2 years of menarche; but continued irregular periods and acne could also be suggestive of PCOS. Such adolescents are more prone to mental health disorders and other chronic disease like diabetes. Co-morbidities associated with PCOS can affect health in a number of ways. It was seen in many studies that prevalence of obesity and diabetes was higher in women with PCOS than women who don't have PCOS.^{33,34} Furthermore cardio-vascular diseases risk also increases by insulin resistance and diabetes.

TIMING OF LIVES

Polycystic ovary syndrome (PCOS) is associated with many metabolic and reproductive disorders that include infertility, anovulation and an increased prevalence of diabetes mellitus which in turn can influence the timing and nature of important incidents and experiences such as marriage, conception, pregnancy duration and transition to parenthood. Moreover, infertility related to PCOS begins in adolescence.³⁵ A study done by Trent showed that girls who had PCOS were worried about their inability to conceive about 3.4 times and they had significant reduction in their quality of life due to their concern about future fertility.³⁵ These young women were also more concerned about the marital problem which could arrive from infertility due to PCOS.³⁶ Significant number of women come to know about PCOS when they try to conceive which further adds to shame, fear, embarrassment and inability to conceive.

Focusing on temporal order of events and experiences like menstrual issues in adolescence is especially vital. Adolescent girls having PCOS describe their menstrual cycles are "crazy" besides expressing health issues like anemia and fatigue, menstrual issues may also limit activities throughout adolescence.³⁵

LINKED LIVES AND SOCIAL TIES TO OTHERS

This aspect of life course approach can be applied to study how relationships and roles in lives such as daughter, mother and friend can be affected by PCOS. In adolescence, PCOS can cause acne which can lead woman to stay at home, social anxiety, perception of unattractiveness due to acne and hirsutism can affect dating and relationships. Obesity associated with PCOS can limit participation in sports.³⁵ In marital relations also women suffers because of difficulty in communication regarding having too many masculine hormones and inability of spouses to understand can affect relationship in due course of time. Value of linked lives approach can be used in management of PCOS. The family and peer can support in reducing depression, anxiety and weight

associated with PCOS. Many studies have proven that there are benefits of PCOS educational programme that includes social support system and peer led activities.³⁷⁻³⁹ Subjects reported that being in the group helped in reducing solitude and also offered a chance for social interaction and an easy access to relevant information. Women reported that the group had a crucial personal influence for them. They stated they felt empowered and direct positive outcome on their self-management behaviours.³⁹

HUMAN AGENCY AND PERSONAL CONTROL

This is another perspective of life course approach which points to the ability of humans to create their life with their own choices and actions. Some women with PCOS consider positive influence and have positive approach towards this condition and they search for best possible approach for their treatment and based on these viewpoint, some of them succeed to life style changes.⁴⁰ A noteworthy limitation that hasn't received appropriate attention in the syndrome analysis is socioeconomic context. The analysis suggested that both education and financial gain have a role within the PCOS occurrence and development across the life course; for example, low socio-economic setting in childhood (considering education of parents) has been found to extend the occurrence of PCOS in adulthood (measured by academic level) significantly among obese girls with high socioeconomic standing in adulthood additionally, some PCOS symptoms like menstrual problems (e.g. anovulation) will differ per socioeconomic standing, and these variations are related to clinical and endocrine factors.

FUTURE IS SHAPED BY THE PAST

Finally, another authentication of this angle is that adolescent course choices, conditions and opportunities have an effect on later consequences. The past, have an effect on later life outcomes like socioeconomic standing, psychological state, physical performance, and marriage patterns. This long read, with its recognition of accumulative advantages and disadvantages, is especially valuable to understand social differences in later life and also to make effective policy and programs.

CONCLUSION

PCOS is a heterogeneous condition which requires involvement of multiple disciplines. Therapy should include both short term as well as long term reproductive, metabolic and psychological features. Comprehensive evidence based guidelines are required for regular screening, proper investigation, early diagnosis and treatment of PCOS.

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