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# Empowering Adolescent Girls to Manage the Impending Epidemic of PCOS

Polycystic ovary syndrome (PCOS) has now become a common problem seen among adolescent girls and young women in gynecology OPDs. The reported prevalence among Indian adolescents ranges from 9.13 to 36%.<sup>1,2</sup> The diagnosis of PCOS in adults is confirmed if any two out of the three findings are there: (i) Oligo-ovulation/anovulation, (ii) Excess androgen activity, (iii) Polycystic ovaries, as per the Rotterdam criteria.<sup>3,4</sup> Signs, symptoms and their severity experienced by affected women vary. In adolescents, presence of oligomenorrhea or amenorrhea beyond two years of menarche is considered an early sign of PCOS.

The etiology of PCOS is still not clear. The underlying problem lies in hormonal imbalance which affects many organs. Normally females produce high amount of progesterone and estrogen, and very less androgens. The clinical features of PCOS are seen when adrenal gland and ovaries start producing more androgenic hormones (testosterone, androstenedione, and dehydroepiandrosterone). The identified markers for PCOS are-continuously elevated LH (luteinizing hormone) secretion; increased LH to FSH ratio; high testosterone levels, decreased SHBG (sex hormone binding globulin); insulin resistance. The features of the syndrome are menstrual irregularity, anovulation, hirsutism, insulin resistance, baldness or thinning hair, acanthosis *nigricans*, acne, obesity, infertility. Weight gain and insulin resistance with PCOS can worsen the symptoms. The disorder if not managed properly can further increase the risk of diabetes, heart-related diseases, metabolic syndrome, miscarriage, premature delivery, endometrial cancer, and other complications.<sup>5,6</sup> PCOS also affects behavior and feelings. This can make girls feel embarrassed, frustrated and stressed out. This can impact their quality of life. Majority of affected females experience grief, shock, fear, disbelief, anger, sadness, anxiety, frustration, acceptance, determination, etc. There are no set feelings or any specific order in which they occur. Generally, females feel something is wrong with them whenever their periods falter. Not just married PCOS women but even adolescent girls fear about infertility. In majority of cases, there is a disturbance in release of eggs from ovaries, and pregnancy does not occur. Thus PCOS endangers the essence of being a woman. Such constant worry can physically affect the sleep, eating and exercise routine. Psychologically, it can lower their self-esteem. Girls have feeling of worthlessness and reduced zeal to perform daily activities. The negative emotions generate stress and anger which can take a toll on social life. Affected females may avoid meeting relatives and friends. If overlooked for long, it can result in depression and anxiety.<sup>7,8</sup> The stress and work burden on adolescents has increased in modern society. The rising competition and pressure to outperform others have made their lives stressful. They also face additional societal pressure to look slim and pretty. They start dieting. Missing meals and unhealthy eating behavior affects their growth, development and hormonal balance.

In modern society, girls also seek a professional career. This dual focus has increased drastically the work burden as well as the stress in girls. It is possible that entry into male bastion (girls doing more boyish tasks and even dressing up like them) has increased the prevalence of PCOS, through rise in male sex hormones. This theory is supported by Gorzynski and Katz who reported that PCOS girls showed greater interest in careers over family, a lesser concern for style and appearance, and more tomboyish behavior.<sup>9,10</sup> Barnard et al. also identified link between hyper-androgen and cognitive functioning in PCOS girls.<sup>11</sup>

Moreover, adolescents are far less active now. They hardly play any outdoor games. The rising advancement in technology and the trend of mobiles and internet has further made their lives less physically active. Markets are also flooded with processed food, incorporating unhealthy additives like high sodium, sugars, trans-fats, artificial colors, taste enhancers, etc. This deprives girls of vital nutrients. Such foods have very low fiber, high sugar, salt, oil and chemical content. These foods can also cause "dysbiosis" in the gut. The overgrowth of harmful bacteria increases permeability of gut. This allows the entry of harmful substances in the blood causing many health problems, including PCOS, as per the DOGMA (Dysbiosis of Gut Microbiota) theory.<sup>12</sup>

PCOS has no cure. Various treatments, pharmaceutical and non-pharmaceutical, focus on hormonal regulation, blood glucose regulation, and weight control. This includes oral contraceptive pills, anti-androgens and insulin sensitizing drugs. Unfortunately, these are not fully able to deal with all the metabolic parameters. Rather, these may have their own negative effects. Lifestyle modification is the key intervention to improve quality of life of PCOS cases. Diet modification, increased physical activity, stress management can do wonders. This can help in control of weight and hormones. Stress reduction through yoga and meditation can help maintain emotional health. Many studies have proved the efficacy of high-protein and complex-carbohydrate (low glycaemia index) diets along with aerobic exercises in improving this condition. Weight loss even of 5% has shown improvement in ovulatory function, reduced testosterone and insulin levels.<sup>13</sup> Despite such evidence, most of the affected girls do not avail the benefits of any advice to follow a healthy lifestyle. It is quite possible that no one, even among medical fraternity, ever effectively communicates to them about the importance of lifestyle in PCOS. The prevailing ambience of overcrowded gynecology OPDs of Indian hospitals does not have scope for such doctor-patient communication. There is a pressing need to change this rushed-up approach in OPDs by offering laidback counselling to the girls suffering from PCOS to empower them for self-management through lifestyle modification as outlined above. This idea has been successfully implemented by the authors by establishing a separate multipurpose behavior therapy/ counselling room in gynecology OPD of PGIMER, Chandigarh.<sup>14</sup>

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