



Threats to Feminine Identity as the Main Concern of Iranian Adolescents with Polycystic Ovary Syndrome: A Qualitative Study



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ABSTRACT

Purpose: Polycystic Ovary Syndrome (PCOS) is a prevalent hormonal disorder in adolescents; this study seeks to elaborate the main concerns of adolescents with PCOS.

Design and methods: This qualitative content analysis was conducted on 15 adolescents with PCOS using purposive sampling in 2018. Semi-structured in-depth interviews were held for data collection, and data saturation occurred when no new data were being obtained. Data were analyzed concurrently with data collection.

Results: Fifteen adolescents with PCOS aged 13–19 years were enrolled into the study. Thirteen were single and two were married. The data analysis led to the extraction of “threats to feminine identity” as the main theme of this research, which was then divided into two categories: 1) concerns about attractiveness, with subcategories including fashion-related stress and the loss of physical beauty 2) concerns about femininity, with subcategories including the underlying issues of worrying about future marriage prospects, anxiety about infertility in the future and stress about menstrual abnormalities.

Conclusion: According to the results of this study, attractiveness and threat to femininity is the main concern of adolescents with PCOS that should be further considered in the management of their treatment.

Implications for practice: Understanding the main concerns of adolescents with PCOS can help healthcare professionals better manage this disease in this population subgroup.

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Introduction

Polycystic Ovary Syndrome (PCOS) is an endocrine disorder with a rapidly increasing prevalence and incidence (Barthelmess & Naz, 2014; Ganje & Kalra, 2011; Joshi et al., 2014). The interaction of genetic and environmental factors on steroid metabolism and the neuroendocrine system can play an important role in the pathophysiology of this syndrome (Baldauff & Witchel, 2017). The prevalence of PCOS ranges from 5% to 22% in adolescent and young girls according to different diagnostic criteria (Joshi et al., 2014; Kaewnin et al., 2018). PCOS presents with a wide range of signs and symptoms of hyperandrogenism, anovulation, hyperinsulinemia and other complications such as cardiovascular, neurological, physiological and psychological disorders (Baldauff & Arslanian, 2015). Common symptoms of PCOS during adolescence include menstrual irregularities and symptoms of

hyperandrogenism, such as hirsutism, overweight/obesity status and acne (Welt & Carmina, 2013).

At present, the etiopathogenesis and diagnostic criteria for PCOS remain controversial in adolescents (Kamboj & Bonny, 2017). Adolescence is a transient period of physiological, anatomical and psychological change and PCOS is a major concern in the life of adolescents who have this condition (Balaji et al., 2015). The overlap between normal puberty symptoms and some of the characteristics of PCOS may lead to problems in accurately diagnosing PCOS in adolescent girls (Witchel et al., 2015). Overall, global public awareness is low with regard to this endocrine disorder; given the high prevalence of PCOS, it is possible that the short-term and long-term effects of this disorder on physical and mental health and its costs for the healthcare system are caused by this lack of knowledge (Sanchez, 2014). This disease affects the physical, psychological, cognitive, emotional and social aspects of life (Oliveira et al., 2010). Women with PCOS often have a lower self-esteem and greater fear of negative evaluation (De Niet et al., 2010). Evidence shows that the psychosocial and social concerns related to PCOS include female-related concerns, fertility and sexual concerns, stress and psychiatric disorders, such as mood disorders, depression, anxiety,

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eating disorders and borderline personality disorder (Azizi & Elyasi, 2017).

Adolescence is a crucial period in the life of individuals because it is a time when they begin to establish their “identity”; that is to say, gender identity plays an important role during this period (Zachurzk et al., 2018). PCOS can affect the life course and timing of events such as pregnancy and transition to motherhood (Sanchez, 2014). Adolescents with PCOS also have serious health problems and undergo physical changes that can result in lower self-esteem and untoward health consequences (Jones, Hall, Lashen, Balen, & Ledger, 2011). Studies of adolescents with PCOS have reported them to be at higher risk for psychosocial problems such as mood disorders, lower self-esteem, social phobia and social isolation (Dowdy, 2012). Furthermore, adolescent girls with PCOS revealed despite their own concerns about their symptoms, they felt others did not fully understand their situation, and that contribute to their emotional distress (Dowdy, 2012). The importance of understanding the concerns of adolescents with PCOS warrants exploration. Understanding the concerns and worries of adolescent girls with PCOS appears to contribute significantly to the better management of this disorder.

Investigating the experiences of adolescents with PCOS can contribute to improved knowledge in this field. The present study was conducted to describe the main concerns of adolescents with PCOS so as to better understand their challenges and provide new insights into PCOS management in the adolescent population.

Methods

Study design

The present qualitative study was conducted using the direct content analysis approach. Qualitative content analysis is a set of techniques for systematically analyzing many types of texts that not only considers explicit content but also focuses on the main themes and ideas contained in the text as the main content (Drisko & Maschi, 2015).

Setting

The study was set in the health centers of Shahid Beheshti University of Medical Sciences in Tehran, Iran. The interview site was a quiet area in these health centers or wherever the participants preferred.

Participants

The inclusion criteria for adolescent girls aged 13–19 years were: a) living with PCOS based on the National Institute of Health (NIH) criteria, (clinical or paraclinical hyperandrogenism, and oligo-anovulation); b) having no other chronic diseases based on the medical records; and c) able to read and speak Persian and share experiences. Individuals who met the inclusion criteria were invited to participate in the study. Overall, 15 adolescents with PCOS were included in this study through purposive sampling in July–September 2018. The participants were selected from a diverse background in terms of education (primary school to university education), family size, marital status, social status (urban or rural residence), economic status (high, medium and low income), type of treatment (oral contraceptives, spironolactone, metformin, etc.) and duration of the disease (total months after diagnosis) in order to maximize the variety. Recruitment of participants ended with data saturation occurred when no additional content emerged from the interviews.

Procedure

This study was approved by the Deputy Director of Research and Technology of the Shahid Beheshti University of Medical Sciences. After carefully designing the research steps, permission was obtained and the necessary arrangements were made for the researcher's regular

presence in the research setting. Before the formal semi-structured individual interviews began, the participants were briefed on the research objectives. Then, the adolescents and their parents gave their consent for participating in the interviews. The participants were also ensured of the voluntary nature of participation in the study and the confidentiality of their data.

The research team was composed of a PhD in reproductive health, a gynecologist carrying out research on PCOS, a qualitative methodologist and a PhD candidate of reproductive health, all of whom collaborated together for data collection and analysis. The research team reviewed relevant literature to generate the interview questions and find a conceptual framework for the study.

The interview guide, composed of two main items was developed based upon the literature exploring the quality of life of women and adolescents with PCOS (Bazarganipour, Ziaei, Montazeri, Foroozanfard, & Faghihzadeh, 2013; Nasiri-Amiri, Tehrani, Simbar, Montazeri, & Mohammadpour, 2016). Members of the study's guidance team reviewed and provided recommendations for revision and approved the final draft. The interviews began with these questions:

“Please describe your main concern about having polycystic ovary syndrome as an adolescent?” and “What does your experience of having polycystic ovary syndrome as an adolescent entail?” The follow-up probing questions included, but were not limited to, “Would you like to tell me more about that?” and “How did you feel about this situation?”

The interview was semi-structured. All the individual interviews were recorded digitally, and at the end of each interview, the participants were asked if they wanted to add anything other comments. Immediately after completing the interview, the researcher completely typed out the text verbatim. The non-verbal features of the interview and its process were also recorded and added to the typed text of the interview. The duration of each interview was between 30 and 55 min.

Data analysis

The analysis of data in this study was done according to the steps detailed by Graneheim and Lundman (2004). The transcribed interview texts were entered into the software MAXQDA10 enabling data analysis.

In the first stage, once the interviews were completed and transcribed, the researchers read the complete text of the interviews several times for full understanding before analysis was undertaken.

In the second phase, the entire text of the interview was divided into meaning units. According to the Graneheim and Lundman (2004): “A meaning unit is a constellation of words, sentences or paragraphs containing aspects related to each other through their content and context.”

In the third stage, the abstract of the meaning units were summarized and labeled with appropriate codes, and the coding started simultaneously with the start of the interviews. In the fourth stage, the codes were placed into categories and subcategories based on comparisons of their similarities and contrasts. Finally, the underlying themes were extracted according to the manifest content in the texts.

The constant comparison of the data led to the identification of any identical or overlapping codes, and the categories were named by creating more abstract concepts.

Lincoln and Guba's criteria, including credibility, dependability, confirmability and transferability, were used in this study to enhance the trustworthiness of the data (Lincoln & Guba, 1985). Prolonged engagement, choosing adolescents with various experiences, persistent observation, member checking by two external observers and peer debriefing sessions with key members of the research team ensured the credibility of the data. Detailed descriptions of the research settings ensured data transferability. A code-recode strategy and peer checking by two PhD students of reproductive health ensured the dependability or stability of the data over time. Audit trail and triangulation were used to ensure the confirmability of the data.

Results

Fifteen adolescents with PCOS aged 13–19 years participated in the present study and 13 of them were single and two were married. The duration of diagnosis varied from one month to six years. Table 1 shows the demographic characteristics of the participants.

Theme: threats to feminine identity

From the analysis of the data, *threats to feminine identity* emerged as the main theme of this research. This theme included two Categories, namely *concerns about attractiveness* and *concerns about femininity* (Table 2). The participants stated that recurrent clinical symptoms such as hair loss, obesity, hirsutism, acne, baldness and tension created concerns about their beauty and attractiveness and feel pressure about their appearance.

Category one: concerns about attractiveness

One of the major concerns of the adolescents with PCOS was the issue of attractiveness. This category consisted of two subcategories: *fashion-related stress* and *loss of physical beauty*.

Subcategory one: fashion-related stress. More than half of the adolescents with PCOS who participated in this study reported fashion-related stress, especially in their social relationships with peers. Fashion-related stress was evident in the following two condensed meaning units:

Wearing clothes to cover the physical defects caused by the disease. “The clothes I want to wear, they preoccupy my thoughts, what should I wear so that, for instance, I will appear thinner –even just a bit thinner!” (ID 3; 16 years old).

Tension caused by wearing clothes they do not like. “I like casual wear; but mostly, I can't find any, because I'm a large size –not quite a woman's size, but, like, in the 20-25 year-old age group. Anytime I go looking for clothes, and I see what most of my friends are wearing, which are fashionable for my age, I can't find those in my size. These are the things that bother me” (ID 2; 15 years old).

Subcategory two: loss of physical beauty. Most of the adolescences with PCOS who participated in this study reported a physical appearance that was affected by the PCOS to different degrees. Most of them also worried about their social acceptance because of the loss of their

Table 1
Demographic characteristics of the participants (n = 15).

Variable		Number
Age (years)	13–16	3
	16–19	12
Age of diagnosis of disease (years)	<15	5
	Above 15	10
Treatment duration (year)	<1	8
	>1	7
Education	Primary school	2
	High school	7
	University	6
Economic status	High	4
	Middle	8
	Low	3
Marital status	Married	2
	Single	13
Place of residence	Urban	13
	Rural	2
Duration of living with the disease (months)	<12	8
	>12	7
Treatment type	Combination oral contraceptive pills	7
	Antiandrogens	4
	Insulin-lowering agents	4

Table 2
The theme, categories and subcategories of the study.

Main theme	Categories	Sub categories
Threats to feminine identity	Concerns about attractiveness	Fashion-related stress Loss of physical beauty
	Concerns about femininity	Worrying about future marriage prospects Anxiety about infertility in the future Stress about menstrual abnormalities

physical beauty. The loss of physical beauty and an affected appearance were composed of these meaning units:

- Anxiety about beauty due to hair loss. “My hair was getting thin. I'd braid it and it was like a rat's tail. I got very upset; I could not do two braids like I used to” (ID 3; 16 years old).
- Stress due to frequent acne and beauty problems. “The fact that my acne doesn't get better is a concern for me; it's like I will have acne until the end of my life” (ID 4; 19 years old).
- Anxiety about obesity and weight control. “I went on tough diets and went through everything, but, well, I haven't lost even a kilo” (ID 10; 19 years old). “At first, I frequented the gym a while. Then I realized that it doesn't have any effects at all; I wasn't getting thinner or seeing any results, so I quit the gym” (ID 15; 19 years old).
- Exhaustion due to constant hair removal. “Because of this problem, I have to go for hair removal every two weeks. I get angry. The excessive hair bothers me and I have to go for laser treatments. I have so much hair that it can't be fixed with wax” (ID 14; 17 years old).

Category two: concerns about femininity

The adolescents with PCOS in this study were concerned about their femininity. This category of the main theme was then divided into three subcategories: (1) worrying about future marriage prospects, (2) anxiety about infertility in the future, and (3) stress about menstrual abnormalities.

Subcategory one: worrying about future marriage prospects. Self-consciousness and low self-esteem were observed in the participants as a result of the conflicts they experienced between their own appearance and the ideals formed in their mind during adolescence, which had led to concerns about their marriage prospects. This subcategory consisted of these three meaning units:

- Distress about the lack of proper suitors. “I always think that I won't get married” (ID 6; 19 years old).
- Fear of losing their chances with their preferred suitor. “For some, it's really important that the person they marry has no particular illness –it's very important to them” (ID 2; 15 years old).
- Fear of an unsuccessful marriage. “I believe this is the only thing that can affect the outcome of marriage –either it will be the case or not” (ID 13; 19 years old).

Subcategory two: anxiety about infertility in the future. Future infertility was one of the major concerns of the adolescents with PCOS who participated in this study. Some of them had asked their doctor about the topic of infertility whereas others worried about the future because they had seen women face the problem of infertility. For the majority of the participants, concerns about infertility in the future were identified in these two meaning units:

- Hope for fertility. “My doctor told me that the irregularities of my period aren't important, and later on I can also marry and have children” (ID 6; 19 years old).
- Worries and anxiety about infertility complications in the future. “My cousin is seeking infertility treatment. I feel that my future will be

the same, as if I'm seeing myself in her. I really feel like this will be my problem in the future too" (ID 2; 15 years old).

Subcategory three: stress about menstrual abnormalities. Menstrual abnormalities were a common problem in the adolescents with PCOS who participated in this study. For the majority of the participants, the stress of menstrual abnormalities were composed of two meaning units:

- a) Distress for the absence of menstruation. "I am faced with the same problem every morning when I wake up. I'm always checking to see blood -I mean, to see if my period hasn't suddenly started" (ID 11; 17 years old).
- b) Menstrual dysfunction as a major concern in life. "Because I didn't have a period, I felt very bad. I always felt hot; I had hot flushes. I was constantly sweating. I was nervous. Then I felt angry; I mean I was angry because I didn't have a period. This really took its toll on me" (ID 13; 19 years old).

Discussion

Threats to feminine identity emerged as the main theme of this qualitative study. The participants discussed their attractiveness concerns in terms of fashion-related stress and loss of physical beauty; also they discussed their femininity concern in terms of future marriage prospects, facing infertility and the stress of menstrual irregularities.

There are three stages in adolescence: Early (10 to 13 years old), middle (14 to 16 years) and late (17 to 19 years) adolescence (Unicef, 2005). The sense of sexuality begins to develop later in adolescence (Kar, Choudhury, & Singh, 2015); that is, in early and mid-adolescence, there is still a lack of concern about identity (Archer & Waterman, 1983); late adolescence, however, is the period in which sexual identity is formed (Covington et al., 2008). Since PCOS manifestation present in late adolescence (Gambineri et al., 2013); in our study participants concurrent with formation of sense of identity, *threats to feminine identity* revealed as the main concern.

In this study, the theme of *threats to feminine identity* was similarly reported as a "theft of womanhood" in another qualitative study conducted among British women with PCOS aged 25–34 years; they reported feeling 'freakish', 'abnormal', and 'not proper women' caused by PCOS symptoms including 'excess hair growth'; 'irregular, absent or disrupted periods'; and 'infertility' (Kitzinger & Willmott, 2002). Concepts addressed in Kitzinger and Willmott study were similar to our study, but expressed in different words and emphasized differently. Adult Danish women with PCOS reported that they were highly influenced by the society's femininity norms, as they perceived their bodies "different" because of their manifestations of PCOS (Pfister & Rømer, 2017). Interviews using Skype with ten women aged ≥18 who lived in the UK and manifested symptoms of PCOS revealed that issues such as hirsutism, irregular menstruation and infertility affected and threaten their identity as a woman (Williams, Sheffield, & Knibb, 2015).

Concerns about attractiveness were the first category extracted in this study and its subcategories included fashion-related stress and the loss of physical beauty. Recent research revealed that adolescents' concerns are more cosmetic in nature (Oliveira et al., 2010). Jones et al. (2011) used semi-structured interviews with 15 adolescents (17–21 years old) with PCOS and found that problems related to weight control, hirsutism and menstrual disorders affected the emotional health, self-esteem, self-confidence and social functioning of these individuals. The findings of a qualitative research conducting telephone interviews with 34 adolescents from the UK, Italy and Germany illustrate that acne is associated with impairments in relationships, sleep, emotional and social functioning, daily and leisure activities and school/work (Fabbrocini, Cacciapuoti, & Monfrecola, 2018).

The study participants also discussed fashion-related stress. Another research has documented that acne vulgaris affects the choice of clothes,

and it is evident that clothes have an important role in any individual's social acceptance (Hazarika & Archana, 2016). The bodily appearance of adolescents is influenced by their peers' appearances (Romo, Mireles-Rios, & Hurtado, 2016). A study conducted with U.K. adolescents reported that weight and facial attributes were important attributes associated with perceptions of attractiveness, although differences in appearance and poor body image perception were associated with gender (Jones, 2001). The importance of peer relationships increases dramatically in adolescence (McElhaney, Antonishak, & Allen, 2008), and adolescents experience peer pressure regarding fashion choices (Srishti & Shruti, 2014). One study showed that female adolescents are more affected by peer pressure on appearance standards (Helfert & Warschburger, 2013). For example obesity in adolescents with PCOS has been reported as restricting the establishment of friendships and social relationships (Dowdy, 2012).

Participants' experiences showed that recurrent clinical symptoms such as hair loss, obesity, hirsutism, acne and tension made them have concerns about their beauty and attractiveness and feel pressure about their appearance. The present findings are in concordance with Ji's et al. (2012) findings, which revealed concerns about physical appearance in adolescent girls with Systemic Lupus Erythematosus (SLE) and the damaging physical, functional and psychological effects of this disease. Evidence suggests that changes in appearance due to PCOS can lead to psychological distress due to the existing contrast with the social norms (Hahn et al., 2005). The feeling of not being attractive due to changes in appearance in adolescents with PCOS can increase their sense of shame and affect their self-concept and relationships with family and friends (Callender, 2018). Research suggests that adolescent girls are usually highly sensitive to their body image and any deviation from their ideal image can lead to psychological problems (Emeksiz et al., 2018). Increased criticisms by those around them can also reduce adolescents' self-esteem and increase their level of anxiety and depression and lead to disrupted social relationships (Zachurzok et al., 2018). Evidence further shows that adolescents who feel attractive are more successful in their adult life (Benzeval, Green, & Macintyre, 2013).

Our participants were also concerned about their future marriage, infertility and menstrual abnormalities as reported in Subcategory two, concerns about femininity. Romantic relationships begin to develop during adolescence and thinking about marriage usually initiated in transition to adulthood period (Meier & Allen, 2008, 2009). Adolescents are focused on their romantic partners and maintenance of their attractiveness become a main concern (Karraker, Sicinski, & Moynihan, 2017; Price, Hides, Cockshaw, Staneva, & Stoyanov, 2016). Diseases that disrupt adolescents' attractiveness have great effect on romantic relationships and adversely affect their quality of life. In the present study, participants presented their concerns about marriage, in agreement with the findings of the study by Romo et al. (2016), that reported body image as the main factor that influenced the potential romantic attraction. Body weight (Zachurzok et al., 2018) and dermatologic manifestations of PCOS (Lee & Zane, 2007) can affect adolescents' body image. According to a longitudinal study, the sense of attractiveness during adolescence can affect one's marital, romantic and sexual relationship later in life (Karraker et al., 2017). It is well documented that skin diseases such as acne, vitiligo and psoriasis could have a damaging effect on marriage (Nguyen, Beroukhim, Danesh, Babikian, & Koo, 2016). In literature on patients with acne vulgaris, the patients were worried about having to accept arranged marriage, and some had problems with their partner and experienced a reduction in their sexual attraction to them (Hazarika & Archana, 2016).

Appearance problems caused by PCOS that affect one's attractiveness led to concerns about future marriage prospects in the participating adolescents. A combination of physiological and hormonal PCOS characteristics can lead to decrease in their sense of self-importance (Dowdy, 2012). The participating adolescents were worried about their marriage in the future and expressed their concerns through

words such as “the stress of the future stigma of infertility”, “unattractive appearance”, “opposite sex feeling of guilt due to the defected appearance caused by this syndrome”.

The present findings also support the results of a previous study conducted on adolescents with PCOS in Singapore, which showed that this group is worried about their attractiveness to the opposite sex and the possibility of infertility in the future (Dramusic, Rajan, Chan, Ratnam, & Wong, 1997).

Consistent with a qualitative study among British adolescents with PCOS (G. L. Jones et al., 2011) and British women with PCOS aged 18 and over (Williams et al., 2015), the present study found that concerns about infertility in the future are one of the main issues of adolescents with this syndrome. Fertility is introduced as the sixth vital marker of health (Cedars et al., 2017); as a result individuals with chronic diseases including diabetes, cancer, endocrine autoimmune diseases that affected the fertility and reproduction health of women, may adversely influenced the quality of life due to fertility concerns (Anderson et al., 2018; Livshits & Seidman, 2009; Sen, Kushnir, Barad, & Gleicher, 2014). Previous research on American adolescents with PCOS showed that this group was more concerned about infertility than their healthy peers, and these concerns affected different aspects of their quality of life (Trent, Rich, Austin, & Gordon, 2003). In line with this finding, evidence on adolescent cancer survivors also showed that these children and their parents had concerns about the effect of infertility on their future (Ellis, Wakefield, McLoone, Robertson, & Cohn, 2016; Quinn et al., 2013). Childbearing is an important component of the feminine identity (Brady, Mousa, & Mousa, 2009); therefore, childbearing and motherhood comprise a vital stage in the life of a woman after marriage (Mumtaz, Shahid, & Levay, 2013). PCOS can affect the occurrence of important events and experiences for the individual, such as pregnancy and motherhood (Sanchez, 2014). Irregular menstruation, perceived risk of infertility and, consequently, undermined future role as mother led to anxiety about infertility in the participating adolescents.

The adolescents participating in the present study also had major concerns about the abnormalities in their menstrual cycle. Menstruation is a symbol of female identity and is considered an integral part of femininity (Laggari et al., 2009). According to the American College of Obstetricians and Gynecologists and American Academy of Pediatrics recommendation the menstrual cycle is a vital sign of adolescence (Care, 2006; Pediatrics, Obstetricians, & Gynecologists, 2006). As such, menstruation is associated with positive feelings (Rembeck, Möller, & Gunnarsson, 2006), and any disruption in it could adversely affect the adolescent's health (Pediatrics, 2016). The participants of this study considered menstrual irregularity a manifestation of their feminine health problems, and some described it as a stressful event in their everyday life, while others considered it a precursor of fertility problems in the future.

As the findings of our study demonstrated, the participants experienced many adverse feelings about living with PCOS. Our findings and those of other studies conducted with adolescents and women with PCOS indicate that PCOS is a multidimensional disorder that has and the demonstrated potential of negatively impacting the physical, psychological, social, and other aspects of well-being of individuals with PCOS.

Implications for practice

Understanding the main concerns of adolescent girls with PCOS can assist healthcare professionals provide care based upon their individual needs. Assessment of their main psychological needs will enable the provision of adolescent-friendly interventions in healthcare centers. Peers and parents can also play an important role in these adolescents' way of coping with their disease-related stress and should therefore be encouraged to attend to the particular needs of this group. Future studies in the different societies and cultures can help gain a better understanding of the feelings and experiences of this group.

Limitations

This qualitative study was limited to participants from Iran, which affects the interpretability of the results to other societies and cultures. Another limitation is that only the participants with an informed parental consent entered the study; meanwhile, adolescents without parental consent may have expressed other opinions and views about this issue. Also, the treatment types and periods of the participants varied and the effects and side-effects of these treatments could have contributed to their particular opinions.

Conclusion

Recurrent clinical symptoms such as hair loss, obesity, hirsutism, acne and tension were concerns expressed by Iranian adolescents with PCOS about their beauty and attractiveness and the pressures they felt about their appearance. This group also had some concerns about their femininity. Since adolescence is the foundation of later periods of life, we recommend that the healthcare teams working with adolescents with PCOS pay particular attention to the concerns and worries of this group and offer adolescent-friendly services to help prevent the exacerbation of adolescent crises for those with this syndrome.

Declaration of Competing Interest

The authors have no conflicts of interest to report.

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