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Self-reported psychopathological symptoms in young females with mayer-rokitansky-küster-hauser syndrome and polycystic ovary syndrome: findings from a cross-sectional study

Abstract

Objective: The Mayer-Rokitansky-Kuster-Hauser syndrome (MRKHS) and the polycystic ovary syndrome (PCOS) have been associated with disturbances in youths' psychological functioning and psychosexual development. We examined self-reported psychopathological symptoms in young females with MRKHS and those with PCOS at the time of diagnosis, compared with healthy adolescents.

Methods: Self-reported questionnaires to measure depression, anxiety and general psychopathological symptoms were obtained from 70 young females aged 11-20years. Of the total sample, 24 adolescents presented with MRKHS (mean age ± SD: 17.2 ± 1.5), 22 with PCOS (mean age ± SD: 16.9±2.00) and 24 subjects were recruited as healthy age-matched controls (mean age ± SD: 17.3 ±2.2).

Results: The MRKHS group showed significantly higher levels of anxiety symptoms compared with the control group. Also, older MRKHS patients (18-20years old) presented significantly higher levels of depression, anxiety symptoms, phobic anxiety symptoms, and hostility than PCOS patients of the same age group. Older PCOS patients (18-20 years old) reported significantly less attention problems and more somatic complaints compared with MRKHS patients and controls of the same age group.

Conclusion: Young females with PCOS and especially with MRKHS appear to be a psychologically vulnerable group. A biopsychosocial approach should emphasize the assessment and treatment of the psychopathological symptoms of these patients alongside somatic treatments.

Keywords: mayer-rokitansky-kuster-hauser syndrome, polycystic ovary syndrome, anxiety, depression, psychopathology, youths

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Abbreviations: MRKHS, mayer-rokitansky-kuster-hauser syndrome; PCOS, polycystic ovary syndrome; STAI, spielberger state trait anxiety inventory; BDI, beck depression inventory; BMI, body mass index

Introduction

The sexual identity and self-esteem of women is closely linked with their reproductive capability. This relationship is reinforced by social expectations concerning the female role.[1] The feeling of incapacity to fulfill their socially accepted function, which encompasses menstruation, sexual relations and motherhood, is seriously damaging to the self-image of females. Disfiguring gynaecological disorders may be experienced as a loss, which generates intense stress.[2]

The Mayer-Rokitansky-Kuster-Hauser Syndrome (MRKHS) is characterized by complete or partial absence of the vagina, uterus and proximal fallopian tubes, with primary amenorrhea. MRKHS is a congenital malformation and has an incidence of about 1:5,000 female births. Primary amenorrhea occurs due to the agenesis of the uterus and vagina. Diagnosis is usually made in adolescence following investigation of primary amenorrhea, which is the usual presenting symptom. The gynaecological treatment of the condition may include vaginal reconstruction for the creation of neovagina.[3] The polycystic ovary syndrome (PCOS) combined with androgen hypersecretion includes a variety of clinical manifestations, including menstrual irregularity, hirsutism, obesity and infertility. PCOS is the most common endocrine disorder in women of childbearing age. Its clinical picture is heterogeneous, due variation in the expression of hyperandrogenism, with chronic anovulation, oligomenorrhea and subfertility being the usual characteristics. There may also be metabolic disturbances, with insulin resistance and obesity, hirsutism, acne and alopecia.[4]

The diagnosis of both these conditions may give rise to emotional distress, feelings of loss, perceptions of self as different, impairment of sexual identity, body image dissatisfaction, and lower self-esteem.[5–7] In recent years a bio-psychosocial approach has been proposed in the management of MRKHS, as the psychological aspects of the condition, such as depression, feelings of inadequacy and social isolation, as well as the long-term outcome of the syndrome, have been documented.[5,8–12] In the case of PCOS, the need for a holistic approach has been also emphasized.[13–16] The visible disfiguring body changes and the menstrual and fertility problems may give rise to psychological distress and anxiety related to impaired self-image that leads to a disturbed identification with the female-gender scheme and, associated with it, social roles. Also, in women with PCOS, low self-esteem, increased likelihood of social phobia, worse quality of life, less engagement in self-help methods, and sexual dysfunction have been reported.[6,17–39]

Although attention has been paid in recent years to the psychological aspects of MRKHS, most studies have documented the effects in adult women, with only retrospective evidence on the situation in adolescence. Concerning PCOS, the heterogeneity of the clinical picture, ranging from mild to severe manifestations, gives rise to difficulties in assessment and comparison of its psychological effects.

The purpose of this study was to assess prospectively psychological functioning in youths with uterovaginal agenesis and primary amenorrhea due to MRKHS and those with hyperandrogenism and oligomenorrhea due to PCOS, compared with healthy youths. Some of the present results have been previously presented in Greek only.[40]

Methods

Participants and procedures

The participants were 70 female youths, of whom 24 were diagnosed with MRKHS, 22 with PCOS combined with androgen hypersecretion and oligomenorrhea, and 24 were healthy eumenorrheic youths (control group) matched by age with the patients. Diagnoses of MRKHS and PCOS were made according to international scientific guidelines[41,42] based on the results of gynecological physical examination, ultrasound evaluation of internal female genital organs, as well as hormonal, hematological, serum biochemical and thyroid function tests. The patients were recruited from the population of youths (age ≤20years) attending for the first time the Division of Child and Adolescent Gynecology and Reconstructive Surgery of the 2nd Department of Obstetrics and Gynecology, University of Athens Medical School at Aretaieion Hospital. The inclusion criteria were, for the MRKHS group no history of surgery for the construction of a neovagina, and for the PCOS group no history of prior treatment for the condition. In case that contact with the youths and their parents during the course of the study revealed the need for psychological support and counselling, they were referred to the Adolescent Unit of the Department of Child Psychiatry, University of Athens Medical School at Aghia Sophia Children's Hospital. The study was approved by the Ethics Committees of the participating hospitals and Athens University Medical School. Written informed consent was secured from each participant and her parents in case she was under 18years of age.

Measures

Assessment of psychopathological symptoms was conducted at the time of initial diagnosis, using self-reported questionnaires. In order to assess general psychopathology symptoms among older youths (aged 18-20years), the Greek version of the Symptom Checklist-90-Revised (SCL-90-R) was administered.[43] It is a 90-item multidimensional questionnaire designed to screen for a broad range of psychological problems. Each of the 90 items is rated on a five-point Likert scale of distress, ranging from 0 = not at all to 4 = extremely in terms of "how much discomfort that problem has caused you during the past week including today." For SCL-90-R, its nine scales (somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism) were originally proposed as representing a nine-factor structure.[44] A standardization study has supported the validity of the instrument and its usefulness in psychiatric research and clinical practice in the Greek population.[45]

Younger (<18years) patients' emotional/ behavioral problems were measured through the Youth Self-report (YSR) questionnaire.[46] The instrument contains 113 items rated on a three-point scale (i.e. 0 = not true, 1=somewhat or sometimes true, 2=very true or often true), based on the preceding six months. The following eight syndromes are scored, anxious/ depressed, withdrawn/ depressed, somatic complaints, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. The questionnaire has been standardized and used in Greek population, with acceptable psychometric properties.[47]

Depressive symptoms were assessed with the Beck Depression Inventory (BDI),[48] which includes 21 items graded from 0 to 3. A high total score corresponds to the presence of elevated depressive symptomatology. The questionnaire has been standardized and used in Greek population. The internal consistency is high for clinical and non-clinical populations. Its validity in relation to an external criterion for depression (that is, a clinical diagnosis) is considered to be satisfactory.[49]

Anxiety symptoms were assessed with the Spielberger State Trait Anxiety Inventory (STAI), a widely used anxiety rating scale.[50] It consists of 40 items, each graded from 1 to 4. The scale differentiates anxiety into

a. Anxiety caused by a specific condition (state subscale) and

b. Anxiety as a more permanent characteristic of personality (trait subscale).

The Greek validation of the state scale was used in our study, which is considered as having a high inner coherence reliability and validity compared to clinical diagnosis.[51]

Statistical analysis

A series of Kruskal-Wallis tests were used in the analysis in order to examine whether the three groups of youths (MRKHS, PCOS and control group) differed on the dependent variables: STAI, SCL-90-R and YSR. For statistically significant results post-hoc paired testing with Bonferroni adjustment was made. ANOVA test was conducted with dependent variable the BDI score and independent variables the groups of youths: MRKHS aged ≥18years, PCOS aged ≥18years, control subjects aged≥18 years, MRKHS aged <18years, PCOS aged <18 years, control subjects aged<18years. Spearman test was used to investigate correlation of scores with age.

Results

The demographic and clinical characteristics of the study population are shown in Table 1. The mean body mass index (BMI) was slightly higher in the two groups of patients than in the control subjects, but not to a significant degree. Table 2 presents the scales on the various questionnaires (STAI, SCL-90-R and YSR) for which statistically significant differences were demonstrated between the two groups of patients and the matched control subjects, which are further analysed pair wise in Table 3.

The anxiety level measured by STAI in the whole sample and by SCL-90-R in the youths aged ≥ 18years was significantly higher in the MRKHS group than in the control subjects or the PCOS group respectively (Table 2 & 3). In addition, in the ≥ 18 years age group, the youths with MRKHS reported significantly higher scores than those with PCOS on the SCL-90-R psychopathology scales, specifically on the hostility and phobic anxiety (Table 2 & 3). Similarly, the depression score on the BDI was higher in the patients with MRKHS aged ≥ 18years than either those of the same age with PCOS (p=0.026) or in the matched control subjects (p=0.025), or those with MRKHS

aged <18years (p=0.020). Conversely, in the <18years age group the patients with PCOS reported significantly more somatic complaints on the YSR than those with MRKHS or the control subjects (Table 2 & 3). Additionally, the patients with PCOS aged <18years showed age-linked differentiation on the attention problems (p=0.015) and a non-significant trend on social problems scales (p=0.067) of the YSR.

Table 1 Sample characteristics (n = 70)

	Controls n = 24 Mean (SD)	PCOS n = 22	MRKHS n = 24	p-value
Age (years)	17.3 (2.2)	16.9 (2.00)	17.2 (1.5)	0.848
BMI	20.70 (2.97)	24.63 (6.42)	24.18 (10.97)	0.157
Age at menarche (years)	12.57 (1.36)	12.50 (1.26)	-	0.858
Menstrual cycles/year	12.63 (0.45)	6.05 (2.15)	-	<0.001

MRKHS: Mayer-Rokitansky-Kuster-Hauser Syndrome; POS: Polycystic Ovary Syndrome

Table 2 Psychopathological symptoms in patients with PCOS (n=22), MRKHS (n=24), and matched control subjects (n=24) **Scales for which statistically significant differences were demonstrated (Kruskal-Wallis test).*

Psychopathological symptoms*	Controls Median (IQR)	PCOS Median (IQR)	MRKHS Median (IQR)	Total population Median (IQR)	p-value
SCL-90-R Anxiety	7 (4.0, 11.0)	2 (0.0, 5.0)	12 (11.0, 16.0)	8 (4.0, 14.0)	0.006
SCL-90-R Hostility	6 (5.0, 9.0)	4 (0.0, 5.0)	9 (5.0, 10.0)	6 (4.0, 9.0)	0.044
SCL-90-R Phobic anxiety	3 (2.0, 5.0)	0 (0.0, 1.0)	3 (1.0, 5.0)	2 (1.0, 5.0)	0.01
SCL-90-R Total positive symptoms	52 (22.0, 65.0)	25 (15.0, 41.0)	51 (45.0, 55.0)	49 (25.0, 55.0)	0.036
STAI State anxiety	30 (25.0, 36.0)	33.5 (29.0,42.0)	40 (30.0, 51.0)	34 (27.0, 42.0)	0.007
YSR Somatic complaints	2 (0.0, 3.0)	6 (3.0, 7.0)	2.5 (1.5, 3.5)	3 (2.0, 5.5)	0.006

MRKHS: Mayer-Rokitansky-Kuster-Hauser syndrome; POS: Polycystic ovary syndrome; SCL-90-R: Symptom Checklist-90-Revised; STAI: State and Trait Inventory; YSR: Youth Self Report

Table 3 Psychopathological symptoms in patients with MRKHS and matched control subjects, in patients with PCOS and MRKHS and in patients with PCOS and matched control subjects.

Psychopathological symptoms*	Controls n	Median (IQR)	MRKHS n	Median (IQR)	p-value
STAI State anxiety	24	30.0 (25.0, 36.0)	23	40.0 (30.0, 51.0)	0.003
Psychopathological symptoms*	PCOS n	Median (IQR)	MRKHS n	Median (IQR)	p-value
SCL-90-R Anxiety	9	2.0 (0.0, 5.0)	11	12.0(11.0,16.0)	0.002
SCL-90-R Hostility	9	4.0 (0.0, 5.0)	11	9.0 (5.0, 10.0)	0.021
SCL-90-R Phobic anxiety	9	0.0 (0.0, 1.0)	11	3.0 (1.0, 5.0)	0.029
SCL-90-R Total positive symptoms	9	25.0(15.0,41.0)	11	51.0(45.0,55.0)	0.02
YSR Somatic complaints	13	6.0 (3.0, 7.0)	12	2.5 (1.5, 3.5)	0.017
Psychopathological symptoms*	**Controls n**	**Median (IQR)**	**PCOS n**	**Median (IQR)**	**p-value**
YSR Somatic complaints	11	2.0 (0.0, 3.0)	13	6.0 (3.0, 7.0)	0.006

**Scales for which statistically significant differences were demonstrated (post-hoc paired with Bonferroni adjustment).*

MRKHS: Mayer-Rokitansky-Kuster-Hauser Syndrome; POS: Polycystic Ovary Syndrome; SCL-90-R: Symptom Checklist-90-Revised; STAI: State and Trait Inventory; YSR: Youth Self Report

Discussion

The findings of this comparative study of a small sample of youths at the time of diagnosis of MRKHS or PCOS reinforced the conclusions of earlier researchers. These previous reports show that MRKHS patients' awareness of their anomaly may produce psychological problems and that youths with PCOS express dissatisfaction with their appearance, which has a negative effect on their self-esteem and self-confidence.[5–7]

In the present study a high level of anxiety was elicited in the youths with MRKHS at all ages, and in older youths approaching adulthood, more anxiety, depression as well as a range of other psychopathological symptoms (including hostility and phobic

anxiety) were detected. This more marked psychological reaction to the diagnosis of MRKHS in later adolescence may be due to the more mature individuals' deeper understanding of the threat posed to their relationships and their adult life by the condition. By late adolescence girls have usually shaped the fundamental self and sexual identity to a great extent. The diagnosis of uterovaginal agenesis upsets the fragile balance that they have strived to achieve, and forces them to "renegotiate" their body image, their self-perception and their goals and expectations for the future.

It is possible that older youths, who are closer to the reproductive phase of life, experience more intense grief at the absence of their reproductive organs, and deliberate on their readjustment to the changes in their social and sexual role and their perceptions of "normality". Furthermore, the fact that the external appearance of patients with MRKHS is "normal" intensifies the conflict with this internal hidden absence. Besides, older youths with MRKHS are more likely to have experienced unsuccessful attempts at sexual intercourse, with accompanying confusion, embarrassment and failure of relationships with the opposite sex.

In contrast, in the group of youths with PCOS in the present study, the psychological effects were more marked in younger girls. The predominant expression was related to a variety of somatic complaints, attention problems, and, to a lesser extent, social problems. In fact, the younger the girl was at diagnosis, the more pronounced were these problems. A possible explanation for these age differences is that early and middle adolescence is characterized by the wish to "belong", the need for social acceptance by the peer group and a fear of being branded as "different".

Unlike MRKHS, in which the clinical signs are internal, the effects PCOS in adolescence, such as hirsutism, acne and obesity, are obvious, both to the girls with PCOS themselves, and to their peers. The negative reactions and comments of the peer group, or even fear of such reactions, may make adolescents with PCOS feel unattractive and rejected, and can aggravate their sense of being different at this critical age.

Previous studies have shown that depression in patients with PCOS is correlated mainly with their obesity and poor body image and that there may be a causative relationship between dissatisfaction with their body in adolescence and depression later in adult life.[16] In the present study, depression was not a significant problem in youths with PCOS, possibly because most of them had mild manifestations of the syndrome, and obesity was not a predominant feature, as evidenced by the similarity of the mean BMI with that of the adolescents with MRKHS and the control group. It would, however, be worth monitoring depression symptoms later during adulthood, as the effect may be delayed.

This study has limitations, the major of which is the small sample size of each group. Because of the age range of the youths taking part (11-20years), no single instrument for evaluation of psychopathology covered the total study sample; the YSR for the younger and the SCL-90-R for the older participants are not directly comparable, further reducing the power of the present analysis.

The very low incidence of MRKHS (1/5,000) reduced the possibility of a larger series, but adds to the value of the present findings, which, despite the small numbers, provide evidence of psychological problems at the time of diagnosis and support the need for further investigation. Youths with PCOS were included to provide a comparison group with a gynecological condition presenting in adolescence and also associated with menstrual and fertility problems. In contrast with the patients with MRKHS, the sample of youths with PCOS was characterized by mild expression of this heterogeneous condition, but a different range of significant psychological problems was documented, although milder than those reported in earlier studies.[39] However, counseling services should be offered for adolescents with PCOS along with the gynecological investigation and management.

Undoubtedly, the management of MRKHS in adolescence constitutes a complex multidisciplinary issue. Timely counseling and psychological support, both at the time of diagnosis and during the subsequent gynecological management are recommended.[5,8–12] This study confirms the severity of the initial psychological reaction of youths to the diagnosis of MRKHS and the need for intervention in order to prevent possible immediate and long-term psychological consequences and to achieve a satisfactory transition to adulthood. Targeted cognitive-behavioral interventions for these patients can provide support during their adjustment and transitory period to adult life.

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Conflicts of interest

Author declares there are no cinflicts of interest.

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