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ORIGINAL ARTICLE

Psychological correlates of sexual self-esteem in young women with Mayer-Rokitansky-Küster-Hauser syndrome

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BACKGROUND
Mayer-Rokitansky-Küster-Hauser syndrome (MRKHS) is a difference (disorder) of sex development that results from Müllerian duct aplasia in 46,XX females. The diagnosis of MRKHS is usually established in late adolescence. The purpose of the study was to assess the impact of congenital absence of uterus and vagina (CAUV) on a patient's psychosexual functioning.

PARTICIPANTS AND PROCEDURE
Thirty-two women with MRKHS (mean age 22.9 years) and 32 matched healthy controls (mean age 24.75 years) completed three study questionnaires: the Sexual Self-Esteem Inventory for Women, the Rosenberg Self-Esteem Scale, and Minnesota Multiphasic Personality Inventory-2 (MMPI-2). Statistical analysis was performed by IBM SPSS Statistics 22.

RESULTS
There was no difference in global self-esteem between the two study groups. MRKHS females had lower sexual self-esteem and experienced higher intensity of some psychological functioning characteristics (paranoia, psychasthenia, schizophrenia) than their peers. Correlations between sexual self-esteem and results on depression, psychopathic deviate, schizophrenia, social introversion and anxiety scales were observed in patients with MRKHS. Global self-esteem and schizophrenia results were significant predictors of sexual self-esteem in the clinical group. Higher global self-esteem and lower results in the schizophrenia scale were associated with higher sexual self-esteem in patients with MRKHS.

CONCLUSIONS
Psychological and medical counseling of women with MRKHS should address their impaired sexual self-esteem, especially sexual skills and experiences. While the number of diagnostic responses indicating the presence of specific symptoms in MRKHS females is statistically significantly different, the level of scores obtained does not exceed the threshold of clinical pathology.

KEY WORDS
MMPI-2; global self-esteem; sexual self-esteem; disorders of sex development; MRKHS

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BACKGROUND

Mayer-Rokitansky-Küster-Hauser syndrome (MRKHS), also called Rokitansky syndrome, is the most common cause of congenital absence of uterus and vagina (CAUV). Patients have a female karyotype 46,XX and functioning ovaries. Pubertal growth and development of secondary sexual characteristics in girls are normal, but are not followed by the onset of menstruation. Further consequences include an inability to become pregnant and to bear children as well as difficulties while engaging in penile-vaginal intercourse without prior treatment. Non-surgical self-dilation of a vaginal pouch or surgical creation of a neovagina facilitates sexual intercourse (Callens et al., 2012; Sasin et al., 2013). MRKHS is a rare condition that affects about 1 per 5000 (4000-10 000) newborn females, and is counted among the differences (disorders) of sex development (DSDs). The majority of patients, apart from CAUV, suffer from concomitant extragenital malformations, mostly of the skeleton and urinary tract (ACOG, 2018).

Usually women learn about the anatomical defect of the genital tract in adolescence (Herlin et al., 2020). The diagnosis follows a gynecological examination undertaken due to primary amenorrhea or discovery of an anatomical anomaly made during self-exploration of the genitalia or unsuccessful attempts at penetration. Until then, the lack of awareness and normative development of tertiary sexual characteristics suggests that in other spheres, including psychosexual (gender identity, gender roles), the same phenomena and dilemmas appear as those existing in the patients' peers. Adolescence, including intensive transformations within sexuality, stimulates an identity crisis (Bancroft, 2011; Marcia, 1980). Personality structure, which is defined as a relatively stable pattern of perception, feeling and behavior, as well as self-esteem, stabilizes at that time (Brzezińska et al., 2012; Rosenberg et al., 1995). Therefore, it can be assumed that women with MRKHS do not differ from other women in regard to certain psychological characteristics resulting from universal events which occur during development (Beisert et al., 2015). This may concern global self-esteem, defined as a positive or negative attitude towards self, which is known to emerge in childhood and to remain relatively stable from then on (Alessandri et al., 2015; Rosenberg et al., 1995). Importantly, global self-esteem is not equivalent to specific self-esteem related to roles or tasks occurring within particular spheres of life (Crocker & Major, 1989; Rosenberg et al., 1995). A diagnosis of MRKHS, which is connected with such consequences as difficulties in performing intravaginal intercourse and giving birth to a child, is certainly significant for the emergence of a sense of loss, depressed mood and anxiety (Bean et al., 2009; Heller-Boersma et al., 2009; Liao et al., 2011). These feelings trigger coping strategies, which may evolve into fixed patterns of self-perception and dealing with emotions and subsequently become part of a preserved way of functioning. Research by Bargiel-Matusiewicz and Kroemeke (2015) carried out in a Polish sociocultural context showed that gynecological patients tend to use emotion-focused coping styles more frequently and less often take advantage of problem-focus coping in comparison with females without DSD diagnosis. Within the clinical group there was no difference in coping styles between those females who had known their diagnosis for up to 6 years and those who had been aware of MRKHS for longer (more than 6 years).

Sexual activity of patients with MRKHS is influenced by many biopsychosocial factors (for a comprehensive and up-to-date description, see Herlin et al., 2020). They include aforementioned emotional states (anxiety and depressive symptoms) and global self-esteem, as well as sexual self-esteem.

Based on the foregoing, it was hypothesized that women with MRKHS (clinical group) and women without genital malformations (comparison group) differ with regard to some characteristics of psychological functioning (fixed patterns of feelings and behavior) and sexual self-esteem, but not with regard to global self-esteem.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

Data used in the study were collected as part of a broader project conducted by the authors from June 2013 to February 2015. It used interview and survey methods to examine psychosexual functioning of women with MRKHS.

The study involved 32 females with MRKHS, aged 18-38 years (mean age 23 years) recruited from patients who were under the care of the Division of Gynecology, Clinical Hospital of Obstetrics and Gynecology of the Poznan University of Medical Sciences. The age at diagnosis of MRKHS in the study group ranged from 13.5 to 20.1 years (mean 16.6 years). Thirteen patients (40.6%) were diagnosed with isolated CAUV (MRKHS type 1), while the other 19 patients (59.4%) had coexisting extragenital malformations (MRKHS type 2). Twenty-two patients (68.8%) underwent surgical neovaginoplasty at the mean age of 21.3 years (range 17.9-32 years), eight patients (25%) achieved functional vaginas with self-dilation followed by intercourse, while the other two patients (6.25%) were not in need of medical assistance to treat vaginal aplasia. The MRKHS women who participated in the study were recruited from patients referred to the unit specialized in surgical treatment of complex genital malformations (tertiary level hospital) and for this reason the proportion of patients after surgical neovaginoplasty was high. They were

invited to participate in the study by members of the team (the gynecologist and the psychologist).

The comparison group was recruited with a snowball sampling technique and involved 32 healthy female volunteers, aged 18-42 years (mean age 24.8 years), with normal menstrual cycles, being sexually active, who declared not having any DSD condition. The study and the comparison groups were homogeneous with respect to age, place of residence and level of education but differed in relationship status. The distribution of age in the study sample was right-skewed and heavy-tailed. The characteristics of the study participants are shown in Table 1.

All study participants signed informed consent. The research was approved by the Committee on Ethics for Research Involving Human Subjects at the Adam Mickiewicz University.

MEASURES

All questionnaires were administered in Polish.

Short version of Sexual Self-Esteem Inventory for Women (SSEI-W) by Zeanah and Schwartz (1996). The instrument measures sexual self-esteem defined by the authors as affective reactions to one's own sexual thoughts, feelings and behaviors. SSEI-W consists of 35 items rated using a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). By summing the relevant items (taking care to apply reverse-scoring) it is possible to obtain a total sexual self-esteem score (ranging from 35 to 210), as well as five subscale scores (ranging from 7 to 42). Higher scores indicate greater sexual-self-esteem. The skill/experience subscale addresses the woman's ability to please or be pleased by a sexual partner and possibilities to take up sexual activity. Attractiveness concerns subjective perception of one's sexual attractiveness. Control is described as the ability to organize and regulate sexual thoughts, feelings, behaviors and interactions held by women. Moral judgement refers to compliance of a woman's sexual thoughts, feelings, behaviors and interactions with their internal moral norms. The adaptiveness subscale regards convergence of a female's sexual experience or behavior and other aims which she holds in life (Zeanah & Schwartz, 1996). The overall internal consistency of the SSEI-W SF in both study groups was excellent (.94 in clinical and .91 in a comparison

Table 1

Sociodemographic characteristics of study participants

Characteristic	MRKHS group		Comparison group		Full sample	
	n	%	*n*	%	*n*	%
Age						
18-20 years	12	37.5	10	31.3	22	34.4
21-30 years	15	46.9	15	46.9	30	46.9
31-42 years	5	15.6	7	21.9	12	18.8
Relationship status						
Currently in a relationship	13	40.6	22	68.8	35	54.7
Currently not in a relationship	17	53.1	9	28.1	26	40.6
No information	2	6.3	1	3.1	3	4.7
Education level						
Compulsory school	4	12.5	2	6.2	6	9.4
Vocational school	7	21.9	8	25.0	15	23.4
High school	12	37.5	11	34.4	23	35.9
University	6	18.8	11	34.4	17	26.6
No information	3	9.3	0	0	3	4.7
Place of residence						
Rural or suburban area	19	59.4	15	46.9	34	53.1
Urban area	12	37.5	17	53.1	29	45.3
No information	1	3.1	0	0	1	1.6

Note. $N = 64$ ($n = 32$ for each condition).

group). For the subscales the Cronbach's α in the MRKHS group was good to excellent and ranged from .72 to .92. It fared worse in the comparison group and ranged from .51 to .89 (acceptable to high). These results are comparable to those obtained by German researchers, except for the morality subscale, which showed the lowest internal consistency in a comparison group. Bornefeld-Ettmann et al. (2018) reported Cronbach's coefficients ranging from .80 to .88 in the subscales and .92 in the overall score for the original short version of the scale and respectively .78 to .92 and .94 in their SSEI SF adaptation.

Rosenberg Self Esteem Scale (RSES), in the Polish cultural adaptation (Dzwonkowska et al., 2008) for global self-esteem measurement. This concept is defined as a relatively stable disposition, with a conscious attitude toward the self. Self-esteem contains both a cognitive (judgements about the self) and an affective (emotions toward the self) component (Alessandri et al., 2015). The RSES is composed of 10 items assessed on a scale from 1 (*totally agree*) to 4 (*totally disagree*). The global score is obtained by summing through the items (after reversing some of them) and ranges from 10 to 40. In the Polish version of the RSES reverse-scoring concerns statements formulated positively, so that a higher score represents greater global self-esteem (Dzwonkowska et al., 2008).

Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Brzezińska et al., 2012) to measure characteristics of psychological functioning – psychopathology symptoms as well as personality traits, behavioral and emotional patterns (Sellbom & Ben-Porath, 2005). MMPI-2 contains 567 true-false statements. Responses were hand-scored to obtain the *t*-scores of ten basic clinical scales (Hypochondriasis – Hs, Depression – D, Hysteria – Hy, Psychopathic Deviate – Pd, Masculinity/Femininity – MF, Paranoia – Pa, Psychasthenia – Pt, Schizophrenia – Sc, Hypomania – Ma, Social Introversion – Si), two content scales (Anxiety – ANX, Fears – FRS) and one supplemental scale (Anxiety Scale – A). According to the manual, *t*-scores exceeding 65 are interpreted as high.

The use of the MMPI was motivated by the aim of verifying findings indicating elevated rates of anxiety and depression in patients with MRKH (Bean et al., 2009; Heller-Boersma et al., 2009; Liao et al., 2011) in the Polish settings. The construction of the questionnaire makes it possible to identify the correlates of elevated scores in the form of specific features of deteriorated functioning, and in the case of such, to design appropriate forms of support. Due to the high availability and popularity of the questionnaire in institutions dealing with psychological help (diagnostic and therapeutic, including support for people with various somatic problems), the authors decided to verify its usefulness in relation to the examined group.

STATISTICAL ANALYSES

IBM SPSS Statistics 22 was used to perform statistical analysis. The Mann-Whitney *U*-test and independent samples *t*-test were used to determine group differences. Correlations between the variables were investigated with the Pearson's *r* and the Spearman's rho coefficients. The Mann-Whitney *U*-test and the Spearman rho coefficient were applied to those variables that did not meet the criterion of the normal distribution (examined using the Shapiro-Wilk test). We used pairwise exclusion of missing values with correlational analyses and chose to exclude case analysis by analysis with intergroup comparisons.

A model of regression was created to determine the extent of occurrence of particular variables (personality traits) in explaining the variability of sexual self-esteem among women with MRKHS. Linear regression (enter method) and then forward linear regression were performed.

RESULTS

There was no significant difference among participants' global self-esteem ($t = -1.50$, $df = 58$, $p = .140$). However, the clinical and the comparison group differed significantly in levels of overall sexual self-esteem ($U = 272.50$, $p = .036$) and in the sexual skills and experience scale ($U = 272.00$, $p = .022$). Women with MRKHS had lower ability to please sexually or to be pleased by a partner and fewer opportunities to engage in sexual activity than their peers (see Table 2).

Other statistically significant differences between the two compared groups were observed in results on some scales describing psychological functioning: Pa ($U = 349.50$, $p = .043$), Ps ($U = 214.50$, $p < .001$), Sc ($t = 2.98$, $df = 61$, $p = .004$), ANX ($U = 346.50$, $p = .039$), and A ($t = 2.85$, $df = 61$, $p = .006$). Women with MRKHS recorded higher scores; nevertheless, their results still remain within the normal range (see Table 2). Correlations between sexual self-esteem and other variables were tested. The analysis was carried out both for the entire sample and in the respective subgroups. A strong positive correlation was found between sexual and global self-esteem. In almost all cases, except for the morality scale, positive correlations were observed between global self-esteem and subscales of sexual self-esteem in the MRKHS group (see Table 3).

Global self-esteem was a significant predictor of variation of overall sexual self-esteem in patients with MRKHS ($\beta = .71$, $p < .001$). A standardized β coefficient suggests that higher global self-esteem is accompanied by higher sexual self-esteem among patients. The proposed model fits the data ($F(1, 23) = 22.23$, $p < .001$) and explains 48% of variance of the dependent variable (adjusted $R^2 = .48$).

Table 2

Statistically significant differences between clinical and comparison group in sexual self-esteem (SSE) and its subscales, MMPI-2 clinical, content and supplemental scales

Measure	All		MRKHS group		Comparison group		Results
	M	*SD*	*M*	*SD*	*M*	*SD*	
SSE (total)	164.07	29.16	154.61	33.57	172.00	22.49	$U = 272.50^{*}$
	$N = 57$		$n = 26$		$n = 31$		
SSE Skill/ Experience	29.83	6.86	27.63	7.33	31.74	5.89	$U = 272.00^{*}$
	$N = 58$		$n = 27$		$n = 31$		
Depression (D)	47.67	8.32	49.74	9.48	45.66	6.56	$t = 1.98$ ($df = 53.23$)[a]
	$N = 63$		$n = 31$		$n = 32$		
Paranoia (Pa)	48.78	7.81	51.26	8.69	46.38	6.06	$U = 349.50^{*}$
	$N = 63$		$n = 31$		$n = 32$		
Psychasthenia (Pt)	49.43	8.69	53.48	8.54	45.50	6.94	$U = 214.50^{***}$
	$N = 63$		$n = 31$		$n = 32$		
Schizophrenia (Sc)	45.98	9.48	49.39	9.49	42.69	8.35	$t = 2.98$ ($df = 61$)**
	$N = 63$		$n = 31$		$n = 32$		
Anxiety (ANX)	49.79	10.09	52.5484	11.03	47.12	8.42	$U = 346.50^{*}$
	$N = 63$		$n = 31$		$n = 32$		
Anxiety (A)	48.59	9.22	51.77	9.69	45.50	7.70	$t = 2.85$ ($df = 61$)**
	$N = 63$		$n = 31$		$n = 32$		

Note. [a]The comparison result is close to the border of statistical significance ($p = .052$). The difference between groups is not affirmed. However, future analysis conducted on larger samples should pay attention to whether this result reflects a certain trend, consistent with existing research evidence (for example, Laggari et al., 2009). SSE – sexual self-esteem; *U* – Mann-Whitney *U*-test; *t* – Student's *t*-test; $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 3

Correlations between global self-esteem and sexual self-esteem

Variable	Global self-esteem		
	All	MRKHS group	Comparison group
Sexual self-esteem total score	$\rho = .72^{**}$	$r = .71^{**}$	$\rho = .75^{**}$
Sexual self-esteem skill/experience scale	$\rho = .59^{**}$	$r = .50^{*}$	$\rho = .64^{**}$
Sexual self-esteem attractiveness scale	$\rho = .63^{**}$	$\rho = .72^{**}$	$\rho = .56^{**}$
Sexual self-esteem control scale	$\rho = .51^{**}$	$\rho = .54^{**}$	$\rho = .43^{*}$
Sexual self-esteem morality scale	$\rho = .42^{**}$	$\rho = .32$ ns	$r = .50^{**}$
Sexual self-esteem adaptiveness scale	$\rho = .66^{**}$	$\rho = .61^{**}$	$\rho = .65^{**}$

Note. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$; ns – not significant; ρ – Spearman's rho; *r* – Pearson's *r*.

In both groups there was also a correlation between sexual self-esteem and scores in the De, Sc, Si and A scales. In the MRKHS group there was an additional correlation between sexual self-esteem and scores in the Pd scale. This indicates that higher results on scales measuring psychological traits connected with personality functioning are accompanied by lower sexual self-esteem levels (see Table 4).

Despite the occurrence of the same correlations and no differences in the global self-esteem scores

Table 4

Correlations between sexual self-esteem and personality traits

Variable	Sexual self-esteem total score		
	All	MRKHS group	Comparison group
Hypochondriasis (Hs)	ρ = −.12 ns	*r* = −.05 ns	ρ = −.12 ns
Depression (D)	ρ = −.42**	*r* = −.40*	ρ = −.38*
Hysteria (Hy)	ρ = −.20 ns	*r* = −.01 ns	ρ = −.31 ns
Psychopathic deviate (Pd)	ρ = −.49**	*r* = −.51**	ρ = −.33 ns
Masculinity/Femininity (MF)	ρ = .03 ns	*r* = .28 ns	ρ = −.12 ns
Paranoia (Pa)	ρ = −.25 ns	ρ = −.26 ns	ρ = −.12 ns
Psychasthenia (Pt)	ρ = −.48**	*r* = −.28 ns	ρ = −.65**
Schizophrenia (Sc)	ρ = −.56**	*r* = −.52**	ρ = −.47**
Hypomania (Ma)	ρ = −.06 ns	*r* = .06 ns	ρ = −.16 ns
Social introversion (Si)	ρ = −.42**	ρ = −.41*	ρ = −.39*
Anxiety (ANX)	ρ = −.29*	*r* = −.11 ns	ρ = −.38*
Fears (FRS)	ρ = −.02 ns	*r* = −.06 ns	ρ = −.02 ns
Anxiety (A)	ρ = −.52**	*r* = −.43*	ρ = −.63**

Note. *$p < .05$, **$p < .01$; ns – not significant; ρ – Spearman's rho; *r* – Pearson's *r*.

Table 5

Results of forward linear regression analysis conducted to test the predictive role of the Sc and A scores for overall sexual self-esteem in MRKHS group

Variable	*B*	SE_B	β	*t*	*R*	R^2	*F*
Sc	−1.78	.59	−.52	−3.01**	.52	.27	9.04**
A			−.08	−0.32			

Note. **$p < .01$; Sc – Schizophrenia Scale; A – Anxiety Scale.

between the two groups, sexual self-esteem is lower while some MMPI-2 scores are higher in patients with MRKHS in comparison with women without any congenital malformations.

Regarding those results, it was decided to explore whether they create a model that would provide an opportunity to explain the variability in sexual self-esteem in women with MRKHS. For this purpose variables were chosen that simultaneously met two conditions: (1) differentiated the two compared groups and (2) were significantly correlated with sexual self-esteem. These criteria were fulfilled by two MMPI scales: Sc and A. Forward linear regression showed that the only significant predictor in this case is Sc score (β = −.52, $p = .006$). Standardized β coefficient suggests that higher results in the Sc scale are accompanied by lower sexual self-esteem scores. The proposed model fits the data ($F(1, 24) = 9.04$, $p = .006$) and explains 24% of variance of the dependent variable (adjusted $R^2 = .24$) (see Table 5).

DISCUSSION

Previous research repeatedly used the Female Sexual Function Index (FSFI) to assess sexual functioning of patients with MRKHS. It usually provided evidence for success in applied medical treatment. In general, average total FSFI scores in females with MRKHS reported in the literature range from 26 to 30 (Communal et al., 2003; Fedele et al., 2008; Fliegner et al., 2014; Fotopoulou et al., 2010; Giannesi et al., 2005; Labus et al., 2011; Leithner et al., 2015; Liu et al., 2009; Nadarajah et al., 2005; Zhu et al., 2013). They vary due to different kinds of medical management of vaginal agenesis and are interpreted as good and

very good sexual function. This study extends available outcomes by not merely using the FSFI measure, but gathering more specific sexual self-esteem details using SSEI-W and providing information that might be valuable and helpful in psychotherapeutic and medical management of patients with MRKHS.

The results from the current study show that women with MRKHS have lower sexual self-esteem than their peers, especially with respect to the ability to please a sexual partner or to be pleased by a partner and possibilities to initiate sexual activity. It implies that they are unsure of their sexual skills. As sexual skills and experiences are gathered in the course of interaction with others, it might be assumed that this finding is connected with the current relationship status of our subjects. In a reported study 40.6% of gynecological patients were in a relationship during the study, in comparison with 68.8% of females belonging to a comparison group. However, the outcome of lower sexual-esteem in MRKH patients is in line with results obtained by Weijenborg et al. (2019), who ensured the homogeneity of their sample in terms of being in a relationship for at least 6 months prior to the study. Thus, perhaps the uncertainty of sexual skills and experiences could be better explained by the congenital condition itself than by other factors. Weijenborg et al. (2019) did not explore aspects of sexual self-esteem in a more detailed manner, so the issue of perceived sexual skills and experiences would require further research.

As suggested by both current and former (Beisert et al., 2015) study outcomes, diagnosis of MRKHS does not impair the whole psychosexual development and adult functioning of females. The lack of difference found in the level of global self-esteem between the study groups supports this conclusion. Weijenborg et al. (2019) reported the same outcome within their research sample consisting of 54 gynecological patients and 79 controls. Our results indicate that women with MRKHS have an average self-esteem. Similarly, Morgan and Quint (2006) reported average levels of global self-esteem in 6 out of 7 patients with MRKHS. Self-esteem of 48 females with MRKHS examined by Fliegner et al. (2014) was higher than in CAIS patients and in controls. In the research by Heller-Boersma et al. (2009) the global self-esteem of women with MRKH ($N = 66$) was lower than in controls ($N = 31$), but both RSE mean scores (22.8 ± 0.7 for clinical and 19.3 ± 0.9 for control group) were within the normal range. In contrast, a qualitative study by Holt and Slade (2003) (they carried out 7 interviews) implies that the congenital absence of a vagina may disturb self-esteem. There are studies indicating that positive self-esteem of patients is associated with satisfactory treatment outcomes. Möbus et al. (1996) noted a substantial (61%) increase in female self-esteem level in pre- and postoperative comparisons. Thus, the lack of self-esteem differences between the study groups in this paper might be due to the fact that almost all (30 out of 32) of the gynecological patients had initiated medical treatment of vaginal aplasia prior to inclusion in the study.

Although in this study the sexual and global self-esteem were found to be interrelated, they are not identical. As indicated by former research, there are some qualitative differences between global and sexual self-esteem concepts (Crocker & Major, 1989; Rosenberg et al., 1995). From a theoretical point of view these differences may be explained by various critical points in global and sexual self-esteem development (childhood versus adulthood) and different objects of their assessment (generalized self versus a particular set of skills).

Previous studies on the psychological functioning of women with CAUV provide general information on patients' quality of life (Leithner et al., 2015), well-being (Kimberley et al., 2010), mental health (Liao et al., 2011; Morgan & Quint, 2006), life goals (Morgan & Quint, 2006) and body image (Leithner et al., 2015). This study's results indicate that women with MRKHS differ from a comparison group in the number of diagnostic responses indicating for the states and behaviors that comprise specific patterns of emotional responses according to MMPI-2. They concern a number of indicators of depressive and anxiety states – states of distress, tension, difficulties with concentration of attention, somatic complaints. The results obtained by the subjects do not allow one to indicate exactly which symptoms are present, but this is consistent with the results reported by Bean et al. (2009) and is in line with the outcomes of the SCL-90 measure used by Weijenborg and Kuile (2000) with 15 MRKHS patients and Heller-Boersma et al. (2009) with 66 females. In the study the patients' number of diagnostic responses in the Pa, Sc, ANX and A scales are higher, but remain within the range of clinical norms. At the same time, previous research showed that women with MRKHS have difficulties in establishing intimate relationships, and thus delay starting sexual activity (Beisert et al., 2013, 2015; Kleinemeier et al., 2010). Perhaps these results are related, but more research is needed to unravel them.

The hypothetical relationships described above are supported by the result of the relationship between global and sexual self-esteem and between some MMPI-2 subscales scores and sexual self-esteem. Lower results in the global self-esteem scale and higher results in MMPI-2 scales coincide with lower sexual self-esteem results in the MRKHS group. From the moment of diagnosis, the growing intensity of experienced anxiety and isolation may delay exploration in the area of sexuality, and therefore reduce the quantity of sexual experiences gathered in adolescence which could potentially build positive sexual self-esteem. These hypotheses require further research.

This research plan focused on internal (personality traits constituted through life experiences) rather than external factors (e.g. treatment outcome) affecting self-esteem. Intra-group relationships were explored between sexual self-esteem, global self-esteem and personality characteristics of patients with MRKHS. Except for global self-esteem, the predictor that is most strongly associated with sexual self-esteem is the Sc score. This MMPI-2 scale contains questions pertaining to sexual life, and its diagnostic responses – elevating the Sc score – indicate the lack of satisfaction and discontent with the sexual aspects of life. Furthermore, the Sc scale measures intensity of such states as anxiety, depression and sense of isolation. The results obtained by women with MRKHS do not exceed the threshold of pathology; nevertheless, they are significantly higher than results in the comparison group. Again, therefore, the occurrence of correlates of high scores on this scale cannot be concluded according to the MMPI response key. It can only be pointed out that there is a statistically significantly higher number of diagnostic responses specifying the individual symptoms represented by the scale's items, relative to women in the comparison group.

This leads to the conclusion that MMPI-2 is not a method for differentiating between individuals with and without MRKH in terms of emotional difficulties. In fact, while the number of diagnostic responses indicating the presence of specific symptoms is significantly different, the level of scores obtained does not allow the singling out of individual difficulties specific to individuals with MRKH. Nor do they reach values indicating that having MRKH syndrome significantly destabilizes psychological functioning or is associated with serious clinical conditions.

The results obtained on the global self-esteem and Sc scales are closely related to sexual self-esteem both in the clinical and in the comparison group, while the latter (Sc) differentiates the two groups. Thus, it is important to further explore the causal relationship between the examined variables. It would allow one to predict which areas of psychological help should be reinforced in relation to MRKHS patients.

The results herein should be interpreted with caution for three reasons. Firstly, the analysis involves a relatively small study group. Secondly, in some individuals certain data are missing. For example, the total score for sexual self-esteem (Table 2) was based on responses given by 26 out of 32 patients with MRKHS and 31 out of 32 women in the comparison group. The remaining subjects did not provide answers to all of the questions. Responses with missing data were not excluded because MRKHS is a rare condition and it is not easy to gather a large research sample. Thirdly, the research is based on self-reports. Future studies should address the aforementioned limitations. Nevertheless, the obtained results provide an additional insight into psychological and sexual aspects of MRKHS.

CONCLUSIONS

The reported results suggest that a diagnosis of Mayer-Rokitansky-Küster-Hauser syndrome is connected with lower sexual self-esteem of young women, especially in the area of sexual skills and experiences.

While the number of diagnostic responses indicating the presence of specific symptoms of deteriorated psychological functioning is statistically significantly higher for individuals with MRKH than for those in the comparison group, the level of scores obtained on the MMPI questionnaire does not allow for the isolation of specific individual difficulties. In addition, having the syndrome is not associated with serious clinical conditions, nor with lowered general self-esteem compared to the comparison group.

Perhaps positive global self-esteem, built in childhood and early adolescence before receiving the diagnosis of MRKH, may buffer the reaction to this information. This conclusion needs further research. Nevertheless, the optimal model of care proposed to patients with CAUV should address both physical and psychical demands and aim not only at facilitating vaginal functioning, but also at strengthening the overall psychological condition of females. An ideal solution would be to consider creating an interdisciplinary team working with patients as well as their parents and partners.

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