Characteristics of an Egyptian sample of patients with female sexual dysfunction: a cross-sectional study

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Background
Female sexual dysfunction (FSD) is a common problem with detrimental effects on a woman's quality of life. Epidemiological studies revealed prevalence rates of 41–47%.

Objective
The aim of the study was to determine the psychological characteristics of Egyptian women with FSD.

Methods
A total of 115 women attending birth control clinics were assessed for the presence of FSD according to *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV) diagnostic criteria. FSD patients ($N=30$) and 15 healthy matching controls were assessed using Taylor's Manifest Anxiety Scale (TMAS), the Zung Self-rating Depression Scale (ZSDS), Eysenck's Personality Questionnaire (EPQ), and the Guilford Inventory of Personality Factor.

Results
Female circumcision and expectation of first intercourse to be painful were significantly associated with development of sexual pain disorder ($\chi^2=7.4$, $P=0.01$; $\chi^2=4.8$, $P=0.04$). Patients scored higher on the introversion and neuroticism domains of the EPQ compared with controls ($Z=-2.7$, $P=0.006$; $Z=2.09$, $P=0.003$, respectively), as well as on Taylor Anxiety Scale (TAS), Zung Depression Inventory (ZDI), and Obsession Scales ($Z=-3.5$, $P<0.001$; $t=-3.2$, $P=0.004$; $Z=-4.1$, $P<0.001$).

Conclusion
FSD is strongly related to anxiety and depression. Expectation of the first intercourse to be painful is a risk factor for the development of the disorder.

Keywords:
culture related, female circumcision, female personality, psychiatric disorders, sexual dysfunction

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Introduction

Sexuality is an important and integral part of every woman's life. The sexual response cycle in women is mediated by the complex interaction of psychological, environmental, and physiological (hormonal, vascular, muscular, and neurological) factors [1]. Female sexual dysfunction (FSD) is defined as persistent or recurring decrease in sexual desire, persistent or recurring decrease in sexual arousal, dyspareunia, and difficulty or inability to achieve an orgasm. The report of the International Consensus Development Conference on Female Sexual Dysfunction classified FSD into four disorders: designated desire disorders, arousal disorders, orgasmic disorders, and pain disorders [2].

FSD is a common problem with detrimental effects on the woman's quality of life. It is defined as disorders of sexual desire, arousal, orgasm, and sexual pain, which lead to personal distress [3]. It is believed that FSD is an underestimated problem with an overall prevalence between 20 and 50% [4]. Previous studies showed in a large community-based study performed in the USA that 43% of women had some form of sexual dysfunction [5]. Systematic epidemiological studies regarding FSD in the general population revealed similar prevalence rates of 41–47% [6,7]. Western studies showed that prevalence estimates of hypoactive sexual desire disorder, sexual arousal disorder (lubrication), orgasmic disorder, and dyspareunia were 16% (12–20%), 7% (5–11%), 8% (6–12%), and 1% (0.5–3%), respectively [8].

The etiology of sexual dysfunction is frequently multifactorial as it relates to general physical and mental well-being, quality of relationship, past sexual functioning, social class, education, employment, life stressors, personality factors, the presence of a sexual partner, and partner's age and health [3]. Current psychological theories of sexual dysfunctions focus on the role of negative emotional reactions toward sexual stimuli [9–11]. Intertwined with the more general pattern of conservative versus liberal norms and values, certain (negative) sexual beliefs can also have a more direct effect on the expression and responsivity to sexual cues and stimuli, which may increase the risk for sexual dysfunctions [12–14].

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In the 1970s, Eysenck, using his three-factor P-E-N model of personality consisting of psychoticism, extraversion, and neuroticism, showed that personality and sexual variables were correlated. For example, women scoring high on neuroticism had lower reported levels of sexual experience, whereas those high on extraversion (particularly men) had much higher levels of sexual experience. Studies have shown a high correlation of desire complaints with measures of low self-image, mood instability, and tendency toward worry and anxiety [15].

Sexual pain disorders (mainly vaginismus) has shown high prevalence in different studies – 75% [16], 63.9% [17], and 8.4% in a sample of patients with erectile dysfunction [18]. Childhood physical and sexual abuse represents a potential risk factor for the development of this condition. In addition, specific psychological states such as anxiety, fear of pain, hypervigilance, catastrophizing, and depression are more frequently reported by these women [19].

Compared with studies on male sexual dysfunction, only a few Egyptian studies are available in the area of female sexual pain disorder and this area remains largely unexplored. In Egypt, with a male-dominant culture, women have difficulties expressing their own feelings on erotic and nonerotic sexuality; therefore, study of sexual dysfunction is fundamental. The present study was designed to ascertain what characterizes Egyptian women with sexual pain disorder in relation to their personality traits, psychological state, history of negative sexual experiences, and culture-related prejudice on sexual relation. The researchers also aimed to identify possible trait markers related to different subtypes of FSD.

Methods

Study design

This was a cross-sectional study approved by the scientific and ethical committees of the Faculty of Medicine, Ain Shams University.

Participants and recruitment

A total of 115 female patients attending a birth control clinic in the Department of Gynaecology and Obstetrics, Ain Shams University, between March 2011 and July 2011 were assessed. Thirty-six patients suffered from FSD according to the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV) symptom checklist [20]. Thirty patients signed a written informed consent form to participate in the study. Inclusion criteria were female patients over 18 years of age who are sexually active, married for at least 1 year, and living with their spouse. The exclusion criteria were any systemic diseases in the wife or husband, taking medicines, presence of any psychological disease requiring medication or interfering with communication, any previously undergone gynecological surgery, for example hysterectomy or vaginoplasty, and presence of any gynecological disorders such as endometriosis and myoma. A control group involving 15 healthy married women matched for age and education were included. Both members of the couple (within the patient and control groups) gave written informed consent separately so as to avoid spousal influence on their decision. When one of them did not provide consent, the couple was excluded from the study.

Among the patient group ($N = 30$), 16 patients had sexual pain disorder, five had desire disorder, three had excitation disorder, and six had orgasmic disorder. We thus decided to subdivide the patient group further into the sexual pain disorder group ($N = 16$) and the other sexual disorders group ($N = 14$).

Materials and procedure

Data from participants were collected using the following measures: First, a questionnaire was used, administered by psychiatrists, that contained questions pertaining to demographic characteristics and sexual life, such as age, age at the time of marriage, duration of marriage, education, premarital masturbation and sex, sexual traumatic experiences (female genital mutilation), relation with partner (harmonious, discordant), modes of marriage (love marriage or family-arranged marriage), and specific premarital culture-related beliefs on first intercourse (bloody, dirty, or extremely painful).

Second, a gynecological clinical interview and physical and pelvic examination that involved visual and digital examination of the vulva, digital examination of the vagina, and a cotton swab test at four vestibular sites were conducted by a gynecologist to exclude medical problems. At each step of the examination, the gynecologist asked the patient to indicate whether or not a vaginal spasm or pain was present. Also, the purpose of this examination was to assess erythema and localize pain in the patients with possible vestibulodynia syndrome. It was indicated clearly that the patient could stop the procedure at any time during the examination. According to the results of the gynecological examination, 18 women did not allow a pelvic examination and hence only inspection of the external genital tract was performed. In addition, six women allowed only a gloved finger to gently touch the labia minor, and perineal spasm was maintained throughout the examination. In six women, perineal and levator spasm was relieved by reassurance.

Battery of clinical psychological assessments included:

(1) *The Structured Clinical Interview for DSM Axis-I Disorders (SCID-I)* [21]: It is a clinician-administered, semistructured interview with psychiatric patients or with nonpatient community individuals who are undergoing evaluation for psychopathology. It was developed to provide a broad coverage of psychiatric diagnoses according to DSM-IV. We used the Arabic version in our study [22]. Diagnoses were made by the interviewer during the course of the interview. Any case with diagnosed axis-I disorder was excluded from the study.
(2) *The Structured Clinical Interview for DSM-IV Axis-II Personality Disorders (SCID-IIP)* [23]: It is an efficient, user-friendly instrument that helps researchers and clinicians make standardized, reliable, and accurate diagnoses of the 10 DSM-IV Axis-II personality disorders, as well as depressive personality disorder,

passive-aggressive personality disorder, and personality disorder not otherwise specified. It is an easy-to-use, validated, and informative semistructured interview for systematic evaluation of patients. We used the Arabic version in this study, which had been proven reliable and valid [24].

(3) *The Wechsler Adult Intelligence Scale (WAIS)* [25]: It assesses the individual's total ability to achieve a goal and the ability to effectively deal with his environment. The age range was from 15 to more than 60. It is composed of 11 subscales: six verbal (information, comprehension, arithmetic, digit span, similarities, vocabulary) and five performance subscales (picture completion, picture arrangement, block design, digit symbol, object assembly). The scale was translated and validated and the Arabic version was used in this study [26].

(4) *Taylor's Manifest Anxiety Scale (TMAS)* [27]: It is used as a general indicator of anxiety as a personality trait. It is not intended as a specific measure of anxiety as a clinical entity. This early instrument is derived from MMPI and is presented in the long version (50 items) and short version (28 items). In this study we used an Arabic translation of the long version of the scale. True and false responses are used for each item, and the replies indicating anxiety are counted, giving a score from 0 to 50 with a higher score representing a higher level of anxiety.

(5) *Zung Self-rating Depression Scale (ZSDS)* [28]: It is a short self-administered survey to quantify the depressed status of a patient. There are 20 items on the scale that rate the four common characteristics of depression: the pervasive effect, the physiological equivalents, other disturbances, and psychomotor activities. There are 10 positively worded and 10 negatively worded questions. Each question is scored on a scale of 1–4 ('a little of the time,' 'some of the time,' 'a good part of the time,' 'most of the time'). Scores on the test range from 20 to 80. The scores fall into four ranges: normal range (20–49), mildly depressed (50–59), moderately depressed (60–69), and severely depressed (70 and above). In our study, the Arabic translation version was used.

(6) *The Eysenck Personality Questionnaire (EPQ)* [29]: This is a simple self-report test to measure major dimensions of personality: psychoticism (P), characterized by toughmindedness, nonconformity, inconsideration, recklessness, hostility, anger, and impulsiveness; neuroticism (N) or emotionality, characterized by high levels of negative affect such as depression and anxiety; extroversion (E), characterized by being outgoing, talkative, being high on positive affect (feeling good), and in need of external stimulation; introversion (I), characterized by being chronically overaroused and jittery and therefore in need of peace and quiet to bring them up to an optimal level of performance. It also includes a lie scale (L).

(7) *Guilford Inventory of Personality Factor, the Arabic version* [30]: The inventory consists of 175 questions to which the participant responds by circling Yes, No, or Do not know. It was developed on the basis of factor analysis studies of items in personality questionnaires. Scores are obtained for three types of introverts (the shy, the thinking, and the restrained) and for three types of extroverts (the sociable, the nonthinking, and the carefree). In addition, it provides scores for two emotionality factors, the cycloid and the depressed, assessing either depressive or cycloid tendency in behavior.

(8) *Arabic Scale for Obsessions and Compulsions* [31]: This rating scale is derived from the criteria for diagnosis of obsessive–compulsive disorder (OCD) or obsessive–compulsive personality disorder in ICD and DSM and the Maudsley Obsessional-Compulsive Inventory (MOCI). It has good validity and reliability. It is used as a general indicator of obsessions and compulsions. It includes 32 sentences. Yes or No responses are used for each item, and the replies indicating obsessions are counted, giving a score from 0 to 32, with higher scores representing higher levels of obsession.

Results

This study was conducted on 30 patients and 15 age-matched and education-matched control women, with a mean age of 26.9 ± 4.1 years in the patient group and 29.3 ± 6.4 years in the control group. Duration of marriage in months was comparable between patients and controls (21.4 ± 14.2 and 29.3 ± 6.4, respectively). Within the patient group, 10 (33.3%) finished middle-level education and 20 (66.7%) finished high-level education. In the control group, five (33.3%) women had finished middle-level education and 10 (66.7%) had completed high-level education. According to SCID-IIP, seven (23%) had anxious personality disorder and three (10%) had histrionic personality disorder. Table 3 shows a detailed description of each of the three groups.

Comparison between patients and control groups

When both groups were tested using the χ^2-test there was no statistically significant association between types of marriage, whether love or arranged, or presence of male sexual dysfunction and development of FSD. Similarly, the presence specific premarital sexual experiences was

Table 1 Comparison between patients and controls regarding sociodemographic characteristics, sexual practices, and cognitive schemata

	Patients [*n* (%)]	Controls [*n* (%)]	Test	*P* value
Type of marriage				
Love	17 (56.7)	8 (53.3)	χ^2 (0.045)	0.54
Arranged	13 (43.3)	7 (46.7)		
Male sexual dysfunction				
Yes	4 (13.3)	1 (6.7)	χ^2 (0.45)	0.45
No	26 (86.7)	14 (93.3)		
Premarital experience				
Yes	12 (40)	7 (46)	χ^2 (182)	0.45
No	18 (60)	8 (53.3)		
Organ mutilation				
Yes	17 (56.7)	8 (53.3)	χ^2 (0.045)	0.54
No	13 (43.3)	7 (46.7)		
Expectations of first intercourse				
Yes	25 (83.3)	15 (100)	χ^2 (2.8)	0.12
No	5 (16.7)	0 (0)		

Table 2 Comparison between patients and controls regarding psychological test results

	Patient group	Control group	Test	*P* value
VIQ	108.9 ± 10.18	115.9 ± 5.6	*Z* (– 2.7)	0.007
PIQ	112.2 ± 9.8	119 ± 7.3	*t* (– 1.09), *d.f.* (43)	0.2
TIQ	111.4 ± 10.6	117.7 ± 6.3	*t* (– 2.1), *d.f.* (43)	0.04
ZDI	46 ± 12.3	34.9 ± 8.3	*t* (3.09), *d.f.* (43)	0.003
TAS	21.1 ± 6.5	14.1 ± 2.1	*Z* (– 3.7)	0.000
EPQ: psychoticism (P)	3.57 ± 1.8	3.5 ± 1.6	*Z* (– 0.19)	0.8
EPQ: neuroticism (N)	20.4 ± 3.7	14.13 ± 4.6	*Z* (– 3.4)	0.001
EPQ: extroversion (E)	10.8 ± 3.4	11.2 ± 1.7	*Z* (– 0.8)	0.3
EPQ: introversion (I)	19.9 ± 5.07	13.5 ± 5.2	*Z* (– 3.2)	0.001
EPQ: lie scale (L)	9.5 ± 1.4	9.7 ± 2.2	*Z* (– 0.46)	0.6
Guilford-C	36.2 ± 15.12	34.7 ± 12.8	*Z* (– 1.4)	0.1
Guilford-D	33.9 ± 15.9	29.6 ± 10.5	*Z* (0.46)	0.6
Obsession Scale	12.23 ± 5.7	8.7 ± 1.6	*Z* (– 1.7)	0.07

EPQ, Eysenck Personality Questionnaire; PIQ, Performance Intelligence Quotient; TAS, Taylor Anxiety Scale; TIQ, Total Intelligence Quotient; VIQ, Verbal Intelligence Quotient; ZDI, Zung Depression Inventory.

not associated with FSD. The researchers did not find a statistically significant association between previous sex organ mutilation (female circumcision) and development of FSD, although more than 50% of the sample in both groups was circumcised (56.7 and 53.3% in patient and control groups, respectively). Details are shown in Table 1. The majority of the sample in both groups had negative expectations of first intercourse; a higher percentage was seen among control group patients. Within the patient group, 25 (83.3%) had negative expectations regarding first intercourse (painful 70%, bloody 66.7%, dirty 46.7%). In the control group, all members had negative expectations described as follows (painful 73%, bloody 93.3%, dirty 80%). Association between negative expectations and development of FSD was of no statistical significance ($\chi^2 = 2.8$, $P = 0.12$).

As shown in Table 2, the patient group showed higher scores on the Taylor Anxiety Scale and the Zung Depression Inventory, indicating higher anxiety and depressive states; the difference was of very high statistical significance. They scored higher on the Obsession Scale as well, but results were only nearly significant. As for personality profile, patients showed higher neuroticism and introversion and the difference was of very high statistical significance. Intelligence tests revealed that the patient group scored less on verbal ability but not on performance ability and the difference was of very high statistical significance.

Comparison between patients with sexual pain dysfunction and controls

When looking for significant association with pain disorder as compared with the control group, history of female circumcision and expectation of the first intercourse to be painful were the only variables significantly associated with development of pain disorder ($\chi^2 = 7.4$, $P = 0.01$; $\chi^2 = 4.8$, $P = 0.04$ respectively). It is worth noting that all patients with sexual pain disorder expected the first intercourse to be painful.

Patients with pain disorder scored higher than women in the control group on the Taylor Anxiety Scale, Zung Depression Inventory, and Obsession Scale (Table 3), indicating more prevalent anxiety, depressive, and obsessive states in the sexual pain dysfunction group; the difference was of very high statistical significance ($Z = -3.5$, $P = 0.000$; $t = -3.2$, $P = 0.004$; $Z = -4.1$, $P = 0.000$, respectively).

Sexual pain disorder patients scored higher on the introversion and neuroticism domains of the Eysenck Questionnaire than did the control groups (Table 3) and the results were of very high statistical significance ($Z = -2.7$, $P = 0.006$; $Z = 2.09$, $P = 0.003$, respectively).

Table 3 Descriptive statistics of the three groups

	Pain disorder	Others	Controls
Age	26.13 ± 2.5	27.79 ± 5.4	29.33 ± 6.4
Education [*n* (%)]			
Middle	4 (25)	6 (42.9)	5 (33.3)
High	12 (75)	8 (57.1)	10 (66.7)
Duration of marriage	17.94 ± 14.1	25.36 ± 10.2	20.1 ± 10.2
Type of marriage [*n* (%)]			
Love	9 (56.3)	8 (57.1)	8 (53.3)
Arranged	7 (43.8)	6 (42.9)	7 (46.7)
Male sexual dysfunction [*n* (%)]			
Yes	1 (6.3)	3 (21.4)	1 (6.7)
No	15 (93.8)	11 (78.6)	14 (93.3)
Premarital experience [*n* (%)]			
Yes	6 (37.5)	6 (42.9)	7 (46)
No	10 (62.5)	6 (57.1)	8 (53.3)
Organ mutilation [*n* (%)]			
Yes	11 (66.8)	7 (50)	8 (53.3)
No	5 (31.3)	7 (50)	7 (46.7)
Painful [*n* (%)]			
Yes	16 (100)	5 (35.7)	11 (73.3)
No	0	9 (64.3)	4 (26.7)
Bloody [*n* (%)]			
Yes	14 (87.5)	6 (42.9)	14 (93.3)
No	2 (12.5)	8 (57.1)	1 (6.7)
Dirty [*n* (%)]			
Yes	13 (81.3)	1 (7.1)	12 (80)
No	3 (18.8)	13 (92.9)	3 (20)
VIQ	105.9 ± 9.3	112.4 ± 10.4	115.9 ± 5.6
PIQ	113.1 ± 8.7	118.9 ± 10.38	119 ± 7.3
TIQ	108.1 ± 8.5	115.3 ± 11.6	117.7 ± 6.3
ZDI	46.7 ± 11.6	45.2 ± 13.5	34.9 ± 8.3
TAS	21.4 ± 6.1	20.7 ± 7	14.1 ± 2.1
EPQ: psychoticism (P)	3.7 ± 1.9	3.4 ± 1.6	3.5 ± 1.6
EPQ: neuroticism (N)	20.25 ± 3.3	18.01 ± 4.3	14.13 ± 4.6
EPQ: extroversion (E)	9.8 ± 2.2	12 ± 4.2	11.2 ± 1.7
EPQ: introversion (I)	17.3 ± 4.3	20.1 ± 5.9	13.5 ± 5.2
EPQ: lie scale (L)	9.05 ± 0.9	10 ± 1.6	9.7 ± 2.2
Guilford-C	44.86 ± 16.2	38.4 ± 13.5	34.7 ± 12.8
Guilford-D	35.8 ± 17	31.8 ± 14.9	29.6 ± 10.5
Obsession Scale	16.06 ± 5.1	7.8 ± 1.6	8.7 ± 1.6

EPQ, Eysenck personality questionnaire; PIQ, performance intelligence quotient; TAS, Taylor Anxiety Scale; TIQ, total intelligence quotient; VIQ, verbal intelligence quotient; ZDI, Zung Depression Inventory.

Comparison between patients with sexual pain disorder and other sexual female sexual dysfunctions

As shown in Table 3, negative cognitive schemata regarding expectations of first intercourse to be painful, bloody, or dirty were more prevalent among patients with sexual pain disorder than among those with other sexual disorders and the results were of high statistical significance (painful: $\chi^2 = 14.7$, $P = 0.000$; bloody: $\chi^2 = 6.7$, $P = 0.02$; dirty: $\chi^2 = 16.5$, $P = 0.000$). There was no statistically significant association between sociodemographic characteristics such as age, education, type and duration of marriage, and nature of FSD. Similarly, presence of male sexual dysfunction is not associated with specific FSD. Sexual practices such as masturbation and female circumcision were not associated with specific FSD.

Difference in scores on various scales between patients with sexual pain disorder and those with other sexual disorders was of no statistical significance, with the exception of the Obsession Scale, on which patients with sexual pain disorder scored much higher than those with other sexual disorders; the results were very highly statistically significant ($Z = -4.3$, $P = 0.000$). It is to be noted that both groups scored higher than controls on all these scales. Details are shown in Table 3.

Comparison between patients with sexual dysfunction other than pain and controls

Patients with sexual disorders other than pain revealed negative expectations less frequently compared with controls and the results were of statistical significance ($\chi^2 = 6.4$, $P = 0.02$). As shown in Table 3, these expectations were more prevalent in the control group. Other sociodemographic and sexual practice variables studied showed no statistically significant association.

Again, patients with sexual dysfunction other than pain scored higher than the control group on the Taylor Anxiety Scale and the Zung Depression Scale, and difference was of very high statistical significance ($Z = 2.8$, $P = 0.005$; $t = 2.4$, $P = 0.02$, respectively). Neuroticism and introversion scores showed very high statistically significant differences compared with controls ($Z = -2.9$, $P = 0.003$; $Z = -2.9$, $P = 0.004$). Results of other scales were not statistically significantly different (Table 3).

Discussion

Various factors have been reported to be significantly associated with FSD of different components in community-based studies, including age [32–34], education level [32,], relationship with the partner [33–35], relationship length [8,36], having children [34], poor health [32–34], vascular disease such as diabetes mellitus and hypertension, hyperlipidemia, heart disease and stroke [33], depression [33], and urinary tract symptoms [32].

In our study, a total of 30 women with FSD who are medically free, 16 (53.3%) with sexual pain disorder, and 14 (46.7%) with other sexual dysfunctions (desire, arousal, and orgasmic dysfunction) during the reproductive age and 15 controls matched for age and duration of marriage were recruited from patients attending a psychosexual clinic. They were assessed for possible sociodemographic and psychological factors related to development of sexual pain dysfunction.

Sociodemographic variables

Previous research found FSD to be associated with lower levels of education [33,37,38]. In our study sample there was no statistically significant association between level of education and the development of FSD when patients were compared with controls ($P > 0.05$) or with the nature of FSD when patients with sexual pain disorder were compared with patients with other sexual dysfunctions ($P > 0.05$). Failure to detect significant association may be because of small sample size and the sample type, as in the above-mentioned research the sample was a community-based sample, whereas our study constituted a clinical sample.

Relation to male partner

In our study, there was no statistically significant association between type of marriage, whether love or arranged, and development of FSD or nature of FSD. This is contrary to previous research in which emotions for the partner and the relationship with the partner during intercourse were identified as the strongest predictors of sexual health [33,39]. These studies discussed the issue of marital harmony or discord rather than how the couple got acquainted in the first place, which was the subject of investigation in this study. Similarly, presence of male sexual dysfunction was not associated with the development of FSD. Also, it was not associated with a specific FSD. This is not in accordance with previous research in which male erectile dysfunction was associated with reduction of libido or loss of sexual desire in the female partner [40], as well as with reduced sexual satisfaction [41]. Also, male premature ejaculation was a risk factor for the development of FSD [42]. Failure to find a significant association might be because of the small sample size in our study, which is a limitation.

Specific premarital sexual experiences

Masturbation was not associated with the development of FSD. Also, it was not associated with specific FSD. Previous research on the impact of masturbation on health yielded contradictory results. Some researchers found that it has a negative impact on health, whereas others found that it was a sexual outlet that positively affects health [43].

Sex organ mutilation

In our sample, significant association was seen between female sex organ mutilation and sexual pain disorder as compared with the control group ($\chi^2 = 7.4$, $P = 0.01$). Our results are in accordance with previous research stating that the most common long-term complications of

female sex organ mutilation are dysmenorrhea and dyspareunia [44]. The comparison between patients and controls showed insignificant association ($P > 0.05$). Our result replicates those of a previous Egyptian study, which found that sexuality was not affected in minorly circumcised cases [45]. In a recent research discussing specific subtypes of circumcision, it was found that women with 'type I' circumcision, also known as clitoridectomy or sunna, which involves removing a part or all of the clitoris and/or the prepuce [46], who survive the procedure, rarely have long-term complications, given that they do not have an infibulated scar covering their external genitalia [47]. It is to be noted that more than 50% of the sample in both groups were circumcised (56.7 and 53.3% in patient and control groups, respectively). In Egypt, female genital cutting is mostly type I and prevalence among women aged 15–49 years according to demographic and Health Surveys and Multiple Indicator Cluster Surveys is 97% [44]. Another explanation might be that female circumcision in Egypt is a traditional religious celebration that might ameliorate the negative psychological impact of the event on the women. According to previous research, girls who are not informed previously about the procedure and undergo female genital cutting suddenly, without mental preparation, celebration, or fanfare, can be emotionally traumatized [47]. This might be the reason why our results differed from those of other research, which showed that there were statistically significant differences between circumcised and noncircumcised women in their scores for arousal, lubrication, orgasm, and satisfaction, as well as in the overall score [48].

Negative expectations of first intercourse

The majority of the sample in the patient and control groups, with a higher percentage in the control group, had negative expectations of the first intercourse. Within the control group, expectation that intercourse will be bloody was most frequently reported (93.3%), followed by expectation to be dirty (80%); the least frequently reported was the expectation that it will be painful (73%). In the FSD group, intercourse being painful was the most frequently reported (70%), followed by the expectation to be bloody (66.7%); the least frequently reported was that it will be dirty (46.7%). In our study we did not find a significant association between the presence of negative expectations of first intercourse and development of FSD ($P = 0.12$). Culture might play a protective role in this aspect as, despite a high prevalence of negative expectations in the female community in the Middle East, they are expected to be more tolerant to negative experiences during first intercourse. Expectations of first intercourse being painful, bloody, or dirty were more prevalent among patients with sexual pain disorder than among those with other sexual disorders and the results were of high statistical significance (painful: $\chi^2 = 14.7$, $P = 0.000$; bloody: $\chi^2 = 6.7$, $P = 0.02$; dirty: $\chi^2 = 16.5$, $P = 0.000$). This indicates that of all disorders of FSD, sexual pain disorder specifically is influenced by negative preconceived notions of first intercourse. Again, when the sexual pain dysfunction group was compared with the control group, expectation of first intercourse to be painful was the only variable that showed a significant association ($\chi^2 = 4.8$, $P = 0.04$). It is worth noting that all patients with sexual pain disorder had a negative expectation that the first intercourse would be painful. According to these results, the researchers believe it is not merely the presence of negative expectations that might be responsible for the development of sexual pain disorder but the type of negative expectation and its interaction with female personality that predispose to this specific sexual disorder. This is evidenced by previous research showing that higher catastrophizing, fear of pain, and hypervigilance together accounted for 15% of the variation in increased pain intensity during intercourse. Among these, only catastrophizing contributed unique variance to intercourse pain [49]. In contrast, patients with sexual disorders other than pain showed less negative expectations compared with controls and the results were of statistical significance ($\chi^2 = 6.4$, $P = 0.02$). This might indicate that those patients might not have had previous sexual experiences whatsoever. There was a very highly statistically significant association between negative expectations of the first intercourse being bloody or dirty between patients with sexual dysfunction other than pain and control women, and the association reached near significance for expectation of pain ($\chi^2 = 8.6$, $P = 0.005$; $\chi^2 = 15.5$, $P = 0.000$; $\chi^2 = 4.1$, $P = 0.06$, respectively). These negative expectations were more prevalent in the control group.

Anxiety and depressive states

The patient group showed higher scores compared with the control group on the Taylor Anxiety Scale and the Zung Depression Inventory, indicating higher anxiety and depressive states; the difference was of very high statistical significance. They scored higher on the Obsession Scale as well, but results were nearly significant. In a previous study comparing the prevalence of sexual dysfunction in normal individuals, patients with major depression, those with generalized anxiety disorder, and those with OCD, the rate of sexual dysfunction was 30% in healthy controls, 76% in MDD patients, 50% in OCD patients, and 64% in generalized anxiety disorder patients. Low desire was the most commonly reported ($P < 0.001$). No particular dysfunction was associated with the four categories under study [50]. In another study, depression was found to be an independent risk factor for the occurrence of FSD [51]. In our study, difference in scores on various scales between patients with sexual pain disorder and other sexual disorders was of no statistical significance, with the exception of the Obsession Scale on which patients with sexual pain disorder scored much higher than those with other sexual disorders; the results were of very high statistical significance ($Z = -4.3$, $P = 0.000$). It is to be noted that both groups scored higher than controls on all these scales, indicating more prevalent anxiety, depressive, and obsessive states. The sexual pain dysfunction group showed a very high statistically significant difference on anxiety and depression ($Z = -3.5$, $P = 0.000$; $t = -3.2$,

$P = 0.004$; $Z = -4.1$, $P = 0.000$, respectively) compared with the control group. Our results came in agreement with a previous study in which women who reported pain during intercourse on at least 50% of attempts differed significantly from those reporting pain on less than 10% of intercourse attempts in terms of anxiety sensitivity, anxiety related to physical health concerns, and amplification of somatosensory experiences and agreeableness [52]; these women also displayed lower pain thresholds, higher pain ratings, lower sexual functioning and sexual self-efficacy, and higher levels of somatization and catastrophization compared with controls [53]. In our study, there was very high statistical significance on the Taylor Anxiety Scale and Zung Depression Inventory ($Z = 2.8$, $P = 0.005$; $t = 2.4$, $P = 0.02$, respectively) between patients with sexual dysfunction other than pain and the control group. This indicates higher anxiety and depressive states in this group of patients. In a large community epidemiological survey, it was found that women with moderate to high scores on a self-report measure of anxiety were at significantly higher risk for a number of sexual problems, particularly for arousal difficulties [54]. Our results were also similar to those obtained in a previous study in which women with desire disorders had anxiety issues and low self-esteem, whereas problems related to sexual arousal and orgasm were more prevalent in women who could not tolerate loss of control generally [55].

Personality profile

In our study, the patient group showed higher neuroticism and introversion on the Eysenck Scale and the difference was of very high statistical significance compared with the control group. Sexual pain disorder patients scored higher on the introversion and neuroticism domains of the Eysenck Questionnaire compared with the control group and the results were of very high statistical significance ($Z = -2.7$, $P = 0.006$; $Z = 2.09$, $P = 0.003$, respectively). In a previous study, women who reported pain during intercourse on at least 50% of attempts differed significantly from those who reported pain on less than 10% of intercourse attempts on personality constructs related to emotional and relational well-being (e.g. neuroticism) [52]. Our results were similar to those obtained in a previous research on women with vestibulodynia who were found to be cautious, careful, insecure, and pessimistic and who reported that their own behavior and choices were out of their control or against their own will [35]. The interaction of these factors may form a personality profile, resulting in increased vulnerability in intimate relations; it could also be an important factor for the state of depression and anxiety [35]. Previous research showed that patients with sexual pain disorder had higher catastrophizing, fear of pain, and hypervigilance, in addition to lower self-esteem, all of which together accounted for 15% of the variation in increased pain intensity during intercourse [49]. In our study, neuroticism and introversion scores showed a very high statistically significant difference between patients with sexual dysfunction other than pain and controls ($Z = -2.9$, $P = 0.003$; $Z = -2.9$, $P = 0.004$). Our results were similar to a previous one in which neuroticism, a personality feature characterized by anxiousness, was moderately correlated with sex-specific fears and negatively related to sexual motivation [55]; our results were also similar to the study Bradford and Meston [54] who found that women with desire disorders had emotional instability and neuroticism, whereas problems related to sexual arousal and orgasm were more prevalent in women who could not tolerate loss of control generally [54].

Intelligence tests

Intelligence tests revealed that the patient group scored lower on verbal ability but not on performance ability and the difference was of very high statistical significance. It might be that lower verbal intelligence is related to inability of the female partner to communicate her needs during sex as well as inability to express and cognitively reprocess her sexual fears and thus are more prone to FSD. No previous research was found on the relation between verbal intelligence and FSD, but previous research found that for normal women but not men alexithymia (difficulty recognizing, identifying, and communicating emotions, reduced fantasy capacity, and an externally oriented cognitive style) was specifically associated with lower frequency of sexual intercourse [56].

Conclusion and recommendations

We conclude from this study that sexual pain disorder is strongly related to anxiety and depressive personality traits and that negative expectations of the first sexual intercourse to be painful is an important risk factor for the development of the disorder. Our results should be taken with caution, however, because of the small sample size, which is a limitation of this study. Further research is recommended with a larger sample size to replicate the results. Also, future research is recommended on the relation between FSD and culturally based misconceptions and attitudes toward sex. In light of the results of this study, correcting misconceptions on sexual behavior in our community through sex education and its role in the primary prevention of female sexual pain disorder is essential.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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خصائص عينة مصرية من السيدات المصابات اضطرابات الجنسية.

مقدمة: تعد اضطرابات الجنسية من المشكلات واسعة الأنتشار و التي تؤثر سلبيا بشدة علي نوعية الحياة للمرأة. و قد اظهرت الدراسات البيئية ان معدل انتشار هذه الأضطرابات يتراوح بين 41-47%. الهدف: يهدف البحث الي الوقوف علي الخصائص السيكولوجية للسيدات المصريات المصابات بالاضطرابات الجنسية. أجراء البحث: تم أخذ عينة بحثية عشوائية تتكون من 115 من السيدات اللاتي يتابعن في عيادات تنظيم الأسرة و تم فحصهم لتحديد المصابات بالاضطرابات الجنسية حسب التصنيف الاحصائى للامراض . تم مقارنة 30 سيدة مصابة بالاضطرابات الجنسية و عينة ضابطة تتكون من 15 سيدة من الأصحاء باستخدام مقياس تايلور للعصاب و مقياس زانك للتقييم الذاتي للاكتئاب و استبيان ايزنك للشخصية و جيلفورد للعوامل الشخصية. نتائج البحث: وجد أن ختان الأنثي و كذلك توقع المرأة ان يكون الجماع الأول مؤلما كان مرتبطا بلأصابة بالاضطرابات الجنسية ارتباطا ذا دلالة احصائية. كذلك كانت تقديرات الأناث المصابات اعلي مقارنة بالعينة الضابطة و كانت النتائج ذات دلاله احصائية علي مقياس الأنطواء و ايضا فيما يتعلق بمقياس العصاب و الأكتئاب و الوسواس القهري. الاستنتاج: نستنتج من البحث وجود ارتباط قوي بين اللشخصية الأكتئابية أو القلقة و اضطرابات الجنسية .نستنتج ايضا ان توقع المرأة ان يكون الجماع الأول مؤلما من العوامل المسببة في الأصابة بالاضطرابات الجنسية.