Psychosocial correlates of vaginismus diagnosis: A case-control study.

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Objectives: The objective was to identify psychosocial factors associated with vaginismus. 120 women were recruited and interviewed at the Institute of Human Sexuality, 40 with lifelong vaginismus, and 80 controls without vaginismus. Participants were matched for age, education and date of admission. Women afraid of losing control during intercourse had 29.6 greater likelihood of developing vaginismus ($p<0.01$), as well as those afraid of suffering pain ($p<0.001$) or being physically damaged (tearing) ($p<0.01$). There is evidence that women have higher likelihood of vaginismus if they present fears of pain, injuries, bleeding, fear of losing control, and having a panic attack if they engage in sex with penetration.

Introduction

Vaginismus is a sexual dysfunction characterized by "recurrent or persistent involuntary spasms of the musculature of the outer third of the vagina that interferes with sexual intercourse" by preventing vaginal penetration (DSM-IV, 2000). More recently, vaginismus has been re-defined as a sexual pain disorder (Basson et al., (2004) and the DSM-5 classifies fear of pain together with actual pain under the heading *Genito-Pelvic Pain/Penetration Disorder* (American Psychiatric Association, 2013). Vaginismus is a condition that causes personal distress; Ozdemir et al. (2008) reported vaginismus as the main cause for unconsummated marriages, a condition

that largely affects health and well-being of couples by creating negative physical, psychological, and social effects on both individuals and couples. The prevalence of vaginismus in the general population has been estimated at 1% (Fugl-Mayer & Sjogren, 1999, Ventegodt (1998); however, more recent literature has reported prevalence rates as high as 2-4 % in the general population (Moltedo-Perfetti, Nardi y Arimatea, 2014).

Vaginismus is not a new sexual dysfunction. Trótula de Salerno described this condition called Vaginismus in 1547. In 1834, a French physician (Huguier) in his doctoral dissertation gave the first medical description of this problem that prevented sexual intercourse. Years later, Sims (1861) described "an involuntary spasmodic closure of the mouth of the vagina. Sims's description remained as the core definition for vaginismus in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, 2000, APA, and ICD-10, 1993; ICD-10-R.2016). In 2004, an international committee of experts proposed re-conceptualizing vaginismus as "persistent difficulties to allow vaginal entry of a penis, a finger, and/or any object, despite the woman's expressed wish to do so" (Basson et al. 2003). In these patients, there is often phobic avoidance and anticipation/fear/experience of pain along with involuntary pelvic muscle contraction. Kaplan (1974) asserts that women with vaginismus are usually phobic to penetration and coitus. This phobic reaction precedes the occurrence of vaginismus, a condition that leads to unconsummated marriages (Chen-Jye Jeng, 2004; Ozdemir, et al. 2008). However, Van Lankveld (2010) considered that these women and their partners report few sexual problems if vaginal penetration is not anticipated.

In clinical settings, prevalence of the condition range widely depending on context, from 0.5-1% (Molaeinezhad et al. 2014) and from 5-42% by, Bancroft, et al. (1976), Hawton, (1982), O'Sullivan (1979). One study of 54 Turkish women with sexual dysfunctions who attended a psychiatric department found that over three quarters (75.9%) suffered from lifelong vaginismus (Dogan, 2009). Khajehei, Ziyadlou, Kashefi et al. 2009) in India, reported that 40% suffered from vaginismus after their delivery. However, only 15% of those women reported suffering from the condition prior to pregnancy.

Prevalence and incidence studies of vaginismus in Latin America are scarce. One Brazilian study with 57 women, found that 14% fulfilled the diagnostic criteria of vaginismus; Junqueira et al., 2005), another study from Brazil, (Bento de Lima and colleagues 2014), studied the prevalence of sexual dysfunction in 200 women before, during, and after their pregnancy and found that before pregnancy, 16% had vaginismus. In Chile Aliaga, Ahumada, Villagrán, Santamaría, Manzor & Rojas (2000) studied a sample of 182 women attending a gynecological clinic. Comorbidity of vaginismus and dyspareunia was present in 5% of the sample; Zavala et al. (2012) studied a Honduran community with a sample of 1,651. From this population, they extracted a random sample of 322 women, in this subsample, 20% had vaginismus; this figure is the highest reported in Latin America. Boyer, Goldfinger, Thibault-Gagnon, Pukall, (2011) reported that pain during sexual activity has been described for thousands of years, long before the terminology for sexual pain disorders, dyspareunia, and vaginismus were coined in the 1800s. The condition has been the subject of multiple approaches that try to identify etiological factors that could anticipate the presence of vaginismus. There is extensive literature on psychosocial factors involved with vaginismus, nevertheless all data are inconclusive rendering

further research on the etiology of this condition as valuable, (Masters & Johnson (1981); Kaplan (1974, 1985); Duddle (1977); Silverstein (1989); Reissing, et al (2009); Ter Kuile et al (2010), among others). As far as we are aware, our project is the first research investigating the psychosocial aspects of vaginismus in the Dominican Republic. Although a number of psychosocial variables have been studied extensively in industrialized countries, they have never been tested as predictors of vaginismus. Masters & Johnson (1981); Kaplan (1974, 1985); Duddle (1977); Silverstein (1989); Reissing, et al (2009); Reissing et al. 2003;Ter Kuile et al (2014); DSM-IV-TR (2000); Crowley, Goldmeier & Hiller (2009); Ward & Ogden (2010); Basson (1996); Dawkins and Taylor (1961); Blazer (1964); Chen CH, Lin, YC, Chiu, LH, Chu, YH. et.al, (2013); also (Pacik, (2014); Muammar et al (2015; Sanchez Bravo, et al. (2010); Sáez Sesma (2009); (Michetti et al, 2014); NG (2010); Ward & Ogden (1994). Given that the prevalence of vaginismus appears much higher in low and middle income countries, it would be important to examine these same psychosocial variables in such countries.

Other variables identified as possible etiological factors in vaginismus include relationship problems, anxiety, childhood sexual abuse, sexual ignorance, false beliefs about vaginal or penile size, and fear of pregnancy and childbirth (Munasinghe, Goonaratna, & de Silva, 2004). Most studies considering sexual abuse history have not found statistically significant associations with vaginismus. Konkan et al. (2012); Leclerc and colleagues (2010); Basson (1996); Lankveld (1995) and Ward y Ogden (1994) all studied women with vaginismus, dyspareunia and mixed sexual pain; neither of these studies found differences in patients histories of sexual abuse. Cisternas, (2015) reports that the women in her sample came from restrictive environments related to the body and sexuality; sex was considered ‘dirty’ and forbidden; fear of pain and

penetration was present. Bornefeld-Ettmann, Steil, Lieberz, et al. (2018) compared the influence of child sexual abuse on patients with Post-Traumatic Stress Disorder and Trauma Exposure and a control group. They concluded that the experience of sexual abuse does not necessarily lead to sexual impairment. Maseroli, Scavello, Cipriani et al. (2017) Studied 255 women in a sexual dysfunction clinic. Vaginismus was present in 7.8%, No differences were found in the sample for traditional risk factors such as a history of sexual abuse. Duddle (1977) did not find differences in the level of sex education between a group of women with vaginismus and a comparison group of women visiting a contraception clinic. Although, the results show that more women with vaginismus than controls were raised in an authoritarian and abuse environment characterized mainly by misinformation and negative ideas of sexuality for religious reasons.

O'Sullivan (1979) found that 70% of the women with vaginismus remembered their father as a threatening figure, capable of generating fear throughout their early years, in fact 21% of these men seem to have been alcoholics, and in many cases physically abused their wives and children. Tugrul and Kabakei (1997) reported that variables predictive of vaginismus included authoritarian-oppressive attitudes of the parents. Similar results were reported by Barnes (1986), he concluded that women with vaginismus reported more tyrannical father than controls.

The most common psychosocial indicators studied by different authors included: Religiosity and religious background, as well as familial and cultural stigmas and fears regarding penetrative sex, negative views about sexuality, restrictive sexual education, sexual activity before marriage, inaccurate or negative messages about sexual intercourse, virginity, taboos regarding sex,

aversive sexual experiences, traumatizing gynecological examinations, pain and painful sexual experiences, physical and emotional abuse, among others (Masters & Johnson, 1966; O'Sullivan, 1979; Reissing et al., 1999).

The role of anxiety in vaginismus has been noted by several authors. Watts and Nettle (2010), in a case control study of 244 women with vaginismus and 101 controls, found that those with vaginismus rated higher in anxiety and neuroticism, and concluded that anxiety proneness may be a predisposing factor for the condition. Thomtén & Karlsson (2014), in their study of psychological factors in genital pain, took a sample of 944 respondents and found that 16.1%, complained of pain apart from elevated symptoms of anxiety, fear avoidance, pain catastrophizing and anxiety sensitivity. Similar results were obtained by Borg et al. (2012), studying a sample of three groups of women: one with lifelong vaginismus (N=35), another with dyspareunia (N=33) and the last without sexual complains (N=54). Women with vaginismus showed significantly heightened levels of catastrophic pain cognitions compared with the other two groups.

Reissing (2009) refers that the fears about vaginal penetration and the use of avoidance of intercourse is a coping mechanism to avoid fears and other negative emotions and cognitions. Kaplan (1987) classified this fear as a phobic reaction to vaginal penetration. Reiss, Peterson, Gursky, & McNally (1986) expressed her fears with the following word: "I am afraid that I will panic during penetration, and it feels frightening not knowing what happens in my body during intercourse.'' Similar findings are reported by Reissing et al. (2004); ter Kuile, Both, Van Lankveld (2010), among others.

The aim of the present study is to compare women with and without vaginismus on the occurrence of a key set of psychosocial variables.

METHODS

Participants

All participants selected for the study were patients registered in the clinic of the institution where the study was conducted, the Institute of human sexuality at the Universidad Autónoma de Santo Domingo, Dominican Republic. The cases fulfilled the criteria of patients with lifelong vaginismus according to the criteria from the DSM-IV-TR (2000). The controls were patients from the family planning clinic of the same institution. Each case was matched with two controls admitted on the same date in which the case was admitted to the institute. Controls had the same age, similar levels of education, and no previous history of sexual dysfunction. All cases were evaluated in the Department of Gynecology of the Institute.

Measures

We developed a questionnaire incorporating indicators previously identified by different authors. The questionnaire containing a set of questions about religion, history of sexual activity, emotional and physical abuse, and upbringing, sexual education at home, fears related to sexual intercourse, negative experiences during childhood and adolescence, and relationship characteristics with sexual/romantic partners. All participants were interviewed by one of the first two authors in order to complete they files, they also responded yes/no to the questions of

the questionnaire. Patient and interviewer had the opportunity to elaborate on the question and answers on an interactive interview. **Procedure**

A questionnaire was filled out with each identified case from the database. After this selection, each patient was contacted via telephone by one of the authors/therapist that originally treated the patient in order to complete the questionnaires. Once the controls were identified, the therapist contacted them by phone, explaining the nature of the study and inviting them to visit the institute for an interview. The study was approved by the local ethics committee of the Institute and a written informed consent was obtained from each participant.

Statistical analysis

All the variables described above originated a database and the analysis of the data was performed using SPSS 22.0 statistical software (SPSS Inc., Chicago, IL). A descriptive analysis of quantitative variables expressed as mean and standard deviations were made.

Categorical variables were expressed as frequencies and percentages and these were compared with the chi-squared test ($\chi 2$).

The odds ratio (OR) of the factors associated with the dependent variable, adjusted with confidence intervals (CI), was estimated to build a logistic regression model in which statistically significant variables were introduced in the bivariate model, using the method of changes in estimates to assess confounding factors.

The multivariate analysis was performed using binary logistic regression.

The significance level was set at p values <.05.

RESULTS

A total of 120 women were chosen from the files during the years 2009-2016. These women were distributed into two groups. Group 1 (cases) were women with primary vaginismus (n=40), and Group 2 (controls) were women attending the family planning clinic without any medical condition (n=80).

The groups of study did not differ with regard to potential confounding variables like age, nationality, marital status, religion and level of study. The women in both groups had a mean age of 28.15, SD=6.5, with ages ranging from 18-44. All participants were Dominican, married, mainly catholic, and they were all university students or graduates, (tables 1-2).

t was found that the most frequent kind of abuse in the group of women with vaginismus and in the control group was sexual abuse (cases: 42.5 %, n=17; controls: 26.25 % n=21); however, there were no statistically significant differences between both groups. Within the types of sexual abuse, the recipient of oral sex by the abuser obtained an OR of 8.77 and the performance of oral sex to the abuser obtained an OR of 2.85. No statistically significant differences were observed between the two groups with regard to any type of abuse; however, trends toward significance were noted with sexual abuse and receptive oral sex (Table 3). Participants were asked if the abuser received or performed oral sex to the participant.

In regards to physical abuse, women with vaginismus reported a 12.5% prevalence compared to 16.25% of women in the control group. These results were not statistically significant. No statistically significant results were obtained for emotional abuse (cases: 17.5%, controls: 22.5%).

When comparing type of upbringing and sexual education received during development, it was observed that 82.5% of the women diagnosed with vaginismus and 62.5% of the women in the control group had been educated under an authoritarian style of upbringing; OR = 2.82 ($p < 0.05$). An abusive style of upbringing was identified in 17.5% of the women with vaginismus and 6.25% of the women in the control group (OR=3.18, $p<0.05$). More than three quarters (87.5 %) of the cases and 33% of the controls had not received any kind of information about sexual education during their development (OR = 13.74, $p<0.001$). In the cases, 57.5% of the women were exposed to negative ideas about sexuality for religious reasons compared to 23.8% in the control group, (OR=4.34, $p<0.001$) (Table 4).

As for fears related to the sexual intercourse, 65% of the women diagnosed with vaginismus and 40% of the women in the control group showed fears of tear by penetration (OR=2.78, $p<0.05$). 97.5% of the women with vaginismus, and 56.6% of the women in the control group presented fears of pain related to coitus (OR=30.33, $p<0.001$). The fear of losing control and of suffering a panic attack was present in 82.5% of the women with vaginismus and 13.8% of the women in the control group, (OR=29.57, $p<0.001$) (Table 5).

In the logistic binary regression analysis of the risk factors involved in the development of vaginismus, the model was adjusted for the following variables: sexual abuse, authoritarian style of upbringing, improper ways of upbringing, satisfactory sexual education, and no sexual education at all, negative ideas on sexuality for religious motives and transmission of fears regarding sexual intercourse.

The women who were afraid of losing control during penetration presented 29.57 times more risk of developing vaginismus ($p<0.01$). The women with vaginismus that were afraid of

bleeding during penetration presented an aOR=0.32 ($p<0.05$) and those who were afraid of an unwanted pregnancy showed an aOR=0.34 ($p<0.05$) (Table 6).

Discussion

The main findings indicate that compared to women without vaginismus or sexual dysfunctions, women with vaginismus reported greater avoidance of intercourse, greater fears related to sexual attempt or penetration, greater cognitions about losing control or having a panic attack if they had sex, and greater fear of vaginal damage and bleeding if sexually penetrated. Similar findings were reported by Borg, Peters, Schultz & de Jong (2012), who demonstrated that enhanced pain catastrophizing may set women at risk for developing vaginismus.

In this study there was a non-significant tendency in women with vaginismus to have a history of more sexual abuse than in controls. Sexual abuse was assessed by asking if they considered that they were abused during infancy or childhood. These results are congruent with findings reported by other authors like (Konkan et al. 2012; Leclerc and colleagues, 2010; Basson, 1996; Lankveld, 1995; Ward & Ogden, 1994.

Patterns of child upbringing were evaluated in both groups, comparing type of upbringing and the sexual education received during their development. It was observed that more than three quarters of the women diagnosed with vaginismus and slightly more than half of the women in the control group were educated under an authoritarian style of upbringing. Women with vaginismus reported being educated under a more abusive environment than controls. More

than three quarter of the cases and one third of the control had not received any kind of information about sexual education during their development. More than half of the cases and nearly one quarter in the control group were exposed to negative ideas about sexuality for religious reasons. Similar results are reported by Suarez González et al. (2007); Ellison, 1972; Dawkins and Taylor, 1964.

Our results show no statistically significant differences in regards to physical abuse; the women with vaginismus reported slightly less physical abuse than controls. Similar results were obtained with the presence of emotional abuse.

Upbringing and sexual education were evaluated in cases and controls. Those suffering from vaginismus were educated in a more authoritarian environment compared with controls, the differences were statistically significant. Abusive upbringing was identified more in women with vaginismus compared with controls. More than three quarters of women with vaginismus referred that they did not receive any sexual education. Compared with the control group, the differences were statistically significant, and women with vaginismus also reported that they received more negative ideas about sexuality for religious reasons than controls, similar results were reported by Tugrul abd Kabakei (1997).

Nearly every study on vaginismus mentions that the main indicator of this condition is fear of penetration or damage by intercourse. This fear, although present in both groups in our study, is more prevalent in women with vaginismus. The most devastating fear present in both groups was fear of penetration. Nearly all women with vaginismus rated this fear as the worst, while slightly

more than half of the control group also reported such fear. Fear of losing control and suffering a panic attack was present in more than three quarters of the cases while the same fear was six times less frequent in the control group.

We performed a logistic binary regression analysis of the risk factors involved in the development of vaginismus, the model was adjusted with the variables, authoritarian style of upbringing, improper ways of upbringing, experiences of sexual abuse, satisfactory sexual education, no sexual education at all, negative ideas on sexuality for religious motives, and transmission of fears regarding sexual intercourse. Women who were afraid of losing control during penetration had more than 20 times the possibility of presenting vaginismus than controls. Fear of bleeding and having a panic attack were also strongly associated with having vaginismus. Although there were similarities between women with vaginismus and controls without sexual problems on aspects of sexual education, fear of pain in attempted intercourse, and religion; women with vaginismus differed with regard to pain catastrophizing, fears of having a panic attack, fear of bleeding, and fears of physical damage if penetrated.

Strengths and limitations of this study

This study has a number of strengths. This cross-sectional design selected all cases admitted and did not select a specific sub-group. We believe that our sample is generalizable to the larger population of women with vaginismus.

The fact that a high prevalence of pain during intercourse (dyspareunia) was identified in the controls, should call the attention of gynecologists, so that they inquire about this condition overlooked by patients and therapists.

A limitation of this study could be the small number of cases received during those years.

One limitation of a cross-sectional study is in the lack of ability to make any statements about causality.

This was a single center study, although, is the main center for the management of sexual dysfunctions in the country.

Conclusion

In this study there were similarities between women with vaginismus and controls on aspects of sexual function, behavior, and cognitions; women with vaginismus differed with regard to concerns about losing control over the body and/or situation and demonstrated behaviors suggestive of greater avoidance of sexual behavior and penetration compared to the control group. Fear of pain and fear of having a panic attack during intercourse were the most striking symptoms of women with vaginismus women; on the other hand, painful intercourse (dyspareunia) although was present in both groups, was more prevalent in the control group. This finding should call for attention of Gynecologists in family planning clinics, should be aware of the high prevalence of pain during intercourse, so that they could implement preventive measures to reduce the consequences of this condition on the sexual life of their patients. None of the patients with dyspareunia mentioned the condition to their clinician, because they thought that pain is a normal condition when they have intercourse.

Table 1.

Ages of the participants

Age	N	Minimum	Maximum	Mean	Standard Deviation	Variance
	120	18	44	28.15	6.293	39.608

TABLA 2

Table 2. Demographic characteristics of the population

Sociodemographics parameters		**Vaginismus (n=40)**	**No Vaginismus (n=80)**	**p value***
Age		28.15 (6.29)	28.15 (6.29)	-
Education	University	40 (100%)	80 (100%)	-
Nationality	Dominican	40 (100%)	80 (100%)	-
Marital status	Single	17 (42.5%)	39 (48.8%)	0.16*
	Married	17 (42.5%)	19 (23.8%)	
	Common law	5(12.5%)	19 (23.8%)	
	Divorced	1 (2.5%)	3 (3.8%)	

*p value obtained with Chi-square test

Table 3:
Comparison of parameters related to sexual abuse, physical abuse and emotional abuse in both groups

Characteristics		**Vaginismus (n=40)**	**No Vaginismus (n=80)**	**OR**	**p value**
Sexual abuse	Yes	17 (42.5%)	21 (26.25%)	2.07	0.07*
	No	23(57.5%)	59 (73.75%)		
Receptive oral sex	Yes	4 (10%)	1 (1.25%)	8.77	0.07*
	No	36 (90%)	79 (98.8%)		
Oral sex to the abuser	Yes	4 (10%)	3 (3.75%)	2.85	0.33*
	No	36 (90%)	77 (96.25%)		
Physical abuse	Yes	5 (12.5%)	13 (16.3%)	0.73	0.78*
	No	35 (87.5%)	67 (83.8%)		
Emotional abuse	Yes	7 (17.5%)	18 (22.5%)	0.73	0.52*
	No	33 (82.5%)	62 (77.5%)		

P value obtained with * Chi-square test

Table 4:
Comparison between pattern of upbringing and sex education

Characteristics		**Vaginismus (n=40)**	**No Vaginismus (n=80)**	**OR**	**p value**
Authoritarian	Yes	33 (82.5%)	50 (62.5%)	2.82	0.02*
	No	7 (17.5%)	30 (37.5%)		
Abusive	Yes	7 (17.5%)	5 (6.3%)	3.18	0.04*
	No	33 (82.5%)	75 (9.2%)		
Misinformation	Yes	35 (87.5%)	27 (33.8%)	13.74	< 0.001*
	No	5 (12.5%)	53 (66.3%)		
Negative Ideas for religious reasons	Yes	23 (57.5%)	19 (23.8%)	4.34	< 0.001*
	No	17 (42.5%)	61 (76.3%)		

p value obtained with * Chi-square test

Table 5: Comparison of parameters related to fears about the sexual act between the two groups

Characteristics		Vaginismus (n=40)	No Vaginismus (n=80)	OR	p value
Fear of damage by penetration	Yes	26 (65%)	32 (40%)	2.78	0.01*
	No	14 (35%)	48 (60%)		
Fear of bleeding by penetration	Yes	4 (10%)	36 (45%)	0.13	< 0.001*
	No	36 (90%)	44 (55%)		
Fear of unwanted pregnancy	Yes	5 (12.5%)	49 (61.3%)	0.9	< 0.001*
	No	35 (87.5%)	31 (38.8%)		
Fear of pain by penetration	Yes	39 (97.5%)	45 (56.3%)	30.33	< 0.001*
	No	1 (2.5%)	35 (43.8%)		
Fear of losing control	Yes	33(82.5%)	11 (13.8%)	29.57	< 0.001*
	No	7 (17.5%)	69 (86.3%)		

p value obtained with * Chi-square test

Table 6.
Stepwise binary logistic regression analysis of the vaginismus adjusted for selected parameters

Parameters	aOR	95% C.I.	p value
Fear of bleeding by penetration	0.32	0.03-3.77	< 0.05
Fear of unwanted pregnancy	0.34	0.03-3.46	< 0.05
Fear of losing control during intercourse	21.57	6.51-67.28	< 0.001

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