

Validation of the partner version of the multidimensional vaginal penetration disorder questionnaire: A tool for clinical assessment of lifelong vaginismus in a sample of Iranian population

Mitra Molaeinezhad, Effat Merghati Khoei¹, Mehرداد Salehi², Alireza Yousfy³, Robab Latifnejad Roudsari⁴

Department of Midwifery, ⁴Research Center for Patient Safety, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad ¹Family and Sexual Health Unit in the Brain and Spinal Injury Research Center, Iranian National Center of Addiction Studies, Tehran University of Medical Sciences, Tehran, ²Department of Psychiatry, School of Medicine, ³Medical Education Research Centre, Isfahan University of Medical Sciences, Isfahan, Iran

ABSTRACT

Background: The role of spousal response in woman's experience of pain during the vaginal penetration attempts believed to be an important factor; however, studies are rather limited in this area. The aim of this study was to develop and investigate the psychometric indexes of the partner version of a multidimensional vaginal penetration disorder questionnaire (PV-MVPDQ); hence, the clinical assessment of spousal psychosexual reactions to vaginismus by specialists will be easier. **Materials and Methods:** A mixed-methods sequential exploratory design was used, through that, the findings from a thematic qualitative research with 20 unconsummated couples, which followed by an extensive literature review used for development of PV-MVPDQ. A consecutive sample of 214 men who their wives' suffered from lifelong vaginismus (LLV) based on Diagnostic and Statistical Manual of Mental Disorders 4th version (DSM)-IVTR criteria during a cross-sectional design, completed the questionnaire and additional questions regarding their demographic and sexual history. Validation measures and reliability were conducted by exploratory factor analysis (EFA) and Cronbach's alpha coefficient through SPSS version 16 manufactured by SPSS Inc. (IBM corporation, Armonk, USA). **Results:** After conducting EFA PV-MVPDQ emerged as having 40 items and 7 dimensions: Helplessness, sexual information, vicious cycle of penetration, hypervigilance and solicitous, catastrophic cognitions, sexual and marital adjustment and optimism. Subscales of PV-MVPDQ showed a significant reliability (0.71-0.85) and results of test-retest were satisfactory. **Conclusion:** The present study shows PV-MVPDQ is a multi-dimensional valid and reliable self-report questionnaire for assessment of cognitions, sexual and marital relations related to vaginal penetrations in spouses of women with LLV. It may assist specialists to base on which clinical judgment and appropriate planning for clinical management.

Address for correspondence: Dr. Robab Latifnejad Roudsari, Department of Midwifery, Mashhad Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences, Ebne-Sina Street, Charrah Doktora, Mashhad, Iran.
E-mail: latifnejadR@mums.ac.ir

Key words: Clinical assessment, cognitions, pain, reliability, self-report measure, sexual partner, vaginismus, validation

Access this article online	
Quick Response Code:	Website: www.jehp.net
	DOI: 10.4103/2277-9531.145913

INTRODUCTION

Vaginismus is proposed in the current version of the Diagnostic and Statistical Manual of Mental Disorders (DSM)-V to be under the umbrella of the genito-pelvic pain/penetration disorders (GPPPD).^[1] The Sexual Dysfunctions committee

Copyright: © 2014 Molaeinezhad M. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

This article may be cited as: Molaeinezhad M, Khoei EM, Salehi M, Yousfy A, Roudsari RL. Validation of the partner version of the multidimensional vaginal penetration disorder questionnaire: A tool for clinical assessment of lifelong vaginismus in a sample of Iranian population. J Edu Health Promot 2014;3:114.

for DSM-V has defined diagnostic category as the following five dimensions: Percentage success of vaginal penetration; pain with vaginal penetration; fear of vaginal penetration or of genito-pelvic pain during the vaginal penetration; pelvic floor muscle dysfunction and medical comorbidity.^[11] For some women, there is a significant element of pelvic floor tension contributing to the pain.^[12] The male partner may describe the feeling as if “the penis hits a ‘brick wall’”.^[13,4] Vaginismus may occur in approximately 0.5-1% of fertile women, though accurate estimations are lacking.^[15,6] In cultures where there is a taboo on single girls discussing sex and bride’s virginity is crucial, it is more prevalent.^[7,8] A study of women attending a family planning clinic in Iran found 12% of women suffered vaginismus at least 50% of the time and 4% of them suffering lifelong vaginismus (LLV)^[9] It seems to be a common problem, but it is underrepresented in the medical literature, which could be due to sensitivity surrounding the problem itself as well as the complexities involved in its definition.^[16]

LLV is believed to be the most common cause of non-consummation of marriage.^[4,10,11] Hence many couples are often extremely distressed by their inability to have intercourse and fear losing the opportunity to have children.^[4,12] Especially in Middle Eastern countries like Iran, which young people particularly women, face strong pressure to marry and once married to have children as the main outcome of a successful marriage.^[13,14]

Although male partner and relationship factors have historically been noted as causing and/or exacerbating vaginismus; little research has been conducted on this topic.^[15] According to Masters and Johnson’s original report, male partners of vaginismus women may suffer from sexual dysfunctions,^[16] which take action as the most etiological factor. However, no research exists at this point supporting their original report.^[15] It also claimed that male partners may be frustrated by a sense of helplessness when they see their spouses’ reaction during the attempts at vaginal penetration.^[4,16]

Despite many studies have been conducted, an individualized approach is needed to identify “interfering” and “maintaining” factors for vaginal penetration problem.^[16] Thereby information is lacking on the role of the male partner, which is thought to be an ‘important contributing factor in the maintenance of the vaginismus.’^[4,17] A clinical review of relationship adjustment suggests that solicitous responses from the male partner may help maintain and exacerbate sexual pain, because of avoidance of sexual activity.^[8,18]

Yet, many studies on vaginismus have focused on etiological factors and have included men as part of the research or as an adjunct to the treatment of the female partner.^[4,19,20] There is a gap in the literature, which directly account on the male partner reaction to vaginismus and to assess the impact of their cognitions, sexual behaviors and relational pattern on maintaining vaginal penetration problem.^[4,21]

Expert opinion recommends a careful relationship history as well as any current relationship and areas of conflict should be undertaken,^[9] it is also suggested that the assessment of sexual functions of male partners should be considered as an integral part of the management of LLV.^[8,22] So far, a well-established instrument is lacking, which assesses the partner’s cognitions and its role in maintaining the symptoms through concerns about the woman’s fear.^[8] Few studies have used a partner version of the golombok rust inventory of sexual satisfaction included 28 items focuses on male sexual dissatisfaction and impotence, which is not sufficient to assess the male partner’s cognitions and relational problems regarding vaginismus.^[20,22,23]

Examining a complex notion such as sexual behavior patterns of unconsummated couples may be particularly suited to a mixed methods approach.^[24,25] Assessment developers recognize that using mixed methods also can enhance the meaningfulness and usefulness of measurement instruments.^[25,26] Thus, we employed a sequential exploratory mixed research design and the findings from our formative qualitative phase of the research, informed the development of assessment items.

Then, during the quantitative phase, we investigated the psychometric properties of the partner version of the multidimensional vaginal penetration disorder questionnaire (PV-MVPDQ) within an Iranian group of male partners of women with LLV. The current paper reports the processes used to develop and validate a questionnaire that focuses on assessment of cognitions, emotions and sexual and marital relations, to be used for male partners of women with LLV. On which, clinicians could base their judgments and set goals for appropriate management in couples’ who suffer from un-consummation of relationship because of LLV.

MATERIALS AND METHODS

Participants and recruitment

In order to validate the PV-MVPDQ, we included husbands of women who diagnosed as LLV based on their sexual history took by an experienced psychiatrist or sexologist. Eligibility criteria were as follows: The 1st time of permanent marriage, inability to have sexual intercourse with a diagnosis of LLV in woman and in good mental health as evidenced by psychological history taking conformed to DSM-IV-TR. Couples who female partner had a history of pregnancy and diagnosed for hymenal abnormalities during the initial assisted self-examination of the external genitalia were excluded.

Couples were referred for professional help to (removed for blind review) Medical University Psychosexual Clinic and three private sex therapy clinics (two in Isfahan and one in Tehran) or responded to web based advertisement. Advertisement invited women who were “unable to have vaginal intercourse.” Then website users who complain from unconsummated marriage over the telephone by the first author (MM) to be invited to come to Isfahan Medical

University Psychosexual Clinic. Where, diagnosis of LLV was assessed by one of the two psychiatrists and diagnosed based on DSM-IVTR vaginismus diagnostic criteria after signing the consent form and a full history taking. Male partners also evaluated for any urological disorder and primary sexual dysfunctions (e.g. primary erectile dysfunction and premature ejaculation) by an urologist. After full evaluation for eligibility, participants and partners asked to complete the questionnaires, without mutual discussion in the research center. A total of 216 couples (108 couple from Isfahan and 108 couples from other parts of Iran, e.g. Tehran, Mashhad, Gheshm, Sari, Larestan, Khansar, Mahshahr, Gorgan, Zahedan) entered the study. Two of the couples were excluded because only woman had completed the questionnaire. The study was approved by the Ethical committee of the (removed for blind review) University of medical sciences and ethical permission was given (Code: 900983).

Questionnaire development

This research was developed and improved during a mixed-methods sequential exploratory design^[27] with two major phases: (1) a qualitative thematic study and (2) a quantitative cross sectional study. The first phase of the study involved in-depth individual interviews with 20 unconsummated couples due to a diagnosed LLV for woman at (removed for blind review) psychosexual clinic under the condition of inform consent, findings from thematic analysis of interviews and a literature review, resulted in a pool of 104 candidate items. The clarity and relevance of items were assessed through two sequential expert panels and 47 repeated items were eliminated. The second phase of the project focused on psychometric indexes of PV-MVPDQ (e.g. factor structure, content and face validity, internal consistency and stability and construct validity). Then the PV-MVPDQ was completed by 214 consecutive male partners of women with LLV. The compiled data were analyzed using Statistical Package for the Social Sciences (SPSS) 16 software manufactured by SPSS Inc., (IBM Corporation, Armonk, USA). First, preliminary item-by item analysis was conducted for missing data, normality and linearity on the items of the PV-MVPDQ. Then, internal structure of study measures was determined using exploratory factor analysis (EFA). Principal component analysis (PCA) was conducted on the items, to increase the utility of the instruments in evaluation and ultimately increase the creditability and efficacy of assessment. The Scree test criterion, with considering the degree of clinical interpretability was used to determine the number of factors most suitable for the questionnaire. Cronbach's alpha coefficient was used for examination of inter-item correlation and Pearson correlations between subscales and total score, calculated as an internal criterion for validity of the subscales.

The validation of the tool and pilot test

Face and content validity

The face and content validity was assessed by presenting the preliminary 57-item scale to 10 experts in psychology, sexology, reproductive health, urology and psychiatry. They assessed the content validity ratio (CVR) and content validity

index (CVI) calculated for each item.^[28] When the CVR was greater than Lawshe table for each item,^[29] the items was considered as necessary and otherwise it was eliminated. Respondents indicated their agreement with each item as CVI through 3 items (clarity, relevance and importance) and items with total scores <0.7 considered to be not suitable and eliminated. CVI calculated based on below formula and 5 items were eliminated in this phase.

$$CVI = \frac{\text{Number of experts giving a rate of "3" or "4"}}{\text{Total number of experts}}$$

Then the 52-item PV-MVPDQ was presented to 15 participants. In total, 7 items were eliminated after this phase because of disagreement of participants and low inter-item correlation. The reliability was obtained through Cronbach's alpha coefficient.^[30] The Cronbach's alpha coefficient for the questionnaire at this stage was 0.78. The female version of MVPDQ also completed by women with LLV and validated through another study.

The PV-MVPDQ

The final 45-item version of the PV-MVPDQ was presented as a self-reporting questionnaire which consisted of 45 questions were scored based on Likert's scale; from 1 to 5; (1 = never, 2 = sometimes, 3 = in half of the times, 4 = most of the times, 5 = always), except for marital intimacy which was ranged as a 10-point self-report scale and was reverse-scored in the final version of the scale. The measurement was based on the total scores of each dimension. Two questions respectively, regarding the last attempt for vaginal penetration and frequency of attempts during the last 6 months were included, as diagnostic threshold for vaginal penetration disorder. These questions were not taken account in factor analysis, but their correlation with the total score of the PV-MVPDQ was calculated. The PV-MVPDQ is available upon request.

Construct validity

Data reduction and EFA

A PCA conducted to determine the degree to which the items in the instrument relate to the relevant theoretical construct.^[28] The Kaiser-Meyer-Olkin measure of sampling adequacy (0.816) and Bartlett's tests of sphericity with a $\chi^2 = 3720.355$ ($df = 741$) were satisfactory to run the factor analysis for PV-MVPDQ ($P < 0.001$).

Five items, which showed a minimum value of communalities (<0.3), were excluded after this phase. These items were: "I'm afraid that attempts for penetration cause a damage to my penis" (0.270), "I'm afraid that my penis different from others" (0.270). 'I don't care about penetration until the time we decide for child bearing." (0.281). "My partner exaggerated about her fears" (0.252) and "Our priorities about sexual matters are not match" (0.257).

After recording of 10-point items as five-point scales, EFA was conducted on the 40-item version of the PV-MVPDQ

for reduction of items. Any items with loading on one factor exceeding 0.3 and a difference between loadings on two factors at least 0.1 were confirmed to belong to a subscale.^[31]

RESULTS

Participants

Subjects were 214 men whose wife was diagnosed for LLV. All couples reported a history of previous treatment and referral for treatment to different health care professionals and even magicians (Some of Iranian families strongly believe in superstitious power which “locks the grooms’ sexual ability” and disables him to erect or penetrate^[32]). Detailed characteristics of participants are reported in Tables 1 and 2.

Construct validity

EFA

All the 40 questionnaire items were significantly loaded on seven factors, which explained a total of 52.31% of the amount of variances [Table 3]. Based on Cattell’s (1966) criteria for identifying the number of components/factors present, the scree plot clearly indicated that seven components were present among the items^[33] [Graph 1]. Mean and standard deviation for subscale scores of the PV-MVPDQ are summarized in Table 4.

Factor-1 is interpreted as “helplessness”, which consisted of six items regarding the negative attitudes about future of their relationships and interpersonal reactions that male partners experienced after repeated failed attempts at vaginal penetration (11.24% of the total variance and 5.07 observed initial Eigen value). The second subscale was interpreted as “sexual information” which contains four items regarding information about penetration mechanism, female and male genitalia and sex techniques which be used during foreplay (8.27% of the total variance and 3.98 observed initial Eigen value). Subscale three: “Vicious cycle of penetration”, which accounted for 7.11% of the total variance and with 3.16 observed initial Eigen value includes five items and reflects the pattern of sexual behaviors, which demonstrated by couples with LLV during attempts for vaginal penetration. Items indicated anticipation and anxiety, which experienced by male partners during the vaginal penetration attempts, loaded in the fourth subscale which named as “Hyper vigilance and solicitous” (6.95% of the total variance and 2.41 observed initial Eigen value). Items regarding marital satisfaction, sexual coherency and marital intimacy and male partner and his wife’s hope for problem solves, were loaded in the fifth subscale (6.79% of the total variance and 2.30 observed initial Eigen value). Six items regarding catastrophic thoughts of male partners about vaginal penetration loaded in the sixth subscale and interpreted as “catastrophic cognitions” (6.22% of the total variance and 2.08 observed initial Eigen value). Finally, items which indicated positive attitudes about present non-penetrative sexual relations and maintaining of the relationship were loaded in the seventh subscale as “optimism” (5.72% of the total variance and 1.89 observed initial Eigen value). Although items 15, 17, 18, 20,

31 and 40 were loaded on two subscales with a difference less than 0.1 on two factors, there were included in the scale due to their apparent importance and considered to belong to the subscale with more loading number based on the theoretical relevance.^[31]

Pearson correlations between subscales of the PV-MVPDQ were calculated as an internal criterion for validity of subscales.

Table 1: Subjects characteristics for couples with women diagnosed for lifelong vaginismus

Subjects’ characteristics	Mean (SD)	Previous treatment	N (%)	
			Yes	No
Age woman (years)	27.98 (4.26)	Midwife/ gynecologist	185 (86.4)	29 (13.6)
Age partner (years)	31.27 (4.34)	Psychiatrist	85 (39.7)	129 (60.3)
Duration relationship (months)	50.20 (32.82)	General physician	33 (15.4)	181 (85.1)
Duration treatment (months)	20.49 (28.11)	Urologist	56 (26.2)	158 (73.80)
Duration dating (months)	13.73 (10.29)	Consultant/ sexologists	94 (43.9)	120 (56.1)
Duration marriage (months)	36.36 (36.759)	Conjuror/ augur	38 (17.7)	176 (82.3)
Duration complaint (months)	31.31 (31.79)			

Total N=214. SD=Standard deviation

Table 2: Diagnostic characteristics of male partners of women with vaginismus (N=214)

Diagnostic characteristic (s)	N (%)
When you and your partner attempt for vaginal penetration for the last time?	
Mean (SD) days	21.36 (15.00)
How many times you and your partner try for vaginal penetration In the last 6 months?	
Never	0 (0)
Less than 5 times	44 (20.6)
5-10 times	41 (19.2)
More than 10 times	129 (60.2)
Penetration problem as the greatest problem in life	
Yes	193 (90.2)
No	21 (9.8)
Self-description as a person who is more sensitive than others	
Yes	90 (42.05)
No	124 (57.95)
Self-description as a person who is more timid than others	
Yes	76 (35.5)
No	138 (64.5)

Total N=214. SD=Standard deviation

Table 3: Validated 40 items of the partner version of the MVPDQ; with factor loadings^a (>0.3), mean (SD)

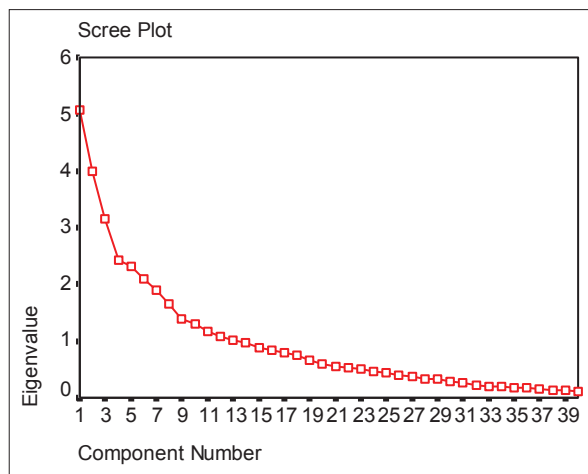
Item	Mean (SD)	Component						
		1	2	3	4	5	6	7
Factor 1: Helplessness								
I am afraid when penetration is not successful, we should consider divorce/separation	1.66 (1.23)	0.716						
When penetration fails, I/my partner quarrel	2.22 (1.40)	0.494						
When penetration fails I/my partner reproach and blame each other	2.00 (1.16)	0.795						
When penetration fails I/my partner use force/violent behavior	1.74 (1.07)	0.794						
When penetration fails, I/my partner threat each other to disclosure to others	1.60 (1.22)	0.765						
When penetration fails I/my partner consider/threat each other to divorce/separation	1.54 (1.13)	0.797						
Factor 2: Sexual information								
I know what happens in our bodies during penetration	2.56 (1.08)		0.796					
I know about anatomy of female genitalia	2.85 (1.04)		0.822					
I know about anatomy of male genitalia	2.31 (1.09)		0.823					
I know what sex techniques I should use before penetration	2.41 (1.07)		0.736					
Factor 3: Vicious cycle of penetration								
My partner refuses and postpones the penetration when I propose	2.94 (1.44)			0.566				
My partner's legs are cramping up during attempts for penetration	4.32 (0.99)			0.667				
My partner's body is contracting and shivering during attempts for penetration	3.75 (1.43)			0.772				
My partner pushes me out during attempts for penetration	3.58 (1.43)			0.562				
I don't insist on penetration, when I see my partner reaction during attempts for vaginal penetration	4.00 (1.05)			0.473			0.423	
Factor 4: Hyper vigilance and solicitous								
There is an obstruction in my partner's vagina for penetration	3.00 (1.29)				-0.558			
I lose my sexual desire when I see my partner's reaction during attempts for vaginal penetration	3.13 (1.29)				0.415		0.395	
I feel anxious when I want to try for a penetration	2.57 (1.34)				0.325		0.312	
I lose my erection when I see my partner reaction during attempts for vaginal penetration	3.10 (1.24)		0.394		0.623			
I get ejaculated too fast when I see my partner reaction during attempts for vaginal penetration	1.99 (1.12)	0.416			0.504			
I'm afraid that my partner experiences unplanned pregnancy, if we have vaginal penetration	1.83 (0.96)				-0.303			
I don't care about penetration while my partner is suffering from pain	2.10 (1.40)				-0.511			
My partner's fears will be worsening, if I treat her too rough or threat her	2.06 (1.55)				-0.565			
Factor 5: Sexual and marital adjustment								
I am afraid when penetration is not successful, our relationship getting cold	3.63 (1.27)					-0.602		
My wife is sensitive to my sexual needs and desires	3.77 (1.32)		-0.300			0.583		
I and my wife have agreement about sex techniques which we use during sexual relations	3.40 (1.28)					0.620		
I feel hopeful about treatment	4.29 (0.73)					0.487		
My wife feels hopeful about treatment	4.27 (0.76)					0.374		
Our relationship is intimate*	2.13 (1.10)					0.316		
Factor 6: Catastrophic cognitions								
I'm afraid that penetration causes damage to my wife	3.58 (1.29)						0.545	
Penetration will result in the climax	3.73 (1.28)				0.335		0.337	
I'm afraid that my wife's hymen is too thick	2.34 (1.29)		0.308				0.539	
I'm afraid that my wife's vagina is too narrow for penetration	2.69 (1.33)						0.446	
I'm afraid if the penetration problem is lasting we will lose our chance for child bearing	2.83 (1.39)						0.652	
I'm afraid if the penetration problem is lasting I will get impotence	2.70 (1.29)						0.597	
Factor 7: Optimism								
Non-penetrative relations are pleasurable enough	2.29 (1.17)						0.334	0.776

Contd...

Table 3: Contd...

Item	Mean (SD)	Component						
		1	2	3	4	5	6	7
I and my partner enjoy our non-penetrative sexual intercourse	3.46 (1.13)							-0.607
I believe that penetration is something that has to be endured in any marital relationship	4.07 (1.06)		-0.307		0.367			0.525
If penetration fails during repeated attempts, we can continue our sex life without penetration	3.75 (1.33)		0.312					-0.332

Extraction method: Principal component analysis, Rotation method: Varimax with Kaiser normalization^a. Rotation converged in 8 iterations, *Mean and SD were calculated after re-coding of ten-point likert items as five-point scales. SD=Standard deviation, MVPDQ=Multidimensional vaginal penetration disorder questionnaire



Graph 1: The scree plot showed inflexion on the curve (>1) after seven-factor solution

Inter-scale correlation were as $|0.10| < r < 0.31$ | considered as small, $|0.30| < r < 0.50$ | as medium and $r > 0.50$ | as large effect sizes.^[34,31] The highest correlation was found between “hyper vigilance and solicitous” subscale and total PV-MVPDQ scores ($r = 0.623, P < 0.01$). The sexual and marital adjustment subscale yielded the lowest and a negative correlation among the rest of the dimensions ($r = -0.146, P < 0.05$) [Table 5].

Reliability analysis

The Cronbach’s alpha coefficient for the questionnaire as a whole was 0.79 and for the dimensions varied between 0.71 and 0.85. The least Cronbach’s alpha coefficient was related to “The sexual and marital adjustment” (0.71) and the highest were related to “catastrophic thoughts” (0.85). The test-retest correlates also indicated that the PV-MVPDQ subscales have appropriate levels of stability over a period of 2 weeks for 15 participants (ranged from 0.79 to 0.84). The sample size was based on the recommendations of Fleiss, i.e. that 15-20 subjects would be required for estimating the reliability of a quantitative variable.^[35]

DISCUSSION

A rigorous and precise instrument development process has led to a reliable and valid measure with seven underlying components, the PV-MVPDQ. It could assess cognitions, sexual and marital relations related to vaginal penetration

Table 4: Mean and SD of the of the partner version of the MVPDQ total score and subscales

Subscale	Mean	SD	Minimum	Maximum
Sexual information	10.15	3.55	4.00	20.00
Helplessness	10.78	5.41	6.00	36.00
Vicious cycle of penetration	18.57	4.10	7.00	25.00
Hyper vigilance and solicitous	21.85	3.61	12.00	32.00
Sexual and marital adjustment	23.24	3.20	15.00	29.00
Catastrophic though	17.90	4.50	7.00	30.00
Optimism	15.06	2.66	10.00	23.00
Total score	110.70	11.41	82.00	142.00

N=214, SD=Standard deviation, MVPDQ=Multidimensional vaginal penetration disorder questionnaire

Table 5: Pearson correlation and reliability coefficients for the partner version of the MVPDQ subscales

Subscale	Pearson correlation	Cronbach’s alpha
Helplessness	0.498**	0.79
Sexual information	0.217**	0.84
Vicious cycle of penetration	0.407**	0.84
Hyper vigilance and solicitous	0.623**	0.77
Sexual and marital adjustment	-0.146*	0.71
Catastrophic thoughts	0.616**	0.85
Optimism	0.409**	0.76
Total score		0.79

**P<0.01 (two-tailed), *P<0.05 (2-tailed). MVPDQ=Multidimensional vaginal penetration disorder questionnaire

in spouses of women with LLV. Meanwhile, The information on causation and impact of vaginismus, stem mostly from treatment outcome studies, none of which have been evaluated empirically,^[36] and has not addressed the issue of male partners’ subjective experiences of ‘living with’ vaginismus.^[4]

The first factor component of the PV-MVPDQ was “helplessness”, indicating that we attained our goal of developing a scale which assesses the spouse’s response to vaginismus. Participants in this study reported some degree of conflict in their relationships, following repeated failed penetration attempts. The level of distress related to lack of sexual intercourse may be vary amongst couples, with some who report a great deal of distress and seek out help early in

the relationship, others presenting to treatment only when they seek to start childbearing.^[37] Many partners acutely feel the loss of self-esteem and disappointment, as a result of repeated failure.^[4,10]

Our findings are in accordance with Sampson findings regarding “experiences of male partners of women with vaginismus” indicate that male partners of vaginismic women had all threatened to leave the relationships or had separated from their partners for a short time and felt frustrate with their partners or with the process of seeking treatment and blamed themselves.^[4] It is also in line with Ghering and Chan, results showed that vaginismus may lead to other problems in the relationship, poor communication, increased stress, a heightening of anxiety, increase in symptoms and even separation and divorce.^[11] Though many spouses believed either that something was wrong with them,^[4] but, feel very despondent and unmotivated to change, so the learned helplessness and inability to want to change the situation also causes great distress and emotionality in the relationship.^[38] Assessment of spouse’s emotional responses is noteworthy when considering a multifaceted psychosocial intervention for couples who suffer from LLV.

Items regarding sexual information which loaded as the second factor is a confirmation of expert opinion; which suggests that vaginismus treatment should be consist of sex education and intended to enhance accurate knowledge about sexuality and genital anatomy.^[8] In our study, higher scores of sexual information showed a negative correlation with helplessness and a significant correlation with the total score of the PV-MPVDQ. There were suggestions that an abysmal lack of basic information regarding sexuality, e.g. the location of the vaginal opening, a comfortable position and foreplay techniques, among male partners may be play a role as the primary contributing cause of failure to consummate the marriage and later to a sense of despair and helplessness.^[39] Hence assessment of the sexual information of male partners with a reliable measure can help to appropriate approach.

That several items were retained in the third subscale are in line with a cognitive-behavioral perspective about vaginismus, which indicated that both partners, may experience a vicious cycle of fear and avoidance, which resulted from painful and impossible attempts at intercourse and in turn can contribute to negative experiences and confirm negative expectations.^[16]

The role of male partner through confirmation or exacerbating of the “vicious cycle of vaginismus,” can assess by the PV-MVPDQ. On the other hand, it is assumed that, the higher level of women’s pain intensity predicts increased psychological distress in male partners.^[40] So, significant correlations which showed, between the third and fourth subscales and the total score of questionnaire, confirm this hypothesis and indicated solicitous partner responses may contribute to greater pain which experienced by women during the vaginal penetration.^[41,42]

Consequently, the literature agrees that couple in an unconsummated marriage often seem to dread sexual pleasure, fear sexual contact and avoid intimacy,^[38,42,43] which may attributed to their sexual dysfunctions, e.g. loss of desire, erectile dysfunction and premature ejaculation. In our study, these complaints which experienced during repeated failed attempts at intercourse, loaded as multiple items in the “hyper vigilance and solicitous” subscale and confirmed with the findings of Dogan (2008) that male sexual dysfunctions can be either a result of or a reaction to vaginismus and may be simultaneously and equally responsible for the absence of sexual intercourse for couples with LLV.^[22] Hence, the PV-MVPDQ may assist experts to evaluate of the sexual function of the spouse, which is important in the diagnosis and prognosis of women with LLV.^[22,44]

The male partners of women with LLV historically used to see as sexually naive and show a fear of injuring or causing pain to their wives.^[8,15,17] The significant high correlation between hyper vigilance and solicitous and catastrophic cognitions in this study indicated that the condition of vaginismus gave rise to concerns which allowed further anxieties to surface. These findings support the idea of Renshaw that indicated, negative cognitions and anticipation of pain and fear of pain to partner, may amplify any existing sexual anxiety in male partners,^[45] so they reported being anxious about some aspect of their sexual behavior and insist that they wanted to avoid any sexual aggression. It also indicated that the PV-MVPDQ could be used for assessing negative cognitions and caring behaviors, which showed by spouses during the vaginal penetration attempts. In this study, about half of the participants described themselves as more sensitive than others, which is in accordance with the idea of Reissing *et al.*, who believed that ‘the male partner’s sensitivity” may interfere with coitus.^[46] Consequently, as Hiller, reported “many concerned partners stopped pushing against the closed vaginal passage before it becomes too painful”^[47] and don’t want to be seen to force themselves onto their partners or cause them pain and injury.^[4]

While results from a study by Lemieux *et al.* indicated that higher levels of partner-perceived self-efficacy and lower levels of partner catastrophizing are associated with decreased pain intensity in women with entry dyspareunia,^[48] reassembly, catastrophizing thoughts, suggested as the sixth factor of the PV-MVPDQ, which shows that partners’ cognitive responses may influence the experience of vaginismus for women and pointing toward the importance of assessment of the spouse’s cognitions when treating this sexual health problem.^[22]

Although, it is suggested that evaluation and treatment of sexual pain problems should involve both partners and should explore the role of negative attributions on spousal adjustment.^[39] Yet few studies have focused on the investigation of dyadic factors and relationship adjustment in couples with a sexual pain disorder.^[18] As in this study indicated marital adjustment is a factor which may play a role in planning for management of LLV. This subscale showed

a negative correlation with total score of the PV-MVPDQ and hyper vigilance and solicitous, which may indicated that, increasing in sexual coherency, marital intimacy and satisfaction and a positive attitude of husband about treatment might lead to decline in the dyadic adjustment, which experienced by male partners of vaginismic women. These findings are support the idea of Jodoin *et al.* (2011), that “higher levels of both internal and global attributions were associated with men’s poorer dyadic adjustment”.^[40] It is a sound reason that PV-MVPDQ is a useful measure for evaluation of interpersonal aspects of the couple’s dynamic which should be implicated in clinical interventions.

While, a wide spectrum of sexual behaviors are reported by couples with LLV, (ranged from a complete lack of physical intimacy to manual and oral sex), some of the male partners in this study, reported that failure to consummate did not nullify their marriages or cancel out their relationships. So they were optimistic about future of their relationship and believed that although sex was important, there were other factors that made up a marriage. The final subscale of the PV-MVPDQ, optimism, showed a significant correlation with helplessness and catastrophic cognitions which indicated that negative attitudes about relationship may take action as a source for much of the conflict.^[41] This is also confirmation of both Catalan *et al.* and van Lankveld *et al.* idea who found that vaginismic couples demonstrated significantly better communication and better over-all relationship ratings than a comparison group; and lower rate of marital problems.^[49,50]

Finally, as these findings indicated, the PV-MVPDQ is a valid and reliable measure for assessment of cognitions, sexual and marital problems of male partner of women with LLV and can be implicated in a multidisciplinary management of it. However, a number of important limitations need to be considered here, first, because we aimed primarily to provide the best treatment to all participants at the appropriate time, some of our participants and their partners, already received treatment during the first phase of the study and their answers may be influenced by cognitive-behavioral therapy they received.

Second we did not perform any comparison and correlation study between total scores of MVPDQ obtained by women with LLV and their male partners, furthermore we had no control group including no pain group and women with dyspareunia, so it is too early to determine whether all seven subscales of the PV-MVPDQ are so sensitive to differentiate between male partners of women with and without GPPPD. So, future studies are needed to investigate the divergent and convergent construct validity of the PV-MVPDQ.

It is our hope that development of the PV-MVPDQ can facilitate the evaluation of psychosexual outcomes of vaginismus on male partners which may take action as interfering or maintaining factors with vaginal penetration problem. Our findings would have important implications

for treatment and add to our understanding of the psychosexual reactions of couples who suffer from LLV. It is also important to suggest future studies for determination of diagnostic threshold of the PV-MVPDQ using larger samples and correlational study including female partners with LLV.

ACKNOWLEDGMENTS

This article is part of a PhD thesis in Reproductive Health focused on the sexual behavior patterns of the couples with “unconsummated marriage”, which has been approved by Mashhad University of Medical Sciences, Mashhad, Iran (Code: 900983). The financial support provided by the university is highly appreciated. We would like to gratefully thank Mohammad Soltani, Msc, Peyaman Salehi MD, Katyun Shafiei, MD and Azita Shahriari, BSc for participants referral and their grateful comments on earlier partner version of the PV-MVPDQ. We also acknowledge Charamine Borg, PhD for her grateful comments on earlier version of this manuscript. Our sincerest thanks also go to the couples who participated in the study. We also appreciate the support received from Isfahan Psychosexual clinic staff during the study.

REFERENCES

1. Binik YM. The DSM diagnostic criteria for vaginismus. *Arch Sex Behav* 2010;**39**:278-91.
2. Brotto L. *Sexual Pain Disorders*. Brithish Colombia: UBC Sexual Health Lab. Inc.; 2006. Available from: http://www.obgyn.ubc.ca/SexualHealth/sexual_dysfunctions/pain_disorders.php. [Last cited on 2013 Aug 30].
3. Lamont JA. Vaginismus. *Am J Obstet Gynecol* 1978;**131**:632-6.
4. Sampson CH. A qualitative investigation of male partners’ experience of relationship with women suffering from vaginismus. [Dissertation]. ETD Collection: University of the Witwatersrand; Available from: <http://hdl.handle.net/10539/4793>. [Last cited on 2013 Dec 13].
5. Graziottin A. *Sexual pain disorders: Dyspareunia and vaginismus*. In: Porst H, Buvat J, editors. Oxford: Blackwell; 2006. p. 342-50.
6. Borg C, de Jong PJ, Weijmar Schultz W. Vaginismus and dyspareunia: Relationship with general and sex-related moral standards. *J Sex Med* 2011;**8**:223-31.
7. Tugrul C, Kabakci E. Vaginismus and its correlates. *J Sex Marital Ther* 1997;**12**:23-4.
8. Crowley TD, Goldmeier HJ. Diagnosing and managing vaginismus. *Br Med J* 2009;**3**:225-9.
9. Crowley T, Richardson D, Goldmeier D, Bashh Special Interest Group for Sexual Dysfunction. Recommendations for the management of vaginismus: BASHH Special Interest Group for Sexual Dysfunction. *Int J STD AIDS* 2006;**17**:14-8.
10. Barnes J. Primary vaginismus (Part 2): Aetiological factors. *Ir Med J* 1986;**79**:62-5.
11. Ghering D, Chan AW. Group therapy: A useful treatment modality for women diagnosed with primary and secondary vaginismus. *J Sex Educ Ther* 2001;**26**:59-67.
12. Kaplan HS. *The Evaluation of Sexual Disorders*. New York: Brunner/Mazel; 1983.
13. Mirzaie N, Saremi AT. A 14 year unconsummated marriage and its successful treatment (A case report). *J Reprod Infertil* 2002;**3**:59-63. Available from: <http://www.jri.ir/En/ShowArticle.aspx?id=86>. [Last cited on 2013 May 03].
14. Ghorbani B, Arefi S, Saber YM, Sadri AH. Successful infertility treatment and spontaneous pregnancy in an unconsummated marriage after 7 years. *J Reprod Infertil* 2006;**7**:284-9. Available

- from: <http://www.jri.ir/En/ShowArticle.aspx?id=251>. [Last cited on 2013 May 03].
15. Reissing ED. Vaginismus: Evaluation and management. In: Pukall CF, Goldstein AT, Goldstein I, editors. *Female Sexual Pain Disorders*. 1st ed. West Sussex: Blackwell Publishing Limited; 2008. p. 229-34.
 16. Masters WH, Johnson WE. *Human Sexual Inadequacy*. Boston: Little Brown and Company; 1970. p. 92-115.
 17. Leiblum SR, Pervin LA, Campbell EH. The treatment of vaginismus: Success and failure. In: Leiblum S, Pervin L, editors. *Principles and Practice of Sex Therapy*. London: Tavistock Publications; 1980. p. 167-92.
 18. Davis HJ, Reissing ED. Relationship adjustment and dyadic interaction in couples with sexual pain disorders: A critical review of the literature. *Sex Relation Ther* 2007;22:245-54.
 19. Ter Kuile MM, Bulté I, Weijnenborg PT, Beekman A, Melles R, Onghena P. Therapist-aided exposure for women with lifelong vaginismus: A replicated single-case design. *J Consult Clin Psychol* 2009;77:149-59.
 20. van Lankveld JJ, ter Kuile MM, de Groot HE, Melles R, Nefs J, Zandbergen M. Cognitive-behavioral therapy for women with lifelong vaginismus: A randomized waiting-list controlled trial of efficacy. *J Consult Clin Psychol* 2006;74:168-78.
 21. Gindin LR, Resnicoff D. Unconsummated marriages: A separate and different clinical entity. *J Sex Marital Ther* 2002;28 Suppl 1:85-99.
 22. Dogan S, Dogan M. The frequency of sexual dysfunctions in male partners of women with vaginismus in a Turkish sample. *Int J Impot Res* 2008;20:218-21.
 23. van Lankveld JJ, van Koeveeringe GA. Predictive validity of the Golombok Rust Inventory of Sexual Satisfaction (GRISS) for the presence of sexual dysfunctions within a Dutch urological population. *Int J Impot Res* 2003;15:110-6.
 24. Johnson B, Onwuegbuzie AJ. Mixed method research: A research paradigm whose times has come. *Educ Res* 2004;33:14-26.
 25. Kramer JM. Using mixed methods to establish the social validity of a self-report assessment: An illustration using the child occupational self-assessment (COSAS). *J Mix Methods Res* 2011;5:52-76.
 26. Young B, Rice H, Dixon-Woods M, Colver AF, Parkinson KN. A qualitative study of the health-related quality of life of disabled children. *Dev Med Child Neurol* 2007;49:660-5.
 27. Creswell WJ, Plano LV. *Designing and Conducting Mixed Method Research*. Canada: Sage Publications; 2007.
 28. DeVon HA, Block ME, Moyle-Wright P, Ernst DM, Hayden SJ, Lazzara DJ, *et al.* A psychometric toolbox for testing validity and reliability. *J Nurs Scholarsh* 2007;39:155-64.
 29. Lawshe CH. A quantitative approach to content validity. *Pers Psychol* 1975;28:563-75.
 30. Cronbach LJ, Meehl PE. Construct validity in psychological tests. *Psychol Bull* 1955;52:281-302.
 31. Klaassen M, Ter Kuile MM. Development and initial validation of the vaginal penetration cognition questionnaire (VPCQ) in a sample of women with vaginismus and dyspareunia. *J Sex Med* 2009;6:1617-27.
 32. Dehkhoda AA. *Dehkhoda Dictionary*. Tehran: Borhan School Cultural Association; 2003. p. 134.
 33. Cattell RB. The scree test for the number of factors. *Mult Behav Res* 1966;1:245-76.
 34. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. New York, Hillsdale, NJ: Lawrence Erlbaum Press; 1988.
 35. Fleiss JL. Reliability of measurements. In: *The Design and Analysis of Clinical Experiments*. 1st ed. New York: John Wiley and Sons; 1986. p. 2-31.
 36. Binik YM, Reissing E, Pukall C, Flory N, Payne KA, Khalifé S. The female sexual pain disorders: Genital pain or sexual dysfunction? *Arch Sex Behav* 2002;31:425-9.
 37. RosenbaumTY. Applying theories of social exchange and symbolic interaction in the treatment of unconsummated marriage/relationship. *Sex Relation Ther* 2009;24:38-46.
 38. Robinson TM. A critical assessment of the experiences and perceptions of the couples in an unconsummated marriage. [Dissertation]. Sun scholar research repository: University of Stellenbosch;. Available from: <http://scholar.sun.ac.za/handle/10019.1/1097>. [Last cited on 2013 Dec 13]. 2005.
 39. Ribner DS, Rosenbaum TY. Evaluation and treatment of unconsummated marriages among Orthodox Jewish couples. *J Sex Marital Ther* 2005;31:341-53.
 40. Jodoïn M, Bergeron S, Khalifé S, Dupuis MJ, Desrochers G, Leclerc B. Attributions about pain as predictors of psychological symptomatology, sexual function, and dyadic adjustment in women with vestibulodynia. *Arch Sex Behav* 2011;40:87-97.
 41. Rosen NO, Bergeron S, Glowacka M, Delisle I, Baxter ML. Harmful or helpful: Perceived solicitous and facilitative partner responses are differentially associated with pain and sexual satisfaction in women with provoked vestibulodynia. *J Sex Med* 2012;9:2351-60.
 42. Jeng CJ. *Clinical assessment and management of unconsummated marriage-Primary vaginal penetration failure*. Unpublished [dissertation]. California: University of Sanfransisco; 2003.
 43. Renshaw DC. A study: Unconsummated marriage in 2003. A case series. Loyala IPM310/15/03Research day. Chicago, Maywood, Illinois: Loyala University; 2003.
 44. Ghanem H, Zaaza A, Kamel I, Anis T, Salem A, El Guindi A. Short-term use of sildenafil in the treatment of unconsumated marriages. *Int J Impot Res* 2006;18:52-4.
 45. Renshaw DC. Sexless marriages in 2004? The Official Newsletter of the Southern African Sexual Health Assoc; 2004;1:4-5.
 46. Reissing ED, Binik YM, Khalifé S. Does vaginismus exist? A critical review of the literature. *J Nerv Ment Dis* 1999;187:261-74.
 47. Hiller J. Defining vaginismus. *Sex Relation Ther* 2000;15:87-91.
 48. Lemieux AJ, Bergeron S, Steben M, Lambert B. Do romantic partners' responses to entry dyspareunia affect women's experience of pain? The roles of catastrophizing and self-efficacy. *J Sex Med* 2013;10:2274-84.
 49. Catalan J, Hawton K, Day A. Couples referred to a sexual dysfunction clinic. Psychological and physical morbidity. *Br J Psychiatry* 1990;156:61-7.
 50. van Lankveld JJ, Brewaeys AM, Ter Kuile MM, Weijnenborg PT. Difficulties in the differential diagnosis of vaginismus, dyspareunia and mixed sexual pain disorder. *J Psychosom Obstet Gynaecol* 1995;16:201-9.

Source of Support: Mashhad University of Medical Sciences, **Conflict of Interest:** None declared