

Early Maladaptive Schemas and Penetration Cognitions in Genito-Pelvic Pain/Penetration Disorder: A Multicenter Study



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ABSTRACT

Objective: The aim of this study was to examine the relationships between early maladaptive schemas, vaginal penetration-related cognitions, and sexual functioning in women diagnosed with Genito-Pelvic Pain/Penetration Disorder (GPPPD), compared with a control group.

Method: This cross-sectional, multicenter study included 100 women diagnosed with GPPPD and 120 volunteer women in whom no sexual dysfunction was detected. Participants completed the Structured Clinical Interview for DSM-5 (SCID-5), the Young Schema Questionnaire Short Form-3 (YSQ-SF3), the Vaginal Penetration Cognitions Questionnaire (VPCQ), and the Golombok-Rust Inventory of Sexual Satisfaction (GRIS). Group differences were analyzed using the Mann-Whitney U test, associations were assessed with Spearman correlation analysis, and a multivariable logistic regression analysis was also performed.

Results: Compared with the control group, women diagnosed with GPPPD had significantly higher levels of negative vaginal penetration cognitions and early maladaptive schemas, particularly pessimism, approval-seeking, defectiveness, punitiveness, vulnerability to harm, and unrelenting standards ($p < 0.001$). In addition, genital incompatibility cognitions were associated with pessimism and self-sacrifice schemas, whereas catastrophic and pain-related cognitions were associated with the approval-seeking schema. In the logistic regression analysis, unemployment, higher age at marriage, catastrophic and pain-related cognitions, and genital incompatibility cognitions were independently associated with the presence of GPPPD.

Conclusion: Women diagnosed with GPPPD were found to have more negative sexual cognitions and more pronounced maladaptive schema patterns. The findings suggest that evaluating negative penetration-related cognitions together with early maladaptive schemas may be clinically useful in GPPPD.

Keywords: genito-pelvic pain/penetration disorder, schemas, sexual functioning, vaginal penetration cognitions, vaginismus

INTRODUCTION

Genito-Pelvic Pain/Penetration Disorder (GPPPD) is a sexual dysfunction characterized by persistent or recurrent difficulties with vaginal penetration, marked fear and anxiety during attempts at sexual intercourse, and involuntary contractions of the pelvic floor muscles (Yıldırım et al. 2019). In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), vaginismus and dyspareunia were combined under the title of Genito-Pelvic Pain/Penetration

Disorder because of symptom overlap, high comorbidity, and difficulties in clinical differentiation (American Psychiatric Association 2013). This classification indicates that GPPPD is not limited solely to the inability to achieve penetration and should be considered a multidimensional clinical condition in which pain anticipation, fear, avoidance, and related cognitive-emotional processes are intertwined (American Psychiatric Association 2013, Yıldırım et al. 2019).

Because sexual attitudes and behaviors are largely shaped within the sociocultural context, the prevalence of GPPPD

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may vary markedly across countries and samples. In a recent population-based study, the prevalence of clinical GPPPD according to DSM-5 criteria among university students in Germany was reported as 2%, while the prevalence of subclinical GPPPD was approximately 12.9% (Zarski et al. 2025). Although current, national, DSM-5-based prevalence data for GPPPD in Türkiye are limited, the prevalence of vaginismus among married adults in Konya was found to be 15.3%, and the combined prevalence of sexual pain/vaginismus was 17.6% in a meta-analysis including healthy women (Yilmaz et al. 2010, Karakaş Ugurlu et al. 2020). Although these data cannot be interpreted directly as the national prevalence of GPPPD, vaginismus has been reported to be one of the common reasons for presentations for female sexual dysfunction in clinical samples (Doğan 2009). Therefore, evaluating GPPPD in the context of Türkiye is important for understanding the relationship of cultural norms, beliefs about sexuality, and early life experiences with the clinical condition.

Early maladaptive schemas are persistent and dysfunctional patterns that develop during childhood and adolescence and affect self-perception, interpersonal relationships, and cognitive-emotional responses to stress in later life (Young et al. 2003). The systematic review and meta-analysis by Pilkington et al. (2021) demonstrated consistent associations between adverse childhood experiences and early maladaptive schemas. The meta-analysis by Tetik and Yalçinkaya Alkar (2021) also indicates that histories of sexual and emotional abuse may be associated with the clinical condition in the GPPPD literature. Schema domains such as rejection, defectiveness, vulnerability, and unrelenting standards are thought to distort individuals' evaluations of their body, sexuality, and intimate relationships, thereby laying the groundwork for a negative sexual self-perception (Oliveira and Nobre 2013, Young et al. 2003). Therefore, examining the relationship between early maladaptive schemas and cognitive appraisals related to penetration may contribute to a more comprehensive understanding of the cognitive and developmental foundations of GPPPD.

Cognitive, emotional, and behavioral processes occupy a central position in understanding the clinical presentation of GPPPD (ter Kuile et al. 2010). It has been reported that the expectation of experiencing severe pain or harm during sexual intercourse is associated with a vicious cycle that reinforces avoidance behaviors together with catastrophic thoughts and bodily tension (Borg et al. 2012, ter Kuile et al. 2010). In addition, low sexual self-confidence, negative genital self-image, and concern about being negatively evaluated by the partner have been shown to be associated with sexual functioning difficulties (Oliveira and Nobre 2013, Reissing et al. 2003). These findings suggest that cognitive appraisals related to penetration in GPPPD may not be limited to pain

anticipation but may form part of a broader cognitive pattern extending to self-perception and the couple relationship.

The aim of this multicenter study was to examine the relationships between early maladaptive schemas, cognitions related to vaginal penetration, and sexual functioning in women diagnosed with GPPPD, together with a control group. In this context, the study focused on the following questions: Do women diagnosed with GPPPD differ from the control group in terms of early maladaptive schemas and cognitions related to vaginal penetration? Are there significant relationships between early maladaptive schemas and cognitions related to vaginal penetration in the GPPPD group? Are cognitions related to vaginal penetration associated with domains of sexual functioning? Evaluating these relationships may contribute to a clearer understanding of the interaction between early maladaptive schemas and penetration-related cognitive processes in GPPPD.

METHODS

This descriptive, cross-sectional, and multicenter study was conducted between January and December 2021 at sexual dysfunction outpatient clinics operating within the psychiatry departments of three different tertiary hospitals in Türkiye: University of Health Sciences Bursa Yüksek İhtisas Training and Research Hospital, Süleyman Demirel University Faculty of Medicine and Selçuk University Faculty of Medicine. The GPPPD group was formed through consecutive sampling from women who presented directly to these units or were referred from other psychiatry and gynecology outpatient clinics because of an inability to engage in vaginal intercourse and accompanying sexual complaints; who, in some cases, also reported sexual complaints such as reduced sexual desire developing secondary to this problem, but whose complaints were considered during clinical assessment to be related to the primary diagnosis of GPPPD; and whose diagnosis of lifelong GPPPD according to DSM-5 criteria was confirmed. The control group consisted of volunteer women invited to participate from among relatives of patients attending the psychiatry outpatient clinics of the same institutions, in whom no psychiatric disorder or sexual dysfunction was identified following the Structured Clinical Interview for DSM-5 (SCID-5) and detailed sexual assessments.

The inclusion criteria for both groups were being literate, being 18–45 years of age, being married or in an ongoing relationship, and agreeing to participate voluntarily in the study. In this study, an 'ongoing relationship' was defined as a romantic relationship that had continued for at least the previous six months and involved sexual activity with a partner. The age range was restricted to 18–45 years to reduce the possible effects of menopausal transition and

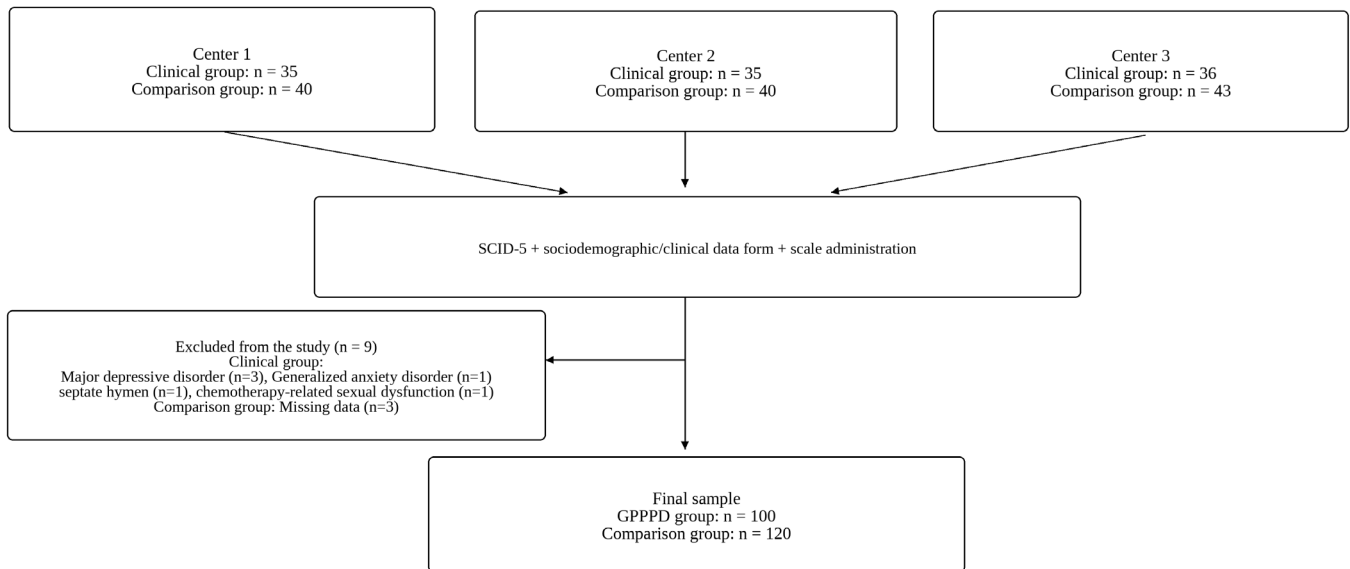


Figure 1. Flowchart showing the distribution of participants by center and the inclusion and exclusion processes in the multicenter observational study.

associated genitourinary and hormonal changes on sexual functioning. The exclusion criteria for both groups were comorbid psychiatric disorders, medical or gynecological diseases that could affect sexual functioning, cognitive impairment, pregnancy, lactation, substance use, and missing responses for more than 5% of the scale items. In the patient group, secondary GPPPD, detection of an organic etiology during gynecological examination, or receiving medical or surgical treatment for sexual complaints were also considered exclusion criteria.

After the participants had been informed about the aim and scope of the study, written and verbal informed consent was obtained from all participants. Diagnostic assessments were conducted face-to-face by trained researchers using the Structured Clinical Interview for DSM-5 (SCID-5) to exclude comorbid psychiatric disorders. Following the SCID-5 interview, a standardized data form concerning sociodemographic characteristics and sexual history was administered, after which the participants completed the scales used in the study by the paper-and-pencil method. Although the duration of the SCID-5 interview and scale administration was not recorded systematically, the total administration lasted approximately 40–60 minutes. Scale administration was conducted in a clinical research room. No payment, gift, or incentive was offered to the participants in return for participation in the study.

As a result of the SCID-5 assessment, 3 participants were excluded because of comorbid major depressive disorder and 1 participant because of comorbid generalized anxiety disorder. During data evaluation, 3 control participants were excluded due to missing data; a patient with a septate hymen and a patient with chemotherapy-related sexual

dysfunction were also excluded from the study. The final sample consisted of 100 women diagnosed with GPPPD and 120 volunteer women in whom no sexual dysfunction was detected. The distribution of participants by center and the inclusion and exclusion processes are summarized in Figure 1. Ethical approval for the study was obtained from the the Ethics Committee of the University of Health Sciences, Bursa Yüksek İhtisas Training and Research Hospital (Approval No: 2011-KAEK-25 2020/02–05). The research was conducted in accordance with the principles of the Declaration of Helsinki.

Measures

Sociodemographic and Clinical Data Form

The sociodemographic data form prepared by the researchers was used to obtain basic information on the participants' age, educational level, marital status, relationship duration, employment status, type of marriage, obstetric and gynecological history, and sexual history. The type of marriage was classified as 'traditional' for arranged marriages in which families had a determining role and as 'modern' for marriages based on mutual acquaintance and the couples' own choice.

Structured Clinical Interview for DSM-5 (SCID-5)

The Structured Clinical Interview for DSM-5 (SCID-5) is a semi-structured clinical interview instrument used to assess major DSM-5 psychiatric disorders (First et al. 2016). The Turkish validity and reliability study of the instrument was conducted by Elbir et al. (2019). In this study, the SCID-5 was administered to confirm the diagnosis of GPPPD in the patient group and to exclude comorbid psychiatric disorders in both groups.

Young Schema Questionnaire –Short Form 3 (YSQ-SF3)

This is a 90-item self-report scale that assesses early maladaptive schemas (Young et al. 2003). The Turkish validity and reliability study of the scale was conducted by Soygüt et al. (2009). The scale consists of 14 subscales: Emotional Deprivation, Failure, Pessimism, Social Isolation/Mistrust, Emotional Inhibition, Approval-Seeking, Enmeshment/Dependence, Entitlement/Insufficient Self-Control, Self-Sacrifice, Abandonment, Punitiveness, Defectiveness, Vulnerability to Harm, and Unrelenting Standards. Higher scores on the subscales indicate more pronounced maladaptive schema patterns. In the validity and reliability study of the Turkish form, the internal consistency coefficients of the subscales ranged from 0.63 to 0.80 (Soygüt et al. 2009).

Vaginal Penetration Cognition Questionnaire (VPCQ)

This is a 22-item, seven-point Likert-type self-report scale developed to measure cognitive appraisals related to vaginal penetration (Klaassen and ter Kuile 2009). The Turkish validity and reliability study of the scale was conducted by Doğan et al. (2015). The scale consists of five subdimensions: Control Cognitions, Self-Image Cognitions, Catastrophic and Pain-Related Cognitions, Genital Incompatibility Cognitions, and Positive Appraisal Cognitions. Higher scores indicate more pronounced negative cognitions related to penetration. In the validity and reliability study of the Turkish form, the internal consistency coefficients of the subscales ranged from 0.71 to 0.92 (Doğan et al. 2015).

Golombok-Rust Inventory of Sexual Satisfaction (GRISS)

Sexual functioning and satisfaction were assessed using the female form of the Golombok-Rust Inventory of Sexual Satisfaction (GRISS) (Rust and Golombok 1985). The Turkish validity and reliability study of the scale was conducted by Tuğrul et al. (1993). The female form of the GRISS consists of 28 items and seven subdimensions: Frequency, Communication, Dissatisfaction, Avoidance, Non-sensuality, Vaginismus, and Anorgasmia. In this study, raw subscale scores were used for each subdimension. In the validity and reliability study of the Turkish form, the internal consistency coefficient for the female form was found to be 0.91 (Tuğrul et al. 1993).

Statistical Analysis

Statistical analyses were performed using IBM Statistical Package for Social Sciences (SPSS) program version 21.0 (IBM Corp., Armonk, NY, USA). Appropriate descriptive statistics were calculated to describe the sociodemographic and clinical characteristics of the participants. The normality of the data distribution was evaluated using the Kolmogorov-Smirnov test. The Mann-Whitney U test was used for between-group comparisons of continuous variables that were not normally

distributed, and the Chi-square test was used for comparisons of categorical variables. Relationships between variables were examined using Spearman correlation analysis.

To reduce the probability of type I error in multiple group comparisons, the Bonferroni correction was applied only to the subscale comparisons presented in Table 2. For the Mann-Whitney U tests, effect size was calculated using the r coefficient obtained by dividing the standardized Z value by the square root of the total sample size. Raw p values were reported for the correlation analyses.

In addition, beyond the bivariate analyses, a multivariable logistic regression analysis was conducted with the presence of GPPPD as the dependent variable. Variables found to be significant in bivariate group comparisons and schema and cognition variables theoretically considered to be associated with GPPPD were included in the logistic regression model. The number of variables was kept limited in consideration of the current sample size and number of cases. Logistic regression results were presented as odds ratios (OR), 95% confidence intervals (CI), and p values. The adequacy of the sample size was evaluated with a sensitivity power analysis based on the comparison of two independent groups. It was calculated that the current sample size (GPPPD: $n=100$, control: $n=120$), at $\alpha=0.05$ and 80% power, allowed the detection of effects of at least Cohen's $d=0.38$. Unless otherwise specified, the level of statistical significance was accepted as $p<0.05$.

RESULTS

The final sample of the study consisted of 100 women diagnosed with GPPPD and 120 women in whom no sexual dysfunction was detected. All participants included in the study were married, and no difference was found between the groups in terms of mean age, educational level, or type of marriage ($p>0.05$). In contrast, the ages at marriage of the women in the GPPPD group and their spouses were higher than those in the control group ($p<0.001$ for both). In addition, the proportion of women who were not employed in the GPPPD group (65%) was markedly higher than that in the control group (16.7%) ($p<0.001$) (Table 1).

In the evaluation of sexual functioning, women in the GPPPD group had higher scores on the Dissatisfaction, Non-sensuality, Vaginismus, and Anorgasmia subscales of the GRISS than the control group. No significant difference was observed between the groups in terms of the Frequency, Communication, and Avoidance subscales (Table 2).

In the evaluation of early maladaptive schemas, the GPPPD group had higher scores than the control group on the Pessimism, Approval-Seeking, Punitiveness, Defectiveness, Vulnerability to Harm, and Unrelenting Standards schemas.

Table 1. Comparison of sociodemographic variables between groups

Sociodemographic variables	Control (n=120)	GPPPD (n=100)	p	Effect Size (r)
Age (years) [median (min-max)]	26.5 (19–54)	26.0 (19–42)	0.272 *	0.074
Relationship duration (months) [median (min-max)]	62.0 (8–420)	12.0 (1–264)	<0.001 *	0.505
Age at marriage [median (min-max)]	22.0 (17–30)	25.0 (18–37)	<0.001 *	0.346
Partner's age at marriage [median (min-max)]	25.0 (19–35)	27.0 (18–43)	<0.001 *	0.252
Education [n (%)]				
Primary/Secondary school	20 (16.7%)	7 (7%)	0.092**	-
High school	33 (27.5%)	32 (32%)		
University or higher	67 (55.8%)	61 (61%)		
Employment Status [n (%)]				
Not employed	20 (16.7%)	65 (65%)	<0.001**	-
Employed	100 (83.3%)	35 (35%)		
Type of Marriage [n (%)]				
Traditional	15 (12.5%)	17 (17%)	0.184**	-
Modern	105 (87.5%)	83 (83%)		

GPPPD: genito-pelvic pain/penetration disorder; n: number of participants. Continuous variables are presented as median (minimum–maximum), and categorical variables as n (%). Effect size was calculated for Mann-Whitney U tests using the formula $r=|Z| / \sqrt{N}$. Bold values are statistically significant. * Mann-Whitney U test. ** Chi-square test.

Table 2. Comparison of scale scores between groups

	Control (n=120)		GPPPD (n=100)			
	Median	Min-Max	Median	Min-Max	p*	Effect size (r)
Golombok-Rust Inventory of Sexual Satisfaction						
Frequency	4.0	(1–8)	4.0	(0–8)	0.716	0.025
Communication	3.0	(0–7)	4.0	(0–12)	0.137	0.103
Dissatisfaction	6.0	(2–13)	7.0	(0–16)	<0.001	0.067
Avoidance	2.5	(0–13)	4.0	(0–13)	0.011	0.176
Non-sensuality	2.0	(0–12)	4.0	(0–14)	<0.001	0.254
Vaginismus	4.0	(0–6)	13.0	(2–16)	<0.001	0.836
Anorgasmia	3.0	(0–9)	7.0	(0–16)	<0.001	0.413
Young Schema Questionnaire – Short Form 3						
Emotional deprivation	6.0	(3–15)	7.0	(4–16)	0.077	0.119
Failure	7.0	(3–16)	6.5	(5–14)	0.099	0.111
Pessimism	8.0	(3–28)	14.0	(5–29)	<0.001	0.511
Social isolation/mistrust	1.0	(3–24)	9.0	(1–32)	0.119	0.105
Emotional inhibition	9.0	(3–16)	8.50	(4–17)	0.366	0.061
Approval-seeking	14.5	(8–25)	20.0	(2–33)	<0.001	0.348
Enmeshment/dependence	10.0	(4–17)	10.0	(1–22)	0.081	0.118
Entitlement/insufficient self-control	9.0	(4–24)	10.0	(5–21)	0.899	0.009
Self-sacrifice	12.0	(6–24)	12.0	(6–23)	0.147	0.098
Abandonment	8.0	(3–20)	8.0	(5–17)	0.423	0.054
Punitiveness	19.0	(8–28)	21.0	(10–34)	<0.001	0.300
Defectiveness	8.0	(3–14)	10.0	(4–19)	<0.001	0.252
Vulnerability to harm	9.0	(4–24)	12.0	(5–22)	<0.001	0.288
Unrelenting standards	8.0	(2–14)	10.0	(1–22)	<0.001	0.278
Vaginal Penetration Cognitions Questionnaire						
Control cognitions	6.0	(0–14)	33.5	(0–48)	<0.001	0.838
Positive evaluation cognitions	32.0	(16–62)	20.5	(1–36)	<0.001	0.565
Self-perception cognitions	1.0	(0–5)	6.0	(0–12)	<0.001	0.450
Catastrophic and pain cognitions	4.0	(0–7)	9.5	(0–18)	<0.001	0.669
Genital incompatibility cognitions	3.0	(0–10)	13.0	(0–18)	<0.001	0.741

GPPPD: genito-pelvic pain/penetration disorder; n: number of participants. Values are presented as median (minimum–maximum). Effect size was calculated for Mann-Whitney U tests using the formula $r=|Z| / \sqrt{N}$. Bold values are statistically significant. * Mann-Whitney U test. Bonferroni correction was applied to the multiple subscale comparisons in this table; the adjusted significance level was accepted as $p<0.007$ for GRIS, $p<0.0036$ for YSQ-SF3, and $p<0.010$ for VPCQ.

No differences were found between the groups in the other schema domains (Table 2).

The examination of cognitions related to vaginal penetration showed that the GPPPD group had higher Control Cognitions, Self-Image Cognitions, Catastrophic and Pain-Related Cognitions, and Genital Incompatibility Cognitions subscale scores than the control group, while their Positive Appraisal Cognitions scores were lower (Table 2).

The correlations between early maladaptive schemas, sexual functioning, and penetration-related cognitions in the GPPPD group are shown in Table 3, and the findings of the Spearman correlation analysis for the control group are shown in Table 4.

In the logistic regression analysis with the presence of GPPPD as the dependent variable, employment status and age at marriage, which were considered clinically plausible

confounders among the variables found to be significant in bivariate group comparisons, together with 'Approval-Seeking' and 'Pessimism' among the schema variables theoretically considered to be more directly related to GPPPD, and 'Catastrophic and Pain-Related Cognitions' and 'Genital Incompatibility Cognitions' among the penetration-related cognition variables, were included in the model. The model was statistically significant overall (LR $\chi^2=218.47$, $df=6$, $p<0.001$). Not being employed ($p<0.001$) and increasing age at marriage ($p=0.003$) were independently associated with the presence of GPPPD. Similarly, Catastrophic and Pain-Related Cognitions ($p=0.003$) and Genital Incompatibility Cognitions ($p<0.001$) were independently associated with the presence of GPPPD. In contrast, the Approval-Seeking ($p=0.204$) and Pessimism ($p=0.999$) schema variables did not retain independent significance in the final model (Table 5).

Table 3. Correlations between early maladaptive schemas, sexual function, and vaginal penetration cognitions in the GPPPD group (n=100)

Young Schema Questionnaire –Short Form 3	Vaginal Penetration Cognitions Questionnaire				
	Control cognitions r (p)	Positive evaluation cognitions r (p)	Self-perception cognitions r (p)	Catastrophic and pain cognitions r (p)	Genital incompatibility cognitions r (p)
Emotional deprivation	-0.018 (0.858)	-0.022 (0.827)	0.069 (0.496)	-0.102 (0.312)	0.155 (0.124)
Failure	0.048 (0.636)	0.005 (0.960)	-0.099 (0.328)	-0.140 (0.165)	-0.138 (0.171)
Pessimism	0.140 (0.165)	0.012 (0.905)	-0.110 (0.276)	0.097 (0.339)	0.263 (0.008)
Social isolation/mistrust	-0.116 (0.249)	0.015 (0.879)	0.076 (0.455)	-0.050 (0.620)	-0.019 (0.848)
Emotional inhibition	0.034 (0.740)	-0.040 (0.693)	-0.032 (0.749)	0.047 (0.644)	0.050 (0.622)
Approval-seeking	0.112 (0.265)	-0.077 (0.445)	-0.093 (0.358)	0.231 (0.021)	0.170 (0.079)
Enmeshment/dependence	0.110 (0.259)	-0.084 (0.407)	0.148 (0.141)	0.030 (0.758)	0.179 (0.075)
Entitlement/insufficient self-control	-0.100 (0.285)	-0.131 (0.194)	-0.093 (0.360)	0.068 (0.500)	-0.100 (0.323)
Self-sacrifice	0.189 (0.060)	0.047 (0.645)	0.240 (0.016)	0.137 (0.173)	0.207 (0.038)
Abandonment	0.017 (0.868)	0.037 (0.718)	-0.107 (0.291)	-0.114 (0.357)	0.054 (0.594)
Punitiveness	0.082 (0.415)	0.064 (0.525)	0.089 (0.377)	0.078 (0.440)	0.139 (0.167)
Defectiveness	0.092 (0.361)	-0.060 (0.551)	0.028 (0.780)	0.096 (0.343)	0.062 (0.538)
Vulnerability to harm	0.087 (0.392)	0.041 (0.685)	0.100 (0.322)	0.020 (0.987)	0.133 (0.186)
Unrelenting standards	0.134 (0.185)	-0.061 (0.549)	0.023 (0.823)	0.096 (0.344)	0.046 (0.649)
Golombok-Rust Inventory of Sexual Satisfaction					
Frequency	0.181 (0.071)	-0.087 (0.389)	0.229 (0.022)	0.290 (0.003)	0.225 (0.025)
Communication	0.003 (0.979)	-0.265 (0.008)	0.171 (0.089)	0.179 (0.074)	0.055 (0.585)
Dissatisfaction	-0.060 (0.549)	-0.159 (0.114)	-0.054 (0.592)	0.029 (0.777)	-0.065 (0.517)
Avoidance	0.040 (0.694)	0.064 (0.528)	-0.115 (0.254)	0.004 (0.967)	0.096 (0.344)
Non-sensuality	-0.046 (0.648)	-0.080 (0.428)	0.017 (0.863)	0.129 (0.202)	0.089 (0.380)
Vaginismus	0.340 (0.001)	0.142 (0.160)	0.142 (0.160)	0.154 (0.127)	0.007 (0.947)
Anorgasmia	0.004 (0.966)	-0.169 (0.093)	0.046 (0.650)	0.189 (0.059)	-0.106 (0.294)

GPPPD: genito-pelvic pain/penetration disorder; r: Spearman correlation coefficient. Bold values are statistically significant at the unadjusted $p<0.05$ level. Bonferroni correction was not applied.

Table 4. Correlations between early maladaptive schemas, sexual function, and vaginal penetration cognitions in the control group (n=120)

Young Schema Questionnaire –Short Form 3	Vaginal Penetration Cognitions Questionnaire				
	Control cognitions r (p)	Positive evaluation cognitions r (p)	Self-perception cognitions r (p)	Catastrophic and pain cognitions r (p)	Genital incompatibility cognitions r (p)
Emotional deprivation	0.092 (0.317)	-0.408 (<0, 001)	-0.356 (<0, 001)	0.105 (0.256)	-0.015 (0.875)
Failure	0.047 (0.614)	-0.317 (<0, 001)	-0.037 (0.687)	0.137 (0.135)	0.147 (0.109)
Pessimism	-0.047 (0.613)	-0.620 (<0, 001)	-0.599 (<0, 001)	-0.220 (0.016)	-0.018 (0.845)
Social isolation/mistrust	-0.158 (0.085)	-0.572 (<0, 001)	-0.410 (<0, 001)	-0.185 (0.044)	-0.114 (0.216)
Emotional inhibition	-0.288 (0.001)	-0.516 (<0, 001)	-0.376 (<0, 001)	-0.172 (0.060)	-0.473 (<0, 001)
Approval-seeking	-0.185 (0.043)	-0.267 (0.003)	-0.280 (0.002)	-0.260 (0.004)	-0.031 (0.735)
Enmeshment/dependence	0.088 (0.337)	0.219 (0.016)	0.161 (0.078)	0.103 (0.264)	0.062 (0.501)
Entitlement/insufficient self-control	-0.159 (0.083)	-0.309 (<0, 001)	-0.172 (0.060)	-0.107 (0.245)	0.095 (0.302)
Self-sacrifice	0.007 (0.938)	-0.445 (<0, 001)	-0.593 (<0, 001)	-0.182 (0.046)	-0.221 (0.015)
Abandonment	0.560 (<0, 001)	-0.205 (0.024)	-0.255 (0.005)	0.360 (<0, 001)	0.125 (0.175)
Punitiveness	-0.209 (0.022)	-0.541 (<0, 001)	-0.555 (<0, 001)	-0.210 (0.022)	-0.170 (0.063)
Defectiveness	0.306 (<0, 001)	-0.187 (0.040)	-0.264 (0.004)	0.175 (0.055)	-0.097 (0.291)
Vulnerability to harm	0.263 (0.004)	0.214 (0.019)	0.218 (0.017)	0.207 (0.024)	0.304 (<0, 001)
Unrelenting standards	0.199 (0.029)	-0.235 (0.010)	-0.315 (<0, 001)	-0.190 (0.037)	0.328 (<0, 001)
Golombok-Rust Inventory of Sexual Satisfaction					
Frequency	0.149 (0.120)	-0.165 (0.085)	0.064 (0.504)	0.320 (<0, 001)	-0.144 (0.133)
Communication	0.540 (<0, 001)	-0.228 (0.017)	-0.263 (0.006)	0.414 (<0, 001)	0.275 (0.004)
Dissatisfaction	0.098 (0.310)	-0.481 (<0, 001)	-0.324 (<0, 001)	0.211 (0.027)	0.045 (0.641)
Avoidance	0.118 (0.218)	-0.434 (<0, 001)	-0.520 (<0, 001)	-0.027 (0.783)	-0.204 (0.032)
Non-sensuality	-0.129 (0.179)	-0.061 (0.529)	-0.312 (<0, 001)	-0.405 (<0, 001)	-0.134 (0.163)
Vaginismus	0.559 (<0, 001)	-0.074 (0.444)	-0.079 (0.410)	0.349 (<0, 001)	0.526 (<0, 001)
Anorgasmia	0.415 (<0, 001)	-0.326 (<0, 001)	-0.255 (0.007)	0.228 (0.017)	-0.033 (0.733)

r: Spearman correlation coefficient. Bold values are statistically significant at the unadjusted p<0.05 level. Bonferroni correction was not applied.

Table 5. Multivariable logistic regression analysis predicting the presence of GPPPD

Variable	B	SE	Wald χ^2	OR	95% CI	p
Employment status	2.664	0.747	12.70	14.35	3.32–62.07	<0.001
Age at marriage	0.278	0.095	8.56	1.32	1.10–1.59	0.003
Approval-seeking	0.077	0.060	1.61	1.08	0.96–1.22	0.204
Pessimism	-0.0001	0.048	0.00	1.00	0.91–1.10	0.999
Catastrophic and pain cognitions	0.370	0.123	9.08	1.45	1.14–1.84	0.003
Genital incompatibility cognitions	0.414	0.104	15.74	1.51	1.23–1.86	<0.001

GPPPD: genito-pelvic pain/penetration disorder; OR: odds ratio; CI: confidence interval; SE: standard error. The dependent variable was coded as the presence of GPPPD (0=control, 1=GPPPD). For the employment status variable, the reference category was “employed” (not employed=1, employed=0). Bold values are statistically significant.

DISCUSSION

This multicenter study examined the relationships between early maladaptive schemas, cognitions related to vaginal penetration, and sexual functioning in women diagnosed with lifelong GPPPD. The findings showed that women diagnosed with GPPPD exhibited more pronounced sexual functioning difficulties, more negative penetration cognitions, and more early maladaptive schema patterns compared to the control group. Higher age at marriage, not being employed, catastrophic and pain-related cognitions, and genital incompatibility cognitions were found to be independent variables associated with the presence of GPPPD.

In line with previous studies, women diagnosed with lifelong GPPPD in this study reported greater difficulties compared to the control group across multiple domains of sexual functioning, such as orgasm and sexual satisfaction. This finding supports previous research reporting that GPPPD is not solely a penetration-specific problem but occurs together with a broader pattern of sexual dysfunction (Doğan and Saraçoğlu 2009, Reissing et al. 2013). Growing up in sociocultural environments where premarital sexual experiences are restricted may adversely affect the development of a healthy sexual self-perception and reinforce negative beliefs about the genital area. Although some studies have suggested that non-penetrative domains of sexual functioning may be relatively preserved in vaginismus, an increasing number of studies

indicate a more widespread and comprehensive impairment (Hall and Binik 2020, Lamont 1978). Cherner and Reissing (2013) supported this view by reporting a limited repertoire of sexual behaviors among women with lifelong vaginismus. Findings reported from Türkiye also show anorgasmia, reduced sensuality, and lower sexual satisfaction rates (Doğan 2009, Doğan and Saraçoğlu 2009).

Negative cognitions related to vaginal penetration appeared to be one of the domains most strongly associated with GPPPD in this study. The finding that women diagnosed with GPPPD reported more negative and fewer positive cognitions related to penetration than the control group is consistent with cognitive-behavioral models proposing that rigid, unrealistic, and negative cognitions play a central role in the development and maintenance of GPPPD (Wijma and Wijma 1997, ter Kuile et al. 2010). Previous studies have shown that catastrophic beliefs, increased pain expectancy, and concerns about loss of control during penetration contribute to the exacerbation of sexual dysfunctions by mediating fear and avoidance behaviors (Cherner and Reissing 2013, Doğan et al. 2018, Klaassen and ter Kuile 2009, Smorti et al. 2025, Teksin Ünal et al. 2020). The classification of sexual dysfunctions under 'Conditions Related to Sexual Health' in ICD-11 and the definition of GPPPD in a manner that includes emotional, cognitive, and interpersonal dimensions also support this multidimensional approach (Başar 2025). The pattern of negative penetration cognitions identified in our study is consistent with the results of a systematic review and meta-analysis reporting higher negative penetration cognitions and lower positive penetration cognitions among women with GPPPD (Banaei et al. 2023).

Another noteworthy finding of the study was that no significant difference was found between the groups in the domains of frequency of sexual intercourse and sexual communication. However, the association of some negative penetration cognitions with the frequency of sexual intercourse in the GPPPD group suggests that the continuation of penetration attempts may not always represent a positive sexual experience. In some women, efforts to maintain the relationship or meet partner expectations may coexist with negative sexual experiences and an increased emotional burden. In contrast, the association between positive penetration cognitions and sexual communication indicates that more open sharing of desires and emotional experiences during sexual intimacy may be associated with more positive sexual experiences. The findings of a recent cross-sectional study showing that engagement in non-penetrative sexual activities was associated with lower levels of depression among women with vaginismus also support the need to consider GPPPD not only as a difficulty with penetration but also in the context of the breadth of the sexual repertoire and the accompanying psychological burden (Yavuzkir et al. 2024).

One of the important contributions of this study is the consideration of early maladaptive schema theory as a comprehensive framework in the conceptualization of GPPPD. The markedly higher levels of the Pessimism, Approval-Seeking, Punitiveness, Defectiveness, Vulnerability to Harm, and Unrelenting Standards schemas among women diagnosed with GPPPD point to the role of rigid, self-critical, and threat-focused schema patterns in sexual dysfunctions. These findings are consistent with previous studies showing that similar schema profiles are associated with sexual dysfunctions (Dikmen and Safak 2020, Nobre and Pinto-Gouveia 2009, Oliveira and Nobre 2013). The Pessimism and Unrelenting Standards schemas may be associated with negative expectations and performance-focused evaluations regarding sexual experience, whereas the Approval-Seeking and Punitiveness schemas may be associated with excessive compliance with partner expectations, self-suppression, and tendencies toward guilt. The Defectiveness and Vulnerability to Harm schemas may also be associated with negative evaluations of body image and sexual competence and with concerns about pain, harm, and loss of control (Nobre and Pinto-Gouveia 2009, Oliveira and Nobre 2013).

When the relationships between schemas and penetration-related cognitions were evaluated, the positive association of the Approval-Seeking schema with catastrophic and pain-related cognitions suggested that an increased need for external approval may be associated with interpreting the experience of pain related to penetration in a more threatening and exaggerated manner. The association of the Self-Sacrifice schema with negative self-image and genital incompatibility cognitions suggests that there may be a link between relational patterns in which personal needs are placed in the background and sexual self-perception. The findings of Hisli Şahin et al. (2012), which demonstrated the importance of self-perception and interpersonal variables in sexual functioning problems, also provide an indirect framework supporting the clinical importance of the self-perception and relational patterns identified in our study. An integrative review showing that women seeking help for vaginismus experience difficulties in the process of receiving care suggests that sexual self-perception and help-seeking experiences may be clinically important in GPPPD (Pithavadian et al. 2023). In line with previous studies, negative sexual self-perceptions and exaggerated negative beliefs about the genital area among women with GPPPD may be associated with guilt, excessive compliance, and tendencies to endure distressing sexual experiences (Reissing et al. 2003). Recent findings highlighting the importance of self-esteem, sexual satisfaction, and coping with stress in treated cases of vaginismus are also consistent with this interpretation (Bingöl et al. 2024).

When the correlation patterns in the GPPPD and control groups were evaluated together, the relationships between early maladaptive schemas and penetration-related cognitions

appeared not to be unique to the clinical group, but to be organized differently in the two groups. In the GPPPD group, the relationships clustered along a more limited but clinically more meaningful axis; in particular, schemas such as Pessimism, Approval-Seeking, and Self-Sacrifice were associated with genital incompatibility, self-image, and catastrophic and pain-related cognitions. In contrast, a more widespread and dispersed pattern of relationships emerged between schemas and penetration-related cognitions in the control group. This finding suggests that schema patterns may also be associated with sexual self-perception and appraisals related to penetration among healthy women; however, in GPPPD, these relationships appear to be concentrated more around threat, pain, genital incompatibility cognitions, and the tendency to place one's own needs in the background.

The multivariable logistic regression model supported the independent association of penetration-related cognitive variables with GPPPD. In addition to employment status and age at marriage, the finding that catastrophic and pain-related cognitions and genital incompatibility cognitions were independently associated with the presence of GPPPD suggests that GPPPD may be closely related not only to sociodemographic characteristics but also to the meanings of threat, harm, and incompatibility attributed to penetration. This finding is consistent with cognitive-behavioral models emphasizing the importance of pain catastrophizing, expectation of harm, and fear-avoidance cycle in vaginismus (Borg et al. 2012, ter Kuile et al. 2010). In particular, retention of significance by catastrophic and pain-related cognitions in the multivariable model indicates that threat appraisals related to penetration may be one of the distinguishing cognitive components of the clinical condition (Borg et al. 2012, Klaassen and ter Kuile 2009). Similarly, the fact that genital incompatibility cognitions remained independently associated suggests that negative evaluations of the genital area, bodily competence, and sexual compatibility with the partner may be cognitive features more directly related to the clinical presentation in GPPPD (Doğan et al. 2018, Oliveira and Nobre 2013, Reissing et al. 2003). In contrast, the fact that the Approval-Seeking and Pessimism variables, which differed between the groups in bivariate analyses, did not retain independent significance in the multivariable model suggests that these schemas should be considered part of a broader cognitive-emotional pattern overlapping with penetration-related cognitive processes rather than as having a direct relationship with GPPPD (Oliveira and Nobre 2013).

Although the associations identified in this study were statistically significant, the generally weak effect sizes require the findings to be interpreted with caution. This suggests that early maladaptive schemas and penetration-related cognitions may not be determinants on their own in GPPPD, but rather may form part of a multidimensional pattern operating together with cognitive, emotional, and relational factors.

Because of the cross-sectional and exploratory design, the findings should be interpreted within an associative rather than causal framework.

This study has several limitations. The collection of data using self-report measures entails a risk of response and recall bias. Because item-level raw scale scores were not available, internal consistency coefficients could not be calculated for this sample, and the reliability of the scales was evaluated on the basis of data from the Turkish adaptation studies. In addition, because the sample consisted of women seeking treatment, the generalizability of the findings to women with GPPPD who do not seek professional help is limited. The fact that cognitive, schema-related, and sexual functioning variables concerning partners were not assessed prevented a comprehensive consideration of relational factors. In addition, the lack of quantitative assessment of depression and anxiety symptom levels, the absence of one-to-one matching of the groups in terms of characteristics such as employment status, and the failure to examine childhood trauma history using structured measures limited the control of possible confounding effects. Despite these limitations, the multicenter design of the study, the exclusion of psychiatric and medical conditions that could affect sexual functioning, and the joint consideration of early maladaptive schemas and penetration-specific cognitions are important strengths.

In conclusion, the findings of this multicenter study suggest that it may be useful to consider GPPPD not only as a penetration-specific symptom cluster but as a multidimensional sexual dysfunction associated with early maladaptive schemas and negative cognitions related to penetration. In particular, catastrophic and pain-related cognitions and genital incompatibility cognitions, which emerged independently in the multivariable model, indicate that the meanings of threat and harm attributed to penetration may be distinguishing features of the clinical condition. The findings concerning schemas suggest that these cognitive patterns should be evaluated within a broader cognitive-emotional context. Therefore, beyond symptom-focused approaches, comprehensive interventions that jointly address penetration-related cognitive processes and the associated schema patterns may be beneficial in the assessment and treatment of GPPPD.

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