

Alexithymia and Parental Bonding in Women with Genitopelvic Pain/Penetration Disorder

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Objective: The role of emotion regulation and alexithymia in the pathophysiology of genitopelvic pain/penetration disorder (GPPPD) is emphasized. Parental bonding is linked to emotion regulation and alexithymia. This study aimed to examine the relationships between parental bonding, alexithymia, and GPPPD.

Patients and Methods: Sixty-four patients with GPPPD were enrolled in the study, and 60 controls were matched for demographic features. Toronto Alexithymia Scale (TAS-20) was used to evaluate alexithymia, the Bonding to Parents Scale (BPS) was used to assess parental bonding, and sexual functions were assessed via Golombok–Rust Inventory of Sexual Satisfaction (GRISS).

Results: The rate of alexithymic traits was statistically higher in the GPPPD group than in the controls ($p = 0.005$). Patients with GPPPD obtained higher scores on the maternal care/control ($p = 0.003$) and maternal overprotection ($p = 0.008$) compared to controls. Difficulty describing feelings factor of alexithymia ($p = 0.012$) emerged as a predictor of group membership (GPPPD vs controls). To test whether alexithymia was significantly associated with parental bonding, all subjects were divided into two subgroups, alexithymic and non-alexithymic. When the subgroups were compared in terms of parental attitudes, maternal ($p = 0.034$) and paternal ($p = 0.006$) overprotection subscale scores were higher in the alexithymic group than in the non-alexithymic group.

Discussion: According to the results, alexithymic traits are characteristic of patients with GPPPD; however, although patients with GPPPD may experience difficulties with perceived parental bonding, this factor does not appear to be a predictor of GPPPD.

Keywords: genitopelvic pain, penetration disorder, alexithymia, parental bonding, vaginismus, dyspareunia

Introduction

Genito-pelvic pain/penetration disorder (GPPD) is an insufficiently known condition, conceptualized as a biopsychosocial phenomenon that, if left untreated, causes deterioration of one's mental and physical health, relationships, and ability to work.^{1,2} In the DSM-V,³ vaginismus and dyspareunia, which were included separately in the previous version,⁴ were combined into the diagnosis of GPPPD. The diagnostic criteria for GPPPD consist of the following different symptoms: difficulties with vaginal penetration during intercourse, vulvovaginal or pelvic pain during vaginal intercourse or penetration attempts, fear or anxiety about vulvo vaginal or pelvic pain in anticipation, during, or as a result of vaginal penetration, stretching or tightening of the pelvic floor muscles during attempted vaginal penetration.³

Alexithymia describes the inability to establish a connection between emotion and thought and difficulty expressing emotions.⁵ Impaired ability to identify and communicate emotions, externally oriented thinking, somatization tendency and lack of fantasy are the main characteristics of alexithymic individuals.⁶ They cannot mentalize emotional arousal as they tend to limit emotions to the physical level; the daydreaming process cannot be activated. The process of daydreaming, the ability to experience and express emotions, forms one of the structural points in human eroticism.⁷ According to psychoanalytic theory, alexithymia is associated with psychosomatic operational thinking.⁸ The neuropsychological theory defines alexithymia as the disconnection between the limbic system, which is responsible for, among other things, sexuality and the neocortex, which is associated with emotions and cognition.^{9–11}

While alexithymia was previously thought to be specific to psychosomatic conditions, recent research reveals that it is also associated with many different psychopathologies, including sexual dysfunctions.^{12–18} One study reported a significant correlation between vaginismus and alexithymia.¹⁸ Several studies have found a positive association between alexithymia, pain severity, and various chronic pain conditions.^{19–21} The fact that “alexithymia is associated with increased somatosensory amplification and physiological hyperarousal, leading to prolonged muscle tension” has drawn attention to the link between alexithymia and GPPPD.^{22,23} The role of difficulties in emotion regulation (related to emotional awareness, expression, and experience) as a key mechanism in the pathophysiology of GPPPD has been emphasized.¹

Parental bonding, shaped by parenting attitudes in childhood and early adolescence, defines the relationship quality between the parent and the child. Various parenting attitudes have been determined according to the degree of care, acceptance, responsiveness, demand, overprotection, and control that predominates. The quality of parenting attitudes and the parent-child relationship affect attachment formation.²⁴ It has been shown that optimal parenting styles and parental bonding are associated with emotional and social cognitive development, emotional regulation, adult well-being, and desire for sexual attention. However, inadequate parenting plays a role in forming many adult psychopathologies, including sexual dysfunctions.^{25–31}

Based on the results of their study, Parker et al reported that parental attitudes mainly consist of two factors, care and overprotection/control. They created the Parental Bonding Instrument (PBI) to evaluate the quality of parental bonding according to the individual's parenting experiences or childhood memories of parenting.³² The care factor refers to the parent's sensitivity to the child's needs and measures the dimension of affection and warmth in the parent-child relationship.³³ Specifically, maternal care was found to be negatively associated with using maladaptive emotion regulation skills and lack of emotional awareness, while paternal care was related to difficulties in emotion regulation.³⁴ The extent of controlling, overprotective behaviors exhibited by the parent who imposes extreme restrictions on the child, such as emotional, physical, and psychological restrictions, is measured by the overprotection/control factor in the original scale. Psychological control, an overprotective parental behavior, negatively affects emotion regulation; love and approval are conditional on the child's behavior.³³ Ideal parenting practices are generally characterized by high care and low overprotection. For example, high maternal overprotection and low affection have been associated with feelings of abandonment and emotional instability.³⁵ Culture shapes parental cognitions and parenting practices. Cultural differences in parenting styles also affect the development of social and emotional competence.³⁶ In the Western parenting style, parental warmth is often shown through verbal and emotional expressions. In contrast, Asian parenting communicates love through dedication and close monitoring rather than outward expressions of affection and verbal affection.^{37,38} Therefore, the factor structure changes depending on psychosocial factors such as culture, race, and gender.^{39,40}

Studies have shown a relationship between alexithymia and parental bonding.^{25–27,41} According to a meta-analysis²⁶ of studies using the PBI, there is a negative association between maternal care and alexithymia and a positive association between parental overprotection and alexithymia. More recently, alexithymia has been found to be a potential mediator between perceived dysfunctional parental bonding and psychological symptoms⁴².

Although there is only one study¹⁸ examining the relationship between alexithymia and vaginismus (current nomenclature GPPPD) in the related literature, we could not find any study investigating the relationship between perceived parental bonding and GPPPD. This study aims to examine the associations between parental bonding, alexithymia, and GPPPD. Specifically, we aimed to distinguish: Does parental bonding play a direct role in predicting group membership (i.e., patients with GPPPD vs CS), or does it only determine the probability of having alexithymia?

Materials and Methods

Sample and Procedure

Sixty-four women with GPPPD were recruited from the Sexual Disorders Unit (SDU) of the University of Health Sciences Erenköy Psychiatry and Neurological Diseases Training and Research Hospital, Istanbul, Turkey. SDU is a center where patients diagnosed with sexual dysfunction from the hospital's outpatient clinics are referred. Among patients referred to SDU between June 2014 and June 2015 diagnosed with GPPPD according to DSM-V³ in the evaluation made by researchers of this study, those who have also been diagnosed with vaginismus according to DSM-IV⁴ were included in the study. Inclusion criteria for the patient group: Women diagnosed with GPPPD according to DSM-V³ criteria and diagnosed as vaginismus according to DSM-IV⁴ aged 18 years and older, literate, approved the informed consent form,

heterosexual, and sexually active for more than six months. Exclusion criteria for the patient group: Dementia and other neurological diseases that affect mental functions, psychosis, an endocrine disease that affect mental and sexual functions, a gynecological disease that affect sexual functions, and menopause.

Sixty women, matched for age and education, without complaints of sexual function, were selected among hospital staff and their relatives to form the control group. The researchers also evaluated controls against DSM-V³ criteria to exclude mental and sexual disorders. All control subjects were heterosexual and sexually active for the previous six months. Exclusion criteria for the control group: Any mental disorder diagnosed according to the DSM-V,³ sexual disorders, dementia and other neurological diseases that affect cognitive functions, psychosis, an endocrine disease that affect mental and sexual functions, a gynecological disease that affect sexual functions, and menopause. All participants were cisgender and heterosexual individuals born and raised in Turkey.

The study's objectives were explained in detail to the participants, and their written consent was obtained. The institutional review board of the Erenkoy Mental Health and Neurological Diseases Education and Research Hospital at the University of Health Sciences, Istanbul, approved the study. The Declaration of Helsinki conducted it.

Sociodemographic and clinical data were collected with a semi-structured interview form developed by the researchers in the first evaluation interview to include all participants in the study. Other data used in this study were obtained by using Golombok–Rust Inventory of Sexual Satisfaction (GRISS), Toronto Alexithymia Scale (TAS-20), and Bonding to Parents Scale (BPS).

Materials

The Sociodemographic and Clinical Data Form

The form developed by current researchers includes questions about sociodemographic and clinical data. Sociodemographic data: age, gender, sexual orientation, marital status, marriage method, duration of marriage/relationship, educational background, occupation, place of residence, age of menarche, and the age of the first attempt at sexual intercourse. Clinical data: additional history of psychiatric and physical illnesses, menstrual characteristics, duration of illness, previous treatment referrals.

Golombok–Rust Inventory of Sexual Satisfaction (GRISS)

The GRISS scale, developed by Rust and Golombok,⁴³ consists of 28 items. The scale provides a Likert-type measurement and examines sexual functions and sexual dysfunctions in women in seven areas: frequency, communication, satisfaction, avoidance, touch, vaginismus, and anorgasmia. The Turkish standardization, validity, and reliability study was performed by Tugrul et al.⁴⁴

Toronto Alexithymia Scale (TAS-20)

It was developed by Bagby et al.⁴⁵ In this study, we used its version adapted to Turkish by Güleç et al.⁴⁶ The TAS-20 is a Likert-type self-assessment scale consisting of 20 items scored between 1 and 5 and has three subscales: (1) difficulty identifying feelings (DIF); (2) difficulty describing feelings (DDF); and (3) externally oriented thinking (EOT). High scores indicate a high alexithymic level. According to the Turkish adaptation of the scale, if the goal is to include all alexithymics, a score of “51” should be taken as the lower value. If it is desired to work with a pure alexithymic group, it is recommended to take the upper value of “59”.⁴⁷

Bonding to Parents Scale (BPS)

BPS is the Turkish version of the PBI.⁴⁸ The PBI was developed by Parker et al to measure the quality of perceived parenting in childhood.³² In this scale, individuals are asked to indicate with a 4-point Likert-type rating how much each statement reflects their mother's or father's behavior towards them, considering the first 16 years of their lives.^{32,48}

For example, in the Turkish adaptation study, the control items were neither loaded on the overprotection factor nor emerged as a third factor. Although the Turkish version of the PBI also exhibited a two-factor structure, control items loaded in the overprotection/control dimension in the original scale were found to be loaded on the care factor in the Turkish version.⁴⁸

As a result of the exploratory factor analysis performed to test the construct validity of the scale adapted to Turkish culture, a two-factor structure was obtained for both mother and father forms. It was observed that the items related to the

control dimension in the control/overprotection factor in the original scale were loaded on the care factor in the adaptation study. It was thought that cultural reasons could explain this situation, and the two factors of the version were care and overprotection/control. It has been emphasized that the reason for the emergence of control and care items as the only factor is that controlling the child's behavior in Turkish culture has always been associated with positive parenting. There are 12 items in total in the care/control dimension of the 25-item scale (scores range from 0–36); the high score reflects parents perceived as warm, understanding, and accepting, and the low score reflects parents perceived as neglectful and unaccepting. The overprotection dimension has 13 items (scores range from 0–39), and high scores indicate parents' perception as overly controlling or not allowing autonomy. The two-factor structure of the scale is evaluated as two separate scales, and two total scores are calculated from the subscales. High scores on the care/control dimension and low scores on the overprotection dimension represent positively perceived parental behavior. These two scales can be used independently or together.⁴⁸

Statistical Analyses

Data from the study were evaluated using the Statistical Package for Social Sciences software package version 20.0 for Windows (SPSS Inc., Chicago, IL, USA). In addition to the Kolmogorov–Smirnov test, histogram, skewness and kurtosis values were used for the normality distribution. Values for skewness and kurtosis between -1 and $+1$ were considered acceptable and indicative of a normal univariate distribution. According to these properties, all variables are normally distributed. We used independent samples *t*-test and Pearson chi-square test (χ^2) to examine group differences in continuous and categorical variables, respectively. In addition to the initial GPPPD and control groups, all participants were divided into two subgroups according to the alexithymia scale (TAS-20) total score as the alexithymic group (total score ≥ 51) and the non-alexithymic group (total score < 51) to investigate the relationship between alexithymia and parental bonding.

Hierarchical logistic regression analysis was performed to evaluate whether inclusion in the GPPPD group was predicted by parental bonding (ie, BPS first predictor group entered into the regression model), alexithymia (ie, TAS-20 second predictor group), and sexual functions and dysfunctions (ie, GRISS third predictor group). Only variables that differed significantly between groups based on the results of the preliminary *t*-tests were included in the logistic regression models so as not to reduce statistical power. Adjusted odds ratios and 95% confidence intervals were determined for the estimators of the logistic regression model. A significance level of $p < 0.01$ was used to reduce the probability of Type I errors.

Results

Patients with GPPPD versus Controls

Sociodemographic and Clinical Characteristics

Table 1 shows the sociodemographic and clinical characteristics of all participants. Results of the *t*-tests revealed that patients with GPPPD and controls were matched for age, educational level, and duration of the relationship. Considering the clinical characteristics of the GPPPD group, the illness was present for an average of 3 years and 3 months.

Alexithymia, Parental Bonding, and Sexual Functions

The statistics for alexithymia (TAS-20), parental bonding (BPS), and sexual functions examined with the GRISS are presented in Table 2.

Regarding alexithymia, the GPPPD group had significantly higher “difficulty identifying feelings” ($p = 0.024$) and “difficulty describing feelings” subscale ($p < 0.001$) and total ($p = 0.002$) scores than CS. When the GPPPD and CS groups were compared to the scores obtained by taking the TAS-20 cutoff score of 51, statistically significant differences were found ($p = 0.005$). In the GPPPD group, 15.6% (10/64) were alexithymics, 32.8% (21/64) were borderline alexithymics, and 51.6% (33/64) were non-alexithymic. The rate of alexithymics in the control group was 1.7% (1/60), while borderline alexithymics comprised 23.3% (14/60) and non-alexithymic comprised 75% (2/64). Patients with GPPPD had higher scores both on the maternal care/control ($p = 0.003$), and maternal overprotection ($p = 0.008$) subscales of the parental bonding (BPS) compared to CSs.

Table 1 Sociodemographic and Clinical Characteristics of the Patients with GPPPD and Controls. Mean (SD), Percentage, *t*-test, and χ^2 Test are Listed

	GPPPD (N = 64)	CS (N = 60)	Test (df)	p
Age (years)	29.15 (6.78)	30.88 (4.24)	<i>t</i> (106.79) = - 1.711	0.094
Educational level (years)	10.79 (3.51)	11.85 (3.27)	<i>t</i> (121.99) = - 1.688	0.087
Duration of relationship (months)	50.56 (57.64)	66.80 (48.72)	<i>t</i> (120.73) = - 1.698	0.092
Duration of illness (months)	39.84 (52.14)	-		
Age of menarche	12.96 (1.46)	13.11 (1.08)	<i>t</i> (103.13) = 0.644	0.521
Age of first intercourse attempt	23.75 (4.66)	23.43 (3.67)	<i>t</i> (113.45) = 0.410	0.682
Marital Status			χ^2 (4) = 7.835	0.098
Single, has partner	5 (7.8%)	5 (8.3%)		
Married	58 (90.6%)	54 (90.0%)		
Divorced, has partner	1 (1.6%)	1 (1.7%)		

Abbreviations: GPPPD, Genitopelvic Pain/Penetration Disorder; CS, control subjects; df, degrees of freedom.

Hierarchical logistic regression analysis was performed to evaluate whether inclusion in the GPPPD group was predicted by parental bonding, alexithymia, and sexual functions. In Model 1, the predictive parental bonding (BPS) subscale scores were statistically significant— χ^2 (2) = 13.925, p = 0.001—and the Hosmer-Lemeshow test results were as follows: χ^2 (8) = 7.283,

Table 2 Alexithymia, Parental Bonding, and GRISS in Patients with GPPPD vs Controls. Mean (SD), and *t*-test are Listed

	GPPPD (N = 64)	CS (N = 60)	Test (df)	P-value
<i>Alexithymia (TAS-20)</i>				
TAS-20 DIF	12.48 (4.04)	10.99 (3.16)	<i>t</i> (118.20) = 2.293	0.024*
TAS-20 DDF	15.90 (5.43)	11.69 (4.17)	<i>t</i> (117.57) = 4.852	<0.001*
TAS-20 EOT	20.95 (3.56)	21.53 (3.42)	<i>t</i> (121.91) = -0.926	0.356
TAS-20 Total	49.34 (9.79)	44.22 (8.00)	<i>t</i> (119.80) = 3.172	0.002*
<i>Parental Bonding (BPS)</i>				
BPS Maternal Care/Control	19.42 (10.56)	14.10 (8.68)	<i>t</i> (119.99) = 3.072	0.003*
BPS Maternal Overprotection	10.29 (5.17)	8.06 (3.90)	<i>t</i> (116.83) = 2.0715	0.008*
BPS Paternal Care/Control	21.12 (11.80)	18.87 (11.39)	<i>t</i> (121.88) = 1.077	0.284
BPS Paternal Overprotection	9.61 (7.38)	7.48 (4.54)	<i>t</i> (105.76) = 1.949	0.057
<i>GRISS</i>				
GRISS frequency	4.31 (2.34)	3.70 (1.56)	<i>t</i> (110.59) = 1.689	0.100
GRISS communication	3.20 (2.42)	2.60 (2.05)	<i>t</i> (119.52) = 1.476	0.146
GRISS satisfaction	7.40 (4.15)	3.77 (2.82)	<i>t</i> (111.60) = 5.683	<0.001*
GRISS avoidance	4.33 (3.33)	3.12 (2.50)	<i>t</i> (114.57) = 2.274	0.026*

(Continued)

Table 2 (Continued).

	GPPPD (N = 64)	CS (N = 60)	Test (df)	P-value
GRISS touch	3.32 (3.52)	2.89 (2.38)	t (111.44) = 0.798	0.435
GRISS vaginismus	10.78 (4.62)	4.50 (2.78)	t (104.75) = 9.199	<0.001*
GRISS anorgasmia	7.61 (3.98)	4.62 (2.93)	t (113.59) = 4.739	<0.001*
GRISS total	47.17 (16.36)	29.25 (12.71)	t (115.82) = 6.753	<0.001*

Note: *Indicates in bold that the difference is statistically significant ($p < 0.05$).

Abbreviations: GPPPD, Genitopelvic Pain/Penetration Disorder; CS, control subjects; df, degrees of freedom; BPS, Bonding to Parent Scale; TAS, Toronto Alexithymia Scale; DIF, Difficulty Identifying Feelings; DDF, Difficulty Describing Feelings; EOT, Externally Oriented Thinking; GRISS, Golombok–Rust Inventory of Sexual Satisfaction.

$p = .506$. The model explained 14.5% of the variance (Nagelkerke R^2), and 63% of the cases were correctly classified. A predictor of the first model was found only in the mother ($p = 0.008$) care/control factor (Table 3). Alexithymia (TAS-20) total and subscale scores were entered as predictors of Model 2. The block was statistically significant— $\chi^2(2) = 14.014$, $p = 0.001$ —and the Hosmer–Lemeshow test yielded the following results: $\chi^2(8) = 13.966$, $p = 0.083$. At this stage, the rate of explainable variance was 27.5% (Nagelkerke R^2), and the model correctly classified 72% of cases. Among the predictors, both the maternal care/control ($p = 0.037$) factor of parental bonding and the “difficulty describing feelings” dimension of alexithymia ($p = 0.002$) were significant (Table 3). Model 3, for which GRISS subdimension scores were predictive, was superior to Model 2 in terms of overall model fit. The block was statistically significant— $\chi^2(4) = 62.706$, $p < 0.001$ —and the Hosmer–Lemeshow test yielded the following results: $\chi^2(8) = 6.193$, $p = 0.626$. At this stage, the rate of explainable variance was 70% (Nagelkerke R^2), and the model correctly classified 87% of cases. Overall, only the “difficulty describing feelings” dimension of alexithymia ($p = 0.012$), satisfaction ($p = 0.001$), and vaginismus ($p < 0.001$) dimensions of GRISS emerged as predictors (Table 3).

Alexithymic and Non-Alexithymic Participants

Statistics on demographic and clinical variables, parental attachment, and sexual dysfunctions are presented in Table 4. Alexithymics had higher scores on the maternal ($p = 0.034$) and paternal ($p = 0.006$) overprotection subscales of the parental bonding (BPS) than non-alexithymic.

Table 3 Logistic Regression Predicting the Likelihood of GPPPD vs Controls Based on Parental Bonding, Alexithymia, and GRISS

Predictor Variables	Model 1 ^a			Model 2 ^b			Model 3 ^c		
	OR	95% CI	Wald	OR	95% CI	Wald	OR	95% CI	Wald
PBI Maternal Care/Control	0.947	0.909–0.986	6.980*	0.953	0.912–0.997	4.328*	1.001	0.934–1.072	0.001
PBI Maternal Overprotection	0.926	0.853–1.005	3.392	0.959	0.876–1.048	0.858	1.075	0.928–1.245	0.933
TAS-20 DIF				1.006	0.884–1.145	0.009	1.148	0.947–1.392	1.966
TAS-20 DDF				0.851	0.768–0.943	9.480*	0.834	0.723–0.961	6.249*
GRISS satisfaction							0.701	0.570–0.862	11.375*
GRISS avoidance							1.092	0.877–1.360	0.622
GRISS vaginismus							0.641	0.536–0.766	23.805*
GRISS anorgasmia							0.876	0.730–1.051	2.034

Notes: ^a $\chi^2(2) = 13.925$, $p = 0.001$. Nagelkerke $R^2 = 0.145$. ^b $\chi^2(2) = 14.014$, $p = 0.001$. Nagelkerke $R^2 = 0.275$. ^c $\chi^2(4) = 62.706$, $p < 0.001$. Nagelkerke $R^2 = 0.70$. * $p < 0.05$.

Abbreviations: OR, odds ratio; CI, confidence interval; PBI, Parental Bonding Instrument; GRISS, Golombok–Rust Inventory of Sexual Satisfaction; TAS-20 DIF, Difficulty Identifying Feelings factor of Toronto Alexithymia Scale; TAS-20 DDF, Difficulty Describing Feelings factor of Toronto Alexithymia Scale.

Table 4 Demographic and Clinical Variables, Parental Bonding (BPS), and Sexual Function and Disorders (GRISS) in Alexithymic vs Non-Alexithymic Groups. Mean (SD), and t-test are Listed

	Alexithymic (N = 44)	Non-Alexithymic (N = 80)	Test (df)	p-value
Age (years)	29.52 (5.91)	30.25 (5.66)	t (85.44) = 0.665	0.502
Educational level (years)	10.81 (3.44)	11.57 (3.41)	t (87.95) = 1.174	0.241
Duration of relationship (years)	48.22 (53.78)	64.02 (53.25)	t (89.46) = 1.575	0.119
BPS Maternal Care/Control	18.57 (11.19)	15.89 (9.25)	t (75.64) = -1.352	0.156
BPS Maternal Overprotection	10.42 (4.59)	8.55 (4.68)	t (116.83) = -2.152	0.034*
BPS Paternal Care/Control	20.41 (10.47)	19.82 (12.25)	t (100.97) = -0.284	0.787
BPS Paternal Overprotection	10.62(8.02)	7.45 (4.68)	t (59.49) = -2.401	0.006*
GRISS frequency	4.31 (2.34)	3.70 (1.56)	t (120) = -0.740	0.461
GRISS communication	3.20 (2.42)	2.60 (2.05)	t (81.53) = -1.864	0.060
GRISS satisfaction	7.40 (4.15)	3.77 (2.82)	t (93.37) = -2.618	0.012*
GRISS avoidance	4.33 (3.33)	3.12 (2.50)	t (75.96) = -1.125	0.241
GRISS touch	3.32 (3.52)	2.89 (2.38)	t (83.26) = -0.659	0.506
GRISS vaginismus	10.78 (4.62)	4.50 (2.78)	t (91.34) = -2.577	0.013*
GRISS anorgasmia	7.61 (3.98)	4.62 (2.93)	t (96.34) = -1.834	0.080
GRISS total	47.17 (16.36)	29.25 (12.71)	t (92.35) = -3.112	0.003*

Note: *Indicates in bold that the difference is statistically significant ($p < 0.05$).

Abbreviations: BPS, Bonding to Parent Scale; df, degrees of freedom; GRISS, Golombok–Rust Inventory of Sexual Satisfaction.

Discussion

In this study, we aimed to investigate the associations between parental bonding, alexithymia, and GPPPD. A previous study¹⁸ has shown the association of alexithymia and vaginismus (i.e., GPPPD). However, this study makes a unique and distinctive contribution, as no previous study has investigated the relationship between parental bonding and alexithymia between patients with GPPPD and controls. Thus, we contributed to increasing literature on this subject, which has been little researched until now, and the increased knowledge about the psychological characteristics of the relationship between alexithymia and parental bonding in patients with GPPPD compared to controls.

As a first objective of the study, we examined whether parental bonding and alexithymia predicted group membership (i.e., patients with GPPPD vs controls). We found that the rate of alexithymia (approximately 50%) in the GPPPD group was statistically significantly higher than in the control group (25%), which is consistent with the previous study. That study¹⁸ found that “in relative risk, women with vaginismus (current terminology GPPPD) are 3.8 times more likely to develop alexithymia than healthy women.” When the groups were compared in terms of parental bonding characteristics, we found that the GPPPD patient group had higher maternal overprotection scores than the control group. However, in our study, maternal care/control scores were higher in the GPPPD group than in the control group. These results suggest that, compared with controls, our sample of patients with GPPPD may have experienced overly controlling and intrusive parenting attitudes by their mothers throughout their childhood. Support for the findings of our study on negative parental attitudes comes from studies in different countries that examined the relationship between various clinical conditions and parental bonding. In Greece, Bargiati et al in their study using PBI, showed that parental bonding (low maternal care and low paternal overprotection) was a determinant of sexual distress in women with uncomplicated type 1 diabetes.⁴⁹ Romeo et al reported low scores in the parental care subscale and high scores in the parental overprotection subscale of PBI in fibromyalgia, a psychosomatic disease with chronic pain and loss of function.²⁷ Another study reported a high prevalence of maternal abuse and paternal indifference in patients with fibromyalgia.⁵⁰ In a general population study in

Japan, perceived childhood parental attitudes (lower paternal care and higher paternal and maternal overprotection) were associated with an increased risk of chronic pain in adulthood.⁵¹ Two studies have shown that patients with irritable bowel syndrome⁵² and individuals with Crohn's disease⁵³ experience their parents' parenting styles as low parental care and paternal overprotection.

Next, we performed hierarchical binomial logistic regression analysis to examine the specific role that each of the analyzed variables (ie, alexithymia, parental bonding) plays in predicting group membership. Contrary to our expectation, parental bonding did not predict group membership (ie, patients with GPPPD vs controls). In the final model, the maternal care/control factor of parental bonding ceased to be the determinant, while alexithymia (DDF factors) remained the predictor of a group membership. Namely, although patients with GPPPD report more significant difficulties in parental bonding than controls, this feature does not appear to be specifically representative of this clinical population. This finding may be associated with the characteristic properties of GPPPD. GPPPD describes a heterogeneous clinical condition. Therefore, each situation within the GPPPD spectrum may differ regarding personality development, defense mechanisms, and perceived parenting attitudes.^{1,2,54,55}

Following the results showing that parental bonding does not significantly predict group membership (ie, probability of having GPPPD), we investigated whether alexithymia is significantly associated with parental bonding as a secondary objective of this study. To test this second hypothesis, we compared alexithymic and non-alexithymic individuals (considering the entire sample) regarding parental bonding (BPS). While the parental care/control subscale scores did not differ significantly between the alexithymic and non-alexithymic groups, we found the maternal overprotection subscale scores higher in the alexithymic group. Relationships between alexithymia and parental bonding have been investigated in many clinical and non-clinical populations.^{25–27,34,41,42,50} Thorberg et al found a negative relationship between maternal care and alexithymia and a positive relationship between maternal overprotection and alexithymia in their meta-analysis study.²⁶ In addition, paternal overprotection is related to high alexithymia and difficulties in identifying and describing emotions. Still, the relationship between alexithymia and paternal overprotection is not as strong as maternal overprotection. It has been stated that inadequate maternal care and overprotection have a more significant effect on the emotional than the cognitive part of alexithymia.²⁶ The results of our study support previous studies in terms of higher maternal overprotection subscale scores in both the GPPPD group compared to controls and the alexithymic group compared to non-alexithymic. However, the higher maternal care/control scores found in GPPPD patients compared with controls is the aspect of our study that differs from previous studies. This original result of the study may be explained by the effect of cultural elements in the evaluation of controlling parental behaviors as a dimension of parent and child attachment patterns. Controlling parental behavior is included in the overprotection dimension in the original PBI,³² in the care dimension in the Turkish version (BPS),⁴⁸ and as a third factor in the Japanese version.⁵⁶ It has been pointed out that as a dimension of parent-child attachment patterns, cultural factors should also be taken into account in controlling parental behaviors.⁴⁸ Controlling parental behaviors are a part of the overprotective parenting pattern in Western culture, whereas, in our culture, they have emerged as a part of the caring parental behavior pattern^{37,38}. The reason for the combination of control and care items may be that being a relevant parent in our culture includes controlling the child's behavior or being aware of what they do. However, this situation reflects the tendency to ignore the psychological independence of the child, which is inherent in caregiving and controlling parental behavior patterns in our culture. This result may explain why parental care/control subscale and alexithymia scores in this study were higher in the GPPPD patient group than in the control group. Over-controlling and overprotective parental behaviors may have caused the child to ignore their emotions. Such a process may prevent the child from being aware of their emotions, which could plausibly lead to alexithymia. Individuals with alexithymia are expected to have difficulty regulating their emotions. Problems in emotion regulation make the individual hypersensitive and overreactive to negative stimuli such as pain and sexual conflicts, and may lead to GPPPD and disruption of couple adjustment.^{1,57} One study showed that difficulty with anger expression creates increased muscle activity that exacerbates pain.⁵⁸

Our study has some limitations. First, because we used self-report questionnaires, subjects may have underreported or exaggerated the severity of their symptoms. To overcome this problem, structured interviews should be used in addition to self-report criteria. Second, the parental bond scale is a retrospective measure of subjects' relationships with their parents during the first 16 years of their lives; intrapsychic defense mechanisms and memory biases may have skewed the subjects' responses. In the future, it would be beneficial to conduct studies using more structured interviews to examine further the

relationship between parental bonding and alexithymia in GPPPD patients. In addition, this study is a cross-sectional design that does not allow us to draw concrete conclusions about the causality of the emerging relationships. Therefore, longitudinal studies are needed to investigate the relationship between parenting styles and alexithymia in patients with GPPPD.

Conclusion

In conclusion, our findings suggest that alexithymic features are a characteristic trait of patients with GPPPD. However, although patients with GPPPD experienced difficulties with perceived parental bonds, this factor does not appear predictive of GPPPD. The results provide important implications for clinical practice. First, clinical attention should be paid to disturbances in affect regulation and bonding difficulties in treating patients with GPPPD. Considering the role that bonding patterns play in forming and maintaining alexithymic traits, it is essential to establish a secure therapeutic alliance when working with alexithymic individuals.

Ethical Approval

The institutional review board of the University of Health Sciences Istanbul Erenkoy Mental Health and Neurological Diseases Education and Research Hospital approved the study protocol. The rules of the Declaration of Helsinki performed the data collection process.

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Disclosure

The authors declare no conflicts of interest in this work.

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