



ORIGINAL ARTICLE

Sexual Life Traits of Chronic Pain Disorder Patients and Relationship Between Temperament and Character Dimensions of Personality

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ABSTRACT

Objective: It is known that a complex problem is a sexual life in patients with chronic pain. Also, physicians may ignore this point. In this study, we aimed to compare the clinical features, sexual life properties and personality traits of patients with Chronic Pain Disorder (CPD) and healthy controls. We hypothesized that Harm Avoidance (HA) scores would be higher and predictive of compared to healthy controls also sexual dysfunction would found in the patient group.

Methods: This study was conducted in outpatients with CPD who presented to the Bagcilar Training and Research Hospital's Outpatient Psychiatry Clinic. The sample was comprised of 60 outpatients (53 women, 7 men) who complained of chronic pain for at least 3 months and were not under any medication. The control group comprised of 60 healthy controls (49 women, 11 men). Semi-structured sociodemographic data form, Visual Analogue Scale (VAS), Temperament and Character Inventory (TCI), Beck Depression Inventory (BDI), and the Beck Anxiety Inventory (BAI) and Arizona Sexual Experiences Scale (ASEX) were administered to the participants. All statistical analyses were performed using SPSS for Windows, Version 23.0.

Results: In CPD patients ASEX scores were significantly higher than healthy controls. It demonstrates sexual dysfunction presenting in CPD group. In terms of gender; female ASEX scores were significantly higher than male ones. VAS scores did not correlate to ASEX scores in all of the participants. Exploratory excitability subscale of Novelty Seeking, Total Cooperativeness and Total Reward Dependence scores were changed negatively correlation with ASEX scores; Harm Avoidance, Persistence, Self-Directedness, Self-Transcendence, and their subscales did not correlate to ASEX scores. ASEX scores, positively correlated to Attachment and Sentimentality subscales of Reward Dependence. BDI scores changed positively with BAI, ASEX, VAS scores; BAI scores also correlated positively with VAS and ASEX scores. Helpfulness vs Unhelpfulness and Compassion vs Revengefulness subscales of cooperativeness in patients with CPD positively correlated to ASEX scores.

Conclusions: Temperament and character traits and sexual life properties of the CPD patients were significantly different from the healthy control subjects. Exploratory excitability subscale of NS and C is the negative predictor of sexual dysfunction. Also, Helpfulness vs Unhelpfulness and Compassion vs Revengefulness subscale of C is the positive predictor of sexual dysfunction.

Keywords: Chronic pain, personality, sexual traits, temperament and character inventory (TCI)

INTRODUCTION

Chronic pain is pain that has gone on for a long time (at least from 3 to 6 months) and typically results from long-

standing conditions or damage to the body and has emotional, sensitive, cognitive, and behavioral components (1,2). The source of chronic pain is still largely unknown. However, a growing body of evidence brings up a complex relationship between chronic pain and personality characteristics (3,4). For instance, neuroticism correlates positively with the intensity of pain (5). Eysenck's factor theory of personality assumes that emotional stability is the opposite pole of neuroticism,

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also introversion is the opposite of extraversion. People with a high level of neuroticism are emotionally unstable and sentimental to bodily situations and have a range of health complaints (6). It is thought that the personality traits of chronic painful individuals might also affect sexual life traits. Specifically, researchers provided that the sexual behavior and functionality may be changed by personal characteristics (7,8).

Cloninger's personality model contains four temperament and three character dimensions, all of which are observed as being the results of continuous interactions during the lifetime (9,10). According to this model, personality is divided into temperament (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and character (Self-Directedness, Cooperativeness, Self-Transcendence); temperament dimensions are correlated with specific monoaminergic systems (11,12).

Most of the chronic pain disorder (CPD) patients were found to be middle age (13). Marital sexual intercourse may decrease in middle age. The approximation is mostly related to the male interest. It takes more time for a man to reach orgasm (14). Although it has been viewed that Cloninger's dimensions are largely covered by the Five-Factor Model (15), analyzing sexual motivation according to Cloninger's model may give interesting indications into the study of personality correlates of sexual motivation, mainly because of its psycho-biological implications, as recent evidence suggested a relationship between sexual motivation and the monoaminergic systems (16).

Temperament refers to automatic emotional responses to experiences and is largely heritable and stable throughout life while character dimensions represent differences in goals, values, attitudes, and self-concept and are moderately influenced by social learning and maturation (9,10). Four dimensions of temperament are Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD), and Persistence (P). Novelty Seeking refers to a heritable bias in the activation and initiation of behavior in response to novelty. Harm Avoidance indicates a heritable bias for inhibition and cessation of behaviors in anticipation of distress. Reward Dependence

refers to a heritable bias for maintenance of ongoing behavior in response to social reward cues. Persistence refers to perseverance despite frustration and fatigue in response to signals of anticipated reward versus laziness and underachieving (9,10). Character dimensions involve individual differences in higher cognitive processes. Character regulates the cognitive processes of sensory perception and emotion activated by temperament, leading to the development of a mature concept of the self in the personal, social, and spiritual arenas. Self-Directedness (SD) refers to the ability of an individual to control, regulate, and adapt his/ her behavior to fit the situation in accordance with one's goals and values. Cooperativeness (C) refers to individual differences with respect to tolerance and empathy and indicates the extent to which individuals view others as a part of the self. Self-Transcendence (ST) refers to differences in spirituality identification with a unity of all things in the world (9,10).

The sexual life problems of people with chronic pain are often ignored by health professionals and are not examined commonly. It is not surprising that chronically painful individuals have sexual problems while sexual problems are observed even in people with only psychiatric disorders. Sexual dysfunction is often seen in this group of patients, as studies have shown that chronic pain sufferers often have comorbid psychiatric problems (17). The association between personality and sexual behavior has attracted a growing attention in the last two decades because of the theoretical and practical indications of this topic. From an evolutionary psychology point of view, it has been hypothesized that survival pressures have favored psychological mechanisms and personality traits by maximizing the adaptive expression of sexual behavior such as successful intrasexual competition, correct mate elimination, successful conception or mate prevention (18). Evidence demonstrates that, in comparison with members of the general population, persons with chronic pain may be more likely to experiment compromised sexual functioning (19–22). This, in turn, may strike relationship satisfaction. While these studies analyzing sexual functioning in the context of chronic pain reveal an

increased prevalence of sexual difficulties, the link between sexual functioning and pain variables has been complicated (23). Some studies have demonstrated decreased sexual functioning to be related to pain severity, higher disability, or duration of pain (23–25) while others have found minor or no relationship (19,20, 26,27). Both chronic pain and sexual functioning have been revealed in expressions of biopsychosocial models (28,29), focusing on the interaction between biological and psychological parameters. A supplementary theory of both sexual functioning and chronic pain is the cognitive-behavioral model. The gold standard of psychological treatment for chronic pain is established firmly by this model (30), as is much of the psychotherapy for sexual dysfunction (31). Similarly, the few studies on the treatment of sexual dysfunction in chronic pain also benefit from this approach (32,33). However, more experimental research is needed to test predictions originating from this model.

In this study, we aimed to examine the clinical features, sexual life properties and personality traits of patients with CPD and healthy controls. We hypothesized that CPD patients would have increased sexual problems and elevated Harm Avoidance (HA) scores and we expected to find sexual dysfunctions in patients with CPD. We thought we would find patients with CPD suffer from sexual dysfunction more frequently than do healthy subjects and also higher HA scores would be in relation to sexual dysfunction in CPD patients.

METHODS

Study Participants

Sixty CPD outpatients (53 women, 7 men) with a mean age of 40.87 years ($SD \pm 10.53$ years) who complained of pain at least 3 months and were not under any medication and 60 healthy controls (49 women, 11 men), with a mean age of 38.83 years ($SD \pm 9.41$) were recruited for the study in January 2015–August 2015 at the Psychiatric Unit of Bagcilar Training and Research Hospital, Istanbul, Turkey. Both study groups had no history of any psychotic

disorders and were free of any medical illnesses and neurological diseases. The study protocol was approved by the Ethics Committee of our hospital in 18th December of 2014 with 2014/328 approval number, and all study participants provided written informed consents following the study has been thoroughly explained to them. Firstly we included 75 patient for the research, but 15 of them had a cognitive disorder and they were not enough educated for completing the scales. Therefore; we had 60 eligible patients for this present study.

Psychometric Measurements

Sociodemographic Data Form: This form includes demographic variables including gender, age, marital status, the number of children, education, location, household members, occupation, employment status, and the number of siblings, family history of chronic disease, other known physical illnesses, and previous psychiatric treatments.

Visual Analogue Scale (VAS): Chronic Pain Disorder severity was evaluated with VAS; a self-report scale that is a unidimensional measure of pain intensity. The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VAS) line, usually 10 centimeters (100 mm) in length, anchored by two verbal descriptors, one for each symptom extreme (34,35). Instructions, the time period for reporting, and verbal descriptor anchors have varied widely in the literature depending on the intended use of the scale (36). For pain intensity, the scale is most commonly anchored by "no pain" (score of 0) and "pain as bad as it could be" or "worst imaginable pain" (score of 100) (35,37). To avoid clustering of scores around a preferred numeric value, numbers or verbal descriptors at intermediate points are not recommended (38,39). Varies, but most commonly respondents are asked to report "current" pain intensity or pain intensity "in the last 24 hours."

Turkish TCI: Temperament and Character Inventory (TCI) is a self-administered, 240-item true/false questionnaire (40). The CPD patients completed a Turkish version of the 240-item self-questionnaire (Turkish-TCI) at the end of the psychiatric interview, and the control group received the instruction to complete the questionnaire at

home. The TCI is a 240-item self-administered questionnaire that measures the four temperament dimensions (NS, HA, RD, and P) and the three character dimensions (SD, C, and ST) (9). The Turkish-TCI has been validated by Kose et al. (41,42). Two staff psychiatrists performed all diagnostic assessments and clinical ratings.

Beck Depression Inventory (BDI): Beck Depression Inventory (BDI) is a self-report scale composed of 21 items and measures somatic, emotional, cognitive, and impulsive symptoms of depression (43). Each item takes a point between 0 and 3. The point that can be taken from inventory varies between 0 and 63, and high points indicate a rise in the depressive mood. The scale aims not to diagnosis but converts the symptoms level to the objective number (44). Overall scores for all questions is evaluated like this: a score between 10 and 16 shows low depression symptom, a score between 17 and 29 is a middle depressive symptom, and a score between 30 and 63 is a severe depressive symptom. BDI has been adapted into Turkish, and Hisli (45) has examined the reliability and validity of the scale.

Beck Anxiety Inventory (BAI): The BAI is a 21-item self-report questionnaire that lists symptoms of anxiety. The respondent is asked to rate how much each symptom has bothered him/her in the past week. The symptoms are rated on a four-point scale, ranging from "not at all" (0) to "severely" (3). The instrument has an excellent internal consistency of Cronbach's alpha=0.92) and high test-retest reliability ($r=0.75$) (46).

Arizona Sexual Experiences Scale (ASEX): The ASEX, a five-item self-report questionnaire in the last 7 days that quantifies sex drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, and satisfaction from orgasm. ASEX which is developed by McGahuey et al. (47); has been adapted into Turkish, and Soykan (48) has examined the reliability and validity of the scale. The validity and reliability study in Turkey reported internal consistency and reliability of 0.89-0.90. Cronbach α values were high thus; it is determined that it is valid sexual to distinguish dysfunction. The scale, which is divided into the male and female form, filled and interpreted by there is no specific training requirement.

Six score range of five items of Likert type 5-30, the increment in the total score of sexual dysfunction. In respect of Soykan (48), a score of ≥ 11 is the cut-off point for sexual dysfunction.

Statistical Analysis

All statistical analyses were performed using SPSS for Windows, Version 23.0. The variables in the present study were examined with the Kolmogorov-Smirnov's test of normality. All variables were normally distributed. An independent sample t-test was used for comparisons between the patient and the control groups. Within-group correlations between TCI scores were performed using the Pearson's correlation coefficient. A p value less than 0.05 was considered statistically significant.

RESULTS

Sociodemographic Characteristics of Sample

The mean age of the study participants was 37.85 ± 10.644 years ($X \pm SD$); 20.8% ($n=25$) of participants were male; 79.2% ($n=79.2$) were female. 71.1% of the participants in the study were married, and 21.7% of participants were single, 6 (5.0%) were divorced, 1 (0.8%) was widowed, and one participant (0.8%) was separated. 40 participants (33.3%) were graduated from elementary school, 19 (15.8%) from high school, 48 (40.0%) from college and 7 (5.8%) participants were graduated from middle school. 27.5% participants in the study were a housekeeper, government employees (26.7%) and worker (21.7%). The remaining participants were unemployed (7.5%), retired (7.5%), student (1.7%), freelancer (3.3%), and other professions (4.2%). Among the participants in the study, 29 (24.2%) had psychiatric family history [generalized anxiety disorder ($n=1$), panic disorder ($n=4$), major depressive disorder ($n=18$), bipolar disorder ($n=2$), and schizophrenia ($n=3$)]. 36.7% of participants in the sample were smoking cigarettes, and 19.2% of participants were alcohol user. 30.0% participants had alcohol use history in the past. 7.5% of participants attempted to suicide. Sociodemographic characteristics of participants were presented in Table 1.

Table 1: Sociodemographic characteristics of the sample

	n	%
Gender		
Female	95	79.2
Male	25	20.8
Marital status		
Married	86	71.7
Single	26	21.7
Divorced	6	5.0
Widowed	1	0.8
Separated	1	0.8
Education		
Elementary school	40	33.3
Middle school	7	5.8
High school	19	15.8
College	48	40.0
other	6	5.1
Profession		
unemployed	9	7.5
Worker	26	21.7
Government employee	32	26.7
Housekeeper	33	27.5
Other	20	16.6
Psychiatric family history		
Present	29	24.2
Absent	91	75.8
Psychiatric illness in the family		
None	92	77.6
Gad	1	0.8
Panic disorder	4	3.3
Major depressive disorder	18	15.0
Bipolar disorder	2	1.7
schizophrenia	3	2.5
Nicotine use		
Present	44	36.7
Absent	76	63.3
Alcohol use		
Present	23	19.2
Absent	97	80.8
Suicide attempt		
Present	9	7.5
Absent	111	92.5

Correlation of TCI Scales and Subscales with ASEX

Impulsiveness subscale of Novelty Seeking; Harm Avoidance and its subscales of Anticipatory worry, Fear of

uncertainty, Shyness with strangers, and Fatigability and asthenia scores were significantly higher in CPD patients compared to the control group. Harm Avoidance and its subscales of Anticipatory worry, Fear of uncertainty, Shyness with strangers, and Fatigability and asthenia scores were significantly positively correlated with the BDI, BAI, and VAS scores.

An independent-samples t-test was conducted to compare TCI scales and subscales scores with ASEX scores for CPD patient and control groups. The results revealed that there was a statistically significant difference between the patients and controls in terms of Exploratory Excitability vs Stoic Rigidity ($r=-0.269$, $p=0.037$) subscale scores of Novelty Seeking, Total Reward Dependence ($r=-0.269$, $p=0.037$) and Total Cooperativeness ($r=-0.269$, $p=0.037$) scores. When ASEX scores increase Exploratory Excitability vs Stoic Rigidity subscale of Novelty Seeking, Total Reward Dependence and Total Cooperativeness scores decrease. Also ASEX scores positively correlate to Sentimentality vs Tough-Mindedness ($r=0.271$, $p=0.036$) and Attachment vs Detachment ($r=0.275$, $p=0.033$) subscale of Reward Dependence and Helpfulness vs Unhelpfulness ($r=0.271$, $p=0.036$) and Compassion vs Revengefulness ($r=0.275$, $p=0.033$) subscale of Cooperativeness. There are no correlations between ASEX scores and Harm Avoidance; Persistence; Self Directedness; Self Transcendence and their all subscales. We hoped to find positive correlations between ASEX scores with HA and all subscales of it at beginning of our study but the result of our study we found that there is no correlation between them. It is shown in Table 2.

Correlation of TCI Scales and Subscales with Other Scales Scores

There were statistically significant and strong positive correlations between Harm Avoidance scale and its subscales with BDI, BAI, and VAS scores. Harm Avoidance was statistically significantly and positively correlated with BDI, BAI, and VAS. Fear of uncertainty subscale of Harm Avoidance was positively and statistically significantly correlated with BDI and VAS scores. Shyness with strangers subscale of Harm Avoidance was positively and

Table 2: Correlation of TCI Scales and Subscales with ASEX

TCI	ASEX
Exploratory excitability vs stoic rigidity	
r	-0.269
p	0.037
Impulsiveness vs reflection	
r	-0.082
p	0.533
Extravagance vs reserve	
r	0.006
p	0.964
Disorderliness vs regimentation	
r	0.155
p	0.237
Novelty seeking	
Total novelty seeking	
r	0.098
p	0.458
Sentimentality vs tough-mindedness	
r	0.271
p	0.036
Attachment vs detachment	
r	0.275
p	0.033
Dependence vs independence	
r	-0.043
p	0.745
Reward dependence	
Total reward dependence	
r	-0.269
p	0.037
Social acceptance vs social intolerance	
r	0.193
p	0.139
Empathy vs social disinterest	
r	0.252
p	0.052
Helpfulness vs unhelpfulness	
r	0.271
p	0.036
Compassion vs revengefulness	
r	0.275
p	0.033
Pure hearted principles vs self-serving advantage	
r	-0.043
p	0.745
Cooperativeness	
Total cooperativeness	
r	-0.269
p	0.037

statistically significantly correlated with BDI, BAI and VAS scores. Similarly, Fatigability and asthenia scores subscale was positively and statistically significantly correlated with BDI and VAS scores.

On the other hand, there were statistically significant and strong negative correlations between Self-Directedness scale and all of its subscales except for Self-

Acceptance and the BDI, BAI, and VAS scores. Self-Directedness scale was statistically significantly and negatively correlated with BDI, BAI, and VAS. Responsibility subscale was statistically and negatively correlated with BDI, BAI and VAS scores. Purposefulness subscale of Self-Directedness was statistically significantly and negatively correlated with BDI, BAI, and VAS. Resourcefulness subscale was statistically significantly and negatively correlated with BDI, BAI, and VAS. Congruent Second Nature subscale of Self-Directedness was statistically significantly and negatively correlated with BDI, BAI, and VAS. The results of Pearson's Correlation between TCI scales and subscales and BDI, BAI, and VAS scores are presented in Table 3.

Correlation of ASEX Scale with Other Scales Scores

BDI scores positively correlated to BAI, VAS and ASEX Scores. When BDI scores are higher BAI, VAS or ASEX scores increase. Also, BAI scores have a positive correlation with VAS and ASEX scores. It is shown in Table 4. It is inevitable that ASEX scores increase due to these results in anxiety disorder or depression comorbidity. Although according to the results of the research, ASEX scores in patients with comorbid depression were significantly higher than those without depression; however, compared to non-anxiety disorder patients with comorbid anxiety disorder, ASEX scores were not

Table 3: Correlations between TCI and Other Scale Scores

	BDI	BAI	VAS
HARM AVOIDANCE	0.684**	0.582**	0.538**
Anticipatory worry	0.694**	0.552**	0.460**
Fear of uncertainty	0.437**	0.383**	0.368**
Shyness	0.509**	0.370**	0.454**
Fatigability	0.568**	0.580**	0.475**
SELF-DIRECTEDNESS	-0.661**	-0.581**	-0.436**
Responsibility	-0.625**	-0.605**	-0.450**
Purposefulness	-0.600**	-0.519**	-0.418**
Resourcefulness	-0.465**	-0.383**	-0.320**
Congruent second nature	-0.414**	-0.350**	-0.258**

**Correlation is significant at the 0.01 level (2-tailed)

Table 4: Correlation of ASEX scale with other scales scores

	BDI	BAI	ASEX	VAS
BDI				
r	1	0.63	0.379	0.274
p		0.0001	0.003	0.034
BAI				
r	0.63	1	0.331	0.309
p	0.0001		0.01	0.016
ASEX				
r	0.379	0.331	1	0.22
p	0.003	0.01		0.091
VAS				
r	0.274	0.309	0.220	1
p	0.034	0.016	0.091	

VAS: Visual Analogue Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; ASEX: Arizona Sexual Experiences Scale

Table 5: The Effect of comorbid anxiety and depression on ASEX scores in CPD patients

	Comorbid depression (+) n=34	Comorbid depression (-) n=26	p
BDI	29.53±8.79	10.58±4.37	0.0001
BAI	32.06±18.22	16.58±9.76	0.0001
ASEX	20.68±5.09	16.54±4.59	0.002
VAS	7.29±2.14	6.46±2.02	0.132
	Comorbid anxiety (+) n=47	Comorbid anxiety (-) n=13	p
BDI	23.77±11.61	12.46±8.28	0.002
BAI	30.13±15.99	8.08±3.57	0.0001
ASEX	19.38±5.18	17.08±5.35	0.164
VAS	7.19±2.1	6±1.96	0.072

VAS: Visual Analogue Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; ASEX: Arizona Sexual Experiences Scale

significantly high. However, regardless of whether comorbid anxiety disorder or depression was present in CPD patients, ASEX scores were found to be high enough to predict sexual dysfunction. In contrast to our predictions in our study, no correlation was found between ASEX scores and VAS scores. It is shown in Table 5.

The Effect of Gender on ASEX in CPD Patients

According to these results, compared with healthy controls in the CPD patient group, there are high results at all scales.

Table 6: The average scores of all scales with CPD patient and healthy group

	Healthy group	CPD group	p
BDI	3.48±4.44	21.32±11.88	0.0001
BAI	3.38±3.69	25.35±16.91	0.0001
ASEX	8.07±3.61	18.88±5.26	0.0001
VAS	0±0	6.93±2.11	0.0001

VAS: Visual Analogue Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; ASEX: Arizona Sexual Experiences Scale

Table 7: The effect of gender on all scales

	Female n=53	Male n=7	p
BDI	22.4±11.92	13.14±8.15	0.052
BAI	26.58±17.17	16±11.89	0.120
ASEX	19.51±5.19	14.14±2.97	0.01
VAS	7.06±2.14	6±1.73	0.217

VAS: Visual Analogue Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; ASEX: Arizona Sexual Experiences Scale

In the CPD patient group, ASEX score average is over 11, it can be mentioned from sexual dysfunction. It is shown in Table 6. As shown in table 7, ASEX is the only scale in which the male and female groups significantly differ. According to our study, female ASEX scale average score was found to be significantly higher than that of men.

DISCUSSION

Arizona Sexual Experiences (ASEX) scale scores were significantly elevated in patients with CPD (denoting sexual dysfunction). In the whole group, features of pain as evaluated by the Visual Analogue Scale (VAS) did not correlate with ASEX scores. Novelty Seeking (Exploratory Excitability subscale), Cooperativeness and Reward Dependence Scores in TCI correlated negatively with ASEX (but Attachment and Sentimentality subscales of Reward Dependence correlated positively with ASEX). BDI scores correlated positively with BAI, ASEX, VAS scores. Additionally BAI scores correlated positively with VAS and ASEX scores. Helpfulness and Compassion subscales of Cooperativeness (in TCI) among patients with Chronic Pain Disorder correlated positively with ASEX scores.

As a result of our research, it was determined that CPD patients were adversely affected by their sexual lives

according to healthy controls. There are many studies that give the same result in the literature. There is considerable evidence indicating high rates of sexual problems in people who have chronic pain (19,23,49,50), and a review study stated that relationship satisfaction may decrease the following onset of chronic pain (51–53).

According to a meta-analysis of chronic pelvic painful men appear more likely to experience sexual dysfunction including erectile dysfunction, premature ejaculation, painful ejaculation and decreased sexual desire (54,55). However, a wide range of prevalence estimates for sexual dysfunction has been researched in a multitude of independent studies (56). Recent studies have shown that the opioid group used in CPD patients can lead to sexual problems. Erectile function and quality of sexual life, as well as anxiety, improved in patients treated chronically with opioids. The management of patients with pain should contain a review of their sexual health history given the significant emotional impact posed to the patient, the impact on their overall quality of life and its good clinical response to a multidisciplinary treatment. (57). The use of opioids in our study has not been questioned and this is indicated in the limitations section.

In this present study, ASEX was the only scale in which the male and female groups significantly differed. According to our study, female ASEX scale average score was found to be significantly higher than that of men. This was consistent with the literature was also determined by Birke (52). Birke mentioned that women were more likely to state a lack of/low sexual desire than men and the prevalence increased with higher age in both genders. Perhaps because of the median age of the midlife in our study, sexual problems are observed to increase even more. According to Simon et al. (58), sexual dysfunction was more prevalent during middle age, especially in women, most likely due to vulvovaginal atrophy, vulvodynia, and hypoactive sexual desire disorder.

In this present study, the average age of the CPD patient group was 40.87. The sociodemographic characteristics of CPD patients are consistent with other studies in the literature (52,53). There were no statistically significant differences regarding female-male distribution in both control and patient groups in our study, the patient group was predominantly composed of women

($n=53$, 88.3% vs. $n=7$, 11.7%). Keogh et al. (59) reported that women were complaining of pain more throughout their lifetime in more areas of their body and for longer durations compared to men. A higher rate of women in our study sample may be due to cultural reasons. The fact that women focus on the emotional response to stress and men typically think only of the sensation itself might explain why women actually experience more pain as a result, possibly due to the negative emotions associated with pain and this differential responsiveness would be widened in societies where women express their emotions through somatic pains. In terms of gender differences; Exploratory Excitability and Extravagance subscale of Novelty Seeking and Anticipatory Worry subscale of Harm Avoidance and Attachment subscale and total Reward Dependence scores were statistically significantly lower in female patients compared to male patients ($p=0.013$, $p=0.039$, $p=0.030$, $p=0.013$, $p=0.040$, respectively).

In this present study, the results revealed that there was a statistically significant difference between the patients and controls in terms of Exploratory Excitability vs Stoic Rigidity ($r=-0.269$, $p=0.037$) subscale scores of Novelty Seeking, Total Reward Dependence ($r=-0.269$, $p=0.037$) and Total Cooperativeness ($r=-0.269$, $p=0.037$) scores. When ASEX scores increase Exploratory Excitability vs Stoic Rigidity subscale of Novelty Seeking, Total Reward Dependence and Total Cooperativeness scores decrease. Also ASEX scores positively correlate to Sentimentality vs Tough-Mindedness ($r=0.271$, $p=0.036$) and Attachment vs Detachment ($r=0.275$, $p=0.033$) subscale of Reward Dependence and Helpfulness vs Unhelpfulness ($r=0.271$, $p=0.036$) and Compassion vs Revengefulness ($r=0.275$, $p=0.033$) subscale of Cooperativeness.

In the Kempeneers' study of the psychological characteristics of people with premature ejaculation; participants with increased scores of novelty seeking (NS) seemed to be younger, reporting a few more thrusts before ejaculation and more repeated ejaculations (60). Furthermore, his study showed little divergence from norms on the C and ST scales. These differences demonstrate that Premature Ejaculation participants would be very slightly more compassionate, tolerant, and

helpful towards others. It is not surprising that these findings are seen in Sexual Dysfunction patients because ASEX scores similarly correlate positively with this Helpfulness vs Unhelpfulness and Compassion vs Revengefulness subscales in our study. According to Mico et al. (7), Cooperativeness seemed not to be a personality trait damaging sexual behavior, the results of his study showed that Cooperativeness—along with Self-Directedness—was negatively correlated with uncomfortable fields of sexual behavior such as Sexual Shyness, Sexual Prudishness, and Neurotic Sex. These findings overlap with our study results. Also in Kempeneers' study while participants with high levels of SD and C reported, have a better level of satisfaction. Mico et al highlight in their study that the best negative predictor of Sexual Excitement and Satisfaction was the temperamental dimension Harm Avoidance; with regard to, character dimensions, Cooperativeness was the best negative predictor of Sexual Excitement, while Self-Directedness was the best positive predictor of Sexual Satisfaction. Similar to these results, C scale scores were lower in those with sexual dysfunction thus; C score may be called negative predictor for sexual dysfunction in our study (7,60).

Our study highlights CPD patients' embarrassment in discussing sexual matters with the healthcare provider. As Bahouq stated, people who have sex problems cannot easily express themselves to healthcare workers, so the solution to these problems is also delayed. About 10 patients in our study were out of research because they did not want to fill ASEX forms. This is both the patient's preference and as Bahouq stated influencing by patient's educational level and sexual dissatisfaction (61). Our study demonstrated that patients with CPD had problems resulting to diagnose sexually dysfunction regardless of whether they had comorbid depression or anxiety disorder according to healthy controls. It is clear that the sexual lives of CPD patients are affected negatively in terms of sexual desire, sexual satisfaction, lubrication, erection, ejaculation, and orgasm. Similar results have been determined by previous studies (61–64).

The present study has certain limitations. First, it should be noted that the study was carried out with a relatively small sample due to our hospital's outpatient

clinics inherent limitations. We did not exclude patients who had comorbid personality disorders. Second, temperament and character traits can also be affected by the presence of personality disorders. Therefore, the conclusions should not be considered definitive and further studies should be conducted in larger patient samples. Also, patients with genital pain should be excluded from the study because their sexual lives naturally will be affected negatively. The use of opioids may be a negative effect on sexual life, so it should be questioned to all CPD participation. Furthermore, those who lived in sexual abuse in the past should also be excluded from the study. Despite these limitations, our findings, especially predictive value of temperament and character dimensions for chronic pain disorder and sexual dysfunction would help to shape future discussions concerning the degree to which temperamental traits are necessary or sufficient conditions for pain disorder psychopathology with sexual dysfunction.

CONCLUSIONS

In conclusion, our data suggest that enhanced understanding of temperament–psychopathology relations will have important implications for both assessment and prevention of significant psychiatric and negative sexual symptoms in patients with chronic pain disorder. Temperament and character traits and sexual life properties of the CPD patients were significantly different from the healthy control subjects. Exploratory excitability subscale of NS and C is the negative predictor of sexual dysfunction. Also, Helpfulness vs Unhelpfulness and Compassion vs Revengefulness subscale of C is the positive predictor of sexual dysfunction.

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REFERENCES

1. Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et al. A classification of chronic pain for ICD-11. *Pain* 2015;156(6):1003.
2. Gonzales VA, Martelli MF, Baker JM. Psychological assessment of persons with chronic pain. *NeuroRehabilitation* 2000;14(2):69–83.
3. Eisenberg L. What makes persons “patients” and patients “well”? *Am J Med* 1980;69(2):277–86.
4. Soykan A, Kumbasar H. Psychiatric approaches for the treatment of chronic pain. *Clin Psychiatry* 1999;2:109–16.
5. Ramírez-Maestre C, Martínez AEL, Zarazaga RE. Personality characteristics as differential variables of the pain experience. *J Behav Med* 2004;27(2):147–65.
6. Eysenck HJ. Biological dimensions of personality. In Pervin LA, eds. *Handbook of personality. Theory and research*. New York: London; Guilford Press; 1990. p. 244–76.
7. Micò U, Scimeca G, Bruno A, Pandolfo G, Romeo VM, Mallamace D, et al. The relationship between personality and sexual motivation: an investigation based on Cloninger’s model in nonclinical Italian subjects. *Riv Psichiatr* 2013;48(4):307–14.
8. Costa RM, Pestana J, Costa D. Self-Transcendence, sexual desire, and sexual frequency. *J Sex Marital Ther* 2018;44(1):56–60.
9. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. *Arch Gen Psychiatry* 1993;50(12):975–90.
10. Kose S. Psychobiological model of temperament and character: TCI. *Yeni Symposium* 2003;86–97.
11. Hooks MS, Kalivas PW. The role of mesoaccumbens-pallidal circuitry in novelty-induced behavioral activation. *Neuroscience* 1995;64(3):587–97.
12. Curtin F, Walker J-P, Peyrin L, Soulier V, Badan M, Schulz P. Reward dependence is positively related to urinary monoamines in normal men. *Biol Psychiatry* 1997;42(4):275–81.
13. Rustøen T, Wahl AK, Hanestad BR, Lerdal A, Paul S, Miaskowski C. Age and the experience of chronic pain: differences in health and quality of life among younger, middle-aged, and older adults. *Clin J Pain* 2005;21(6):513–23.
14. Sadock BJ, Sadock VA. *Kaplan & Sadock’s concise textbook of clinical psychiatry*. Lippincott Williams & Wilkins; 2008.
15. De Fruyt F, Van De Wiele L, Van Heeringen C. Cloninger’s psychobiological model of temperament and character and the five-factor model of personality. *Pers Individ Dif* 2000;29(3):441–52.
16. Pfaus JG. Reviews: Pathways of sexual desire. *J Sex Med* 2009;6(6):1506–33.
17. Weisberg JN. Personality and personality disorders in chronic pain. *Curr Rev Pain* 2000;4(1):60–70.
18. Buss DM. Evolutionary personality psychology. *Annu Rev Psychol* 1991;42(1):459–91.
19. Ambler N, de C Williams AC, Hill P, Gunary R, Cratchley G. Sexual difficulties of chronic pain patients. *Clin J Pain* 2001;17(2):138–45.
20. Kool MB, Woertman L, Prins MA, Van Middendorp H, Geenen R. Low relationship satisfaction and high partner involvement predict sexual problems of women with fibromyalgia. *J Sex Marital Ther* 2006;32(5):409–23.
21. Pühse G, Wachsmuth JU, Kemper S, Husstedt IW, Evers S, Kliesch S. Chronic pain has a negative impact on sexuality in testis cancer survivors. *J Androl* 2012;33(5):886–93.
22. Romão APMS, Gorayeb R, Romão GS, Poli-Neto OB, Nogueira AA. Impact of chronic pelvic pain on female sexual function. *Int J Clin Med* 2013;4(3):178.
23. Kwan KSH, Roberts LJ, Swalm DM. Sexual dysfunction and chronic pain: the role of psychological variables and impact on quality of life. *Eur J Pain* 2005;9(6):643.
24. Orellana C, Casado E, Masip M, Galisteo C, Gratacós J, Larrosa M. Sexual dysfunction in fibromyalgia patients. *Clin Exp Rheumatol* 2008;26(4):663.
25. Smith KB, Pukall CF, Tripp DA, Nickel JC. Sexual and relationship functioning in men with chronic prostatitis/chronic pelvic pain syndrome and their partners. *Arch Sex Behav* 2007;36(2):301–11.
26. Monga TN, Tan G, Ostermann HJ, Monga U, Grabois M. Sexuality and sexual adjustment of patients with chronic pain. *Disabil Rehabil* 1998;20(9):317–29.
27. Ruhlman LS, Karoly P, Taylor A. Perceptions of chronic pain’s interference with sexual functioning: The role of gender, treatment status, and psychosocial factors. *Sex Disabil* 2008;26(3):123–36.
28. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC. The biopsychosocial approach to chronic pain: scientific advances and future directions. *Psychol Bull* 2007;133(4):581.
29. Brotto L, Atallah S, Johnson-Agbakwu C, Rosenbaum T, Abdo C, Byers ES, et al. Psychological and interpersonal dimensions of sexual function and dysfunction. *J Sex Med* 2016;13(4):538–71.
30. Morley S, Eccleston C, Williams A. Systematic review and meta-analysis of randomized controlled trials of cognitive behaviour therapy and behaviour therapy for chronic pain in adults, excluding headache. *Pain* 1999;80(1–2):1–13.
31. Frühauf S, Gerger H, Schmidt HM, Munder T, Barth J. Efficacy of psychological interventions for sexual dysfunction: a systematic review and meta-analysis. *Arch Sex Behav* 2013;42(6):915–33.
32. Breton A, Miller CM, Fisher K. Enhancing the sexual function of women living with chronic pain: a cognitive-behavioural treatment group. *Pain Res Manag* 2008;13(3):219–24.
33. Masheb RM, Kerns RD, Lozano C, Minkin MJ, Richman S. A randomized clinical trial for women with vulvodynia: Cognitive-behavioral therapy vs. supportive psychotherapy. *PAIN* 2009;141(1–2):31–40.
34. Huskisson EC. Measurement of pain. *Lancet* 1974;304(7889):1127–31.
35. Jensen MP, Karoly P, Braver S. The measurement of clinical pain intensity: a comparison of six methods. *Pain* 1986;27(1):117–26.
36. Burckhardt CS, Jones KD. Adult measures of pain: the McGill Pain Questionnaire (MPQ), Rheumatoid Arthritis Pain Scale (RAPS), Short-Form McGill Pain Questionnaire (SF-MPQ), Verbal Descriptive Scale (VDS), Visual Analog Scale (VAS), and West Haven-Yale Multidisciplinary Pain Invent. *Arthritis Care Res Off J Am Coll Rheumatol* 2003;49(S5):S96–104.
37. Ferraz MB, Quaresma MR, Aquino LR, Atra E, Tugwell P, Goldsmith CH. Reliability of pain scales in the assessment of literate and illiterate patients with rheumatoid arthritis. *J Rheumatol* 1990;17(8):1022–4.
38. Huskisson EC, Wojtulewski JA, Berry H, Scott J, Hart FD, Balme HW. Treatment of rheumatoid arthritis with fenoprofen: comparison with aspirin. *Br Med J* 1974;1(5900):176–80.
39. Joyce CRB, Zutshi DW, Hrubes V, Mason RM. Comparison of fixed interval and visual analogue scales for rating chronic pain. *Eur J Clin Pharmacol* 1975;8(6):415–20.

40. Cloninger CR, Przybeck TR, Svrakic DM, Wetzel RD. The Temperament and Character Inventory (TCI): A Guide to its development and use. St Louis. Center for Psychology of Personality, Washington University, 1994.
41. Kose S, Sayar K, Ak I, Aydin N, Kalelioglu U, Kirpinar I, et al. Turkish version of the Temperament and Character Inventory (TCI): Reliability, validity, and factorial structure. *Bulletin of Clinical Psychopharmacology* 2004;14(3):107-31. [Turkish]
42. Kose S, Sayar K, Kalelioglu U, Aydin N, Celikel FC, Gulec H, et al. Normative data and factorial structure of the Turkish version of the Temperament and Character Inventory. *Compr Psychiatry* 2009;50(4):361-8.
43. Beck AT, Steer RA, Brown GK. Beck depression inventory-II. San Antonio 1996;78(2):490-8.
44. Savasir I. Bilissel Davranisci Terapilerde Degerlendirme: Sik Kullanilan Olcekler, 1997. [Turkish]
45. Hisli N. A reliability and validity study of Beck Depression Inventory in a university student sample. *J Psychol* 1989;7:3-13.
46. Beck AT, Steer RA. Beck anxiety inventory manual. San Antonio, TX: Psychological Corporation, 1993.
47. McGahuey CA, Gelenberg AJ, Laukes CA, Moreno FA, Delgado PL, McKnight KM, Manber R. The Arizona Sexual Experience Scale (ASEX): reliability and validity. *J Sex Marital Ther* 2000;26(1):25-40.
48. Soykan A. The reliability and validity of Arizona sexual experiences scale in Turkish ESRD patients undergoing hemodialysis. *Int J Impot Res* 2004;16(6):531-4.
49. Hill J, Bird H, Thorpe R. Effects of rheumatoid arthritis on sexual activity and relationships. *Rheumatology* 2003;42(2):280-6.
50. Maruta T, Osborne D, Swanson DW, Halling JM. Chronic pain patients and spouses: marital and sexual adjustment. *Mayo Clinic Proc* 1981;56(5):307-10.
51. Leonard MT, Cano A, Johansen AB. Chronic pain in a couples context: a review and integration of theoretical models and empirical evidence. *J Pain* 2006;7(6):377-90.
52. Birke H, Ekholm O, Højsted J, Sjøgren P, Kurita GP. Chronic pain, opioid therapy, sexual desire, and satisfaction in sexual life: a population-based survey. *Pain Med* 2018; 10.1093/pm/ pny122.
53. Finn E, Morrison TG, McGuire BE. Correlates of sexual functioning and relationship satisfaction among men and women experiencing chronic pain. *Pain Med* 2018;19(5):942-54.
54. Sonmez NC, Kiremit MC, Guney S, Arisan S, Akca O, Dalkilic A. Sexual dysfunction in type III chronic prostatitis (CP) and chronic pelvic pain syndrome (CPPS) observed in Turkish patients. *Int Urol Nephrol* 2011;43(2):309-14.
55. Lee SWH, Liong ML, Yuen KH, Leong WS, Cheah PY, Khan NAK, et al. Adverse impact of sexual dysfunction in chronic prostatitis/ chronic pelvic pain syndrome. *Urology* 2008;71(1):79-84.
56. Tran CN, Shoskes DA. Sexual dysfunction in chronic prostatitis/ chronic pelvic pain syndrome. *World J Urol.* 2013;31(4):741-6.
57. Ajo R, Segura A, Margarit C, Ballester P, Martínez E, Ferrández G, et al. Disfunción eréctil en pacientes con dolor crónico tratados con opioides. *Med Clin (Barc)* 2017;149(2):49-54.
58. Simon JA, Lukas VA. Distressing Sexual Function at Midlife: Unmet Needs, Practical Diagnoses, and Available Treatments. *Obstet Gynecol* 2017;130(4):889-905.
59. Keogh E, McCracken LM, Eccleston C. Do men and women differ in their response to interdisciplinary chronic pain management? *Pain* 2005;114(1-2):37-46.
60. Kempeneers P, Andrianne R, Bauwens S, Georis I, Pairoux J-F, Blairy S. Functional and psychological characteristics of Belgian men with premature ejaculation and their partners. *Arch Sex Behav* 2013;42(1):51-66.
61. Bahouq H, Allali F, Rkain H, Hajjaj-Hassouni N. Discussing sexual concerns with chronic low back pain patients: barriers and patients' expectations. *Clin Rheumatol* 2013;32(10):1487-92.
62. Cohen D, Gonzalez J, Goldstein I. The role of pelvic floor muscles in male sexual dysfunction and pelvic pain. *Sex Med Rev* 2016;4(1):53-62.
63. Collado-Mateo D, Olivares PR, Adsuar JC, Gusi N. Impact of fibromyalgia on sexual function in women. *J Back Musculoskelet Rehabil* 2018;(Preprint):1-7.
64. Jiang X, Roberts-Atwater B, Kwon SD, Margolies SO, Quidgley-Nevaras A. Poster 425 male sexual dysfunction in patients with chronic pain. *PM R* 2016;8(9):S300.