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Development and validation of the sexual distress scale: results from a collectivistic culture

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Abstract

Background Literature lacks a comprehensive measure of sexual distress that could be applied to both clinical and non-clinical populations, regardless of the gender and relational status of the respondents. The current study, therefore, developed and validated Sexual Distress Scale (SDS).

Method The development and validation of the SDS involved two consecutive studies with a total of 656 participants (men = 300, women = 356; M_{age}=22 years) from Pakistan. The studies included exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and assessments of convergent and divergent validity.

Results The SDS demonstrated high reliability in both the studies (α = 0.911 & 0.946). Item-total correlations ranged from 0.670 to 0.878 ($p < 0.01$). EFA revealed a single-factor structure consisting of 8 items. CFA confirmed this structure, projecting a good comparative fit index (CFI = 0.913). The scale's convergent validity was established through significant positive correlations with depression ($r = 0.845$, $p < 0.01$), anxiety ($r = 0.847$, $p < 0.01$), and stress ($r = 0.786$, $p < 0.01$). Divergent validity was established through significant inverse correlations with life satisfaction (r = -0.972, $p < 0.01$) and emotional expressivity (r= -0.935, $p < 0.01$). Compared to women, men experienced significantly higher levels of sexual distress ($p < 0.01$; Cohen's $d = 0.448$).

Conclusion The study bridges a substantial knowledge gap in the measurement of sexual distress. The findings highlight the impact of sexual distress on psychosocial health. The study opens avenues for further research and targeted interventions in sexuality, especially within the collectivistic cultures.

Keywords Sexual frustration, Emotional expressivity, Life satisfaction, Depression, Anxiety, Stress

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Introduction

A satisfied life involves seeking pleasure and avoiding pain [1]. Humans tend to discover and repeat pleasurable situations for increased personal satisfaction [2]. Sexual satisfaction plays a very basic role in pleasure-seeking [3, 4]. Sexual satisfaction is controversial for its definition. It is mostly perceived within a broad spectrum that involves being satisfied with sexual needs, sexual desires, sexual attitudes, sexual expression and communication, sexual functioning, sexual frequency, orgasmic consistency, and several other relevant factors that guarantee the overall satisfaction with a person's sexuality [5–10]. Sexual satisfaction can also be viewed as the absence of sexual dysfunctions among men (erectile disorder, male hypoactive sexual desire disorder, premature ejaculation, and delayed ejaculation) and women (female orgasmic disorder, female sexual interest/ arousal disorder, and genito-pelvic pain/ penetration disorder) as described in the Diagnostic and Statistical Manual of Mental Disorders [11]. The attainment of sexual satisfaction involves several cognitive, biological, psychological, social, and cultural factors that may vary from person to person [4, 9, 12, 13]. Sexual satisfaction has been regarded as an important aspect of mental health [14–16], relational satisfaction [17, 18], and quality of life [19].

Sexual dissatisfaction, mostly labeled as sexual distress, is regarded as the opposite to sexual satisfaction. Researchers have pointed out several indicators of sexual dissatisfaction such as dysfunctional sexual beliefs, infrequent intercourse, lack of response to sexual requests, lack of affection, lack of erotic thoughts, and emotions of fear during sexual activity [20–22]. The causes of sexual dissatisfaction are complex and difficult to understand. These may involve both biological and psychosocial factors [23, 24]. Psychosocial influences such as mental conditions and relational problems are frequently cited as primary contributors to sexual dissatisfaction [24, 25]. Sexual dissatisfaction can lead to a range of negative outcomes for both individuals and relationships. Chronic dissatisfaction in one's sexual life is associated with increased risk of depression, bipolar disorder, anxiety, substance use disorders, and low self-esteem [26]. Unaddressed sexual dissatisfaction can lead to increased conflict, emotional distancing, and infidelity in relationships [27, 28].

Sexual dissatisfaction is a crucial construct for an individual's psychosocial health and relational satisfaction. Despite its importance, sexual dissatisfaction has not received as much focused attention as its positive counterpart, sexual satisfaction, in the development of psychological scales. A thorough review of the literature on the measurement of sexuality reveals that the earlier scales can be divided into two major categories. The first category could comprise the scales that intend to measure 'sexual satisfaction or function' such as Changes in Sexual Functioning Questionnaire [29], Derogatis Interview for Sexual Functioning [30], Sexual Intelligence Scale [31], Sexual Interest and Desire Inventory [32], and Garos Sexual Behavior Inventory [33]. The second category could involve scales that are aimed at measuring some sort of sexual dissatisfaction or dysfunction such as Sexual Dysfunctions Tendencies Measure [34], Female Sexual Distress Scale [35], Sexual Problems Self-Assessment Questionnaire [36], Sexual Dysfunctions Scale [37], Sexual performance anxiety [38], and the Sex Anxiety Inventory [39]. Earlier literature, however, lacks a proper manifestation of sexual distress as it mostly focuses on sexual satisfaction or a specific aspect of sexual dissatisfaction. Literature also lacks a brief and comprehensive measure that could assess sexual dissatisfaction from a holistic psychopathological perspective covering all possible mental states involved. A systematic review of sexual distress measures [40] realized that the construct of sexual distress had been greatly missed by the instruments measuring sexuality. Moreover, instruments that were intended to measure sexual distress, took sexual distress as a sub-scale of a larger scale and focused only on a single dimension of sexual distress i.e. poor sexual functioning. The review stated that most of the scales were developed for clinical populations. Scales that were explicitly developed to measure sexual distress were related to women alone, such as the Female Sexual Distress Scale [41], the Female Sexual Distress Scale Revised [35], and the Sexual Desire Relationship Distress Scale [42]. Therefore, an appropriate instrument to measure sexual distress appropriately was a significant gap in knowledge. The current study aimed at developing and validating Sexual Distress Scale (SDS). The objective of developing the SDS was to have a brief but comprehensive measure of sexual distress that could be applied to both clinical and non-clinical populations, regardless of the gender and relational status of the respondents. The study was carried out in two consecutive phases. The first phase involved the development and initial testing of the newly developed scale. The second phase of the study confirmed the factorial, convergent, and divergent validity of the scale and explored the levels of sexual distress among the sample taken from a collectivistic culture. The levels of sexual distress were also analyzed by age, education, and gender.

Method

The development of sexual distress scale (SDS)

The objective of developing the SDS was to have a brief but comprehensive measure of sexual distress that could be applied to both clinical and non-clinical populations, regardless of the gender and relational status of the respondents. This objective also signifies the

uniqueness of the SDS, as no earlier scales comprehend these features. Psychological distress, in general, means any maladaptive psychological functioning in response to stressful life events [43]. Researchers have proposed several components of psychological distress such as perceived inability to cope effectively, change in emotional status, discomfort, harm, demotivation, irritation, aggressiveness, self-depreciation, mood disturbance, nervousness, suffering, misery, etc [43–45]. After reviewing the earlier literature on sexual satisfaction [4, 9, 12, 13, 20–26], analyzing the instruments related to sexuality [29–39, 41, 42], and exploring the composition of psychological distress [43–45], the current study proposed sexual distress to be the "*state of persistent irritation, annoyance, frustration, tension, difficulty, anger, worry, and disturbance in daily routines based on unmet sexual needs and desires*". This definition covers all possible mental states that could be involved in sexual distress. *Irritation* is often the initial response to minor disturbances. It typically occurs when unmet expectations begin to build. In sexual distress, irritation is frequently triggered by unfulfilled sexual expectations or misunderstandings with one's partner regarding sexual needs. *Annoyance* tends to follow irritation when minor disturbances become recurring or more noticeable. Unlike irritation, which may be fleeting, annoyance is more persistent and starts to affect the individual's mood more substantially, leading to heightened negative feelings. In cases of sexual distress, annoyance may develop when an individual's sexual signals are frequently ignored, or when there is a consistent mismatch in sexual expectations. *Frustration* usually follows irritation and annoyance when the individual's attempts to resolve or cope with an issue are unsuccessful. It results from blocked goals or unmet needs. Frustration can deepen as the person realizes that the obstacles are not easily overcome. In sexual distress, frustration arises when sexual needs or desires go unmet due to factors such as lack of opportunity, partner incompatibility, or unresolved relationship issues. This repeated obstruction of sexual fulfillment heightens frustration and may lead to emotional withdrawal, resentment, and strained relationships. *Tension* arises when frustration is unresolved, often manifesting in psychological and physical discomfort. This stage represents heightened stress that can lead to anxiety, restlessness, and increased physiological arousal. Within the context of sexual distress, tension builds up when sexual desires remain unmet, creating a pervasive sense of discomfort that affects both mental health and relationship dynamics. As frustration and tension persist, individuals begin to perceive the situation as increasingly *difficult* to manage. At this point, the person may feel overwhelmed or believe that resolution is far from possible, leading to a cognitive sense of difficulty or incapacity to deal with the issue. In sexual distress, perceived difficulty arises when individuals view their sexual needs as persistently unaddressed or believe that resolving their dissatisfaction requires significant effort. *Anger* often occurs as a response to frustration, tension, and difficulty when the individual's coping mechanisms are exhausted. It is typically a more intense emotional reaction that can be directed either outwardly toward others or inwardly, leading to a sense of injustice or helplessness. Anger can lead to further emotional escalation if not managed. In sexual distress, anger arises from the recurrent frustration of sexual needs and expectations, leading individuals to feel rejected, undervalued, or resentful toward their partner. *Worry* can emerge as an anticipatory emotional response when the individual becomes preoccupied with the perceived difficulties and unresolved issues. Worry is often cognitive in nature and involves rumination over potential negative outcomes or fears about the future, increasing anxiety about the situation. Pertaining to sexual distress, worry may be related to the fear of being sexually rejected or dissatisfied. Finally, as all the above emotions accumulate and intensify, they may start to significantly interfere with the individual's daily life. Disturbances in routines are the behavioral consequences of ongoing emotional distress. This may manifest as reduced productivity, difficulty concentrating, sleep disturbances, and preoccupation with the issues at hand, affecting overall functioning. Sexual distress often leads to preoccupation with unmet desires, which can hinder concentration, motivation, and mental clarity. The presence of such disruptions highlights the pervasive impact of sexual dissatisfaction, as it not only affects relationships but also influences overall life functioning.

Referring to the same comprehension of sexual distress, we developed 12 items initially. These items were assessed by a panel of 5 expert psychologists for appropriate face validity. After reviewing the 12 initial items, the panel agreed that all the items were valid for the construct of sexual frustration. The panel was also asked to rate their levels of agreement with each item for linguistic clarity and relevance to the construct of sexual distress through a 5-point Likert scale i.e. strongly disagree to strongly agree. This procedure involves assessing inter-rater reliability which is also an important technique for ensuring that the scale is valid as much as possible before actual data collection. We analyzed the ratings of the panel and found significant agreement (Cohen's weighted kappa = 0.850; Fleiss's kappa = 0.815; Krippendorff's alpha = 0.816) between the ratings of all 5 experts for the initial 12 items. After the exploratory factor analysis, 8 items were finalized i.e. my sexual desires irritate me (irritation), my sexual needs annoy me (annoyance), I usually get sexually frustrated (frustration), I get tensed by my sexual needs (tension), my sexual needs are

problematic for me (difficulty), my sexual needs make me angry (anger), I stay worried about my sexual needs (worry), and my sexual needs hinder in my routine life (disturbance in daily routine). The SDS involves a 5-point Likert scale i.e. never (scored 1), rarely (scored 2), sometimes (scored 3), most of the time (scored 4), and always (scored 5). Higher score on the scale projects higher sexual distress. The SDS demonstrated excellent reliability in the two current studies (Cronbach's $\alpha = 0.911$ & 0.946; McDonald's $\omega = 0.911$ & 0.941). The item-total correlations of the SDS items, ranging from 0.670 to 0.878, demonstrated a high degree of internal consistency ($p < 0.01$). Several model-fit indices showed strong validity such as Comparative Fit Index (0.913), Tucker-Lewis Index (0.878), Bentler-Bonett Non-normed Fit Index (0.878), Bentler-Bonett Normed Fit Index (0.907), Parsimony Normed Fit Index (0.648), Bollen's Relative Fit Index (0.870), Bollen's Incremental Fit Index (0.913), Relative Noncentrality Index (0.913), and Goodness of Fit Index (0.924). The scale's convergent validity was established through significant positive correlations with depression ($r = 0.845$, $p < 0.01$), anxiety ($r = 0.847$, $p < 0.01$), and stress ($r = 0.786$, $p < 0.01$). Divergent validity was established through significant inverse correlations with life satisfaction (r = -0.972, $p < 0.01$) and emotional expressivity (r= -0.935, $p < 0.01$).

Other instruments

Emotional expressivity scale

The Emotional Expressivity Scale (EES) [46] is a 17-item self-report measure developed to assess individual differences in outward emotional display. A higher score on the scale indicates greater emotional expressivity. The EES demonstrated good internal consistency and validity across diverse populations [46, 47]. The EES has been adapted and validated for use in other cultures, maintaining its psychometric properties and one-factor structure [47]. The EES showed excellent reliability in the current study (Cronbach's $\alpha = 0.913$). The EES was used in the current study to establish the divergent validity of the SDS.

Satisfaction with life scale

The Satisfaction with Life Scale [48] is a widely utilized scale to measure global cognitive perceptions of life satisfaction. Five statements are rated on a 7-point Likert scale from 1 ("strongly disagree") to 7 ("strongly agree"). Higher scores reflect higher life satisfaction. The scale has been proven trustworthy and valid across varied groups and contexts in subsequent investigations whereby the scores correlate significantly with positive affect, happiness, and inversely with negative affect and depression [49–51]. The scale has been translated and validated in many languages and cultures, proving its global significance. The scale showed good reliability in the current study (Cronbach's $\alpha = 0.739$). It was used in the current study to establish the divergent validity of the SDS.

Depression, anxiety and stress scale

The Depression, Anxiety and Stress Scale [52] is a self-report inventory comprising 42 items. The depression scale measures dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety scale measures autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale measures difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. The scale is quite famous and has been used in many studies. Higher scores on this scale indicated more severe levels of depression, anxiety, and stress. The scale showed good reliability in the current study (Cronbach's α = Depression: 0.772; Anxiety: 0.726; Stress: 0.775). It was used in the current study to analyze the convergent validity of the SDS.

Demographic information questionnaire

A demographic information questionnaire was also used to obtain information about participants' gender, age, and education.

Participants

The current study involved a total of 656 unmarried adult participants. Our focus on the unmarried respondents was due to the cultural parameters. Since we collected data from a collectivistic Muslim culture (Pakistan), we assumed that the unmarried individuals would be more genuine in responding to this scale and would be more sexually distressed as compared to their married counterparts. In Pakistan, sexual satisfaction has been found to be the least important correlate to psychosocial health [14]. Sexual openness in Pakistan is regarded unethical, especially for the married individuals [53]. Moreover, a typical collectivistic culture creates an environment in which marriage is regarded as the only source of sexual satisfaction and the unmarried must suppress their sexual desires until they marry. This sexual suppression may lead to prolonged sexual inactivity, biological tensions, aggression, violence, enhanced criminal tendencies, low self-esteem, poor mental health, and poor quality of life [15, 54].

Phase one of the current study involved 263 participants (121 males & 142 females; KMO = 0.855; BTS = $p < 0.001$). Phase two involved 393 participants (179 males & 214 females; KMO = 0.905; BTS = $p < 0.001$). The Kaiser-Meyer-Olkin's values (KMO) and the p value in the Bartlett's test of sphericity (BTS) reflect the sufficiency of sample. The 263 respondents of study 1 and

the 393 respondents of study 2 were marvelously sufficient for the studies. The participants of the first phase of the study were between 18 and 29 years of age with a mean age of 22 years (SD = 2.0). Their educational qualifications ranged from 12 years of formal schooling to a doctorate. The average educational qualification of these participants was 13 years of formal education (SD = 1.45). The participants of the second phase of the study were between 18 and 35 years of age with a mean age of 22 years (SD = 3.38). Their educational qualifications ranged from 10 years of formal schooling to a doctorate. The average educational qualification of these participants was 15 years of formal education (SD = 2.15). All the participants of both the phases were university students. They were recruited through convenient sampling technique. Participants who needed further guidance and counseling on issues concerning sexual frustration were referred to the Counseling and Wellness Center of the same university from where the data were collected.

Procedure

The study was approved by the Departmental Ethic Review Committee of COMSATS University Islamabad, Pakistan. The data collection process was in accordance with the 1964 Helsinki Declaration and its later amendments. The researchers approached the participants of the study through individual meetings. The participants were informed about the purpose of the study, and their consent to participate in the study was appropriately taken. The participants were assured of the confidentiality of the data and were thanked for their participation.

Analysis

The data were recorded and analyzed in the Statistical Package for Social Sciences (version 26). Data were cleaned for adequate generalizability and outliers were removed. Exploratory and confirmatory factor analyses were conducted to measure the reliability and validity of the SDS. Pearson correlation coefficient, t-test, and descriptive statistics were also calculated.

Results

Reliability of the SDS

The reliability of the SDS was measured through Cronbach's alpha and McDonald's omega. The SDS demonstrated excellent reliability in the two consecutive studies (Table 1; Cronbach's α = 0.911 & 0.946; McDonald's ω = 0.911 & 0.941). The item-total correlations of the SDS items, ranging from 0.670 to 0.878 (Table 2), demonstrated a high degree of internal consistency ($p < 0.01$).

Exploratory factor analysis

To establish the construct validity of the SDS, exploratory factor analysis was conducted in phase one. Exploratory factor analysis reveals different dimensions available within a scale and determines factorial validity. We employed maximum likelihood method for extraction with promax rotation to identify the possible constructs within our main construct i.e. sexual distress. Sampling adequacy was assessed using Kaiser-Meyer-Olkin's values [55] and was found to be meritorious (KMO = 0.861). Bartlett's test of sphericity [56] was used to analyze the adequacy of correlations between items and the results were found to be highly significant ($X^2 = 1415.169$; $p < 0.001$). During the EFA, we discarded 4 items due to having communalities lesser than 0.4 which is not regarded appropriate [57]. The factor structure of the SDS reported a single factor solution for 8 remaining items with 57.64% variance explained (Table 2). The communalities for all the items ranged between 0.426 and 0.784 (Table 2), and were thus acceptable, as all the values were above 0.4 [57]. All 8 items were also significantly and positively correlated with each other and the overall scale (Table 2). The lowest factor loading was 0.652 and the average of the factor loadings for all the 8 items was greater than 0.7 (Table 2) which is acceptable in exploratory factor analysis [58].

Confirmatory factor analysis

Phase 2 involved confirmatory factor analysis of the SDS. CFA was conducted on the 8 items to test a single-factor

Table 1 Descriptive statistics, reliability, and data accuracy ($n = 656$)

Variable	Items	α	ω	M	SD	Range		Skewness	Kurtosis
						Potential	Actual		
STUDY 1: *n = 263; men = 121, 46%; women = 142, 54%; age = 18–29 years, M = 22 years, SD = 2.0*									
Sexual Distress	8	0.911	0.913	14.69	6.57	5–40	8–38	1.245	1.276
STUDY 2: *n = 393; men = 179, 46%; women = 214, 54%; age = 18–35 years, M = 22 years, SD = 2.15*									
Sexual Distress	8	0.946	0.945	16.63	8.27	5–40	8–40	0.765	-0.249
Stress	14	0.775	0.756	27.46	5.14	0–42	13–37	-0.765	0.605
Anxiety	14	0.726	0.740	27.90	4.98	0–42	14–37	-0.686	0.170
Depression	14	0.772	0.780	27.04	5.49	0–42	16–39	-0.108	-0.252
Emotional Expressivity	17	0.913	0.914	53.02	17.83	17–102	27–94	0.269	-0.954
Life Satisfaction	5	0.739	0.778	16.44	5.84	7–35	7–25	-0.148	-1.364

Notes: N = number of participants; α = Cronbach's alpha; ω = McDonald's omega; M = Mean; SD = Standard Deviation

Table 2 Exploratory factor analysis (study 1; $n = 263$)

Item No.	Factor Loadings	Extraction / Communalities	Item-Scale Correlations	Inter item correlations						
				2	3	4	5	6	7	8
1	0.874	0.764	0.867**	0.778**	0.667**	0.668**	0.626**	0.697**	0.492**	0.530**
2	0.885	0.784	0.878**		0.697**	0.820**	0.490**	0.676**	0.583**	0.474**
3	0.808	0.653	0.802**			0.633**	0.621**	0.600**	0.354**	0.483**
4	0.838	0.702	0.834**				0.543**	0.565**	0.580**	0.436**
5	0.741	0.550	0.737**					0.620**	0.382**	0.408**
6	0.835	0.697	0.830**						0.494**	0.606**
7	0.652	0.426	0.670**							0.306**
8	0.660	0.436	0.679**							

Notes: Items = 1: My sexual needs annoy me; 2: I get tensed by my sexual needs; 3: My sexual needs are problematic for me; 4: I stay worried about my sexual needs; 5: My sexual needs hinder in my routine life; 6: My sexual needs make me angry; 7: I usually get sexually frustrated; 8: My sexual desires irritate me

Extraction Method = Maximum likelihood; Rotation Method = Promax; Variance explained = 57.64; Factors extracted = 1

KMO = 0.861; BTS: $\chi^2 = 1415.169$, $df = 28$, $p < 0.001$

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

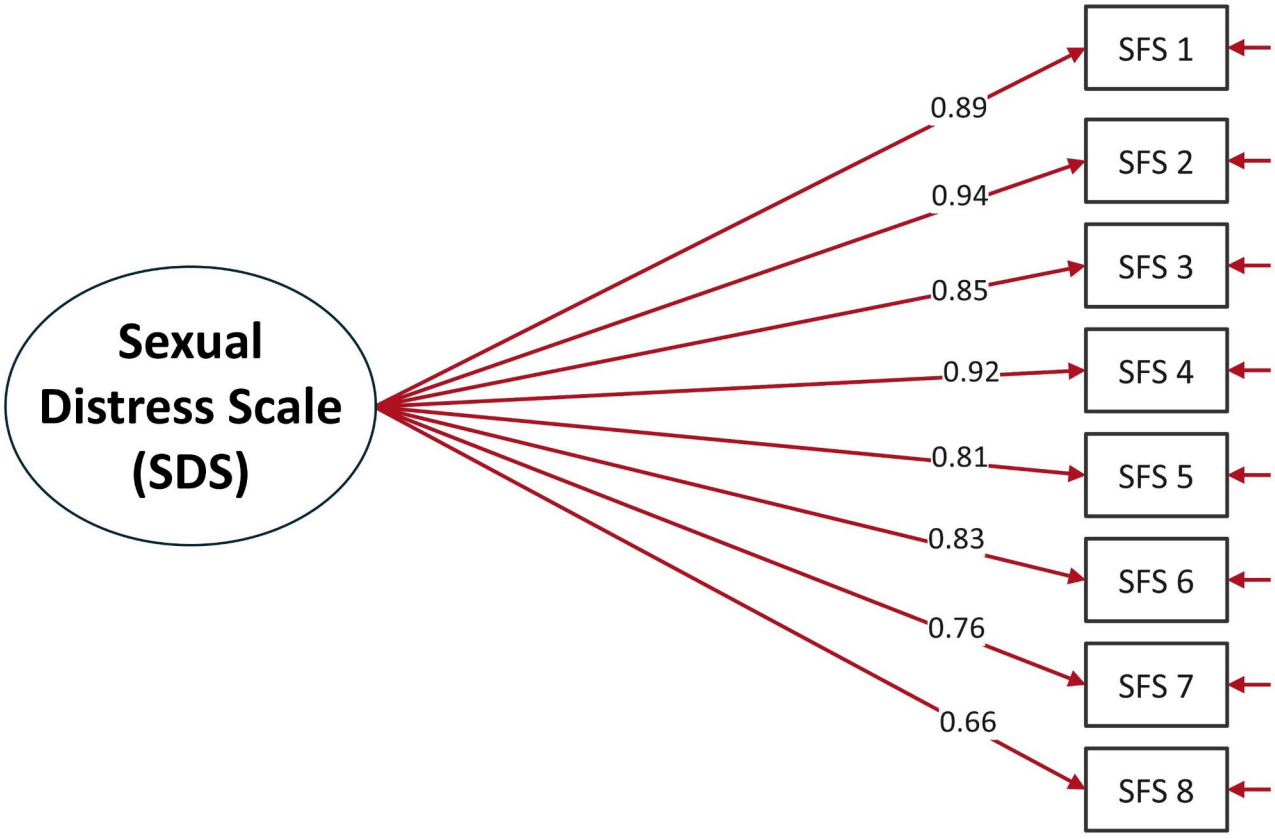

Fig. 1 Confirmatory factor analysis

structure (Fig. 1). The factor loadings were statistically significant ($p < 0.01$) and ranged from 0.664 to 0.938 (Table 3), indicating that the items were strongly related to the underlying factor. A heterotrait-monotrait ratio of 1 suggested good discriminant validity. The reliability was excellent, with a coefficient ω of 0.945 and a coefficient α of 0.945. The CFA model demonstrated good fit according to several fit indices such as Comparative Fit Index (0.913), Tucker-Lewis Index (0.878), Bentler-Bonett Non-normed Fit Index (0.878), Bentler-Bonett Normed Fit Index (0.907), Parsimony Normed Fit Index (0.648), Bollen's Relative Fit Index (0.870), Bollen's Incremental Fit Index (0.913), Relative Noncentrality Index (0.913), and Goodness of Fit Index (0.924).

Convergent and divergent validity of the SDS

The scale's convergent validity was established through significant positive correlations with depression

Table 3 Confirmatory factor analysis (study 2; $n = 393$)

Factor	Item	Factor loadings				Residual variances			
		Estimate	SE	z	*p*	Estimate	SE	z	*p*
1	SF1	0.887	0.026	37.688	< 0.001	0.213	0.025	11.229	< 0.001
	SF2	0.938	0.024	47.428	< 0.001	0.121	0.021	9.172	< 0.001
	SF3	0.848	0.030	32.441	< 0.001	0.280	0.031	12.478	< 0.001
	SF4	0.916	0.026	42.214	< 0.001	0.160	0.023	10.213	< 0.001
	SF5	0.807	0.033	28.263	< 0.001	0.349	0.039	12.852	< 0.001
	SF6	0.828	0.033	30.594	< 0.001	0.315	0.041	12.609	< 0.001
	SF7	0.760	0.039	24.762	< 0.001	0.423	0.056	13.178	< 0.001
	SF8	0.664	0.047	19.000	< 0.001	0.558	0.081	13.482	< 0.001

Notes: Extraction was performed using the Maximum-likelihood extraction technique with no rotation; Variance extracted = 0.685

Kaiser-Meyer-Olkin (KMO) Test: Overall KMO: 0.907; KMO for individual indicators ranged from 0.859 to 0.946; Bartlett's Test of Sphericity: $\chi^2 = 3064.560$, $df = 28$, $p < 0.001$

Additional Fit Measures: Comparative Fit Index (CFI): 0.913; Tucker-Lewis Index (TLI): 0.878; Bentler-Bonett Non-normed Fit Index (NNFI): 0.878; Bentler-Bonett Normed Fit Index (NFI): 0.907; Parsimony Normed Fit Index (PNFI): 0.648; Bollen's Relative Fit Index (RFI): 0.870; Bollen's Incremental Fit Index (IFI): 0.913; Relative Noncentrality Index (RNI): 0.913; Goodness of fit index (GFI): 0.924

Table 4 The understudied correlations

	Education	Sexual Distress	Emotional Expressivity	Life Satisfaction	Depression	Anxiety	Stress
Age	0.353**	0.564**	−0.594**	−0.591**	0.508**	0.544**	0.505**
Education		-0.05	-0.02	0.014	0.082	0.012	-0.075
Sexual Distress			−0.935**	−0.972**	0.845**	0.847**	0.786**
Emotional Expressivity				0.978**	−0.883**	−0.948**	−0.869**
Life Satisfaction					−0.869**	−0.896**	−0.829**
Depression						0.826**	0.657**
Anxiety							0.880**

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

Table 5 Differences between men and women ($N = 393$)

Variables	Men ($n = 179$)		Women ($n = 214$)		t(391)	*p*	Cohen's d
	M	SD	M	SD			
Sexual Distress	19.307*	9.260	15.570**	7.471	4.428	0.000	0.448
Emotional Expressivity	49.240	17.358	56.187	17.659	3.914	0.000	0.396
Life Satisfaction	14.989	5.845	17.664	5.579	4.631	0.000	0.469
Depression	28.682	5.406	25.673	5.195	5.612	0.000	0.568
Anxiety	28.939	4.477	27.033	5.230	3.838	0.000	0.389
Stress	28.447	4.677	26.640	5.373	3.519	0.000	0.356

Notes: *= The mean level of sexual Distress among men is 60.33%

**= The mean level of sexual Distress among women is 48.65%

($r = 0.845$, $p < 0.01$), anxiety ($r = 0.847$, $p < 0.01$), and stress ($r = 0.786$, $p < 0.01$). Divergent validity was established through significant inverse correlations with life satisfaction (r = -0.972, $p < 0.01$) and emotional expressivity (r= -0.935, $p < 0.01$).

Correlations of sexual distress for depression, anxiety, stress, emotional expressivity, and satisfaction with life

The findings revealed significant positive correlations of sexual distress with depression (Table 4; $r = 0.845$; $p < 0.01$), anxiety (Table 4; $r = 0.847$; $p < 0.01$), and stress (Table 4; $r = 0.786$; $p < 0.01$). The results also revealed significant inverse correlations between sexual distress and emotinal expressivity (Table 4; r=-0.935; $p < 0.01$), and between sexual distress and satisfaction with life (Table 4; r=-0.972; $p < 0.01$).

Gender-based differences in sexual distress

There were highly significant differences between men and women for all the understudied variables. Compared with women, men had significantly higher levels of sexual distress (Table 5; M = 19.30 vs. 15.57; $p = 0.000$; Cohen's $d = 0.448$), depression (Table 5; M = 28.68 vs. 25.67; $p = 0.000$; Cohen's $d = 0.568$), anxiety (Table 5; M = 28.93 vs. 27.03; $p = 0.000$; Cohen's $d = 0.389$), and stress (Table 5; M = 28.44 vs. 26.64; $p = 0.000$; Cohen's $d = 0.356$). On the other hand, women had significantly higher leves of emotional expressivity (Table 5; M = 56.18 vs. 49.24; $p = 0.000$;

Cohen's $d = 0.396$) and life satisfaction (Table 5; M = 17.66 vs. 14.98; $p = 0.000$; Cohen's $d = 0.469$).

Correlations of sexual distress with age and education

Sexual distress was significantly and positively correlated with age (Table 4; $r = 0.564$; $p < 0.01$). No significant correlation was found between sexual distress and education.

Discussion

Sexual distress is a crucial construct for an individual's psychosocial health and relational satisfaction. Despite its importance, sexual distress has not received the due attention in the development of psychological scales. The current study developed and validated Sexual Distress Scale (SDS) to have a brief but comprehensive measure of sexual distress that could be applied to both clinical and non-clinical populations, regardless of the gender and relational status of the respondents. The SDS comprises of 8 items assessed through a 5-point scale. Higher score on the scale projects higher sexual distress. The SDS demonstrated excellent reliability in the two current studies that was measured through Cronbach's alpha, McDonald's omega, and item-total correlations. Several model-fit indices showed strong validity of the SDS. The scale's convergent validity was established through significant positive correlations with depression, anxiety, and stress. Divergent validity was established through significant inverse correlations with life satisfaction and emotional expressivity.

The findings also revealed that the level of sexual distress was significantly greater in unmarried men than in unmarried women. Earlier studies have revealed that men have greater intensity of sexual desire [59–61], are more sexually assertive than women [53, 62, 63] and consume more porn [64–66] than women. Men are more inclined toward sexual activities and marriage [67]. The anger of men is socially more acceptable than that of women [68–70]. Women, on the other hand are more socially compliant [71], possess greater morality [72], and are less consistent with sexuality [73] than men are. Women associate their sexual preferences with several cultural, social, and situational pressures [74–77]. As they are sexually objectified [78], they view themselves in sexually submissive rather than dominant ways [79, 80]. The cultural context also plays a significant role in this regard.

The current study also revealed significant positive correlations between sexual distress and depression, anxiety, and stress. Stress involves a person's perceived inability to cope with the situation affectively, change in emotional state, discomfort, communication of discomfort, and harm [43]. Anxiety is 'worrying about the future excessively' [81]. Depression is usually referred to as profound sadness. It is the most common mental disorder [82]. The significant positive correlations of sexual distress with depression, anxiety, and stress highlight the intensity and significance of sexual frustration. Sexual distress may lead to severe mental conditions such as depression, anxiety, and stress. Researchers have correlated sexual distress and sexual dysfunctions with several psychological problems [83] including depression, anxiety, and stress [84]. The significant positive correlations of sexual distress with depression, anxiety, and stress, as reported in the present study, highlight the adverse psychological consequences of sexual distress.

The current study also revealed significant inverse correlations between sexual distress and emotional expressivity and satisfaction with life. Emotional expressivity refers to the positive or negative display of emotions through facial, vocal, or gestural means [46]. Expressing emotions is considered important for better psychosocial wellbeing [85]. Suppressing or repressing emotions, on the other hand, has been frequently associated with several psychiatric problems [86, 87] including depression [88, 89], anxiety [90], personality disorders [91–93], irresponsibility, self-centeredness [94–99], maladaptive functioning [100], eating disorders [101], somatic problems [102], etc. Satisfaction with life is the fulfilment of the purpose of life [103], the gratification of human needs and desires [104, 105], a match between the desired and the achieved goals [106], and an evaluation of life as a whole [107]. Satisfaction with life depends on several psychosocial factors that also include sexual satisfaction [108] and being married [109]. More sexual problems have been correlated with lesser emotional expressivity [110] and lesser satisfaction with life [108, 109, 111]. Emotional expressions and catharsis, on the other hand, have been positively associated with better psychological wellbeing [112, 113].

The study also revealed a significant positive correlation between sexual distress and age, which reflects that the level of sexual distress may increase if it is prolonged. Earlier studies have also projected higher frequencies of sexual desires and sexual fantasies among emerging adults than among individuals in other age groups [114, 115]. Therefore, emerging adulthood is a time in which special attention is needed on sexuality. This is the time when emerging adults struggle hard to establish themselves professionally and adjust their life. Sexual distress can be a major hurdle in this regard.

Implications

The development and validation of the SDS addresses a significant gap in the literature by providing a brief but comprehensive measure of sexual distress that could be applied to both clinical and non-clinical populations, regardless of the gender and relational status of the respondents. The findings highlight the unique

psychological burden that sexual distress imposes on individuals, especially in collectivistic cultures. This study provides empirical support for the argument that sexual distress can have detrimental effects on mental health and overall well-being. The SDS offers practical applications for clinicians, counselors, and researchers. It can be employed as a diagnostic tool to identify individuals at risk of experiencing significant sexual distress. This can facilitate early intervention, helping to mitigate the adverse mental health outcomes associated with sexual distress. The SDS can be used in cross-cultural research to compare levels of sexual distress across different cultural contexts. This could lead to a deeper understanding of how varying cultural norms influence sexual health and mental wellbeing.

Limitations and suggestions for future researchers

The current study could not involve relevant measures on sexual satisfaction and dissatisfaction for the purposes of convergent and divergent validity. This was mainly because of the cultural constraints whereby executing Western scales on sexuality is quite challenging [116, 117]. We utilized Depression, Anxiety, and Stress Scale for convergent validity. We also utilized Emotional Expressivity Scale and Satisfaction with Life Scale for divergent validity. Future researchers are advised to utilize more scales on sexuality in combination with the SDS to establish its further validity in other cultures. The current study did not involve uneducated or rural participants. Although, this is a common limitation of most studies in the social sciences, future researchers are also requested to explore the levels of sexual distress among the aforesaid population. The current study did not intend to establish the causes of sexual distress. Future research should explore the applicability of the SDS in different demographic groups, including married individuals, to assess whether sexual distress persists beyond the unmarried population. Additionally, longitudinal studies could investigate the long-term psychological effects of sexual distress and whether these effects change over time with shifts in cultural norms.

Conclusion

The current study produced a brief but comprehensive measure of sexual distress that could be applied to both clinical and non-clinical populations, regardless of the gender and relational status of the respondents.

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Author contributions
Conception and study design – WH. Acquisition, analysis and interpretation of data – WH. Drafting and critical revision of manuscript - WH, HJ. Approval of final submission draft - WH, HJ.

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Data availability
Availability of data and materials: Data associated with this paper can be produced on demand.

Declarations

Ethics approval and consent to participate
Ethical approval was granted by the departmental review committee at COMSATS University Islamabad Pakistan Code CUI-ISB/HUM/ERC-CPA/2023-30. Informed consent was obtained from the participants. All the procedures performed in this study were in accordance with the 1964 Helsinki declaration and its later amendments.

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The authors declare no competing interests.

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