



Clinical pain research

Coping with painful sex: Development and initial validation of the CHAMP Sexual Pain Coping Scale

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HIGHLIGHTS

- Vulvar pain is common and debilitating but has received remarkably little attention.
- There are no instruments for assessing how these women cope with sexual activities.
- We describe the development of a scale to assess such coping in this population.
- Our analyses identify three strategies: avoidance, endurance and alternative coping.
- This tool for assessing coping in this pain group has important clinical implications.

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ABSTRACT

Background and purpose: Recurrent vulvar pain is a common and debilitating condition which has received remarkably little attention in pain research. For instance, little is known about how these women cope with sexual activities, and there are no structured assessment tools. The purpose of this study was to explore coping strategies in this group, with a view to develop a measure to assess how women with vulvar pain cope with sexual activities.

Methods: The current study is based on a subsample from a longitudinal study about vulvar pain in a student sample consisting of women between 18 and 35 years old ($N=964$). Only data from the ones reporting recurrent vulvar pain during the last six months ($N=289$) were used in the analyses. First, the CHAMP Sexual Pain Coping Scale (CSPCS) was created, with the aim of assessing how women with vulvar pain cope with sexual activities. The scale was inspired by previous research on women with vulvar pain as well as well-known coping strategies in other pain populations. Second, the psychometric properties of the scale were explored by analyzing the factor structure and internal reliability. Third, validity features were examined in terms of criterion validity and construct validity.

Results: The analyses supported a three-factor solution, embracing the strategies *endurance*, *avoidance* and *alternative* coping. The internal reliability of the subscales turned out to be good, and the criterion validity was supported for all three subscales. The construct validity was clearly supported for the endurance and the avoidance subscales, but not for the alternative coping subscale.

Conclusions: The findings support the CSPCS as an instrument for assessing how women with vulvar pain cope with sexual activities. The strategies *endurance*, *avoidance* and *alternative* coping correspond with findings from earlier research. Endurance reflects a tendency to engage in and continue with sexual activities despite pain, while attempting to minimize or suppress thoughts of pain. Avoidance, on the other hand, involves efforts to stay away from sexual activities, in particular vaginal penetration, because of fear of pain. Alternative coping refers to endeavours to find alternative sexual activities that do not necessarily involve vaginal penetration. Even though this first study indicates that the CSPCS may be psychometrically sound, more studies are needed to confirm the psychometric properties and clinical application of this instrument. In particular, the construct validity of the alternative coping subscale needs to be further evaluated.

Implications: A valid instrument for assessing strategies for coping with sexual activities in this population has important clinical implications, since it provides a method that may enhance assessment procedures, be used in research, and stimulate the development of treatment.

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1. Introduction

Recurrent vulvar pain is a common and debilitating condition, affecting between 8 and 30% of women in reproductive age (e.g., [1–3,4]). Suffering from vulvar pain has a critical impact on the person's life, and affects daily functioning, self-esteem and quality of life [5,13]. Not least, the pain may influence negatively on romantic relationships [6], since it affects sexual activities and satisfaction [7]. Despite its consequences, vulvar pain and associated sexual problems have received remarkably little attention in pain research, and a recent position paper underscores the need for prioritizing research in this area [8].

One central issue in which little is known is how these women actually cope with sexual activities. Some guidance exists from qualitative research that suggests three main coping strategies: *endurance* of vaginal intercourse while suppressing thoughts of pain, *avoidance* of sexual activities, and *alternative* strategies, including attempts to find sexual activities that do not involve vaginal penetration (see e.g., [9,10]). These three strategies are inspired by coping strategies found in other pain populations (see e.g., [38]), as well as by findings from larger, population-based studies. For example, in one study of nearly 1600 young Swedish women, almost half of the ones who experienced pain during vaginal intercourse reported that they continued having sex despite pain [11]. This might be interpreted as endurance-related coping. Another study of 944 Swedish women found that fear reactions (vaginal tension) and fear-avoidance beliefs around sexual activities were strongly associated with pain [12], which suggests that fear-related avoidance may be another coping strategy. Finally, the alternative strategy has some support since women with vulvar pain engage in sexual activities that do not involve vaginal penetration to a larger extent than pain-free women [12,13]. However, to our knowledge there is a lack of structured tools for assessing how women with vulvar pain cope with sexual activities.

Coping with pain in such an intimate and private situation as sexual activities is different from other pain conditions, and requires a unique assessment tool. Assessment of coping strategies is important, both for identifying individuals who are at risk for prolonged problems, and for developing effective interventions [14]. In other pain populations, several questionnaires for assessing coping are available (see e.g., [15,16]). However, these are designed for patients suffering from other chronic conditions, e.g. back pain. Thus, the instruments are not sensitive to the sexual context, introducing measurement error and low engagement. Further, existing measures do not capture the three strategies described above, particularly leaving out endurance and alternative coping. A customized and valid questionnaire for assessing how women with vulvar pain cope with sexual activities is still to be developed. Such an instrument could potentially be used both as a screening tool and as a possible treatment outcome. Consequently, the purpose of this exploratory study is to develop and document the psychometric properties of a questionnaire to examine how women with vulvar pain cope with sexual activities.

2. Methods

2.1. Overview of the design

The current study is based on a subsample from a longitudinal study about vulvar pain in women (Sex and Pain, SAP). The original study included both women with and without vulvar pain, but only data from the ones reporting pain were used in the current study. First, a scale for assessing how these women cope with sexual activities was developed through a number of steps as described below. Second, the psychometric properties of the scale were tested by

analyzing the factor structure and reliability. Third, validity features were examined in terms of criterion validity and construct validity.

2.2. Recruitment

In order to approach women who were sexually active, a total of 1034 women were recruited at two universities in Sweden. All women in 66 classes were invited to remain in the classroom at the end of lectures, and were provided information about the study. Women who agreed to participate filled out informed consents, picked questionnaires from an open box in the classroom, completed the questionnaires, and put them in blank envelopes in a closed box when leaving the classroom. Alternatively, they could choose to bring the questionnaires to fill them out at their convenience, and to leave them in a closed box at the research institute. The participants were provided coffee coupons as incentives. The study was approved by the Regional Ethical Review Board in Uppsala, Sweden.

2.3. Participants

Inclusion criteria in the original study were: (1) 18–35 years old and (2) sexually active during the last month. Since 58 women did not fulfil the inclusion criteria, these were excluded from the study. Moreover, 12 women were excluded because informed consents were not signed. The remaining sample consisted of 964 women. Out of these, 289 (30%) women reported recurrent vulvar pain during the last six months, and these were included in the present analyses. The mean age was 23.07 ($SD = 3.26$). The reported mean pain intensity during the last three months was 3.71 ($SD = 1.87$) (scale 0–10). There were 70 (24%) women who had visited health care due to the pain, and 26 (9%) participants had children. There were 214 (74%) women who reported being in a relationship, 68 (24%) women reported not being in a relationship, and 7 (2%) women reported “other” regarding to their relational status. On the question about the sex of their partner (or potential partner), 209 (95%) women reported a male partner, 9 (4%) reported a female partner, and 2 (.01%) reported “other”.

2.4. Measures

Swedish versions of all measures were used.

2.4.1. Demographics and pain

The women were asked to complete details about their pain, age, health care consumption, relationship status, and children, based on questions used in earlier studies in this area [12].

2.4.2. CHAMP Sexual Pain Coping Scale (CSPCS)

The CHAMP Sexual Pain Coping Scale (CSPCS) was the primary measure under investigation. This measure was constructed to assess how women with vulvar pain cope with sexual activities. Three main coping strategies identified in earlier studies (e.g., [9–11]) were used as a point of departure, namely *endurance*, *avoidance*, and *alternative* sexual strategies. The avoidance and endurance strategies were also based on research about other types of pain, where these have emerged as important but maladaptive coping strategies (e.g., [38]). The alternative subscale was inspired by evidence that non-intercourse sexual behaviour is an important factor for women with vulvar pain [17,18]. A pool of items was assembled based on items in other pain coping questionnaires, together with items constructed by the authors. Subsequently, the authors reviewed the items and came to a consensus on the elimination of overlapping and unclear items and the prioritizing of the

Table 1
The CHAMP Sexual Pain Coping Scale (CSPCS).

Item	Coping strategy
When my sexual partner wants to have intercourse, I make excuses to avoid it because it can be painful.	Avoidance
When I am in pain, me and my sexual partner try to be “sexually inventive” so that both of us get sexually satisfied.	Alternative
During painful intercourse, I try to endure because I would feel like a failure if I did not keep going.	Endurance
Because of the pain, I avoid intercourse even when I feel sexually excited.	Avoidance
When I have intercourse and it is painful I try to carry on, despite the pain.	Endurance
For me intercourse is just one of many sexual activities, and I would rather engage in other sexual activities when I am in pain.	Alternative
When I have intercourse and it is painful, it is more important that my sexual partner is satisfied than it is to take my pain into consideration.	Endurance
Because of my pain, my motto is “sex isn’t for me”.	Avoidance
When intercourse is painful, I try to think of something else and ignore the pain.	Endurance
When I am in pain, it is more important for me to enjoy other forms of sex than to actually have intercourse.	Alternative
I have a lot less sex than I would like to because I know that it may hurt.	Avoidance
When intercourse is painful, me and my sexual partner try to find other ways to have sex, so that we both can enjoy it.	Alternative

items in order of their believed ability to capture each type of coping. In order to provide balance, we selected the four statements in each coping strategy category that had the highest priority. Thus, the scale consisted of 12 items in total and these are presented in Table 1. Responders rated how often they considered each statement was true for them on a seven-point Likert scale (1 = Never true; 7 = Always true). The scale included an instruction where *sexual activities* was embraced as for instance caress, cuddling, masturbation or vaginal penetration, and *intercourse* was defined as vaginal penetration. To check wording and face validity, the questionnaire was piloted on five women between 18 and 35 years old. The general feedback was that the scale was not perceived as being too personal or intrusive. Instead, these women commented that it was an important topic to investigate. Based on feedback from the pilot, the following adjustments were made: (1) some minor changes in wording, to be less heteronormative, and (2) the word “partner” was changed to “my sexual partner”, to include women who were not in a long-term relationship.

2.4.3. Fear-Avoidance Beliefs Questionnaire (FABQ)

Fear avoidance beliefs were assessed with the Fear Avoidance Beliefs Questionnaire (FABQ) [19]. The FABQ consists of nine statements with assumptions reflecting pain-related fear and avoidance behaviour (e.g. “I must not engage in activities that might increase my pain”). In this study, an adjusted version of the FABQ was used, where the items had slightly been adjusted for intercourse pain (e.g. “Sexual intercourse/touch makes my pain worse”) [12]. The original scale has shown good psychometric properties [20]. In the present study, we used the total score of this scale, and the internal consistency was adequate (Cronbach’s alpha .81).

2.4.4. Female Sexual Function Index (FSFI)

The Female Sexual Function Index (FSFI) [40] was used to assess sexual functioning. The FSFI consists of 19 items divided into six subscales: desire (e.g. “Over the past 4 weeks, how often did you feel sexual desire or interest?”), subjective arousal (e.g. “Over the past 4 weeks, how would you rate your level of sexual arousal (“turn on”) during sexual activity or intercourse?”), lubrication (e.g. “Over

the past 4 weeks, how difficult was it to become lubricated (“wet”) during sexual activity or intercourse?”), orgasm (e.g. “Over the past 4 weeks, when you had sexual stimulation or intercourse, how often did you reach orgasm (climax)?”), satisfaction (e.g. “Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during sexual activity between you and your partner?”), and pain (e.g. “Over the past 4 weeks, how would you rate your level (degree) of discomfort or pain during or following vaginal penetration?”). Respondents are given different response options for each question, and rate their answers on a Likert scale, ranging from 0 to 5 or from 1 to 5, depending on item. FSFI has shown satisfactory psychometric properties [40]. In the present study, we used the total score of this measure, and the internal consistency was good (Cronbach’s alpha .93).

2.4.5. Pain Catastrophizing Scale (PCS)

The Pain Catastrophizing Scale (PCS) [21] was used to assess catastrophizing about pain. The PCS consists of 13 statements reflecting thoughts and feelings that people may have when experiencing pain, divided into three subscales: magnification (e.g. “I keep thinking of other painful events”), rumination (e.g. “I can’t seem to keep it out of my mind”), and helplessness (e.g. “I feel I can’t go on”). Respondents are asked to what extent they experience each thought and feeling on a five-point scale (0 = Not at all; 4 = All the time). The PCS is a widely used measure and has shown good psychometric properties [21]. In the present study, we used the total score of this measure, and the internal consistency was good (Cronbach’s alpha .91).

2.4.6. Psychological Inflexibility in Pain Scale (PIPS)

The Psychological Inflexibility in Pain Scale (PIPS) [22] was used to assess pain-related psychological inflexibility. The PIPS consists of 12 statements divided into two subscales: avoidance (e.g. “Because of my pain, I no longer plan for the future”) and cognitive fusion (e.g. “I need to understand what is wrong in order to move on”). Respondents are asked to what degree they think that the statement is true for them, on a seven-point scale (1 = Never true; 7 = Always true). The PIPS has shown adequate psychometric properties [23]. In the present study, we used the total score of this measure, and the internal consistency was sufficient (Cronbach’s alpha .83).

2.4.7. Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (HADS) [24] was used to assess depressive symptoms and anxiety. The HADS is divided into two subscales with seven items each, aiming at capture symptoms of depression (e.g. “I have lost interest in my appearance”) and anxiety (e.g. “I feel tense and wound up”). Responders rate to what extent they agree with each statement on a four-point scale (0 = Not at all; 3 = Very much indeed). The HADS has shown satisfactory validity and reliability [25,26]. In the present study, the internal consistency was adequate for both subscales (Anxiety subscale, Cronbach’s alpha .85; Depressive symptoms subscale, Cronbach’s alpha .78).

2.5. Data analyses

IBM Statistical Package of Social Sciences (SPSS) 22.0 was used for all analyses. A maximum of one missing value was allowed per subscale, and missing values were replaced with the mean score of the subscale.

2.5.1. Data analytic procedure

A number of steps were taken in the development of the CHAMP Sexual Pain Coping Scale (CSPCS). First, normal distributions were examined to identify items with extremely skewed distributions or

with too low variability. Second, intercorrelations between items in the scale were examined to check that the items did not correlate (1) with too few other items or (2) too high with other items in the scale. Third, a principal component analysis (PCA) was performed to explore the underlying factor structure of the items. Given that the factors were not assumed to correlate, Varimax was used as rotation method. The KMO-value (Kaiser–Meyer–Olkin Measure of Sampling Adequacy) was examined to assure that items were appropriate for PCA. Kaiser's eigenvalues-greater-than-one rule (K1) and Cattell's Scree test were used to determine the number of factors. Fourth, factor loadings of items were examined, to check that all loadings were above .4. Fifth, the internal consistency of the subscales was calculated using Cronbach's alpha, and values above .7 were considered acceptable [27,28]. Sixth, for assessing concurrent criterion-related validity, Pearson product moment correlations were computed between the subscales and typical outcomes (pain intensity, sexual functioning). Finally, to assess construct validity, Pearson product moment correlations were computed between the subscales and other, established measures tapping into related constructs. The level of significance was set at $p > .05$.

2.5.2. Hypotheses

In order to compare the subscales in the CSPCS with a reference criterion (criterion validity), ratings of pain intensity and sexual functioning were used as criterion-variables, as they are comparable with outcomes in studies of other pain populations. As we expected that endurance as well as avoidance would represent maladaptive responses to pain, both subscales should show positive correlations with pain, and negative correlations with sexual functioning. As we believed that alternative coping would reflect a more adaptive response to pain, the subscale should show a positive correlation with sexual functioning.

In order to examine construct validity, the subscales in the CSPCS were correlated with established measures which tap into similar constructs. As we expected that endurance as well as avoidance would represent maladaptive responses to pain, both subscales were hypothesized to show positive correlations with psychological inflexibility [22,23], anxiety, and depressive symptoms [29]. As endurance in our measure incorporates a clear aspect of thought suppression and cognitive avoidance (e.g. "I try to endure sexual intercourse that hurts and ignore thoughts of pain"), we expected it to show a positive correlation with fear-avoidance beliefs and pain catastrophizing. The avoidance subscale was expected to show even stronger correlations with fear-avoidance beliefs and catastrophizing. The alternative subscale was expected to show a positive correlation with the measure of psychological flexibility and negative correlations with depressive symptoms and anxiety.

3. Results

3.1. Factorial structure

The Principal Component Analysis (PCA) of the items included in the CHAMP Sexual Pain Coping Scale (CSPCS) generated three factors with eigenvalues above 1, which were confirmed by inspection of the scree plot. Table 2 displays the three factor solution with factor loadings. The Kaiser–Meyer–Olkin (KMO) value of the 12 items included was .87, which is considered as sufficient to perform a PCA [30]. Together, the three factors explained 64.9% of the total variance. Factor I explained 39.7% of the variance, and had an eigenvalue of 4.77. This factor seemed to reflect an *enduring coping strategy* ($m = 13.75$; $SD = 6.11$), since it contained the four items that had been constructed to reflect endurance behaviour. Factor II explained 16.26% of the variance, and had an eigenvalue of 1.95.

Table 2

Descriptive data and rotated factor loadings (Varimax rotation) for the 12 items in the CHAMP Sexual Pain Coping Scale (CSPCS) ($N = 289$).

Items	Factor			Mean (SD)
	1 Endurance	2 Avoidance	3 Alternative	
3	.73			3.27 (1.85)
5	.82			4.02 (1.79)
7	.75			3.15 (1.92)
9	.78			3.31 (1.79)
1		.72		2.40 (1.49)
4		.77		2.21 (1.50)
8		.71		1.85 (1.45)
11		.76		2.95 (2.07)
2			.75	4.64 (1.77)
6			.76	3.52 (1.74)
10			.70	4.86 (1.69)
12			.78	4.57 (1.82)

This factor consisted of the four items that had been constructed to reflect an *avoiding coping strategy* ($m = 9.42$; $SD = 5.16$). Factor III explained 8.4% of the variance, and had an eigenvalue of 1.07. This factor consisted of the four items that had been constructed to reflect an *alternative coping strategy* ($m = 17.58$; $SD = 5.41$). None of the items loaded on more than one factor. Internal reliability of the subscales, as measured by Cronbach's alpha was .85 (*endurance*), .78 (*avoidance*), and .77 (*alternative*), which is considered as good.

3.2. Descriptive data for the subscales

Table 3 presents descriptive data for the three subscales in the CSPCS. As can be seen, the mean scorings on the alternative subscales were the highest, whereas the mean scorings on the avoidance subscale were the lowest. This means that strategies included in the alternative subscale were the ones that the women reported using most frequently.

3.3. Criterion validity

Ratings of pain intensity and sexual functioning were used as criterion-variables. As we expected that endurance as well as avoidance would represent maladaptive responses to pain, both subscales should show positive correlations with pain, and negative correlations with sexual functioning. As displayed in Table 4, bivariate (Pearson's) correlation coefficients showed that the endurance subscale and the avoidance subscale correlated significantly and positively with pain, i.e. higher ratings of endurance and/or avoidance were associated with higher pain intensity. All three subscales correlated significantly with sexual functioning; the endurance and avoidance subscales showed negative correlations, and the alternative subscale showed a positive correlation. This means that higher ratings of endurance and/or avoidance were associated with lower sexual functioning, whereas higher ratings of alternative coping were associated with higher sexual functioning. In sum, the results yielded support for the criterion validity of the CSPCS.

Table 3

Descriptive data for the three subscales in the CHAMP Sexual Pain Coping Scale (CSPCS) ($N = 289$).

Subscale	Mean (SD)
Endurance	13.75 (6.12)
Avoidance	9.42 (5.16)
Alternative	17.58 (5.41)

Note. Range 4–28 for each subscale.

Table 4

Pearson's correlations between the subscales in the CHAMP Sexual Pain Coping Scale (CSPCS) and ratings of pain intensity and sexual functioning.

	Subscale		
	Endurance	Avoidance	Alternative
Pain intensity (0–10)	.26**	.46**	.02
Sexual functioning (Female Sexual Function Index, FSFI)	–.37**	–.51**	.24**

**Significant at $p < .01$ level.

3.4. Construct validity

The subscales in the CSPCS were compared to established measures which tap into similar constructs. As displayed in Table 5, bivariate (Pearson's) correlation coefficients showed that the endurance subscale correlated significantly, although weakly ($<.3$) [41], with fear-avoidance beliefs, pain catastrophizing, psychological inflexibility, anxiety, and depressive symptoms. The avoidance subscale showed a large correlation ($>.5$) with fear-avoidance beliefs, a moderate correlation ($>.3$) with pain catastrophizing, and small correlations ($<.3$) with psychological inflexibility, anxiety, and depressive symptoms. The alternative subscale did not correlate significantly with any of the other measures. Taken together, except for the alternative subscale, the correlations with established measures were in line with our hypotheses, and provided support for the construct validity of the endurance and avoidance subscales in the CSPCS.

4. Discussion

This exploratory study describes the development of a new instrument, the CHAMP Sexual Pain Coping Scale (CSPCS), for assessing how women with vulvar pain cope with painful sexual activities. The analyses supported a three-factor solution, embracing the strategies *endurance*, *avoidance* and *alternative* coping. All 12 items that were included in the analyses after the initial selection procedure were kept in the instrument because they fulfilled the statistical criteria. Furthermore, every item loaded on only one of the factors, which made the interpretation straightforward. The internal reliability of the subscales was good, and the criterion validity was supported. However, the analyses of construct validity supported the endurance and avoidance subscales, but not the alternative subscale, which infers that more research is needed concerning this dimension. Overall, the analyses support the CSPCS as a potentially important questionnaire to use in research and clinical practice for women suffering from vulvar pain.

The strategies endurance, avoidance and alternative coping correspond with psychological theory and research findings from other pain populations, as well as qualitative studies on women with vulvar pain (e.g. [9]), from which the scale was inspired. Endurance reflects a tendency to engage in and continue with sexual activities despite pain, while attempting to minimize or suppress thoughts of pain. Avoidance, on the other hand, involves efforts to stay away from sexual activities, in particular vaginal penetration, because a fear of pain. Endurance and avoidance have been put forward as coping strategies for women with vulvar pain also in larger survey studies [11,12]. Alternative coping refers to endeavours to find alternative sexual activities that do not necessarily involve vaginal penetration. The alternative coping strategy is in line with earlier findings showing that women with vulvar pain report engaging in non-penetrative sexual activities more frequently than pain-free women [13]. Taken together, this study supports the idea that endurance, avoidance and alternative strategies are coping strategies that women with vulvar pain employ.

Criterion validity for the endurance and avoidance subscales was supported as these strategies were related to more pain and a lower degree of sexual functioning. This indicates that neither

to endure sexual intercourse while trying to suppress pain, nor to avoid sexual activities, seems to be adaptive for decreasing pain and improving sexual functioning in these women. In other pain populations, decades of research provide extensive support for avoidance as a maladaptive pain coping strategy [31,32]. Our findings provide further support for the expanding evidence for fear-avoidance tendencies as being important also in women suffering from vulvar pain (e.g. [12,33,34]).

Construct validity of the avoidance subscale was clearly supported, as all hypotheses were confirmed regarding to this subscale. As expected, the strongest association was with fear-avoidance beliefs concerning sexual activities. Moreover, the subscale correlated moderately with pain catastrophizing, which was also in line with the hypotheses. Catastrophizing has been described as the “cognitive element” of the fear network [35], and is a key factor for identifying people who are at risk for developing prolonged pain problems and disability [36]. Our results replicate and extend findings from earlier studies indicating that catastrophic thinking may similarly play an important role in women with vulvar pain [33,37].

Likewise, the endurance subscale seemed to capture the intended construct. In other pain populations (e.g. back pain), endurance-related responses have been described as tendencies to “overdo”, or to continue with activities despite pain, which may result in physical overload, a subsequent increase in pain, and in the long run heightened disability [38]. To some extent, this description may also be true for women with vulvar pain; it might be that endurance of sexual intercourse despite pain results in heightened pain levels and prolonged difficulties. However, in the current study the term endurance does not only refer to pure “overdoing”, as it incorporates a clear aspect of cognitive avoidance (“... I try to think of something else and ignore the pain”). As such, we expected this subscale to be somewhat associated with fear-avoidance beliefs, catastrophizing, psychological inflexibility, anxiety and depressive symptoms. This hypothesis was supported, and the results indeed were in favour of the construct validity of the endurance subscale. It should be noted, however, that endurance may not always be maladaptive, depending on the woman's goals. According to the *approach-avoidance motivational theory*, women may engage in sexual activities despite pain if the goal of enhancing intimacy and please the partner is viewed as more important than to avoid pain (see e.g., [39]). This point at a need for further exploring what impact endurance-related coping may have for the development of vulvar pain and relational satisfaction over time.

The results for the alternative coping subscale are slightly more difficult to interpret. The criterion validity was supported by a positive correlation with sexual functioning. That is, women who used alternative strategies rated their sexual functioning as higher. This was expected, since alternative strategies involve efforts for enjoying sexual activities despite pain, and sexual functioning incorporates self-reported competency and satisfaction with sexual activities. However, the hypotheses concerning construct validity were not confirmed. Considering that alternative coping incorporates a certain amount of behavioural flexibility, it was surprising that the subscale did not correlate with the measure of psychological inflexibility (the Psychological Inflexibility in Pain Scale, PIPS). One possible explanation is that the PIPS was

Table 5

Pearson's correlations between the subscales in the CHAMP Sexual Pain Coping Scale (CSPCS) and established measures tapping into similar constructs.

	Subscale		
	Endurance	Avoidance	Alternative
Fear-Avoidance Beliefs Questionnaire (FABQ)	.17*	.52**	.05
Pain Catastrophizing Scale (PCS)	.26**	.34**	-.03
Psychological Inflexibility in Pain Scale (PIPS)	.24**	.21**	.08
Hospital Anxiety and Depression Scale – Anxiety (HADS-A)	.27**	.19**	-.11
Hospital Anxiety and Depression Scale – Depression (HADS-D)	.22**	.15*	-.11

*Significant at $p < .05$ level.**Significant at $p < .01$ level.

developed for patients with chronic pain who are often severely disabled by their pain, which is reflected in the items (e.g. “I postpone things on account of my pain”), and may be inappropriate for our population. Another explanation is that the PIPS does not really take into account the importance of enjoying sexual activities and to be sexually satisfied, which comes forward in the alternative strategies. However, the alternative subscale did not correlate with the measures of anxiety or depression either, which also disconfirmed the hypotheses regarding construct validity of the subscale. On the other hand, the alternative strategies were the ones that were most frequently reported by the women. One interpretation of these results is that there may be subgroups of women among the ones using alternative strategies, where some are quite well-functioning, and others are rather affected by their pain, resulting in attempts at enjoying sexual activities but still suffering from a fair amount of distress. More research is needed to identify if there are subgroups of women who use different coping strategies, and if the strategies are used alone or in combination. Qualitative studies may also give further insight about the potential use of alternative strategies in this context.

Expanded knowledge about how women with vulvar pain cope with sexual activities opens new avenues for research as well as for clinical interventions. For instance, future studies may explore what impact different types of coping have for further development of pain and sexual functioning. If women who are at risk for developing chronic difficulties could be identified early on, appropriate help can be offered. The CSPCS may not only be used as a screening tool, but also as an outcome measure for interventions. However, at this stage we cannot tell anything about the sensitivity for change of the scale; to address this issue longitudinal studies are needed. Information about coping strategies may also provide guidance for developing new and effective psychological treatments for this group, which is highly needed [8].

There are some methodological shortcomings that need to be considered. First, one major drawback in this study is that we do not have data of how many female students there were in the classes in total. This means that we lack information about the actual response rate, which infers questions around representativeness and generalizability. Another issue which may influence the generalizability is that all participants were students. The sample size was also relatively small considering the type of study. Nevertheless, the study is to be viewed as a pilot, and the results need to be interpreted with caution.

It might be questioned whether the alternative subscale should remain in the questionnaire, as the construct validity was not supported. However, we decided to keep the subscale as the items showed a good internal reliability, criterion validity was supported, and previous research indicate that it is a commonly used strategy. Presumably, the measures used for evaluating the construct validity were not appropriate, which is a mission for future studies to explore. More documentation of the psychometric properties of the entire scale is indeed needed. It is worth to note that the endurance subscale explained substantially more of the total variance than

the other two factors, which may infer questions around validity of the subscales. In particular, the alternative subscale explained only 8.4% of the variance, which is little compared to the other factors. Moreover, we only had the possibility to document the psychometric properties of this scale in one sample, which means that the test-retest reliability was not evaluated. Still, our study is an initial and explorative attempt at creating a tool which is specifically developed for assessing how women with vulvar pain cope with sexual activities, an area where valid instruments are missing. Yet, future studies are needed to confirm the properties and applicability of the scale.

As the present study used a cross-sectional design, no conclusions about causality may be drawn. For instance, we cannot say whether women who score high on avoidance tend to avoid sexual intercourse *because* they experience high pain intensity, or the other way around. Prospective studies would provide further insight about this interrelation between coping and pain.

Taken together, this exploratory study described the development and initial evaluation of a structured instrument for assessing how women with vulvar pain cope with sexual activities. Although more studies are needed to confirm its psychometric properties and clinical application, our findings indicate that it may be psychometrically sound. So far, the CSPCS appears to be a potentially useful assessment tool to be used in research as well as in clinical practice. A valid measure for assessing coping in this population would have important clinical implications for identifying women who are at risk for developing prolonged difficulties as well as for creating effective interventions to increase sexual satisfaction for women suffering from vulvar pain and associated sexual problems.

Conflict of interest

The authors have no conflicts of interest in relation to this study.

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