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Living with genital pain: Sexual function, satisfaction, and help-seeking among women living in Sweden

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HIGHLIGHTS

- Many women suffer from genital pain, often associated with additional sexual problems.
- Sexual pain is not just sexual, but influences everyday life of women.
- Women who suffer from persistent sexual pain often fail to seek professional care.
- Women with sexual pain who seek care for their pain, report low treatment effects.

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ABSTRACT

Background and aims: Female genital pain is a debilitating problem that negatively affects several aspects of the life of women. Several studies present figures of prevalence indicating that the problem affects nearly 20% of young women. However, many women fail to consult health care and the estimated prevalence therefore remains insecure. Historically, genital pain was commonly viewed as either physiological or psychosexual. Although the current field of research and clinical expertise in general agree upon a biopsychosocial conceptualization, less is known about the manifestation of the problem in everyday life and the experience of seeking health care among afflicted women. The objectives of the present study was to examine genital pain in a general female population living in Sweden cross-sectionally in terms of prevalence, sexual function, sexual satisfaction and help seeking, and to identify possible predictors of genital pain among women.

Methods: The study was a population-based study using a postal questionnaire administered to 4052 women (age 18–-35). Of these 944 (response rate: 23%) took part in the study.

Results: Genital pain of six months duration was reported by 16.1% of the women. Women with pain more commonly reported fungal infections, other pain problems, sexual dysfunctions and symptoms of anxiety than pain-free women and in addition lower sexual satisfaction. There were no differences in sexual frequency. Pain was most commonly reported during sexual intercourse, but many women also experienced pain during non-sexual activities, with pain durations of several hours after the pain eliciting activity was interrupted. Of those reporting pain, 50% had sought care for their pain. The most common was to counsel a doctor and to receive topical treatment. However, the experienced effects of the treatments were on average low. In the explanatory model, fungal infections, and sexual dysfunctions were associated with genital pain.

Conclusions: The study had a low response rate, but still indicates that genital pain is common and negatively affects several aspects of women' life, not just sexual activities. Although many women report pro-longed pain experiences, many fail to consult health care and among those who seek care the effects of treatment are on average poor. There are strong associations between sexual dysfunctions (lack of sexual arousal, vaginal muscle tension hindering intercourse) and genital pain that, based on previous findings in this field of research, might be viewed in terms of circular maintaining processes.

Implications: Female genital pain is not just limited to the sexual context, but often negatively affects several situations in women' life. The size of the problem calls for immediate development of preventive interventions and treatment programs that focus on sexual education and to encourage a healthy sexuality among women and their partners. There is a need to identify methods in order to assemble evidence based interventions of female genital pain. Such methods are currently lacking, resulting in poor treatment options for women with pain.

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1. Introduction

Genital pain among women resulting in painful intercourse has been reported to be far more common than previously expected with prevalence figures for the general female population ranging between 10 and 13% [1]. Among women less than 30 years of age one of five reports chronic unexplained vulvar pain [2,3]. In clinical samples the corresponding numbers range between 34 and 72% [4,5]. Additionally, there are findings indicating that these conditions are increasing [1]. However, figures of prevalence especially based on clinical samples should be interpreted with caution since a large part of women with genital pain do not consult healthcare for their problem [2].

Within the psychological discipline and the DSM [6], pain during intercourse (dyspareunia) is categorized as a sexual dysfunction and thereby the only type of pain outside of the diagnostic category of 'pain disorder'. One criticism raised towards the DSM classification concerns the fact that the pain is defined primarily by the activity it is interfering with which isolates it from all other pain syndromes [7]. Thereby the condition of dyspareunia is primarily described as an intercourse problem. However, several studies demonstrate that women reporting painful intercourse, often experiences pain also in other situations, not involving sexual penetration (gynecological exam, touch, exercise, etc.)[8,9]. During the last decade arguments have been raised as to view dyspareunia as a pain disorder from a biopsychosocial perspective rather than as a sexual dysfunction [7,10]. The International Society for the Study of Vulvovaginal Disease, (ISSVD), defines female genital pain by its location and quality, occurring in the absence of relevant visible findings or a specific clinically identifiable, neurologic disorder. The pain might be provoked by sexual or nonsexual stimulation or by both [11]. These discrepancies regarding how genital/sexual pain should be viewed goes to show that there is a need of continued studies of the pain experience in genital pain and its consequences in everyday life of women.

Female genital pain and its sexual consequences has historically been an under-researched area, and were previously mostly studied from either a biomedical or a psychosexual perspective. Thereby, in comparison with other long-term pain conditions, knowledge on genital pain from a biopsychosocial perspective is scarce. There is a great lack of studies regarding the prevalence, etiology and assessment of women's genital pain conditions, resulting also in a lack of efficient treatment models. Although certain factors have been linked to genital pain, e.g. infections [12–14], pelvic floor muscle dysfunction [15], dyadic maladjustment [16], little is known of the relative role they play in the course of pain and to what degree such factors might explain the development of pain. In addition, in female genital pain, sexual function tends to be overly focused on intercourse and often fail to acknowledge other types of sexual behaviors, sexual dysfunctions and the woman' own perception of her sexual life. In sum, there is a continued need for studies especially in the general population examining the experience of genital pain among women, health-care consumption and predictive factors.

The aim of the present study was to examine female genital pain in terms of the pain experience and pain-related activities. In order to further illustrate patterns of health-care consumption experiences of seeking care and treatment were also included. Finally, the study sought to examine associations between pain, sexual dysfunctions, mental health and the woman' satisfaction with her sexual life.

2. Method

2.1. Design

This was a cross-sectional study, conducted as a postal survey.

2.2. Participants and setting

The initial sample consisted of 4252 women (age 18-–35) randomly chosen from the general population in two cities in the middle of Sweden. The sample was chosen using a random selection program conducted by SPAR (Statens Personadressregister) which is a company that administers data on all individuals living in Sweden. This is the standard procedure used in Sweden to create randomly chosen samples from the general population since it is efficient both in terms of time and resources. In addition a selection procedure can be saved and traced and replicated for follow-up analyses in further studies. Of the initial sample, 200 had to be excluded due to unknown addresses or because they had moved. Of the remaining 4052 women, 950 answered the questionnaire. A few cases were lost due to missing data, resulting in a final sample of 944 participants (response rate: 23%).

Postal surveys were administered to women of two middle-sized municipals in mid Sweden. The participants were groped into three age groups (18-–23, 24-–29, 30-–35 years). The size of each age group was weighed according to the size of the total number of women within in that specific age range in the general population of the two municipals. To give a valid representation of the study-population, the number of participants was also weighed in respect of the relative size of each of the two municipals.

2.3. Measures

Participants answered an extensive questionnaire including standardized self-reports inventories as well as specific items chosen to address the focus of the current study. Background variables included age, civil status, number of children, educational level, and occupational status.

Gynecological health: Gynecological health was measured with questions including experiences of abortion, contraceptive methods, and experiences of gynecological symptoms (e.g. infections; "*Have you been troubled by fungal infection/s?*").

Physical health: Included questions on common symptoms such as headache, aches in the body, uneasy stomach, distress/worry, sleeping difficulties) and how often these symptoms occur. The respondents also had to answer questions regarding the use of different types of medications (e.g. "*Do you use sleeping medication?*"). In addition questions on other types of pain conditions given and included pain in the last three months, pain duration and pain location.

Experiences of violence; was measured by questions regarding sexual, physical and psychological abuse (e.g. "Have you experienced any kind of sexual abuse, i.e. being forced to sex/had sex against your will").

Mental health: Mental health was measured with the *Hospital Anxiety and Depression Scale* (HADS) which is a standardized self-report inventory used to screen for anxiety and depression. The scale has shown to be reliable and gives a valid measure of the magnitude of the emotional disorder [17], also in Swedish normative data [18]. The scale has fourteen items whereof seven relate to anxiety and seven to depression. An analysis in the current sample gives a Cronbach's alpha at 0.82. In the statistical analysis HADS of the current data is treated as two separate variables following the division into the two subscales, anxiety and depression

Sexual function: Questions on sexual function included *sexual frequency* (non-penetrative sexual activity with a partner, penetrative sex with partner and sexual masturbation without a partner), e.g. "*How often do you have sexual intercourse with a partner*?" *Sexual satisfaction* was measured with a 10 point scale; ("*How satisfied are you with your sexual life during the last month*?"). *Sexual dysfunctions* included questions on other sexual problems such as; difficulties/inability to have an orgasm, lack/absence of desire,

lack/absence of sexual arousal, and tightening of the pelvic floor muscles hindering sexual intercourse.

Genital pain: Was measured by several items specifically created for the present study. The main question asked whether the woman had experienced genital pain/burning sensations lasting for at least one month, experienced during the last three months (yes/no).

A visual analog scale measured *pain intensity*. *Duration of pain* was measured both in general (six point scale ranging from 'never' to 'always') but also the *situation-specific duration of pain* in terms of how long pain was present before it subsided after being provoked (multiple choice ranging from 'declines directly' to 'hurts all the time'). *Pain frequency* was measured in relation to several different activities in terms of how often the woman experienced pain in those situation (multiple choice ranging from 'always' to 'never').

Help-seeking behaviors were examined by asking participants how many times they had sought help for their pain, what type of professionals they had been seeing (e.g. physician, midwife), what kind of treatments they had received (multiple choice) and their perceived result of those treatments (6 point scale ranging from 'worse' to 'total pain relief'). Questions regarding reason for not seeking care were also included and alternatives were given (e.g. '*not knowing where to go*', or '*to ashamed to seek care*').

2.4. Procedure

Data was gathered during eight consecutive weeks with one reminder after four weeks. Each woman was sent a questionnaire together with a letter giving detailed information about the study, to her home address, and asked to return the questionnaire by post. A reminder together with a second questionnaire was sent out to those that did not answer the first survey. All women were volunteers, and by participating, giving their informed consent. Confidentiality was emphasized. The study was approved by the ethical committee at Umeå University.

2.5. Statistical analysis

Descriptive data on background characteristics, pain, health, and gynecological symptoms were examined. Mean comparisons between women with and without pain were calculated), and data on pain frequency and help seeking was examined using *t*-tests (continuous data), and non parametric tests (Chi-square for categorical data). In a final step a multivariate logistic regression analysis (MRA) was built for sexual pain including those variables that significantly differed between women with and without persistent pain. The data was controlled for multicollinearity and showed no tendencies towards such problem (VIF below 10, Tolerance well above .1), and was assumed to meet the assumptions for an MRA to be performed [19]. For the bivariate analysis, the *p*-level was set to .01 and for the multivariate analaysis of .05

3. Results

3.1. General description the sample

The sample consisted of 944 women between 18 and 35 years (M = 27.0). Among all women, 704 (74.6%) had a sexual partner, and of these 688 (97.7%) were heterosexual relationships. Of the total sample, 89% stated that they were sexually active. Of those women who were single, 104 women (11%) were actively searching for a partner. One third had children (303 women, 32.1%).

Of the total sample between 10 and 15% reported different forms of frequent symptoms of pain such as bodily aches, headache and stomachache.

Of the total sample, 50% (472 women) had a higher education and 75.2% (710 women) had a daily occupation of work or studies (Table 1).

Table 1
General description of the sample, differences between women with and without genital pain.

	Women without pain (***N*** **= 666**)	women with pain (6 months) (***N*** **= 152**)	Difference	p-value
Background				
Age, M (SD)	27.0 (4.93)	26.9 (4.43)	.13	.774
Partner, *N* (%)	510 (75.4)	123 (80.9)	2.89[a]	.236
Children, *N* (%)	255 (37.9)	56 (37.3)	.0016[a]	.963
Education				
High	372 (54.9)	92 (61.0)	2.09	.149
Occupation *N* (%)				
Working/studying	580 (85.4)	135 (89.4	1.64	.200
Unemployment/Retired/sick-leave	99 (14.6)	16 (10.6)	1.64	.200
Gynecology and health				
Contraceptives: duration pill, M (SD)	76.42 (58.45)	74.78 (49.60)	1.44	.866
Fungal Infection	317 (50.5)	98 (70.1)	17.38[a]	.000
Other body pains	138 (20.9)	59 (38.9)	21.79[a]	.000
Experiences of violence, *N* (%)				
Sexual	59 (8.6)	22 (14.5)	4.89[a]	.027
Physical	127 (18.5)	41 (27.0)	5.52[a]	.019
Sexual				
Sexual frequency, M (SD)				
Non-penetrative sex	1.86 (.97)	2.04 (1.14)	.18	.080
Sexual Intercourse	2.62 (1.08)	2.57 (1.01)	.08	.592
Masturbation	2.18 (1.18)	2.07 (0.97)	.13	.308
Sexual dysfunction, *N* (%)				
Desire	221 (32.3)	83 (54.6)	26.85[a]	.000
Arousal	93 (13.6)	49 (32.2)	30.75[a]	.000
Tension	82 (12.0)	61 (40.1)	69.64[a]	.000
Orgasm	172 (25.1)	62 (40.8)	15.19[a]	.000
Sexual satisfaction, M (SD)	6.70 (2.50)	5.92 (2.54)	.78	.001
Psychological				
HADS anxiety	11.46 (2.59)	12.48 (2.28)	1.02	.000
HADS depression	9.31 (1.90)	9.10 (1.58)	.21	.213

[a] Pearson Chi-square.

Table 2
Genital pain (6 months): frequency, and pain-related activities, (N = 152).

Variable	*n*	(%)
Pain frequency		
Pain only with intercourse	63	(41.4)
Every week	29	(19.1)
Every day	11	(7.2)
Constant pain	6	(3.9)
Pain-related activities		
Penetrative Sexual activity	117	(77.0)
Sexual activity (non-penetrative)	71	(46.7)
Tampon insertion	83	(54.6)
Angry/anxious/stressed	28	(18.4)
Physical exercise	73	(48.0)
Wearing tight clothes	71	(46.7)
Activity-related pain duration		
Activity termination = pain relief	34	(22.4)
Pain subsides 1–4 hours	66	(43.4)
Pain ≥ 24 hours	11	(7.2)
Constant pain	6	(3.9)

3.2. Genital pain

3.2.1. Prevalence, duration, and pain-related activity

Of the total sample, 318 women (33.7%) answered that they had been troubled by genital pain for at least 1 month duration during the last three months. When examining the data, many of these women described that their pain was due to yeast-infection and after adequate medication subsided after 1–2 months. Therefore, the criterion for persistent genital pain was set to pain experienced for at least 6 months duration (which will be used hereafter when addressing women with genital pain). Of the total sample 16.1% (152) women fulfilled this criterion. Of all women, 10% reported that they previously had been troubled by genital pain (6 months duration), but were pain free at present.

Among women with pain, the mean duration of pain was 4.6 years (Sd: 4.85) and mean pain intensity was 5.24 (Sd: 2.41) measured on a Visual Analogue Scale (VAS).

As shown in Table 2, pain was most commonly experienced during intercourse/penetrative sexual activity. Other activities associated with pain were; tampon insertion, physical exercise, wearing tight clothes and sexual activities other than intercourse/penetration. Reports on pain frequency showed that for most women pain was absent as long as pain-eliciting activities were avoided. However, 30% reported pain every week and 10% had pain every day. The most common picture described by these women was that pain remained 1–4 h after pain-eliciting activity (e.g. sexual intercourse). For some women pain disappeared directly when the pain-eliciting activities were interrupted while a smaller group reported pain that remained more than 24 h.

3.2.2. Consulting health care and receiving treatment

Among women who had present or previous experiences of pain, 56% had sought health-care for their symptoms, most commonly consulting a midwife or a physician. Those who answered that they had not consulted professional care stated that pain disappeared by itself. More than half of the women experiencing genital pain had not been in contact with health care system. Reasons for not seeking care were; 'the pain got better by itself' (13.2%), 'do not know where to go' (8.6%), 'to ashamed of my pain', (5.3%). Of those seeking care, a majority had positive experiences of consulting a professional for their pain condition.

The most common treatment received was topical cream and/or analgesics. Of those who used such treatments, a majority reported a partial pain relief. Relaxation training and psychological counseling were also reported, but these interventions were not common. However, psychological treatments, (although only received by a small proportion of the women), was associated with the highest percentages of partial and total pain relief (Table 3).

Table 3
Description of health-care consumption and experience of treatment effects in women with previous and present genital pain.

	Previously troubled (N = 94)		Present pain (N = 152)	
Seeking care, *N* (%)	56	(59.6)	81	(53.3)
Experiences of seeking care, M (Sd)	4.14	(3.35)	4.26	(3.42)
Topical cream[a], *N* (%)	33	(35.0)	50	(32.8)
Total pain relief[b]	3	(9.1)	–	–
Partial pain relief[b]	24	(72.7)	30	(60.0)
Analgesics, *N* (%)[a]	29	(30.9)	50	(32.8)
Total pain relief[b]	1	(3.4)	–	–
Partial pain relief[b]	18	(62.1)	28	(56.0)
Relaxation training, *N* (%)[a]	15	(16.0)	38	(25.0)
Total pain relief[b]	1	(6.7)	–	–
Partial pain relief[b]	7	(47.0)	25	(65.8)
Dilation exercises, *N* (%)[a]	5	(5.3)	17	(11.2)
Total pain relief[b]	–	–	–	–
Partial pain relief[b]	3	(60.0)	9	(52.9)
Psychological treatment, *N* (%)[a]	10	(10.6)	24	(15.8)
Total pain relief[b]	4	(40.0)	–	–
Partial pain relief[b]	2	(20.0)	8	(33.3)

[a] Number of individuals who has tried the treatment (%).
[b] Number of individuals (of those who tried the treatment) that report total/partial pain relief (%).

3.2.3. Factors associated with persistent genital pain

Several of the components regarding sexual dysfunctions were associated with persistent genital pain. The model explained 17.2% of the variance in genital pain (Nagelkerke R = .172) (Table 4).

4. Discussion

In the present sample 318 women (33.7%) reported present or previous experiences of genital pain, but for most women (17.6%) this was described as minor infections reaching pain relief within 1–2 months. However, the data still indicates that a considerable number of women (16.1%) experience persistent genital pain. Although there was a modest response rate (23%), these figures are in line with previous population studies of female genital pain [1,2]. With regard to socioeconomic variables, the present sample is similar to other studies where women with and without pain have been compared and examined [e.g. 20].

4.1. Genital pain-associated factors

Women with pain more often reported recurrent fungal infections, which has previously been associated with sexual pain [12–14]. Genital infections might trigger an inflammatory process which leads to nociceptor sensitization in the vulvar region causing pain during intercourse [21]. In the present study this association remained even after participants with shorter pain durations had been excluded which seem to indicate that the link between pain

Table 4
Factors associated with persistent genital pain.

Variable	*B*	SE	OR	*p*-value	95% CI
Orgasm difficulties	0.062	0.37	0.94	0.865	0.46–1.93
Lack of desire	0.55	0.26	1.73	0.033	1.05–2.88
Lack of arousal	2.13	0.75	8.44	0.004	1.96–36.38
Vaginal muscle tension	2.91	0.60	18.41	0.000	5.69–59.60
Other pain problems	0.43	0.24	1.54	0.070	0.97–2.44
Fungal infection	0.67	0.23	1.95	0.004	1.23–3.08
Sexual satisfaction	−.008	0.04	0.92	0.052	0.085–1.00
HADS depression	0.07	0.06	1.07	0.271	0.95–1.21
HADS anxiety	0.04	0.05	0.96	0.403	0.88–1.05

and fungal infections illustrates not just transient problems but a persistent pattern of genital symptoms and pain. On the other hand, it might be plausible that women reporting genital pain are more easily diagnosed with different types of infections, since they consult health care for their pain. Vulvar pain is a frequent complaint of for example patients with recurrent fungal infections [22–24].

Those women who report persistent genital pain also more often reported sexual dysfunctions (lack of desire/arousal, orgasm difficulties and increased vaginal muscle tension hindering penetration). In addition, lack of desire and arousal and vaginal tension were associated with pain in the regression model. Genital pain has previously been associated with other types of sexual dysfunctions (e.g. lack of arousal and difficulties reaching orgasm) [8,25]. However, women with genital pain have not been found to differ from normal populations with regard to physiological genital responsiveness to sexual stimuli although they commonly report lower subjectively experienced sexual arousal [26]. This has been interpreted as women with genital pain symptoms primarily experience pain conditioned to the sexual situation, rather than pain caused by an insufficient sexual response [26,27]. Indeed, the anticipation of pain may directly act to disturb both the physiological and psychological sexual response, and thereby results in further sexual dysfunctions [28]. When sexual intercourse is attempted in the absence of adequate sexual arousal it might result in increased friction of the vulva and high risk of increased pain experience and maintained fear of pain. Dysfunctions of the pelvic floor muscles have repeatedly been linked to genital pain among women [8,15,29]. A recent study on women with vulvodynia showed significant higher muscle tone, decreased flexibility, and lower relaxation capacity when compared to pain free controls [30]. Reissing and colleagues [15] posit that vaginal muscle tension may work as a protective response to pain and over time develop into an increased resting tone.

Surprisingly, there were no differences in sexual frequency between women with pain compared to pain free controls. However, women with genital pain reported a significant lower level of sexual satisfaction. The literature has shown that many women continue to have sexual intercourse despite of pain [12,31,32] which has been explained by feeling of guilt and fear of losing their partner [33,34]. The behavior of ignoring and suppressing pain while activities are assumed, despite a worsening of symptoms, is identified as endurance coping [35] and has been described in other pain populations and associated with prolonged sick-leave and functional disability [36]. To continue having intercourse despite of pain, in the absence of adequate arousal and lubrication, increases the risk of prolonged pain and maintenance of fear, catastrophizing and avoidance.

Women with and without pain did not differ in terms of earlier victimization in terms of sexual or physical abuse although the difference in experiences of abuse almost reached significance. History of sexual and physical victimization has been the most examined etiologic psychosocial variable in genital pain. However, studies predominately refute an association [37–39]. Among women with genial pain, there are findings that indicate that the association between pain and earlier trauma is mediated by the woman' own associations between her symptoms and the trauma. Women who perceive a link between their pain and past sexual abuse report worse sexual functioning than those who do not [40].

4.1.1. Genital pain and related activities

The pain experienced by women in the present sample is described to affect not just sexual life but also other activities and thereby limiting the daily life of women. Which also have been reported by others [8,9]. It appears that stimulation of the painful area produces pain regardless of the activity. Other non-genital pain conditions may also interfere with sexual function. Yet sexual impairment is not considered central to those diagnoses since the pain is not genital. In the present study, many women report pain that remains for several hours after the pain eliciting activity and clearly goes beyond the sexual setting. Describing pain during intercourse as a sexual disorder therefore limits the pain to a certain context, which results in an inadequate picture of the problem. The present findings are more in line with the terminology of the ISSVD [11], which presents vulvodynia in terms of a pain problem provoked by sexual or non-sexual stimuli, or both, rather than defining pain as a sexual dysfunction as used in the DSM.

4.2. Seeking help: experiences of treatment

Genital pain has been described as a pain condition where many individuals experience pain without consulting health care [2]. A similar picture emerged in the present study were half of those women who reported chronic genital pain did not seek care. Among all women with previous or present experiences of pain, the most common picture given was to consult a physician/midwife and to receive topical cream/pain medication which for less than half gave a partial or total pain relief. Although a majority reported that they had positive experiences from their contacts with health, the reported treatment effects gave a more negative picture. This strongly motivates development of treatment regimes that effectively targets the symptoms of pain. In addition, the present results do not seem to reflect treatments incorporating a biopsychosocial perspective with interventions targeting the physiology, psychology and social dimensions of pain, although psychological treatments seemed to indicate promising results in the present sample. This deviates from guidelines regarding the treatment of other chronic pain conditions [41] and needs immediate attention in clinical care. Female genital pain is known to be clearly influenced by cognitive and affective factors, where e.g. catastrophizing, fear of pain, and hyper vigilance in addition to lower self-efficacy are clearly associated with the experience of pain [42]. Studies on psychological treatments, based on cognitive behavior therapy (CBT) have reported promising results for women with genital pain [43,44]. However, there is still a considerable lack of treatment options for many women troubled with genital care, and few clinics have adopted a structured CBT perspective on this type of pain, although such interventions are included as standard care for many other long-term pain conditions. This might be due to that these pain problems traditionally have been strictly conceptualized as medical conditions treated by midwifes and/or gynecologists lacking knowledge in psychological treatment of pain. In sum, there is a need for continued development of effective interventions for female genital pain and to increase availability of such interventions to all women.

4.3. Limitations

Although the results add to the picture of female genital pain in the general population, the study suffers from several limitations which ought to be mentioned. The study reports a considerable prevalence of sexual pain among women. However, the response rate was limited to 23% of the original sample which may threaten the reliability of the results and reported prevalence should therefore be interpreted with caution. In addition, the low response rate might also create difficulties with generalizability. There is a risk that those with pain, in worse health and on sick-leave are more prone to participate due to more time and higher motivation. Thereby, the attrition could represent higher functional individuals who play a smaller risk of developing persistent genital pain. When drawing conclusions regarding how to generalize the results caution should be taken to these circumstances.

Only the women' self-reports of pain were taken and no objective assessment of genital pain and possible type of specific diagnosis were performed. Therefore the figures reported in the present study are based on a possible variety of diagnoses. Despite this they add to the picture of women' experiences and consequences of genital pain. These findings are of great importance for preventive work and for clinicians in order to address the issue of sexual pain and to adapt treatment to the woman in need.

The questionnaire included both standardized self-report inventories (HADS), and specific items created to measure the variables of interest. Variables relating to sexual function/satisfaction/behavior were operationalized in terms of a number of selected questions in order to limit the size of the questionnaire. This might seriously threaten the validity of the results and the reader' ability to make inferences to previous and future studies. However, the items that were used to measure sexual function were mainly used to quantify different aspects of sexual activity and symptoms of sexual problems which would be less sensitive than for example to create a measure for a complex concept such as depression. Sexual satisfaction was measured using a 10-point scale where participants were asked to grade their subjective sexual satisfaction. This way of measurement was chosen as a short alternative to capture the individual's subjective view on her present situation. However, this measurement might be more sensitive to day-to-day variations in e.g. mood etc., Therefore there is a risk for the individual measurement to be biased according to other factors such as pain intensity, present relationship satisfaction etc. However, when analyzing data for the whole sample, such variations will probably balance. In sum, to enhance replicability and comparisons within the research field, future studies should consider using validated instruments for sexual satisfaction, e.g. The Golombuk Rust Inventory of Sexual Satisfaction (GRISS) [45].

Finally, genital pain is a pain problem highly dependent on social aspects, not the least an intimate relationship with a partner. The present study did not include data on dyadic adjustment which in previous studies has been associated with sexual function, pain and sexual satisfaction among women with pain [16]. To fully capture the complexity of genital pain, further studies of the role of the partner are needed.

4.4. Conclusions, implications and future needs

Many women report genital pain, which is often associated with additional sexual problems. Sexual pain is then not just sexual; but influences several aspects of the life of women in terms of activities and duration after activity. Many women with genital pain also report other pain condition which further might reinforce pain behaviors and inflict emotional stress of the individual. Still, many women with persistent pain fail to consult healthcare, and among those seeking professional care, there is a lack of efficient treatment interventions. There is a long way before female genital pain is viewed as the debilitating health problem it is for women.

This calls for immediate development of preventive interventions that focus on encouraging a healthy sexuality among young women. In addition, there is a need to initiate clinical studies building the base for evidence based treatments of female sexual pain. Secondly, to contribute to a progression of the understanding of female sexual pain, cross-sectional data as presented here, should be replicated using prospective design in order to more clearly outline the course and development of female sexual pain and to identify possible risk factors from a biopsychosocial perspective.

Conflict of interest

None.

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