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Chronic Vulvar and Gynecologic Pain: Prevalence and Characteristics in a Self-Reported Survey

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Abstract

OBJECTIVE: To characterize and assess the prevalence of chronic gynecologic pain and more specifically, chronic vulvar pain.

STUDY DESIGN: A questionnaire was mailed to women aged 18 to 80 years who were ambulatory patients at an academic multidisciplinary practice. Quality of life, health history, obstetric and gynecologic history, and pain symptoms were assessed.

RESULTS: Of the 4,872 surveys mailed to deliverable addresses, 36.8% were returned. The population was primarily Caucasian (83%), with an average age of 50.2 years. Approximately 4% of respondents reported a history of vulvar pain in the six months preceding the survey, and 17% reported other types of chronic gynecologic pain. Women reporting vulvar and non-vulvar pain were two times as likely as asymptomatic women to report a history of depression and vaginal infections, a poorer quality of life ($p < 0.001$), and greater stress. Dyspareunia and pain with daily activities were more frequently reported in women with vulvar pain than in women with non-vulvar gynecologic pain.

CONCLUSION: The prevalence of vulvar pain as measured in this study is lower than that previously reported. Chronic gynecologic pain, and vulvar pain in particular, affects quality of life on both intimate and social levels. Self-report of stress and vaginal infections were the strongest correlates of chronic vulvar pain.

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Synopsis

Chronic vulvar pain affects 4% of adult women and is associated with a poorer quality of life, higher stress, and a history of vaginal infections.

Keywords

vulvar pain; gynecologic pain; vulvodynia

INTRODUCTION

Unexplained lower genital tract pain, especially chronic vulvar pain, is distressing for the patient and challenging for the clinician to treat. While some women are reluctant to address this sensitive issue with their physician, others – perhaps those with more severe symptoms – may go from one provider to another in search of a diagnosis and effective treatment. The condition is often inaccurately diagnosed as a vaginal infection that fails to resolve with standard treatment.¹ When intervention with traditional therapies fails to alleviate symptoms, women with vulvar pain may be told their symptoms are psychogenic in origin.

Chronic vulvar pain characterized by sensations of stinging, burning, and rawness has been termed *vulvodynia*.² Symptoms are generalized or focal and may be induced by touch or pressure to the vulvar region. With the exception of erythema, physical findings are absent, and diagnosis depends on a detailed pain history and ruling out other known pathologies.³

To date, much of the research in this area has been confined to case studies and prevalence surveys from gynecologic clinic populations,⁴⁻⁶ with few community- or population-based studies. In the past, available data sets usually did not separate vulvar pain symptoms from generalized gynecologic pain. A mail-based survey study (n = 3,106) conducted in the United Kingdom found that chronic pelvic pain is common with a prevalence that is similar to that of back pain and asthma.⁷ Although self-reported diagnoses in this survey ranged from pelvic inflammatory disease, cystitis, and irritable bowel disease, 50% of the women reported that they never received a specific diagnosis for their genital pain symptoms.

In the United States, 14.7% of 5,263 women surveyed in a national Gallup telephone poll reported a history of pelvic pain of at least six months duration within the preceding three months. While more than half the respondents reported they received no specific diagnosis for their symptoms, others reported diagnoses of endometriosis, irritable bowel syndrome, yeast infections, and pelvic inflammatory disease.⁸

In 2001, Harlow et al evaluated the prevalence of lower genital tract pain in a population-based study of women living in the Boston area (n = 480) and found that 18.5% reported a three-month or longer history of lower genital tract discomfort. In an attempt to identify women with a possible diagnosis of vulvodynia, participants were asked to characterize their pain history, nature of symptoms, and general medical history. While unable to strictly diagnose vulvodynia patients through survey methods, Harlow et al reported that 7% of the sample had current vulvar symptoms consistent with vulvodynia.⁹

Our cross-sectional retrospective survey study sought to characterize the prevalence of vulvar pain symptoms that were persistent over the preceding six months in a population of women recruited from a multi-disciplinary medical practice. Additionally, we aimed to compare the women whose symptoms were consistent with vulvodynia to those who reported non-vulvar chronic gynecologic pain.

MATERIALS AND METHODS

With input from experts in the field of epidemiology, gynecology, and psychiatry, a questionnaire was developed to evaluate the prevalence of chronic gynecologic pain and specifically the prevalence of vulvar symptoms consistent with vulvodynia. This non-validated

questionnaire was written based upon the current literature at the time of the study. The study population was comprised of women aged 18 to 80 years who had previously been seen by a multidisciplinary group of physicians at the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School (UMDNJ-RWJMS). The UMDNJ-RWJMS Institutional Review Board approved the study design and survey tool.

A letter explaining the study as a survey on women's health and gynecologic pain, a one-page consent form, a questionnaire, and a self-addressed envelope were mailed to 5,600 addresses. Of these, 728 were returned as undeliverable, so that the maximum number of households receiving the questionnaire was 4,872. To maintain strict anonymity, no tracking system was implemented to identify the respondents, precluding follow-up of unreturned surveys.

Variables assessed in this cross-sectional retrospective study included demographics, general health status, co-morbid medical conditions (high blood pressure, diabetes, arthritis, cancer, fibroids, and depression), and obstetric and gynecologic health (including menstrual history, vaginal infections, childbirth, hormone therapy and oral contraceptive use). Recent indications of depression were assessed by questions in which women indicated if over the last month they were bothered by feeling “down, depressed, or hopeless” and “by little interest or pleasure in doing things.” Quality of life (QOL) measurements were based on a modified Ladder of Life^{10, 11} in which respondents rated their QOL on a 0 to 10 point scale, where 0 represents the worst possible and 10 represents the best possible quality of life. The Ladder has been used with variations by others,¹²⁻¹⁵ and global ratings have shown it to be good summary measure of QOL.¹⁶

Finally, participants were asked if they had experienced consistent gynecologic pain over the past six months. Those who noted chronic pain characterized the location of symptoms (uterine, ovarian, inside the vagina, outside the vagina), the nature of the pain (persistent vs. episodic), and situations that exacerbated the pain.

Twenty-two women were excluded from the analysis as they did not answer the chronic gynecologic pain question. Thus, of 1,772 questionnaires analyzed, 378 women reported chronic gynecologic pain and 1,394 reported no pain. The pain population was further analyzed to characterize women with vulvar pain (n = 75) and women with non-vulvar pain (n=303). Demographics of these two pain populations were compared to the non-pain population.

A descriptive analysis of variables was performed for each subgroup – vulvar pain, non-vulvar pain, and no pain. The correlation between both vulvar pain and non-vulvar pain was assessed in relation to medical history, obstetric and gynecologic history, and general health status. Odds ratios and 95% confidence intervals were calculated. Stepwise logistic regression was used to model the effect of potential predictors on the outcome of vulvar pain. Several combinations of variables were used in an effort to capture as many cases as possible. Ultimately all variables found to be significant ($p < .05$) in the univariate analysis were entered into the equation, and odds ratios and 95% confidence intervals were calculated for significant predictors. Using this model, subsequent models were run to investigate the potential interaction of menopausal status with significant predictors of pain. SPSS version 11.0 software was used to analyze the data.

RESULTS

Of the 5,600 questionnaires mailed, 13% (n=728) were returned as undeliverable. Of the remaining 4,872 questionnaires mailed to presumably deliverable addresses, we obtained a 36.8% (n=1,794) response rate. Responders had a mean age of 50.2 years (SD \pm 10.54 years) and an overall self-reported quality of life of 7.5 (SD \pm 1.6). Respondents were primarily Caucasian (82.4%), in a married or marriage-like relationship (77.5%), had a college or graduate degree (60%), and were sexually active (73%).

Of women who responded, 378 (21.1%) reported consistent gynecologic pain over the six months preceding the survey. Pain was most frequently reported inside the vagina, followed by the upper genital tract regions (Table I). A total of 75 women (4.2% of all women surveyed, 19.8% of the sample who indicated gynecologic pain) reported chronic vulvar pain, a symptom of vulvodynia. Women reporting vulvar pain did not significantly differ from asymptomatic women or from women reporting non-vulvar pain with respect to age, race/ethnicity, or educational level (Table II). Women reporting both vulvar and non-vulvar pain had a significantly lower self-reported quality of life ($p < 0.001$) and indicated greater stress and depression in their lives than women without chronic gynecologic pain.

A statistically significant increased percentage of women with vulvar pain as compared to non-vulvar pain reported dyspareunia (83.9% vs. 51.9%), pain with tight clothing (41.3% vs. 9.9%) and pain with sitting (50.7% vs. 22.1%). Pain with speculum insertion and exercise was similar in the two pain groups (Table 3).

When both subsets of women reporting pain were compared to the cohort of women not reporting pain (Table IV), there were statistically significant differences in the prevalence of several co-morbid conditions and symptoms. Women with vulvar pain symptoms had 2.35 times the odds of reporting a vaginal infection compared to asymptomatic women. Compared to women without pain, women with vulvar pain did not differ statistically with respect to menopausal status, hysterectomy history, hormone therapy, and oral contraceptive use. However, the non-vulvar pain group had a significantly greater odds of being pre-menopausal and of using oral contraceptives when compared to the asymptomatic cohort. The non-vulvar pain group was also significantly less likely than the non-pain group to use hormone therapy or to have had a hysterectomy.

Logistic regression yielded a model in which co-morbid medical conditions, arthritis, stress, and a diagnosis of vaginal infections were identified as significant predictors of vulvar pain, with “stress” as the strongest predictor. Menopausal status had no effect on the model (Table V).

DISCUSSION

This study examined the prevalence of chronic gynecologic pain symptoms among women seen in a multidisciplinary ambulatory practice. A 21% prevalence of (any form of) chronic gynecologic pain and a 4.2% prevalence of chronic vulvar pain were reported. As compared to women without pain, those reporting vulvar pain or non-vulvar pain in the six months preceding the study had a significantly poorer self-reported quality of life and were more likely to report other co-morbid medical conditions, vaginal infections, depression, hopelessness, stress and little interest in or pleasure with daily activities (all $p < 0.05$).

While participants were asked broad questions about a recent history of gynecologic pain, we attempted to identify women with vulvodynia-like symptoms by asking about location of pain and aggravating factors. Dyspareunia, one of the most common symptoms reported by women with diagnosed vulvodynia,¹⁷ was reported by nearly 85% of women indicating vulvar pain in our survey; only one-half of the women with non-vulvar pain reported coital pain. Similarly, a much greater proportion of women with vulvar pain reported that sitting and wearing tight-fitting clothing exacerbated their symptoms. The occurrence of pain upon speculum insertion was equal in both cohorts of women with pain. Thus, we suggest that pain with speculum insertion is not unique to those with vulvar pain and that several questions about situational pain may help guide clinicians in evaluating women with chronic vulvar pain for a diagnosis of vulvodynia.

Univariate analysis indicated that women with vulvar pain were 2.35 times as likely as women without pain to report a history of vaginal infections. It has been suggested that some women begin to experience chronic vulvar pain symptoms following a yeast infection.¹⁸ Since we did not have medical records for verification, we were unable to confirm the type of vaginal infection women with reports of vulvar pain experienced.

Multivariate analysis indicated stress as the strongest correlate of vulvar pain. Because the temporal relationship between stress and vulvar pain was not assessed, it is not possible to conclude whether feelings of stress represent the etiology or the consequence of vulvar pain symptoms. While it was once thought that chronic vulvar pain disorders had a psychogenic etiology,^{18, 19} the recent literature does not support this theory. Rather, it recognizes changes in social, emotional and mental health in women who suffer from chronic vulvar pain symptoms, most likely as related to the impact living with the condition.^{1, 20-22} Thus, it is our belief that the correlation observed between stress and vulvar pain symptoms in this study is related to the impact symptoms have on one's life rather than the cause of symptoms themselves.

In contrast to other reports, we failed to find a significant association between use of oral contraceptives and vulvar pain. Previously, it was suggested that long-term use of oral contraceptives might play a role in the development of this condition.²³ While we did not assess the temporal relationship between oral contraceptive use and vulvar pain, we were unable to find a relationship between current use and vulvar pain symptoms. In contrast, women with nonvulvar pain were more likely to currently use oral contraceptives than women without pain. This non-vulvar pain group may include women with conditions such as endometriosis and recurrent ovarian cysts, for whom oral contraceptives are prescribed as treatment. As the non-vulvar pain population was younger and more likely to be pre-menopausal than the asymptomatic population, this may contribute to their higher odds of oral contraceptive use. These factors add support to our hypothesis that the vulvar-pain population identified in this survey may have symptoms indicative of vulvodynia, rather than of another gynecologic origin.

Women reporting non-vulvar pain were nearly twice as likely to be pre-menopausal women as compared to asymptomatic women. This association was not observed in the population reporting vulvar pain. This is consistent with clinical observation in that the source of pain in women reporting non-vulvar pain, including adnexal and uterine pain, may be related to menstrual cycle factors. The failure to find a significantly positive association between menstruation and vulvar pain implies that the etiology of chronic vulvar pain is not menstrual-related; other factors (e.g. stress, history of vaginal infections) appear to more accurately characterize women reporting vulvar pain.

Several population-based survey studies have been conducted in both the United States and Britain in an effort to assess the prevalence of chronic pelvic pain and the impact such pain has on quality of life. Prevalence of chronic pelvic pain was characterized as high as 24% in Britain⁷ and 15-18.5% in the United States.^{8, 9} Even though our sample was not population-based, its origin in a multi-speciality outpatient group practice would be expected to provide less bias with respect to gynecologic pain than would be in women selected solely from a gynecologic setting.

Through this cross-sectional survey study, we were able to obtain a current six-month pain history from women. While previous studies on chronic pelvic pain, vulvar pain, and vulvodynia focus on a three-month pain history, our study aimed to identify women whose pain was not the result of inadequate treatment for other medical conditions. For example, women with a vulvovaginal infection may have vulvar symptoms for several weeks from the onset of symptoms due to the time necessary to schedule a physician's appointment, obtain a

diagnosis, and complete treatment through resolution of symptoms. Thus, our study incorporated the more conservative six-month definition used by Mathias et al in the Gallup study.⁸

Previous estimates of the prevalence of vulvar pain ranged from as low as 7% to as high as 15%. More specifically, the Oxfordshire Health Study reported that 13.3% of new patients at a British genitourinary clinic had vulvar pain.⁴ Similarly, 15% of women assessed in a U.S. gynecologic clinic were positive for this condition.⁵ In an effort to assess vulvar pain and vulvodynia in a more representative sample, Harlow et al conducted a community-based study in Boston, MA,²⁴ using a three month history of symptoms to define cases. This study reported a 16% lifetime prevalence of vulvodynia-like symptoms, with a 7% prevalence at the time of the survey. These prevalences are higher than those found in the present study, which might reflect the shorter duration of symptoms used by Harlow et al.

Although our finding of a 21% prevalence of chronic gynecologic pain is slightly higher than that of 17% found by Gallup's national population-based telephone study,⁸ the prevalence of vulvar symptoms (4.2%) is much less than that reported by gynecologic clinic populations and more consistent with the Boston findings. Thus, we believe our finding of 4% current prevalence is a good estimate of the frequency of vulvar pain in the population.

A limitation of our study is a lack of follow-up for unreturned surveys. We acknowledge that this methodology of a one-time mailing contributed to the overall response rate of 37%, which is lower than that of Harlow's recent study.²⁴ However, although one might expect symptomatic women to be more likely to respond than asymptomatic women, our lower prevalence findings of vulvar pain symptoms are comparable with findings from the recent Boston study.

As this was a cross-sectional study, it was not possible to assess temporality between chronic vulvar pain symptoms and other variables of interest – e.g. co-morbid medical conditions, pregnancy and birthing history, and use of oral contraceptives and hormone therapy. Additionally, because women were asked about pain over the six months preceding the study, there is also a possibility for recall bias.

While women were grouped according to the location of their pain – vulvar vs. nonvulvar – and this information was used to infer potential vulvodynia cases, we did not obtain medical records from the participants. Without knowledge of whether the chronic vulvar pain reported was of unexplained origin, or whether medical diagnoses were made, the 4% prevalence found in this population may be an overestimate of vulvodynia-like pain.

In summary, approximately 4% of women from a general ambulatory care setting report chronic vulvar pain. These women are more likely to report other co-morbid health conditions, depression, stress, and vaginal infections than both women without pain and women indicating non-vulvar pain. Additionally, a higher proportion of women reporting vulvar pain noted dyspareunia and pain upon sitting or wearing tight-fitting clothing as compared to women with non-vulvar pain. Women reporting both vulvar pain and non-vulvar pain noted a significantly poorer quality of life than asymptomatic women. Lastly, as women are willing to answer sensitive questions regarding vaginal pain by means of a mailed questionnaire, this research provides continuing support for future, more in-depth population-based studies in the area of vulvovaginal health.

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Table ILocation of consistent gynecologic pain over the last six months (n=378).^a

Location	Frequency	Percentage
Vaginal vault	197	52.1%
Adnexal region (right or left side of lower abdomen)	152	40.2%
Uterine/Bladder region (middle or lower abdomen)	137	36.2%
Vulva	75	19.8%
Not specified	28	7.4%

^aWomen were asked to indicate all regions in which they experienced pain.

Table II

Quality of life and demographic characteristics of women with and without chronic gynecologic pain.

	Vulvar Pain (n = 75)		Other Gynecologic Pain (n = 303)		No Pain (n = 1394) ^a	
	n	%	n	%	n	%
Age (years) ^b	50.48 ± 11.02		47.03 ± 9.57		50.88 ± 10.6	
Quality of life ^c	6.97 ± 1.49		6.9 ± 1.85		7.7 ± 1.5	
Race/Ethnicity						
White	68	90.7	243	80.2	1154	82.8
African American	5	6.7	25	8.3	103	7.4
Hispanic	2	2.7	19	6.3	51	3.7
Asian	0	--	7	2.3	48	3.4
Other	0	--	4	1.3	18	1.3
Missing	--	--	5	1.7	20	1.4
Education						
High school graduate or less	15	20	47	15.5	206	14.8
Some college/associate's degree	19	25.3	84	27.7	336	24.1
College degree	17	22.7	87	28.7	385	27.6
Graduate degree	22	29.3	82	27.1	447	32.1
Missing	2	2.7	3	1.0	20	1.4

^a 22 subjects did not provide a response about consistent gynecologic pain and thus are not included in the asymptomatic population

^b Mean values (± Standard Deviation) are shown. Data were missing for 3 women with other gynecologic pain and for 17 women without pain. Subjects with other gynecologic pain are significantly younger than those in the other two groups (p < 0.05).

^c Self-reported on a scale of 0 to 10, where 0 is worst possible and 10 is best possible quality of life; mean (S.D.) values are shown, and data were missing for 1 women with vulvar pain, 17 women with other gynecologic pain, and 39 women without pain. Differences in mean quality of life scores for the vulvar and other gynecologic pain groups from the no pain group are statistically significant (p < 0.001)

Table IIISituational determinants of pain in women with chronic vulvar and non-vulvar gynecologic pain (n=378).^a

	Vulvar pain (n = 75)		Other gynecologic pain (n = 303)	
	n	%	n	%
Interferes with sex	47	83.9%, ^{bd}	151	51.9%, ^{cd}
Speculum Insertion	32	42.7%	126	41.6%
Tight-fitting clothing	31	41.3% ^d	30	9.9% ^d
Sitting	38	50.7% ^d	67	22.1% ^d
Exercising	14	18.7%	42	13.9%

^a Women were asked to indicate all situations that elicited pain.^b n = 56; 5 missing, 14 not sexually active^c n = 291; 12 missing, 41 not sexually active^d p < 0.01

Table IV

Health characteristics of women with chronic vulvar and non-vulvar gynecologic pain compared to asymptomatic women.

	No gynecologic pain (n = 1394)		Vulvar Pain (n = 75)		Other chronic gynecologic pain (n = 303)	
	Frequency	Missing	Odds Ratio ^a	95% CI ^b	Odds Ratio ^b	95% CI
Current medical problems	566	10	2.24	(1.39, 3.62) ^b	1.12	(0.87, 1.44)
Current stress in life	1103	50	5.1	(1.59, 16.33) ^b	2.84	(1.78, 4.52) ^b
History of depression	270	73	2.15	(1.31, 3.54) ^b	2.07	(1.57, 2.73) ^b
History of arthritis	346	76	1.96	(1.21, 3.17) ^b	1.02	(0.77, 1.37)
Felt depressed/hopeless in the last month	474	13	2.25	(1.41, 3.6) ^b	2.53	(1.96, 3.27) ^b
Little interest in activities in last month	321	16	2.57	(1.59, 4.15) ^b	2.28	(1.75, 2.96) ^b
Ever diagnosed with a vaginal infection	952	9	2.35	(1.25, 4.41) ^b	2.11	(1.54, 2.90) ^b
Ever given birth	1116	7	0.81	(0.47, 1.42)	0.69	(0.51, 0.92) ^b
Ever had a vaginal delivery	950	12	1.0	(0.61, 1.67)	0.54	(0.42, 0.7) ^b
Had period in last 12 months	620	5	1.21	(0.75, 1.93)	2.09	(1.62, 2.71) ^b
Current oral contraceptive use	116	203	0.46	(0.14, 1.48)	1.62	(1.11, 2.38) ^b
Current hormone therapy use	412	31	0.93	(0.55, 1.57)	0.56	(0.41, 0.77) ^b
Had a hysterectomy	237	11	1.03	(0.56, 1.91)	0.68	(0.47, 0.98) ^b

^aUnivariate analysis was performed, and odds ratios were calculated with asymptomatic women as the reference group. Those with missing values were excluded.

^bAs indicated by the 95% confidence interval, significant at $p < 0.05$.

Table VPredictors of vulvar pain identified by forward stepwise logistic regression.^a

Variable	β	Standard Error	Odds Ratio	95% CI	Significance
History of arthritis	0.55	0.27	1.74	(1.03, 2.92)	0.037
Medical problems	0.60	0.26	1.82	(1.08, 3.05)	0.024
Stress	1.29	0.60	3.62	(1.12, 11.66)	0.031
Other vaginal infections	0.72	0.66	2.05	(1.03, 4.06)	0.041

^aForward stepwise logistic regression was performed using the seven variables identified as significant ($p < 0.0$) in the univariate analysis. This table shows those variables that were significant in the regression model; odds ratios, 95% confidence intervals, and level of significance are provided for each variable. Odds ratios differ from those in Table IV because those shown here take into account the effects of the other variables.