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The Vulvar Pain Assessment Questionnaire: Factor Structure, Preliminary Norms, Internal Consistency, and Test-Retest Reliability

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ABSTRACT

Background: The Vulvar Pain Assessment Questionnaire (VPAQ) was developed to assist in the assessment and diagnosis of chronic vulvar pain (vulvodynia).

Aim: To further establish the psychometric properties of the VPAQ by examining factor structure, test-retest reliability, internal consistency, and scale normative data, and to gather feedback from those with vulvar pain about the usefulness and accessibility of the questionnaire.

Methods: 182 participants completed a confidential online study and 70 participated again at time 2 (4 weeks later).

Outcomes: Participants were asked to complete the full VPAQ, which assesses pain characteristics, effects on various parts of their lives, coping strategies used, and romantic partner factors. Additional questions captured sociodemographics and feedback about the instrument.

Results: Exploratory structural equation modeling indicated that the previously established subscales, except the coping scale, had adequate model fit, and all items loaded significantly onto relevant factors. Pearson product moment correlations ($r = 0.57-0.96$) established strong 4-week test-retest reliability for most subscale scores, and Cronbach α indicated overall acceptable to high internal consistency ($\alpha = 0.56-0.95$). Preliminary norms for the scales are supplied. Approximately half the participants reported an increase in their comfort level in discussing a range of topics after completing the VPAQ. Most participants reported that the length, readability, and range of VPAQ questions were "good" or "excellent."

Clinical Implications: The results of this study provide further justification for using the VPAQ scales in clinical and research settings, preliminary norms for a vulvar pain population, and suggestions for interpretation.

Strengths and Limitations: This study established the psychometric properties of the VPAQ scales using multiple methods at 2 time points and gathered feedback from participants. However, data were collected online so diagnoses could not be confirmed and more than half the initial sample did not complete the survey at time 2.

Conclusion: The results of this study suggest that most VPAQ subscales (except the coping subscale) have moderate to strong psychometric properties and that the VPAQ is user friendly. **Dargie E, Holden RR, Pukall CF. The Vulvar Pain Assessment Questionnaire: Factor Structure, Preliminary Norms, Internal Consistency, and Test-Retest Reliability. J Sex Med 2017;14:1585–1596.**

Key Words: Vulvodynia; Dyspareunia; Pain Assessment; Factor Analysis; Reliability

INTRODUCTION

Millions suffer from vulvodynia (persistent vulvar pain lacking a clear identifiable cause), with prevalence estimates ranging from 8% to 15%.[1–3] However, many have difficulty obtaining an accurate diagnosis and effective treatment and need to seek help from more than 3 providers before securing diagnoses and/or finding some relief.[2,4–6] Although multiple factors play a role in this process, 1 primary concern is assessment and diagnosis by health care providers. Unfortunately, limited time is devoted to chronic pain or sexual health during medical training, perhaps leading to discomfort when working with patients with pain during sexual activity.[7–13] It is not surprising that many women with vulvodynia consult at least 3 health care providers before obtaining an accurate diagnosis or pain relief.[2,4–6,14]

A possible issue contributing to this process is the lack of a comprehensive tool to assess and diagnose vulvodynia symptoms.

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Thus, our group created the Vulvar Pain Assessment Questionnaire (VPAQ).[15] We administered a large pool of questions to women with chronic vulvar pain and used the construct validation approach[16] to select salient, relevant items for VPAQ subscales through a series of factor analyses. Although the initial motivation behind the creation of this questionnaire was to assess those with idiopathic chronic vulvar pain (ie, vulvodynia), the questionnaire domains are applicable to chronic vulvar pain resulting from a range of causes (eg, lichen sclerosus, interstitial cystitis or painful bladder syndrome, or chronic yeast infections). Indeed, the primary questionnaire assesses pain characteristics, pain severity, cognitive and emotional factors, and interference with life, sexual function, and self-stimulation and penetration. A brief version also was created to assist in expedited pain assessment. Further scales were created to capture pain characteristics, coping strategies, and romantic partner factors. Clinicians and researchers could select scales to administer based on the needs of the vulvar pain population being targeted. The VPAQ can be used to gather information on symptoms and diagnosis and can be used to identify possible treatment targets.[15]

When correlated with other established questionnaires, evidence of convergent and discriminant validity was observed. For example, the sexual functioning subscale of the VPAQ was strongly related to scores on the Female Sexual Function Index but only mildly or moderately related to scores on other instruments.[15] For each subscale, average scores can be computed to determine which areas are of greatest concern, and we hypothesize that scores can be tracked over time to help measure treatment progress. The results of this scale construction study were quite promising, although further research is required to replicate past results, examine psychometric properties in more detail, and gather feedback on the newly constructed VPAQ scales from those with chronic vulvar pain.

The goal of the present study was to further test the VPAQ by (i) confirming its factor structure, (ii) investigating test-retest reliability, (iii) replicating internal consistency findings, (iv) providing normative data for all scales, and (v) gathering feedback from participants on the usefulness and accessibility of the inventory.

METHODS

This online study was approved by the university's general research ethics board, and participants provided informed consent. Participants were recruited through word of mouth, online advertisements, and postings to relevant listservs and groups. Similar to the original study on scale construction,[15] anyone older than 18 years, with access to the Internet, and who reported experiencing chronic vulvar pain was invited to participate. Once participants reached the secure survey website, they read a letter of information; if they consented to participate, then they completed the survey consisting of sociodemographic characteristics, the VPAQ, and feedback about the VPAQ items.

At the end of this survey (time 1), participants were invited to sign up for time 2 by providing their e-mail address in a separate survey, in addition to a unique identifier that would enable us to link their data at the 2 time points without knowing their identity. Approximately 4 weeks after initial completion, participants were invited to complete the VPAQ a second time (time 2). Each survey took approximately 15 to 30 minutes. To thank them for their time, participants were invited to enter a draw for 1 of 4 prizes valued at 50 CAD that took place at the end of the study. Before analysis, each participant's responses were examined for eligibility, random responding, and excessive missing data. 182 participants provided complete data for time 1, and 70 participants provided complete data for time 2 (Figure 1 presents information about those who did not complete the study).

Main Outcome Measures

The VPAQ[15] is composed of a comprehensive questionnaire that covers a wide range of symptoms related to chronic vulvar pain, a brief version of this broad measure, a scale devoted to pain descriptors, a scale for coping strategies, and a scale for romantic partner factors. Information about the development of the following scales can be found in the article on scale construction.[15]

In addition to the VPAQ scales, participants were asked to report how answering the questions changed their comfort in talking about various topics with health care professionals (eg, asking for help about their vulvar pain, talking about what the pain feels like, and sharing how being in pain affected their emotional health). Change in comfort in discussing each topic was rated on a scale from 0 (no change in comfort) to 4 (a lot more comfort). Participants also were asked to rate the VPAQ questions for length, readability, and range of questions. These characteristics were rated on a scale from 1 (poor) to 4 (excellent).

Full Version (VPAQfull)

The full version of the questionnaire consists of 55 items rated on 5-point scales with anchors tailored to the type of question and 8 categorical questions that assess the onset, location, temporal pattern, degree of burning pain, and associated symptoms (eg, itching) of vulvar pain. The domains encompassed by the questionnaire include cognitive and emotional reactions to the pain, pain intensity, pain unpleasantness and discomfort, life interference, sexual function interference, and self-penetration interference. In the original study on scale construction, internal consistency was good for the VPAQfull subscale scores ($\alpha > 0.77$). Due to a programming error in the present study, 1 item of the emotional response subscale was not included (ie, the item assessing how much the participant felt "like giving up"). Thus, analyses were computed using a 14-item version of the emotional response scale, rather than the original 15-item scale.

Screening (VPAQscreen)

This brief version of the questionnaire consists of 30 items rated on 5-point scales with anchors tailored to the type of