

Pain characteristics, sexual script flexibility, and penetration control cognitions in those experiencing anodyspareunia

Lindsey R. Yessick, Stéphanie E.M. Gauvin, Tim V. Salomons & Caroline F. Pukall

To cite this article: Lindsey R. Yessick, Stéphanie E.M. Gauvin, Tim V. Salomons & Caroline F. Pukall (2022): Pain characteristics, sexual script flexibility, and penetration control cognitions in those experiencing anodyspareunia, *Psychology & Sexuality*, DOI: [10.1080/19419899.2022.2118069](https://doi.org/10.1080/19419899.2022.2118069)

To link to this article: <https://doi.org/10.1080/19419899.2022.2118069>



Published online: 29 Aug 2022.



Submit your article to this journal [↗](#)



Article views: 49



View related articles [↗](#)




View Crossmark data [↗](#)

RESEARCH ARTICLE



Pain characteristics, sexual script flexibility, and penetration control cognitions in those experiencing anodyspareunia

Lindsey R. Yessick, Stéphanie E.M. Gauvin, Tim V. Salomons and Caroline F. Pukall 

Department of Psychology, Queen's University, Kingston, Ontario, Canada

ABSTRACT

Anodyspareunia is the experience of recurrent or persistent anal pain during receptive anal penetration. We examined pain characteristics and the role of control cognitions and sexual flexibility in those with anodyspareunia. We recruited two online convenience samples ($N = 96$, $N = 123$) of individuals who experienced pain during receptive anal penetration. Those with anodyspareunia reported pain, on average, during 44% of penetrative activity occasions. Most participants first experienced pain during their first anal penetrative experience and described the pain as located at the anal opening or inside the anus and lasting primarily during entry and thrusting. As predicted, the examination of penetration cognitions suggested that more cognitions related to a loss of control were associated with worse pain symptoms and sexual distress. While sexual flexibility did not significantly moderate the relationships between control cognitions and pain or sexual distress, greater flexibility was significantly associated with less sexual distress. This study provides novel information on the characteristics of those who experience anodyspareunia. In addition, we found an association between control cognitions and pain intensity in those with anodyspareunia. Sexual flexibility is a potential point of intervention for those who experience sexual distress due to anodyspareunia.

ARTICLE HISTORY

Received 9 February 2022
Accepted 23 August 2022

KEYWORDS

Perceived control; sexual flexibility; anodyspareunia; sexual distress

Introduction

Anodyspareunia is defined as the experience of recurrent or persistent anal pain during receptive anal penetration (Rosser et al., 1998). Approximately 12% to 18% of individuals who engage in receptive anal sex experience anodyspareunia (Damon & Rosser, 2005; Hirshfield et al., 2010; Lau et al., 2008; Peixoto & Nobre, 2015; Rosser et al., 1998). Given that most men who have sex with men (MSM) engage in anal sex (64–74%; Hart et al., 2003; Peixoto & Nobre, 2014; Vansintejan et al., 2013), it is unsurprising that anodyspareunia is the most frequently reported sexual problem among MSM (Peixoto & Nobre, 2014). Despite the high prevalence of anodyspareunia, empirical examinations of sexual health in men primarily focus on men who have sex with women or on HIV transmission in MSM (Cheng, 2021).

The existing literature on anodyspareunia has examined the intensity and frequency of pain during penetration as well as the onset of anodyspareunia, the latter of which appears to be lifelong for the majority (60%) of those who experience it (Damon & Rosser, 2005; Rosser et al., 1998). The intensity of anodyspareunia appears to vary widely: in the only study examining pain intensity, most participants who engaged in receptive anal penetration indicated the level of pain as 'acceptable' (44%), 'mild' (32%), or 'mild to moderate' (17%), with a smaller percentage

reporting that they experienced 'moderate' (4%) or 'severe' (2%) levels of pain (Vansintean et al., 2013). Little information exists as to the specific location of anodyspareunia, but a small number of participants in one study reported experiencing pain at the anal opening, in the rectum, and in the abdominal/pelvic area, or they were unsure of where the pain was located (Herbenick et al., 2015). Unfortunately, there has been limited examination of pain characteristics such as duration, location, and interference even though this type of information has proven critical in the field of vulvovaginal dyspareunia in terms of defining subtypes, such as provoked vestibulodynia (PVD), the most common form of idiopathic chronic vulvar pain (vulvodynia; Meana et al., 1997).

Anodyspareunia has also been shown to be associated with adverse psychological outcomes: most men who experience anodyspareunia (90%) report experiencing at least some pain-related psychological distress, and those with more severe pain during anal penetration have been shown to report higher anxiety (Damon & Rosser, 2005; Rosser et al., 1998). However, there is limited literature examining psychological factors, and no research investigating cognitive factors, in anodyspareunia. In contrast, a significant body of literature has investigated the psychological and cognitive correlates of vulvovaginal dyspareunia (Aerts et al., 2016; Anderson et al., 2016; Basson & Gilks, 2018; Bergeron & Rosen, 2020; Chisari et al., 2021; Khandker et al., 2011; Pazmany et al., 2013; Stout & Hawkins, 2021). For example, negative cognitions related to vaginal penetration have been associated with more negative pain outcomes, whereas positive cognitions about vaginal penetration are associated with lower pain (Anderson et al., 2016). Of the vaginal penetration cognitions previously examined, control cognitions (i.e. thoughts related to control of one's body at the time of penetration) appear to be key for positive sexual health outcomes (Anderson et al., 2016). In addition, studies of participants with and without vulvovaginal dyspareunia consistently report greater maladaptive cognitions related to losing control during vaginal penetration in those with dyspareunia (Banaei et al., 2021; Cherner & Reissing, 2013; Klaassen & Ter Kuile, 2009; Ünal et al., 2020). Perceived control is a critical exacerbating factor for the development of chronic illness, as patients with chronic illnesses are constantly exposed to aversive, uncontrollable symptoms (Wallston et al., 1987). Perceived control is generally defined as a personal sense of competence or power to make decisions in order to reach a desirable, or to prevent an undesirable, outcome (Skinner, 1996). Outside of the genitopelvic dyspareunia literature, there is strong evidence that perceptions of greater control can reduce experimentally induced acute pain (Mohr et al., 2012; Vancleef & Peters, 2011; Wiech et al., 2006) and are associated with improvements in chronic pain (Kalapurakkel et al., 2015; Miles et al., 2011). Although the contributions of penetration cognitions related to control have been examined in those with vulvovaginal dyspareunia and non-genitopelvic pain conditions, the role of penetration cognitions in anodyspareunia has yet to be investigated.

Another important area of investigation related to control is one's ability to flexibly cope when dealing with challenging situations. Individuals who are more flexible when presented with alternative ways to cope during stressful situations, such as unexplained pain, tend to perceive the circumstance as more controllable (Cheng & Cheung, 2005). When sexual difficulties (e.g. anodyspareunia) occur, individuals vary in how flexible they are with alternative sexual interactions and methods for coping with the challenge (Gauvin & Pukall, 2018a, 2018b). Those more capable of changing their thoughts and behaviours related to sexual activity are believed to cope better when confronted with a sexual difficulty (Barsky et al., 2006; Leiblum & Rosen, 1991; MacNeil & Byers, 2009). Similarly, patients who indicated using a larger variety of coping strategies in response to non-genitopelvic pain problems show improvement in psychological well-being (Blalock et al., 1993). These findings suggest that when individuals who experience dyspareunia flexibly adapt to the situation, they will experience increased perceived control over their pain, and potentially, better pain and sexual outcomes (e.g. decreased symptom intensity, decreased sexual distress).

Research goals

In the current investigation, we aimed to further our understanding of anodyspareunia characteristics (e.g. onset, duration, location) – information that is crucial in the diagnosis, assessment, and treatment of chronic pain conditions (Dworkin et al., 2005). We also investigated psychological and cognitive factors of those with anodyspareunia, with an emphasis on control cognitions and sexual flexibility, and their roles on pain and sexual outcomes. Our research questions were:

- What are the pain characteristics (i.e. intensity, unpleasantness, onset, frequency, duration, location, and interference) of anodyspareunia, and how is the pain described?
- Are greater negative control cognitions associated with higher pain intensity and increased sexual distress? Does sexual flexibility moderate the relationship between control cognitions and pain intensity and sexual distress?

Methods

To examine the two research questions (pain characteristics and control cognitions), a cross-sectional online study on anodyspareunia was conducted. We had the opportunity to increase the sample size for the control cognition analyses by including data from an archival study examining sexual flexibility in a diverse sample; recruitment methods and measures were similar – but not identical – to the anodyspareunia study. For this reason, we have separated the information regarding the procedures, participants, measures, data considerations, and results into those pertaining to Study One (pain characteristics) and Study Two (control cognitions).

Study one: procedures

Study One was approved by the Queen's University General Research Ethics Board (GREB; #6017112). Recruitment materials included advertisements posted on social media (e.g. Facebook, Reddit, Twitter), university Pride groups, and relevant electronic mailing lists. The advertisements directed participants to a link containing the Letter of Information, and participants provided their informed consent prior to accessing the online survey (Qualtrics Survey Software, Qualtrics, Provo, UT). Participants who declined to provide their consent were re-directed out of the survey. The measures discussed in the present paper represent a subset of measures administered in a larger study of anodyspareunia, which took approximately 30 minutes to complete. The present sample was collected in 2018 and no bot verification was performed. This was an online convenience sample collected from the community who report anal pain during receptive penetration and inclusion was not based on clinical diagnosis. After survey completion, participants were given the opportunity to enter a draw to win one of four gift cards valued at \$50 CAD.

Study one: participants

Eligible participants were 18 years of age or older, were fluent in reading and writing in English, reported having male-typical genitals, and experienced pain during receptive anal penetration (they replied yes to the following question, 'Do you experience anal pain during sexual activity?') that was not attributed to an underlying medical condition (e.g. haemorrhoids, anal fissures, inflammatory bowel disorder, localised infection in the rectum, anal cancer). Ineligible participants were exited from the survey and thanked for their time and interest. A total of 96 respondents were eligible and completed the questions on anodyspareunia characteristics.

Study one: measures

Sociodemographics

Participants responded to sociodemographic questions related to age, gender, sexual orientation, relationship status, birthplace, ethnicity, education, and income.

Age of first receptive anal penetration

Participants were asked, 'At what age did you first have receptive anal penetration (e.g. your partner penetrating your anus)?'. Participants were provided with an open text box to write the age of first receptive anal penetration.

Anal sex frequency

Participants responded to the question, 'How often have you had anal sex in the past 30 days?'. Response options included 'have not done in the past 30 days', 'once', 'two or three times', 'four to five times', and 'six or more times'.

Sex role

Participants responded to the question, 'What sex role do you identify with?'. Response options included 'top (I penetrate my partner)', 'bottom (my partner penetrates me)', 'versatile/switch (sometimes my partner penetrates me, sometimes I penetrate my partner)', and 'don't know'.

Anodyspareunia onset

Participants who indicated that they experience anodyspareunia were asked, 'How did it start?'. Response options included 'with first experience', 'for no apparent reason', 'change of partner', 'life stress (e.g. marital conflict, financial problems; specify)', and 'other'.

Frequency of anodyspareunia

To assess the frequency of anodyspareunia, participants responded to the question, 'Even if you had pain free penetration most of the time, typically, what percentage of occasions where you engaged in receptive anal penetration were painful?'. Participants were provided with an open text box to write the estimated percentage of occasions.

Anodyspareunia intensity and unpleasantness

Participants were asked to rate the intensity and unpleasantness of their anodyspareunia on the following items, 'On a scale of 0 to 10, please rate the average intensity of pain you experience during penetration' and 'On a scale of 0 to 10, please rate the average degree of unpleasantness you experience during penetration', respectively. The questions provided no anchors and participants were provided with open text boxes in which to respond.

Location of anodyspareunia

Participants responded to the question, 'Where do you typically feel the pain during penetration?'. Response options included 'at the anal opening', 'everywhere around the anus', and 'inside the anus'.

Duration of anodyspareunia

Participants were asked to indicate how long the anodyspareunia lasts via the item, 'How long does the pain typically last?'. Response options included: during penis/finger/object entry only; thrusting only; only for a period after exit; entry and after exit; entry and during thrusting; thrusting and for some time after exit; entry, during thrusting, and after exit; or it is never the same: there is no typical pattern.

Frequency of anal sex stopped due to anodyspareunia

Participants responded to the question, 'How often have you stopped having anal sex because of anal discomfort or pain in the past 30 days?'. Response options included 'have not done in the past 30 days', 'never', 'rarely', 'sometimes', 'often', and 'always'.

McGill Pain Questionnaire

The McGill Pain Questionnaire (MPQ) assesses the quality and intensity of pain, and it has been used in patients with a wide variety of pain diagnoses (Melzack, 1975). In the present study, the list of qualitative descriptors of the MPQ was administered to participants. Participants were asked to select from 78 words the best words that described their anodyspareunia. The words are grouped into five categories: sensory/pain descriptors (e.g. pinching; 42 words), affective components of pain (e.g. fearful; 14 words), evaluation of pain (e.g. annoying; 5 words), and miscellaneous (e.g. tight; 17 words). For the present study, the MPQ was not analyzed in such a way as to be scored to yield a pain severity score; rather, we focused on the frequency and type of qualitative descriptors selected by individuals with anodyspareunia.

Study one: data considerations

Analyses were performed using IBM SPSS 26 (IBM Corp, Armonk, NY, USA). No missing data were imputed. Because participants could skip items, sample sizes differ across questions.

Study two: procedures

All procedures were the same for Studies One and Two except for the addition of archival data on control cognitions to the Study Two sample. The archival study examined sexual flexibility in a diverse sample of participants from the community (participants with a clinical diagnosis of anodyspareunia were not explicitly recruited), and it took approximately 45 minutes to complete (versus 30 minutes for the anodyspareunia study).

Study two: participants

Study Two included participants from the anodyspareunia and sexual flexibility (archival) studies. From the sexual flexibility study, we added 49 participants who experienced anodyspareunia to the 74 from the anodyspareunia study who completed all relevant measures, for a total of 123 participants. Participants from the sexual flexibility study met identical inclusion criteria as for the anodyspareunia study (i.e. 18 years of age or older, fluent in reading and writing in English, male-typical genitals, and experienced pain during receptive anal penetration), except they were not screened for underlying medical conditions that could contribute to anal pain (e.g. haemorrhoids, anal fissures).

Study two: measures

Sociodemographics

Participants responded to sociodemographic questions related to age, gender, sexual orientation, relationship status, birthplace, ethnicity, education, and income.

Anodyspareunia intensity and sexual distress

The present study adapted the vaginal penetration pain intensity and sexual distress items from the Female Sexual Functioning index (FSFI; Rosen et al., 2000) to relate to anal penetration. Participants responded to the question 'Over the past 4 weeks, how would you rate your level (degree) of discomfort or pain during or following receptive anal penetration?' on a five-point scale from 'Very high' (1) to 'Very low or none at all' (5). A greater score on the intensity scale indicates better functioning (less pain).

Sexual distress was assessed by participant responses to the question 'How distressed do you feel about this sexual problem?' Although the different samples for Study Two (participants from the anodyspareunia study and participants from the sexual flexibility study) were asked the same question, the number of response options differed, such that there were three response options for the anodyspareunia study ('Not at all' (1), 'Somewhat' (2), and 'Extremely' (3)) and five response options for the sexual flexibility study ('Not at all' (1), 'Somewhat' (3), and 'Extremely' (5) with blank response options at (2) and (4)). Analyses merged data from both samples and Z-scores were used (see Data Considerations). Higher scores on the sexual distress question indicates greater distress.

Sexual script flexibility

The SexFlex Scale (SFS; Gauvin & Pukall, 2018b) is a 6-item scale that measures an individual's flexibility in their approach to a sexual issue (e.g. differences in sexual preferences, sexual issues, or dysfunction, etc.). Participants were asked to respond on a 4-point Likert-type scale from 1 (seldom or never) to 4 (almost always) how frequently they respond in the way indicated by the item (e.g. 'I immediately change my approach to sex if a certain approach doesn't work'). Greater scores on the SFS indicate greater flexibility when approaching sexual issues. In the present study, the SFS demonstrated good internal consistency ($\alpha = .86$, 95% CI [.59, .77]).

Anal penetration control cognitions

An adapted version of the Vaginal Penetration Cognition Questionnaire (VPCQ; Klaassen & Ter Kuile, 2009) was used. The original 40-item measure was designed to assess cognitions regarding vaginal penetration for women who experience dyspareunia, and the adapted version used in the present study refers to anal penetration instead. The preamble to survey items was altered to read, 'I have the following thoughts about anal penetration', instead of 'I have the following thoughts about vaginal penetration'. The scale consists of subscales related to control cognitions, catastrophic and pain cognitions, self-image cognitions, positive cognitions, and genital incompatibility cognitions. The 4-item subscale concerning 'control cognitions' was used in this study to measure cognitions regarding the lack of control of one's own body and situation during penetration. Participants responded using a 7-point Likert scale from 'not at all applicable' (0) to 'very strongly applicable' (7). Higher scores on the scale indicate higher cognitions related to a lack of control. In the present study, the control cognitions subscale demonstrated good internal consistency ($\alpha = .70$, 95% CI [.82, .89]).

Study two: data considerations

Analyses were conducted using IBM SPSS 26 (IBM Corp, Armonk, NY, USA) and the PROCESS macro (www.afhayes.com). PROCESS is a modelling tool widely used for estimating direct and indirect effects in mediation and moderation models. For all analyses, $p < 0.05$ was considered statistically significant. Moderation analyses were performed with 10,000 bootstrap samples to address the influence of outliers and violations of normality. No missing data were imputed.

Because participants from the anodyspareunia study responded to a 3-point sexual distress scale and participants from the sexual flexibility study responded to a 5-point sexual distress scale, we standardised scores (Z-score) prior to combining datasets to ensure that sexual distress values were comparable for the moderation analyses. To ensure that the observed effects were replicated in each dataset, we re-ran our analyses, including sample source (i.e. participants from the anodyspareunia study and participants from the sexual flexibility study) as a covariate. This allowed us to assess if observed effects were consistent considering sample source. Including sample source as a covariate did not change the outcome of the moderation results when included. Therefore, results from the combined sample are presented below.

Results

Study one: participant demographics

Participant demographic information is provided in Table 1.

Table 1. Participant sociodemographics.

	Total <i>N</i> = 96
Age (<i>M</i> (<i>SD</i>))	28.2 (9.0)
Gender (<i>n</i> (%))	
Another gender	5 (5.2)
Don't know	1 (1.0)
Female/Woman	5 (5.2)
Male/Man	85 (88.5)
Cisgender or Transgender (<i>n</i> (%))	
Cisgender	87 (90.6)
Decline response	1 (1.0)
Transgender	8 (8.3)
Sexual Orientation (<i>n</i> (%))	
Asexual	1 (1.0)
Bisexual	21 (21.9)
Heterosexual	9 (9.4)
Pansexual	5 (5.2)
Queer	3 (3.1)
Same-sex attracted	57 (59.4)
Relationship Status (<i>n</i> (%))	
In romantic relationship	65 (67.7)
Not in romantic relationship	31 (32.3)
Birthplace (<i>n</i> (%))	
Asia	1 (1.0)
Australia	7 (7.3)
Canada	20 (20.8)
Eastern Europe	1 (1.0)
Latin/South America	4 (4.2)
Other	3 (3.1)
United States	52 (54.2)
Western Europe	8 (8.3)
Minority Status (<i>n</i> (%))	
Black	1 (1.0)
Chinese	5 (5.2)
Japanese	1 (1.0)
Latin American	9 (9.4)
None	72 (75.0)
South/Southeast Asian	3 (3.1)
Visible minority not included	2 (2.1)
Education (<i>n</i> (%))	
Some high school/secondary school	3 (3.1)
High school/secondary school degree	6 (6.3)
Some college/university/vocational school	31 (32.3)
College/university/vocational school degree	36 (37.5)
Master's degree/professional school/ PhD	20 (20.8)
Income (<i>n</i> (%))	
\$0 – 29,999	20 (20.8)
\$30,000–59,999	15 (15.7)
\$60,000–89,999	15 (15.7)
\$90,000–149,999	20 (20.8)
\$150,000 +	17 (17.7)

Due to missing data, multiple responses, and rounding, not all percentages add up to 100.

Study one: what are the characteristics of anodyspareunia?

Table 2 summarises characteristics of anodyspareunia. A majority of participants indicated the bottom (36.5%) or versatile (59.4%) sex role in comparison to the top sex role (4.2%). Participants reported that their pain primarily occurs at the anal opening (51.0%) and inside the anus (50.0%), in contrast everywhere around the anus (15.6%). Most often pain occurred during entry (39.6%) or during entry and thrusting (16.7%), with very few individuals reporting pain after exit (4.2%). Participants generally experienced pain beginning with their first experience (69.8%). However, some participants indicated pain onset occurred for no apparent reason (15.6%) or after the change of a partner (10.4%). In the present study, pain was reported 44.4% of the time. Participants rated the intensity of the pain experience ($M = 3.91$, $SD = 2.4$) and the unpleasantness ($M = 3.77$, $SD = 2.8$). A majority of participants reported never (56.3%) or rarely (17.7%) stopping anal sex due to pain in contrast to those who sometimes (7.3%), often (11.5%), or always (2.1%) stopped anal sex due to pain.

Table 2. Anodyspareunia characteristics.

	Total $N = 96$
Age of first receptive anal penetration (M (SD))	18.56 (5.5)
Anal sex frequency (n (%))	
Have not done in the past 30 days	4 (4.2)
Once	19 (19.8)
Two or three times	33 (34.4)
Four to five times	16 (16.7)
Six or more times	24 (25.0)
Sex role (n (%))	
Top (I penetrate my partner)	4 (4.2)
Bottom (my partner penetrates me)	35 (36.5)
Versatile/switch (sometimes my partner penetrates me, sometimes I penetrate my partner)	57 (59.4)
Onset (n (%))	
With first experience	67 (69.8)
For no apparent reason	15 (15.6)
Change of partner	10 (10.4)
Other	3 (3.1)
Frequency (M (SD))	44.36 (31.5)
Intensity (M (SD))	3.91 (2.4)
Unpleasantness (M (SD))	3.77 (2.8)
Location (n (%))	
At the anal opening	49 (51.0)
Everywhere around the anus	15 (15.6)
Inside the anus	48 (50.0)
Duration (n (%))	
During penis/finger/object entry only	38 (39.6)
During penis/finger/object thrusting only	7 (7.3)
Only for a period after penis/finger/object exit	4 (4.2)
During penis/finger/object entry and after exit	6 (6.3)
During penis/finger/object entry and during thrusting	16 (16.7)
During penis/finger/object thrusting and for some time after exit	7 (7.3)
During penis/finger/object entry, during thrusting, and after exit	9 (9.4)
It is never the same: there is no typical pattern	9 (9.4)
Frequency of anal sex stopped due to anodyspareunia (n (%))	
Have not done in the past 30 days	5 (5.2)
Never	54 (56.3)
Rarely	17 (17.7)
Sometimes	7 (7.3)
Often	11 (11.5)
Always	2 (2.1)

Note. Due to missing data, multiple responses, and rounding, not all percentages add up to 100.

Study one: how do those with anodyspareunia describe their pain?

Table 3 summarises the words selected by more than 20% of participants on the MPQ. Most of the words selected by participants were sensory descriptors (e.g. sharp, stinging, etc.). The evaluative/cognitive descriptor 'annoying' was selected by 37.5% of participants. Miscellaneous descriptors such as 'tight', 'tearing', 'piercing', and 'nagging' were also frequently selected. Participants did not select affective descriptors (e.g. exhausting, fearful, punishing, etc.) with great frequency. Five participants declined to respond to the MPQ.

Study two: participant demographics

Demographic information for the combined sample is provided in Table 4.

Study two: does flexibility moderate the relationship between control cognitions and anodyspareunia intensity?

Moderation results are summarised in Table 5. The proposed model assessed whether there was a relationship between control cognitions and anodyspareunia intensity, moderated by sexual flexibility. The overall model was significant, $F(3, 119) = 7.84, p < .0001, R^2 = .17$. Control cognitions significantly predicted anodyspareunia intensity, $b = -0.09, t(119) = -4.26, p < .0001$. For every unit increase in cognitions related to a lack of control, there was a .09 decline in pain functioning score (or worsening in pain symptoms). Sexual flexibility did not significantly predict anodyspareunia intensity, $b = 0.02, t(119) = 0.69, p = .49$. Control cognitions and sexual flexibility did not interact to predict anodyspareunia intensity, $b = 0.0006, t(119) = 0.11, p = .91$.

Table 3. Pain descriptors.

Descriptors	Total <i>n</i> (%) = 91
Sensory	
Sharp	51 (53.1)
Stinging	41 (42.7)
Stabbing	38 (39.6)
Tender	38 (39.6)
Flashing	29 (30.2)
Shooting	31 (32.3)
Throbbing	28 (29.2)
Burning	27 (28.1)
Sore	27 (28.1)
Pinching	26 (27.1)
Pressing	26 (27.1)
Tugging	22 (22.9)
Hot	22 (22.9)
Aching	21 (21.9)
Splitting	21 (21.9)
Wrenching	20 (20.8)
Hurting	20 (20.8)
Miscellaneous	
Tight	34 (35.4)
Piercing	25 (26.0)
Tearing	22 (22.9)
Nagging	21 (21.9)
Radiating	20 (20.8)
Evaluative	
Annoying	36 (37.5)
Intense	22 (22.9)

Table 4. Participant sociodemographics.

	Total <i>N</i> = 123
Age (<i>M</i> (<i>SD</i>))	28.8 (9.0)
Gender (<i>n</i> (%))	
Another Gender	5 (4.1)
Don't know	1 (0.8)
Female/Woman	3 (2.4)
Male/Man	112 (91.1)
Cisgender or Transgender (<i>n</i> (%))	
Cisgender	95 (77.2)
Decline response	21 (17.1)
Transgender	6 (4.9)
Sexual Orientation (<i>n</i> (%))	
Asexual	1 (0.8)
Bisexual	21 (17.1)
Other-sex attracted	5 (4.1)
Pansexual	4 (3.3)
Queer	4 (3.3)
Same-sex attracted	88 (71.5)
Relationship Status (<i>n</i> (%))	
In romantic relationship	101 (82.1)
Not in romantic relationship	22 (17.9)
Birthplace (<i>n</i> (%))	
Asia	2 (1.6)
Australia	8 (6.5)
Canada	25 (20.3)
Caribbean	1 (0.8)
Eastern Europe	3 (2.4)
Latin/South America	4 (3.3)
Other	3 (2.4)
United States	66 (53.7)
Western Europe	11 (8.9)
Minority Status (<i>n</i> (%))	
Arab	1 (0.8)
Black	2 (1.6)
Chinese	4 (3.3)
Japanese	1 (0.8)
Latin American	9 (7.3)
None	98 (79.7)
South/Southeast Asian	2 (1.6)
Visible minority not included	1 (0.8)
Education (<i>n</i> (%))	
Some high school/secondary school	1 (0.8)
High school/secondary school degree	3 (2.4)
Some college/university/vocational school	40 (32.5)
College/university/vocational school degree	51 (41.5)
Master's degree/professional school/ PhD	28 (22.8)
Income (<i>n</i> (%))	
\$0 – 29,999	26 (21.1)
\$30,000–59,999	22 (17.9)
\$60,000–89,999	18 (14.6)
\$90,000–149,999	25 (20.4)
\$150,000 +	21 (17.1)

Due to missing data, multiple responses, and rounding, not all percentages add up to 100.

Study two: does flexibility moderate the relationship between control cognitions and sexual distress?

The proposed model assessed whether there is a relationship between control cognitions and sexual distress, moderated by sexual flexibility. The overall model was significant, $F(3, 119) = 7.91, p < .0001, R^2 = .17$. Control cognitions significantly predicted sexual distress, $b = 0.06, t(119) = 3.02, p = .003$. For every unit increase in cognitions related to a lack of control, there was a .06 increase in sexual distress

Table 5. Moderation results.

	Coeff	SE	<i>t</i>	<i>p</i>	LLCI	ULCI
Model 1 (Anodyspareunia Intensity)						
Control Cognitions	−0.09	.02	−4.26	< .0001	−0.14	−0.05
Sexual Flexibility	0.02	.02	0.69	.49	−0.03	0.06
Control Flexibility	0.0006	.0056	0.11	.91	−0.01	0.01
Model 1 (Sexual Distress)						
Control Cognitions	0.06	.02	3.02	.003	0.02	.10
Sexual Flexibility	−0.05	.02	−2.49	.014	−0.09	−0.01
Control Flexibility	−0.004	.0054	−0.78	.438	−0.02	0.01

score (or worsening in distress). Sexual flexibility significantly predicted sexual distress, $b = -0.05$, $t(119) = -2.49$, $p = .014$. For every unit increase in sexual flexibility, there was a .05 decrease in sexual distress. Control cognitions and sexual flexibility did not interact to predict sexual distress, $b = -0.004$, $t(119) = -0.78$, $p = .438$.

Discussion

The current investigation comprised two separate research aims: 1) to understand anodyspareunia characteristics and 2) to investigate psychological and cognitive factors in those with anodyspareunia, with an emphasis on control cognitions and sexual flexibility, and their roles in pain and sexual outcomes. Examination of the first research question assessing the characteristics of anodyspareunia found that individuals who experience anodyspareunia typically experience pain during their first anal penetrative experience and continue to report pain about half (44%) the time. Participants, on average, indicated low pain intensity ($M = 2.4$) and unpleasantness ($M = 2.8$) scores, and the majority reported rarely or never stopping a sexual encounter due to pain. In addition, most participants described the pain as occurring at the anal opening or inside the anus and lasting primarily during entry and thrusting. The second research question hypothesised that greater negative control cognitions would be associated with worse pain and sexual outcomes, moderated by sexual flexibility. As predicted, the examination of penetration cognitions suggested that more cognitions related to a loss of control were associated with worse pain symptoms and sexual distress. While flexibility did not significantly moderate the relationships between control cognitions and pain or sexual distress, greater sexual flexibility was significantly associated with less sexual distress. These studies provide novel information on the pain and psychological characteristics of those who experience anodyspareunia. In addition, we replicated previous findings of an association between positive control cognitions and lower pain intensity in those with dyspareunia (Anderson et al., 2016) in a sample of participants with anodyspareunia.

Anodyspareunia characteristics

One previous study examined the location of anodyspareunia. Herbenick et al. (2015) found that the small number of participants who experienced anodyspareunia in their sample reported pain at the anal opening, inside the rectum, and in the pelvic/abdominal area, or they were unsure of where the pain was located. However, this study focused on vulvovaginal and anodyspareunia in people with other-sex partners (Herbenick et al., 2015) and not on MSM. Participants in the present study reported that their pain primarily occurs at the anal opening (51%) and inside the anus (50%) and most often occurs during entry (39.6%) or during entry and thrusting (16.7%), with very few individuals reporting pain after exit (4.2%). Consistent with previous studies on anodyspareunia onset (Damon & Rosser, 2005; Rosser et al., 1998), the present study found that 70% of participants reported that the pain started with their first anal penetration experience.

A previous examination of the frequency of anodyspareunia indicated that 58% of participants reported experiencing pain infrequently (less than a 4 on a Likert scale from never (1) to always (7);

Damon & Rosser, 2005). In the present study, pain was reported 44% of the time and the pain was, on average, mild. These findings indicate that most anodyspareunia experiences are not reported as excessively frequent or as intensely painful. In addition, individuals in the present study rarely reported that their pain interfered so severely with their sexual activity that they ended their encounter. The low severity of pain reported in the present study may be related to our finding of infrequent affective descriptors used to describe anodyspareunia (discussed below) or to the community-based sample. If the sample were clinically based, then we would likely have observed more severe pain, sexual distress, and interference.

This study was the first to assess the descriptive terms used by individuals experiencing anodyspareunia. Participants primarily selected sensory terms to describe their pain, the most common being 'sharp', which was chosen by more than half the participants. This finding is consistent with research on vulvovaginal dyspareunia where most participants also selected incisive terms (e.g. sharp, stabbing, etc.; Bergeron et al., 2001). For example, more than 90% of women with PVD used incisive and thermal descriptors (Bergeron et al., 2001). Interestingly, individuals with anodyspareunia in the present study appear slightly less homogenous in the descriptors they chose in comparison to previous findings in women with PVD, as the most commonly chosen word was only selected by 53% of the sample. The results may suggest more heterogeneity in the qualitative experience of anodyspareunia in comparison to other genitopelvic pain conditions.

Lastly, in contrast to findings in women who experience vulvovaginal dyspareunia, who frequently indicated affective words such as 'unbearable', 'torturing', 'vicious', 'killing', and others (Schlaeger et al., 2019), those who experienced anodyspareunia in the present study did not commonly select affective terms to describe their pain experience. It is possible that those who experience anodyspareunia may associate fewer negative cognitions with their pain symptoms due to the low level of intensity and sexual distress reported, which could also explain how infrequently they stop sexual encounters because of their pain. In addition, much of the vulvovaginal dyspareunia literature cited in this paper is based on clinical samples, which differs from the community-based sample in the present study. As previously mentioned, it is likely that clinical samples would report greater intensity, distress, and interference related to their pain.

Anodyspareunia and control cognitions

In the present study, a greater number of cognitions related to a loss of control during penetration was associated with greater pain and sexual distress. These results are consistent with those reported in women with vulvovaginal dyspareunia and related conditions who report greater maladaptive cognitions related to losing control during vaginal penetration than non-affected women (Banaei et al., 2021; Cherner & Reissing, 2013; Klaassen & Ter Kuile, 2009; Ünal et al., 2020). In previous studies of positive and negative cognitions in those with vulvodinia, it has been hypothesised that positive cognitions could counter maladaptive coping strategies, such as avoidance, and encourage more adaptive coping to improve the pain experience (Anderson et al., 2016; Rosen et al., 2012). In those with anodyspareunia, fewer negative cognitions related to the loss of control over penetration may shift attention from the pain experience and encourage the use of more adaptive coping strategies that focus on achieving sexual satisfaction (Anderson et al., 2016; Rosen et al., 2012). It is therefore possible that treatments previously shown to reduce negative cognitions in those with vulvovaginal dyspareunia, such as cognitive behavioural therapy intended to modify maladaptive thoughts, could be relevant for those who experience anodyspareunia (Brotto et al., 2015; Corsini-Munt et al., 2014). However, to support this hypothesis, findings should indicate that individuals who are more flexible in coping with sexual difficulties fare better than those who are rigid in their coping strategies.

Anodyspareunia and sexual flexibility

While flexibility did not significantly moderate the relationships between control cognitions and pain or sexual distress, greater sexual flexibility was significantly associated with less sexual distress, but not pain. It has been shown that patients who indicate using a more limited variety of coping strategies in response to pain problems experience worse psychological well-being (Blalock et al., 1993). Haythornthwaite et al. (1998) operationalised the number of pain coping strategies utilised by an individual as how flexible they are with coping with chronic pain. Greater frequency of diverse coping strategies predicted greater perceived control over pain; however, similar to the present study, flexibility was not associated with the intensity of pain (Haythornthwaite et al., 1998). We hypothesised that those with anodyspareunia would benefit from using a larger variety of coping strategies, or in other words, being more flexible in their sexual interactions. Because participants in this study, on average, reported low pain intensity, greater flexibility in their sexual interactions may not have been necessary, resulting in no relationship between flexibility and pain. However, individuals who are more flexible when presented with alternative ways to cope during stressful situations tend to perceive the circumstance as more controllable and less distressing (Cheng & Cheung, 2005). In theory, if those afflicted with pain are not flexible in their coping response to the pain, they will continuously appraise a lack of perceived control over pain, resulting in worse affect related to pain perception, measured here by their sexual distress. While sexual flexibility may not reduce the pain experience, an ability to alter their typical sexual interaction to accommodate the pain experience can be effective for reducing the amount of distress they feel because of sexual difficulties. Sexual flexibility is a potential point of intervention for those who experience sexual distress as a result of anodyspareunia.

Limitations and future directions

Although the results of the present study are novel, there are limitations that need to be considered. Because we relied on self-report measures, it was not possible to rule out possible medical explanations for the pain. Although the present sample included the full spectrum of pain experiences (i.e. individuals who experience mild pain occasionally to those with severe pain that interferes with sexual activity), cognitive factors related to coping with pain appear to be relevant even if the sample was not clinical. Based on the self-reported information, the present anodyspareunia sample ranges widely in the frequency and severity of their pain experience. For this reason, some of the included participants may meet clinically significant cut-offs for a chronic pain condition, while others may not. Lastly, the generalisation of these results to broader demographic populations is limited by the lack of diversity in participants, such as the restricted representation of ethnicities in the present sample. As there is very little research examining the experience of anal pain during receptive anal penetration based on sex role and gender (Herbenick et al., 2015), future research should seek to examine these factors. In addition, given our knowledge of the importance of dyadic relationship factors for vulvovaginal dyspareunia (Rosen & Bergeron, 2019; Rosen et al., 2014), future research should seek to examine how relationship and communication quality can influence the experience of pain during receptive anal penetration.

Conclusions

This study adds to the body of literature indicating that anodyspareunia may be a significant problem for some, as previous literature indicates that anodyspareunia is the most frequently reported sexual problem among MSM (Peixoto & Nobre, 2014) and based the findings from the current study that 44% of penetrative activities were reported to be painful. This study is also the first to provide further descriptive information on the characteristics of anodyspareunia. Lastly, consistent with previous research, a greater number of cognitions related to a loss of control during penetration

was associated with greater pain and distress. These results may suggest that treatments previously shown to reduce negative cognitions in women who experience vulvovaginal dyspareunia, such as cognitive behavioural therapy, could be relevant for those who experience distressing anodyspareunia. In addition, sex therapy strategies that encourage flexibility when confronted with anodyspareunia could help reduce associated sexual distress.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Lindsey R. Yessick (she/her) is a Cognitive Neuroscience Psychology doctoral candidate under the supervision of Dr. Tim Salomons in the Pain, Affect, and Cognition Lab at Queen's University. Lindsey's research focuses on the influence of control constructs on chronic pain outcomes.

Stéphanie Gauvin (she/her/elle) is a Clinical Psychology doctoral candidate under the supervision of Dr. Caroline Pukall in the Sexual Health Research Laboratory (SexLab) at Queen's University. Stéphanie's research focuses on how individuals in relationships negotiate and navigate sexual challenges, with a focus on how sexual script flexibility is related to sexual well-being.

Tim V. Salomons (he/him), received his Ph.D. in Clinical Psychology from University of Wisconsin-Madison. He is an Assistant Professor in the Department of Psychology and Director of the Pain, Affect, and Cognition Lab (PACLAB) at Queen's University.

Caroline F. Pukall (she/her/elle), a Tier 1 Canada Research Chair in Sexual Health, received her Ph.D. in Clinical Psychology from McGill University. She is Professor in the Department of Psychology, Director of the Sexual Health Research Laboratory (SexLab), and Director of the Sex and Relationship Therapy Service at Queen's University.

Data availability statement

The data that support the findings of this study are available from the corresponding author, CFP, upon reasonable request.

ORCID

Caroline F. Pukall  <http://orcid.org/0000-0003-1553-6118>

References

- Aerts, L., Bergeron, S., Pukall, C. F., & Khalifé, S. (2016). Provoked vestibulodynia: Does pain intensity correlate with sexual dysfunction and dissatisfaction? *The Journal of Sexual Medicine*, 13(6), 955–962. <https://doi.org/10.1016/j.jsxm.2016.03.368>
- Anderson, A. B., Rosen, N. O., Price, L., & Bergeron, S. (2016). Associations between penetration cognitions, genital pain, and sexual well-being in women with provoked vestibulodynia. *The Journal of Sexual Medicine*, 13(3), 444–452. <https://doi.org/10.1016/j.jsxm.2015.12.024>
- Banaei, M., Kariman, N., Ozgoli, G., Nasiri, M., & Khiabani, A. (2021). Sexual penetration cognitions in women with genito-pelvic pain and penetration disorder: A systematic review and meta-analysis. *Sexual and Relationship Therapy*, 1–15. <https://doi.org/10.1080/14681994.2021.1894327>
- Barsky, J. L., Friedman, M. A., & Rosen, R. C. (2006). Sexual dysfunction and chronic illness: The role of flexibility in coping. *Journal of Sex & Marital Therapy*, 32(3), 235–253. <https://doi.org/10.1080/00926230600575322>
- Basson, R., & Gilks, T. (2018). Women's sexual dysfunction associated with psychiatric disorders and their treatment. *Women's Health*, 14(1), 1–16. <https://doi.org/10.1177/1745506518762664>
- Bergeron, S., Binik, Y. M., Khalifé, S., Pagidas, K., & Glazer, H. I. (2001). Vulvar vestibulitis syndrome: Reliability of diagnosis and evaluation of current diagnostic criteria. *Obstetrics & Gynecology*, 98(1), 45–51. [https://doi.org/10.1016/S0029-7844\(01\)01389-8](https://doi.org/10.1016/S0029-7844(01)01389-8)

- Bergeron, S., & Rosen, N. O. (2020). Psychosocial factors in Vulvodynia. In *Female Sexual Pain Disorders: Evaluation and Management*, (pp. 87–95. <https://doi.org/10.1002/9781119482598.ch11>
- Blalock, S. J., McEvoy DeVellis, B., Holt, K., & Hahn, P. M. (1993). Coping with rheumatoid arthritis: Is one problem the same as another? *Health Education Quarterly*, 20(1), 119–132. <https://doi.org/10.1177/109019819302000110>
- Brotto, L. A., Yong, P., Smith, K. B., & Sadownik, L. A. (2015). Impact of a multidisciplinary vulvodynia program on sexual functioning and dyspareunia. *The Journal of Sexual Medicine*, 12(1), 238–247. <https://doi.org/10.1111/jsm.12718>
- Cheng, P. J. (2021). Sexual dysfunction in men who have sex with men. *Sexual Medicine Reviews*, 10(1), 130–141. <https://doi.org/10.1016/j.sxmr.2021.01.002>
- Cheng, C., & Cheung, M. W. (2005). Cognitive processes underlying coping flexibility: Differentiation and integration. *Journal of Personality*, 73(4), 859–886. <https://doi.org/10.1111/j.1467-6494.2005.00331.x>
- Cherner, R. A., & Reissing, E. D. (2013). A comparative study of sexual function, behavior, and cognitions of women with lifelong vaginismus. *Archives of Sexual Behavior*, 42(8), 1605–1614. <https://doi.org/10.1007/s10508-013-0111-3>
- Chisari, C., Monajemi, M. B., Scott, W., Moss-Morris, R., & McCracken, L. M. (2021). Psychosocial factors associated with pain and sexual function in women with Vulvodynia: A systematic review. *European Journal of Pain*, 25(1), 39–50. <https://doi.org/10.1002/ejp.1668>
- Corsini-Munt, S., Bergeron, S., Rosen, N. O., Mayrand, M. H., & Delisle, I. (2014). Feasibility and preliminary effectiveness of a novel cognitive-behavioral couple therapy for provoked vestibulodynia: A pilot study. *The Journal of Sexual Medicine*, 11(10), 2515–2527. <https://doi.org/10.1111/jsm.12646>
- Damon, W., & Rosser, B. S. (2005). Anodyspareunia in men who have sex with men. *Journal of Sex & Marital Therapy*, 31(2), 129–141. <https://doi.org/10.1080/00926230590477989>
- Dworkin, R. H., Turk, D. C., Farrar, J. T., Haythornthwaite, J. A., Jensen, M. P., Katz, N. P., & Witter, J. (2005). Core outcome measures for chronic pain clinical trials: IMMPACT recommendations. *Pain*, 113(1), 9–19. <https://doi.org/10.1016/j.pain.2004.09.012>
- Gauvin, S., & Pukall, C. F. (2018a). Sexual problems and sexual scripts: Overview and future directions for bisexual-identified individuals. *Sexual and Relationship Therapy*, 33(1–2), 34–44. <https://doi.org/10.1080/14681994.2018.1426851>
- Gauvin, S., & Pukall, C. F. (2018b). The sexflex scale: A measure of sexual script flexibility when approaching sexual problems in a relationship. *Journal of Sex & Marital Therapy*, 44(4), 382–397. <https://doi.org/10.1080/0092623X.2017.1405304>
- Hart, T. A., Wolitski, R. J., Purcell, D. W., Gómez, C., & Halkitis, P., & Seropositive Urban Men’s Study Team. (2003). Sexual behavior among HIV-positive men who have sex with men: What’s in a label? *Journal of Sex Research*, 40(2), 179–188. <https://doi.org/10.1080/00224490309552179>
- Haythornthwaite, J. A., Menefee, L. A., Heinberg, L. J., & Clark, M. R. (1998). Pain coping strategies predict perceived control over pain. *Pain*, 77(1), 33–39. [https://doi.org/10.1016/S0304-3959\(98\)00078-5](https://doi.org/10.1016/S0304-3959(98)00078-5)
- Herbenick, D., Schick, V., Sanders, S. A., Reece, M., & Fortenberry, J. D. (2015). Pain experienced during vaginal and anal intercourse with other-sex partners: Findings from a nationally representative probability study in the United States. *The Journal of Sexual Medicine*, 12(4), 1040–1051. <https://doi.org/10.1111/jsm.12841>
- Hirshfield, S., Chiasson, M. A., Wagmiller, R. L., Jr, Remien, R. H., Humberstone, M., Scheinmann, R., & Grov, C. (2010). Sexual dysfunction in an Internet sample of US men who have sex with men. *The Journal of Sexual Medicine*, 7(9), 3104–3114. <https://doi.org/10.1111/j.1743-6109.2009.01636.x>
- Kalapurakel, S., Carpino, A., Lebel, A. E., & E. Simons, L. (2015). “Pain can’t stop me”: Examining pain self-efficacy and acceptance as resilience processes among youth with chronic headache. *Journal of Pediatric Psychology*, 40(9), 926–933. <https://doi.org/10.1093/jpepsy/jsu091>
- Khandker, M., Brady, S. S., Vitonis, A. F., MacLehose, R. F., Stewart, E. G., & Harlow, B. L. (2011). The influence of depression and anxiety on risk of adult onset vulvodynia. *Journal of Women’s Health*, 20(10), 1445–1451. <https://doi.org/10.1089/jwh.2010.2661>
- Klaassen, M., & Ter Kuile, M. M. (2009). Development and initial validation of the vaginal penetration cognition questionnaire (VPCQ) in a sample of women with vaginismus and dyspareunia. *The Journal of Sexual Medicine*, 6(6), 1617–1627. <https://doi.org/10.1111/j.1743-6109.2009.01217.x>
- Lau, J. T., Kim, J. H., & Tsui, H. Y. (2008). Prevalence and sociocultural predictors of sexual dysfunction among Chinese men who have sex with men in Hong Kong. *The Journal of Sexual Medicine*, 5(12), 2766–2779. <https://doi.org/10.1111/j.1743-6109.2008.00892.x>
- Leiblum, S. R., & Rosen, R. C. (1991). Couples therapy for erectile disorders: Conceptual and clinical considerations. *Journal of Sex & Marital Therapy*, 17(2), 147–159. <https://doi.org/10.1080/00926239108404956>
- MacNeil, S., & Byers, E. S. (2009). Role of sexual self-disclosure in the sexual satisfaction of long-term heterosexual couples. *Journal of Sex Research*, 46(1), 3–14. <https://doi.org/10.1080/00224490802398399>
- Meana, M., Binik, Y. M., Khalifé, S., & Cohen, D. R. (1997). Biopsychosocial profile of women with dyspareunia. *Obstetrics & Gynecology*, 90(4), 583–589. [https://doi.org/10.1016/S0029-7844\(98\)80136-1](https://doi.org/10.1016/S0029-7844(98)80136-1)
- Melzack, R. (1975). The McGill pain questionnaire: Major properties and scoring methods. *Pain*, 1(3), 277–299. [https://doi.org/10.1016/0304-3959\(75\)90044-5](https://doi.org/10.1016/0304-3959(75)90044-5)

- Miles, C. L., Pincus, T., Carnes, D., Taylor, S. J., & Underwood, M. (2011). Measuring pain self-efficacy. *The Clinical Journal of Pain*, 27(5), 461–470. <https://doi.org/10.1097/AJP.0b013e318208c8a2>
- Mohr, C., Leyendecker, S., Petersen, D., & Helmchen, C. (2012). Effects of perceived and exerted pain control on neural activity during pain relief in experimental heat hyperalgesia: A fMRI study. *European Journal of Pain*, 16(4), 496–508. <https://doi.org/10.1016/j.ejpain.2011.07.010>
- Pazmany, E., Bergeron, S., Van Oudenhove, L., Verhaeghe, J., & Enzlin, P. (2013). Aspects of sexual self-schema in premenopausal women with dyspareunia: Associations with pain, sexual function, and sexual distress. *The Journal of Sexual Medicine*, 10(9), 2255–2264. <https://doi.org/10.1111/jsm.12237>
- Peixoto, M. M., & Nobre, P. (2014). Dysfunctional sexual beliefs: A comparative study of heterosexual men and women, gay men, and lesbian women with and without sexual problems. *The Journal of Sexual Medicine*, 11(11), 2690–2700. <https://doi.org/10.1111/jsm.12666>
- Peixoto, M. M., & Nobre, P. (2015). Prevalence and sociodemographic predictors of sexual problems in Portugal: A population-based study with women aged 18 to 79 years. *Journal of Sex & Marital Therapy*, 41(2), 169–180. doi.org/10.1080/0092623X.2013.842195
- Rosen, N. O., & Bergeron, S. (2019). Genito-pelvic pain through a dyadic lens: Moving toward an interpersonal emotion regulation model of women's sexual dysfunction. *The Journal of Sex Research*, 56(4–5), 440–461. <https://doi.org/10.1080/00224499.2018.1513987>
- Rosen, N. O., Bergeron, S., Glowacka, M., Delisle, I., & Baxter, M. L. (2012). Harmful or helpful: Perceived solicitous and facilitative partner responses are differentially associated with pain and sexual satisfaction in women with provoked vestibulodynia. *The Journal of Sexual Medicine*, 9(9), 2351–2360. <https://doi.org/10.1111/j.1743-6109.2012.02851.x>
- Rosen, C., Brown, J., Heiman, S., Leiblum, C., Meston, R., Shabsigh, D., Ferguson, R. D., & Agostino, R. (2000). The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, 26(2), 191–208. <https://doi.org/10.1080/009262300278597>
- Rosen, N. O., Rancourt, K. M., Corsini-Munt, S., & Bergeron, S. (2014). Beyond a “woman’s problem”: The role of relationship processes in female genital pain. *Current Sexual Health Reports*, 6(1), 1–10. <https://doi.org/10.1007/s11930-013-0006-2>
- Rosser, B. R., Short, B. J., Thurmes, P. J., & Coleman, E. (1998). Anodyspareunia, the unacknowledged sexual dysfunction: A validation study of painful receptive anal intercourse and its psychosexual concomitants in homosexual men. *Journal of Sex & Marital Therapy*, 24(4), 281–292. <https://doi.org/10.1080/00926239808403963>
- Schultz, W. W., Basson, R., Binik, Y., Eschenbach, D., Wessellmann, U., & Van Lankveld, J. (2005). Women's sexual pain and its management. *The Journal of Sexual Medicine*, 2(3), 301–316. <https://doi.org/10.1111/j.1743-6109.2005.20347.x>
- Schlaeger, J. M., Patil, C. L., Steffen, A. D., Pauls, H. A., Roach, K. L., Thornton, P. D., . . . & Wilkie, D. J. (2019). Sensory pain characteristics of vulvodynia and their association with nociceptive and neuropathic pain: An online survey pilot study. *Pain reports*, 4(2): e713.
- Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, 71(3), 549. <https://doi.org/10.1037/0022-3514.71.3.549>
- Stout, M. E., & Hawkins, M. A. (2021). Temporal relationships between Pain During Intercourse (PDI), loneliness, and depressive symptoms among women. *Sexual Medicine*, 9(6), 100444. <https://doi.org/10.1016/j.esxm.2021.100444>
- Ünal, G. T., Şahmelikoğlu Onur, Ö., & Erten, E. (2020). Comparison of vaginal penetration cognitions and metacognitions between women with genito-pelvic pain and penetration disorder and healthy controls. *The Journal of Sexual Medicine*, 17(5), 964–974. <https://doi.org/10.1016/j.jsexm.2020.01.015>
- Vancleef, L. M., & Peters, M. L. (2011). The influence of perceived control and self-efficacy on the sensory evaluation of experimentally induced pain. *Journal of Behavior Therapy and Experimental Psychiatry*, 42(4), 511–517. <https://doi.org/10.1016/j.jbtep.2011.05.006>
- Vansintejan, J., Vandevoorde, J., & Devroey, D. (2013). The gay men sex studies: Anodyspareunia among Belgian gay men. *Sexual Medicine*, 1(2), 87–94. <https://doi.org/10.1002/sm2.6>
- Wallston, K. A., Wallston, B. S., Smith, S., & Dobbins, C. J. (1987). Perceived control and health. *Current Psychology*, 6(1), 5–25. <https://doi.org/10.1007/BF02686633>
- Wiech, K., Kalisch, R., Weiskopf, N., Pleger, B., Stephan, K. E., & Dolan, R. J. (2006). Anterolateral prefrontal cortex mediates the analgesic effect of expected and perceived control over pain. *Journal of Neuroscience*, 26(44), 11501–11509. <https://doi.org/10.1523/JNEUROSCI.2568-06.2006>