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Defining and Experiencing Sex

The Impact of an Intervention on the Definition of Sex, Sexual Distress, Sexual Satisfaction, and Vulvar Pain in Women

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Abstract

Research shows that a relatively high percentage of women experience pain during penile-vaginal intercourse (PVI) and often do not communicate this with their partners. One factor associated with higher levels of sexual distress and vulvar pain is a restrictive definition of sex, where sex is primarily seen as penetration. This study aimed to develop a brief online intervention to broaden the definition of sex and examined its effects on the definition of sex, sexual distress, sexual satisfaction, and vulvar pain. Fifty-seven women aged 18 to 32 participated in a pretest-posttest design. The results showed that a large proportion of participants reported experiencing vulvar pain during or when attempting PVI, and many engaged in sexual intercourse despite this pain. Following the intervention, the definition of sex was slightly broader and vulvar pain slightly lower, though these changes were not statistically significant (paired *t*-tests and Wilcoxon signed rank test, respectively). In contrast, sexual distress significantly decreased, while sexual satisfaction approached statistical significance (paired t-tests). These findings suggest that even a short, easily accessible intervention may have a positive effect on sexual health outcomes. However, as this study lacked a control group, alternative explanations cannot be ruled out. Further research is needed, but this study provides a first step toward easily accessible interventions targeting sexual wellbeing.

Keywords: Vulvar pain, female sexual health, definition of sex, sexual distress, sexual satisfaction, psychosocial interventions

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Defining and Experiencing Sex: The Impact of an Intervention on the Definition of Sex, Sexual Distress, Sexual Satisfaction, and Vulvar Pain in Women

What is sex? While this may appear to be a simple question, the answer is far from straightforward. In many languages, the term refers broadly to sexual activity (World Health Organization, 2019). However, in the most well-regarded Dutch dictionary, van Dale, sex is defined as sexual intercourse (Van Dale, 2024a), and in turn sexual intercourse is defined as 'such intercourse in which the penis penetrates the vagina or anus' (Van Dale, 2024b). This penetration-based definition reflects a dominant cultural norm in which penile-vaginal intercourse (PVI) is often considered the most 'normal' and 'natural form of heterosex' (McPhillips et al., 2001; Gavey, 2004). Other sexual activities, which are often indicated by the term 'foreplay', are regarded as optional, extra, preliminary or seen as a substitute for when penetration is not possible (Jackson, 1984). Defining sex in this way excludes entire groups of people who cannot or do not want to engage in penetration-focused sexual activities (What Is Sex? - Centre For Sexuality, 2021). Moreover, this restrictive definition of sex also has far-reaching implications for women's sexual health, well-being and sexual pleasure.

Research has shown that a restrictive definition of sex, thinking of sex as mainly penetration, is associated with negative outcomes for women's sexual well-being. A study conducted in the Netherlands by Oesterling et al. (2025) found that women who endorsed a more restrictive definition of sex reported higher levels of vulvar pain and sexual distress. In addition, they found that pain during PVI is alarmingly common: 76% of women ($N = 226$) reported experiencing pain at least sometimes during or when attempting PVI, and 15% responded that they experience pain more than half of the time (Oesterling et al., 2025). Regardless of this, 42% of Dutch women proceed with penile-vaginal intercourse (PVI) despite pain, and 41% of those experiencing pain do not communicate this to their partners

(Oesterling et al., 2025). Similar findings were reported in a Swedish study, where a significant proportion of young women also experienced pain during vaginal intercourse (Elmerstig et al., 2013), suggesting that this issue is widespread beyond the Netherlands. It is worth noting that countries like the Netherlands and Sweden are often considered pioneers in comprehensive sexuality education, emphasizing openness and evidence-based approaches (WHO Regional Office for Europe & BZgA, 2010). Given this context, it may be hypothesized that the prevalence of pain and non-communication during sex could be equally high or even higher in countries with less progressive sexual norms and education.

The reasons women often do not communicate pain during sexual activity vary and include the normalization of painful sex, prioritization of a partner's pleasure, not wanting to hurt the partner by interrupting PVI, promoting the relationship, avoiding uncomfortable situations, embarrassment and shame (Oesterling et al., 2025; Carter et al., 2019; Elmerstig et al., 2013). These findings highlight that a narrow definition of sex has significant implications for sexual well-being of women.

Building on these insights, the present study aims to explore how an intervention designed to broaden the definition of sex can change women's definition of sex, sexual distress, sexual satisfaction and vulvar pain experiences. The central research question is: How does an intervention aimed at broadening the definition of sex impact women's definition of sex, sexual distress, sexual satisfaction, and vulvar pain? To answer this question, a longitudinal design will be realized in order to compare participants' pre- and post-intervention scores for each of these variables.

Theoretical Framework

Sexual health is essential for the general well-being of individuals, couples, and communities according to the World Health Organization (2022), because it significantly impacts societal progress. Sexual health encompasses more than the absence of disease; it

includes the potential for safe and pleasurable sexual experiences (World Health Organization, 2006; The World Association For Sexual Health (WAS), 2019). However, as discussed in the previous section, many women do not consistently experience sexual safety and pleasure during sex. To understand why, it is necessary to examine the social and psychological factors shaping sexual experiences.

One of the most influential perspectives in this regard is Sexual Scripting Theory, developed by Simon and Gagnon (1986). This theory challenges the idea that sexuality is purely natural or biologically determined. Instead, it argues that sexual behaviors and experiences are shaped by sexual scripts. According to Simon and Gagnon, sexual scripts operate on three levels. The first one is cultural scenarios, which refer to the broad societal norms and expectations around sexuality. The second are interpersonal scripts; these involve the ways individuals interact with each other in sexual contexts, shaped by societal norms, but also by personal experiences and relationships. Lastly, there are intrapsychic scripts, which are internalized desires, fantasies, and interpretations of sexuality, influenced by both cultural and interpersonal experiences. Simon and Gagnon (1986) propose that all these different scripts influence one another. However, exactly how these levels interact remains relatively unclear in their descriptions. Combined with the limited empirical testing of the theory, this has led scholars to view it more as a descriptive framework than a predictive one (Wiederman, 2015).

While empirical testing of Sexual Scripting Theory remains limited, some studies have attempted to apply the framework. For instance, Masters and colleagues (2012) examined the continuity and change of sexual scripts among young sexually active heterosexual men and women. They found that the majority conformed to traditional cultural scenarios, suggesting that interpersonal and intrapsychic scripts often reflect dominant societal norms which may reinforce restrictive definitions of sex.

A traditional and still dominant script seems to be the heterosexual script, which outlines the socially accepted roles and behaviors for men and women in heterosexual relationships. According to this script, what is often seen as a natural heterosexual relationship is in fact not innate, but a socially constructed arrangement shaped by cultural norms. (Rich, 1980, as cited in Kim et al., 2007). This script shapes the expectation that men should actively seek sexual encounters, view women as sexual objects, and prioritize physical intimacy over emotional connection. In contrast, women are expected to take on a more passive role, use their appearance to attract men, and set boundaries on sexual activity (Kim et al., 2007 & Beres, 2013). These ideas and expectations surrounding sexual behavior are also conveyed by gender roles. For instance, Seabrook and colleagues (2016) argue that traditional gender roles for women often involve placing others' needs above their own and focusing extensively on their physical appearance. Similarly, Parent and Moradi (2009) highlight that traditional masculine roles typically emphasize dominance, power over women, and presenting oneself as heterosexual. In both traditional gender roles and sexual scripts, women are generally seen as passive participants in relationships, expected to prioritize the desires of others, particularly men.

The traditional gender role that frames women as passive in sexual encounters and as responsible for prioritizing the desires of others closely aligns with the reasons women gave for continuing painful sex: normalization of painful sex, prioritization of a partner’s pleasure, not wanting to hurt the partner by interrupting PVI, promoting the relationship, avoiding uncomfortable situations, embarrassment and shame (Oesterling et al., 2025; Carter et al., 2019; Elmerstig et al., 2013). Besides this, the focus on penetration as the defining act of sex often leaves women at a disadvantage. Around 80% of women do not reach orgasm through penetration alone (Frederick et al., 2017). Despite this, activities that are more likely to lead to

female pleasure are often labeled as “foreplay”, a mere opening act to the “main event” of penetration (Cacchioni, 2007; Fedorova & Vorobevskii, 2025)

Together, the above implies that to achieve pleasurable experiences for women encouraging gender equality is extremely important (Laan et al., 2021). Promoting such equality is not just a “women's issue” but a human issue. Egalitarian sexual scripts can also increase heterosexuals men’s emotional and sensual pleasure. Gendered scripts make men responsible for initiating and directing sexual interactions and by creating more egalitarian ones the fear of performance failure might be reduced. Changing the definition of sex away from one particular sexual act and towards a sexually pleasurable experience that is shared among equals would benefit both men and women (Laan et al., 2021).

Despite research showing that there is a need for a broader definition of sex (Laan et al., 2021; McPhillips et al., 2001; WHO Regional Office for Europe and BZgA, 2010), to the best of my knowledge, there are no intervention studies that specifically target to change this definition. Scholars have pointed out that traditional sex education tends to emphasize STI and pregnancy prevention, while neglecting important topics such as sexual agency, gender equity, and sexual satisfaction (Haberland & Rogow, 2015; Soster et al., 2025). Meanwhile, an online intervention, OMGyes.com, has shown promising results, helping women better understand their preferences, communicate their needs with partners, and enhance their sexual pleasure (Hensel et al., 2021).

Building on this evidence, the present study investigates whether a brief, single-session online intervention, consisting of a 45-minute conversation between the researcher and a licensed psychosexologist, can broaden women’s definition of sex and improve outcomes related to sexual satisfaction, distress, and vulvar pain. Research suggests that sexual health interventions are most effective when delivered by trained professionals (Poobalan et al., 2009), and the presence of a certified psychosexologist therefore aligns with

best practices. Furthermore, brief interventions have also shown efficacy in improving sexual health outcomes. For example, the HEART for Teens program, a single-session digital intervention of similar length, increased adolescents' knowledge and confidence around safe sex practices (Widman et al., 2019).

Hypotheses and Expected Outcomes

First, we hypothesized that *the intervention will broaden participants' definition of sex.* While there is limited literature on how to actively change this definition, earlier sections have shown that sexual scripts and traditional gender roles likely contribute to narrow conceptions of sex. The intervention aims to provide information about these influences and encourage reflection on the diversity of sexual experiences. The concept of sexual scripts will not be discussed in academic terms during the session, to ensure relevance for participants without a psychology background. This approach aligns with recommendations from the WHO Regional Office for Europe and BZgA (2010), which suggest that sex education for individuals aged 15 and older should present sex as more than just coitus, indicating that such reframing may be effective.

Second, we hypothesized that *after the intervention, participants would report lower levels of sexual distress*. This expectation is based on the findings of Oesterling and colleagues (2025), who reported that a restrictive definition of sex was associated with greater sexual distress and vulvar pain. As the intervention is designed to challenge this restrictive definition, it is hypothesized that participants will report lower levels of sexual distress post-intervention.

Sexual satisfaction was not included in the study by Oesterling and colleagues (2025). However, previous research suggests that sexual distress and sexual satisfaction are related yet distinct constructs (Stephenson & Meston, 2010). Given that restrictive definitions of sex is associated with higher levels of sexual distress, it is plausible that adopting a broader, more

inclusive definition of sex is associated with higher levels of sexual satisfaction. So thirdly, we hypothesized *that participants would report higher levels of sexual satisfaction after the intervention.*

Fourth, we hypothesized *that participants would experience a reduction in vulvar pain following the intervention*. Although pre-specified, this hypothesis is considered tentative, as changes in vulvar pain may require more time to become evident.

Method

Participants

After the data collection period was completed, a total of $N = 80$ completed both the pre- and post-test questionnaires. Only participants who completed both measurements were included in the final analyses. Thus, data from $N = 53$ participants were excluded due to missing post-test responses. Additional exclusion criteria were applied to define the final sample. See Appendix A for a detailed reasoning behind the exclusion criteria. Participants were excluded if they:

- Selected a gender other than female, had been diagnosed with a psychiatric disorder, or were pregnant. However, none of the participants in the present sample met any of these exclusion criteria.
- Had been diagnosed with a sexual dysfunction ($n = 11$)
- Identified as bisexual ($n = 4$)
- Were not in a romantic or ongoing sexual relationship with a man ($n = 3$)
- Two participants who indicated that they watched less than 40% of the intervention (one watched 0%, the other 25%) were excluded from the analysis ($n = 2$)

- Participants were excluded if they failed the attention check **and** showed additional signs of careless responding (e.g., a standard deviation of 0 on key variables or an implausible completion time) (n = 2).[1]
- One participant was excluded from the main analyses due to indications of careless responding. This included a standard deviation of 0 across key measures and an implausible completion time of 1174.18 minutes (n = 1)

This resulted in a final sample of N = 57 female participants aged between 18 and 32 years. Most participants (70%) were between 18 and 22 years old, and the majority (61%) had completed secondary education. Participants were recruited via social media advertisements and the SONA participant recruitment platform of the University of Groningen. Nationality was not measured, so the exact composition of the sample is unknown.

An a priori power analysis was conducted using G*Power (version 3.1) to estimate the required sample size. Assuming a two-tailed test, α = .05, power = .80, and a small effect size (d = 0.20), a minimum of 199 participants was required. Due to practical constraints, only 57 participants completed the study.[2]

Procedure

Participants were recruited using a snowball sampling method through the researchers' social media (i.e. WhatsApp, Instagram, LinkedIn), as well as via the University of Groningen's SONA participant recruitment platform. Participants were encouraged to share the study further within their networks.

Data collection took place from March 18 until May 21, 2025. After giving informed consent, participants completed a 10–15 minute pre-test questionnaire assessing demographics, definition of sex, sexual activity, sexual satisfaction, sexual distress, and

[1] Three participants failed the attention check but were retained because they showed normal variation in key measures and plausible completion times.
[2] Although a two-tailed test was used for the a priori power analysis, the actual hypotheses were directional. One-tailed tests were therefore used in the main analyses, however this was not reflected in the initial power estimate.

vulvar pain. Seven days after completing the pre-test, participants gained access to the intervention: a 45-minute online conversation between Certified Psychosexuologist Charmaine Borg and the thesis author (Esther Spil). The video was hosted on YouTube and participants were encouraged to watch the video with their partner.

Participants recruited via social media received the link to the talk via email. Initially, all participants were to receive the same link via email, but for participants recruited through SONA, the procedure was adapted to ensure they watched the entire video before receiving the SONA credit. These participants watched the video through a Qualtrics page, where the button to proceed only became visible after 45 minutes.

Participants had seven days to watch the video to ensure that they could pick a moment that would work for them. Two weeks after this period, participants recruited through social media received the post-test questionnaire via email. This questionnaire repeated the pre-test measures and included additional questions about the intervention. SONA participants received access to the post-test exactly two weeks after watching the video, as this timing could be automated in the SONA system. Initially, the post-test was open for one week, but for the social media group, this period was extended by two days to increase the response rate, as these participants did not have an external motivation to complete the study, unlike SONA participants.

In total, the study took up to five weeks to complete for each participant. No compensation was provided to participants recruited through social media. SONA participants received 0.4 SONA credit for the pre-test, 1.0 SONA credit for watching the intervention, and 0.4 SONA credit for the post-test.

Finally, we intended to assess whether participants had actually watched the intervention video by asking them to recall the colour mentioned by Charmaine at the end of the video in the post-test (correct answer: red). However, we reconsidered the validity of this

manipulation check, as the post-test took place at least two weeks after viewing the video. It is plausible that participants simply forgot this detail over time, even if they watched the full video. Therefore, this item was not used as an exclusion criterion. For transparency, a detailed breakdown of responses to this item is included in Appendix B.

This study employed a single-group pre-post test design, meaning that participants were not randomly assigned to a condition. The study was approved by the Ethics Committee of the Faculty of Behavioural and Social Sciences (PSY-2425-S-0228).

Materials

The questionnaire, administered via Qualtrics, collected demographic data such as gender, sexual orientation, age category, and educational level. In addition to demographics, the questionnaires included validated measures of sexual distress and sexual satisfaction. Items assessing participants' definitions of sex and vulvar pain were adapted from previous research (Oesterling et al, 2025) but were not formally validated. Minor adaptations were made to the timeframes of certain measures to align them with the study design. In the post-test, participants were instructed to reflect on their experiences from the moment they viewed the intervention until they completed the post-test. This interval was at least two weeks, but varied slightly depending on when participants watched the intervention. The full pre-test and post-test questionnaires can be found in Appendix C and Appendix D.

Definition of Sex

The definition of sex of participants was measured using a scale developed by Oesterling and colleagues (2025). Participants were presented with various sexual behaviors and asked to indicate the extent to which they considered each behavior to be part of their personal definition of "having sex," regardless of whether they themselves had engaged in the behavior. The scale consisted of 11 items, each rated on a 5-point Likert scale ranging from 1 (*completely disagree*) to 5 (*completely agree*).

Minor wording adjustments were made to improve clarity for participants. For instance, the original items “Oral sex (Fellatio)” and “Oral sex (Cunnilingus)” were rephrased as “Oral stimulation of the penis and/or scrotum (Fellatio)” and “Oral stimulation of the vulva, clitoris, etc. (Cunnilingus),” to ensure all participants would understand the terminology. Additionally, “Mutual masturbation” was expanded to “Mutual masturbation (i.e., engaging in masturbation together or manually stimulating each other)” to provide more context. Example items that were left unchanged include “Penile–vaginal intercourse with orgasm” and “Intimacy and physical touch without penetration.”

To quantify participants’ definitions of sex, a difference score was calculated by subtracting the average endorsement of non-penetrative items (e.g., kissing and mutual masturbation) from the average endorsement of penile-vaginal intercourse (PVI) items (with and without orgasm). Higher scores indicate a narrower, penetration-centric view of sex. This method was chosen to capture the relative weighting participants assign to penetrative versus non-penetrative sexual acts.

Sexual Distress

Sexual distress was measured using the revised version of the Female Sexual Distress Scale, FSDS-R (DeRogatis et al., 2007). This 13-item scale assesses feelings and problems that women may experience concerning their sex lives. Participants were asked to indicate how often each item had bothered or distressed them during the past two weeks.

The original FSDS-R uses a recall period of either 7 days ($\alpha = .88$) or 28 days ($\alpha = .93$), these coefficients refer to women without a sexual dysfunction (DeRogatis et al., 2007).. As these recall periods did not align with the study timeline, a two-week recall period was chosen. This intermediate recall period was expected to yield comparable reliability. In the current sample, internal consistency was excellent at pre-test ($\alpha = .93$) and remained good at post-test ($\alpha = .86$).

Responses were given on a 5-point Likert scale ranging from 0 (*never*) to 4 (*always*). Example items include: “Worried about sex”, “Unhappy about your sexual relationship”, and “Frustrated by your sexual problems.” There were no reverse scored items, meaning that higher scores on the scale indicate higher levels of sexual distress.

Sexual Satisfaction

Sexual satisfaction was measured by employing the New Sexual Satisfaction Scale (NSSS) by Štulhofer and colleagues (2009). This scale consists of 20 items divided into two subscales. The internal consistency of the full scale was high in previous studies, with Cronbach’s alpha ranging from .94 to .96 (Štulhofer et al.,2009). In this sample, Cronbach’s alpha was good at both pre-test ($\alpha = .89$) and post-test ($\alpha = .88$). Subscale A (Ego-focused) measures sexual satisfaction derived from sensations and individual experiences, while subscale B (Partner- and Sexual Activity-Centered) assesses sexual satisfaction based on a partner’s sexual behaviors and responses, and on the frequency and variety of shared sexual activities (Štulhofer et al., 2009).

In the pre-test, participants were asked to think about their sex lives over the past two weeks and to rate their satisfaction on each item.[3] Example items from Subscale A include: “My body’s sexual functioning” and “The intensity of my sexual arousal.” Example items from Subscale B include: “My partner’s initiation of sexual activity” and “My partner’s emotional opening up during sex.” Responses ranged from 1 (*not at all satisfied*), 2 (*a little satisfied*), 3 (*moderately satisfied*), 4 (*very satisfied*), to 5 (*extremely satisfied*). The scores were recorded so that higher scores indicate higher sexual satisfaction.

The NSSS was presented to participants in a matrix table format. As this was the longest scale in the study presented in this way, an attention check item was included to ensure data quality: “Attention check, please select ‘not at all satisfied’ for this statement.”

[3] The original NSSS refers to the past six months. In this study, a two-week window was chosen, extending the period to six months was considered unfeasible and could introduce too many confounding factors.

Vulvar Pain

Vulvar pain was measured using a four-item questionnaire adapted from Oesterling and colleagues (2025). For the purpose of hypothesis testing, the item "On a scale from 0 (no pain) to 10 (worst pain), how would you rate your average level of pain during intercourse in the past 2 weeks?" was used in the paired t-test[4]. The remaining three items were used for descriptive purposes and included: (1) frequency of pain during (attempted) penetration, rated on a 5-point Likert scale from 0 (*No*) to 4 (*Yes, always*); (2) frequency of engaging in intercourse despite pain, rated from 0 (*No*) to 4 (*Yes, always*); and (3) reasons for pain during intercourse, with multiple-choice options and an open field.

Sexual Activity

Sexual activity was assessed with 11 items asking participants how frequently they engaged in various sexual activities. At pre-test, participants were asked to reflect on the past six months; at post-test, on the period since watching the intervention video. Responses ranged from *"Not once"* to *"All the time."* The listed activities mirrored those used in the question about the definition of sex. This variable was included as a measure to control for differences in sexual activity, but was not used in the final analyses (see Discussion).

Feedback

As this was a pilot study, we aimed to gather participants' feedback on the intervention. The feedback analysis was based on a subset of 61 participants: all 57 from the main analysis, three who were excluded due to failed attention checks and suspicious response patterns, and one participant who had watched only 25% of the intervention, as their feedback was still considered valuable.

Several questions were included in the post-test to assess how the intervention was

[4] At the post-test, this question was phrased as: "On a scale from 0 (no pain) to 10 (worst pain), how would you rate your average level of pain during intercourse since watching the talk?" Although participants were asked to complete the post-test after two weeks, the actual time between pre- and post-test varied slightly between participants.

received. Participants indicated how much of the talk they had watched using a slider ranging from 0 to 100%. They were also asked to rate how clear the information in the talk was and how personally relevant it was, both on a 5-point Likert scale. In addition, participants answered whether the talk provided practical tools or strategies they could apply in their own life (*yes*, *no*, *I don't know*), and whether they found the length of the talk appropriate (*too short*, *just right*, *too long*). Finally, an open-ended question invited suggestions for improving the talk: "What aspects of the talk do you think could be improved if we were to develop it further?"

As part of the feedback section, we also included a qualitative question related to the definition of sex, to explore whether the talk encouraged personal reflection in this area. Although the talk was introduced under the broader aim of enhancing sexual and relationship cohesion, we were specifically interested in whether participants themselves felt that it influenced how they conceptualize sex. Participants were asked: "Did the talk make you reflect on your own definition of sex?" (response options: *yes, no, I don't know*). If they answered yes, a follow-up open-ended question appeared: "In what way did you reflect on your definition of sex?"

Intervention: Structure and Rationale

The intervention consisted of a 45-minute online video conversation between Prof. Dr. Charmaine Borg, a Certified PsychoSexologist, and the thesis author. It focused on how gender norms, sexual scripts, and myths regarding sex affect people's sex lives. Participants were told the video was about sexual and relationship cohesion to minimize socially desirable responding. Cohesion was defined as the sense of connection and harmony between partners. The intervention covered topics such as:

- How gender norms and cultural scripts shape perceptions of sex (Beres, 2013; Carroll, 2019; McPhillips et al., 2001).

- The high prevalence of pain during penetration and the underreporting of such pain by women (Oesterling et al., 2025; Elmerstig et al., 2008; Elmerstig et al,. 2013)
- Addressing sexual myths, such as the belief that sex must always be spontaneous (Kovacevic et al., 2023) and encouraged to plan sex more often.
- Strategies for increasing sexual and relationship cohesion, like improving communication, setting the mood, or adding more sexual variety. These strategies have been associated with greater sexual satisfaction in empirical research (Frederick et al., 2016).

A publicly available version of the video can be accessed here: https://www.youtube.com/watch?v=sh_rZEBA4bI

Results

Sample Characteristics

A total of 57 women were included in the final dataset, ranging in age from 18 to 32 years old. The majority (70%) were between 18 and 22 years old, 26% were between 23 and 27, and 4% were between 28 and 32. In terms of relationship status, 70% reported being in a committed long-term relationship, 12% were in a new relationship (for at least two weeks) and 18% reported being in an ongoing sexual relationship with one person (for at least two weeks). In terms of sexual orientation, 68% identified as exclusively heterosexual, while 32% identified as predominantly heterosexual (i.e., primarily attracted to men but open to experiences with women). Lastly, regarding educational level, secondary education was the most commonly completed level (61%) followed by University education completed by 35%.

Vulvar Pain Descriptives

Vulvar pain was measured with a single item rated on a scale from 0 to 10. The average score at pre-test was 1.82 (SD = 1.51), 95% CI [1.41, 2.23]. At post-test, the average was slightly lower at 1.70 (SD = 1.87), 95% CI [1.21, 2.20]. Participants were also asked

whether they experienced physical discomfort or pain during attempted or actual penile-vaginal intercourse (PVI) with their partner. At pre-test, 61.4% reported experiencing pain *"sometimes"*, 8.8% *"more than half of the time"*, and 1.8% *"always"*. In contrast, at post-test, 49.1% reported experiencing pain *"sometimes"*, 3.5% *"more than half of the time"*, and another 3.5% *"most of the time"*. The proportion of participants reporting no pain or discomfort increased from 28.1% at pre-test to 43.9% after the intervention. An overview of all response categories with their percentages and cumulative percentages at pre- and post-test is shown in Table 1.

Table 1

Percentages of physical discomfort or pain during vaginal intercourse at pre- and post-test

Answer category	Percentage at pre-test	Cumulative percentage pre-test	Percentage at post-test	Cumulative percentage post-test
Yes, always	1.8%	1.8%	0.0%	0.0%
Yes, most of the time	0.0%	1.8%	3.5%	3.5%
Yes, more than half of the times	8.8%	10.5%	3.5%	7.0%
Yes, sometimes	61.4%	71.9	49.1%	56.1%
No	28.1%	100%	43.9%	100%

Reasons for the pain or discomfort in the pre-test included too long or frequent sexual activity (36.8%), insufficient lubrication (47.4%), deep thrusts (24.6%), too large penis of the partner (12.3%), discomfort with the first few thrusts (always) (19.3%). Additionally, 10.5% of participants didn't know why they experienced pain. Two other reasons given under the 'other' category were being on their period and the sexual position used.

Reasons for the pain or discomfort in the period since watching the talk until post-test measure included too long or frequent sexual activity (8.8%), insufficient lubrication (21.1%), deep thrusts (17.5%), too large penis of the partner (10.5%), discomfort with the first few thrusts (always) (15.8%). Furthermore, 8.8% of participants didn't know why they

experienced pain. Other reasons mentioned included being on their period, participating in a sexual experiment, the sexual position used, and focusing on the pain, which in turn intensified the experience.

Concerning engaging in sexual intercourse despite pain at pre-test, 50.9% of women reported engaging in intercourse despite pain *"at least sometimes"*, while 40.4% reported doing so *"most of the time"* or *"always"*. At post-test, participants were asked whether they had engaged in sexual intercourse despite pain since watching the talk. Here, 26.3% responded *"at least sometimes"*, and 15.8% reported engaging in intercourse despite pain *"most of the time"* or *"always"*. An overview of all response categories percentages and cumulative percentages at pre- and post-test is provided in Table 2.

Table 2

Percentages of participants engaging in sexual intercourse despite pain at pre- and post-test

Answer category	Percentage at pre-test	Cumulative percentage pre-test	Percentage at post-test	Cumulative percentage post-test
Yes, always	21.1%	21.1%	7.0%	7.0%
Yes, most of the time	19.3%	40.4%	8.8%	15.8%
Yes, sometimes	10.5%	50.9%	10.5%	26.3%
Yes, but rarely	29.8%	80.7%	28.1%	54.4%
No	19.3%	100%	45.6%	100%

Assumption Checks

Normality of the difference scores for the four main variables was assessed using Shapiro–Wilk tests and visual inspection of histograms, Q–Q plots, and boxplots. The difference scores of sexual satisfaction ($W = 0.99$, $p = .73$) and sexual distress ($W = 0.97$, $p = .22$) were approximately normally distributed, whereas those for definition of sex ($W = 0.90$, $p < .001$) and vulvar pain ($W = 0.89$, $p < .001$) significantly deviated from normality.

Three outliers were identified: one participant was an outlier on both definition of sex

and vulvar pain; one only on definition of sex; and one only on vulvar pain. After temporarily excluding these cases, normality was reassessed. With the two definition-of-sex outliers removed, this variable met the assumption of normality ($W = 0.97$, $p = .12$), whereas vulvar pain remained non-normally distributed ($W = 0.93$, $p = .002$).

Z-scores for the two outliers on the 'definition of sex' variable were 3.6 and –3.7, exceeding conventional thresholds (±2.5 to ±3.0; Iacobucci et al., 2025). The values on definition of sex for these participants were therefore excluded from analyses, resulting in $N = 55$ for that variable. The participant who was only an outlier on vulvar pain was retained. Because vulvar pain remained non-normally distributed despite deletion, and as both data points were deemed valid, the full sample ($N = 57$) was retained for that analysis. A non-parametric Wilcoxon signed-rank test was used accordingly.

Main Analysis

A paired-samples t-test was conducted for three of the four variables: definition of sex, sexual distress, and sexual satisfaction. For the definition of sex there was a slight decrease from pre-test ($M = 1.46$, $SD = .70$) to post-test ($M = 1.37$, $SD = .62$), $t(54) = 1.48$, $p = .072$, $d = 0.20$. The pre- and post-test scores were moderately correlated, $r = .77$, $p < .001$. For sexual distress, there was a small decrease from pre-test ($M = 1.75$ $SD = .70$) to post-test ($M = 1.62$, $SD = .46$), $t(56) = 1.71$, $p = .047$, $d = 0.23$. This difference was statistically significant. The pre- and post-test scores were moderately correlated, $r = .63$, $p < .001$. For sexual satisfaction, a slight increase was observed from pre-test ($M = 3.69$, $SD = 0.51$) to post-test ($M = 3.78$, $SD = 0.46$), $t(56) = -1.63$, $p = .054$, $d = -.22$. This increase approached statistical significance. Pre- and post-test scores were moderately correlated, $r = .61$, $p < .001$. See Table 3 below for the descriptive and test statistics of the four key variables.

Table 3

Descriptive Statistics and Test Results for Key Variables

Variable	*N*	Pre-test *M (SD)* [95% CI]	Post-test *M (SD)* [95% CI]	Test Statistic	*p* (1-tailed)	Effect Size
Definition of Sex	55 [a]	1.46 (.70) [1.27, 1.65]	1.37 (.62) [1.20, 1.53]	$t(54) = 1.48$	.072	$d = .20$
Sexual Distress	57	1.75 (.70) [1.57, 1.94]	1.62 (.46) [1.51, 1.75]	$t(56) = 1.71$	.047	$d = .23$
Sexual Satisfaction	57	3.69 (.51) [3.55, 3.82]	3.78 (.46) [3.66, 3.90]	$t(56) = -1.63$	.054	$d = -.22$
Vulvar Pain [b]	57	1.82 (1.51) [1.41, 2.23]	1.70 (1.87) [1.21, 2.20]	$z = -1.02$	.310	$r = -.13$

[a] *Note.* $N = 55$ due to the exclusion of two outliers; see assumption check section for details.

[b] *Note.* Wilcoxon signed-rank test was used; means, standard deviations and confidence intervals are reported for comparability.

For the variable vulvar pain, a Wilcoxon signed-rank test ($N = 57$) was used. This non-parametric test does not assume normally distributed difference scores, but it has less statistical power than a paired *t*-test. The Wilcoxon signed-rank test showed no statistically significant reduction in vulvar pain, $Z = -1.02$, $p = .31$. The median vulvar pain score decreased from 2.0 ($IQR = 2.5$) at pre-test to 1.0 ($IQR = 2.5$) at post-test, indicating a small but non-significant downward trend. The effect size was small, $r = -0.14$. See Table 3 above for the means, standard deviations and test statistics of the Wilcoxon signed rank test.

Exploratory Analysis

In line with the original research plan, exploratory correlations between all variables at time point 1 were computed. While significant associations were found between sexual distress, sexual satisfaction, and vulvar pain, no significant correlation was observed between

definitions of sex and vulvar pain, as had been reported by Oesterling and colleagues (2025).[5] See Appendix E for all the exploratory correlation tables.

As an additional exploratory analysis, correlations were computed between the difference scores of the main variables, i.e., definition of sex, sexual distress, sexual satisfaction and vulvar pain. There were no predefined hypotheses for these associations. A negative correlation was found between changes in sexual distress and changes in sexual satisfaction ($r = -.39$, $p < .01$), indicating that greater reductions in distress were associated with greater increases in satisfaction. Similarly, vulvar pain reduction correlated negatively with increased satisfaction ($r = -.34$, $p < .05$). Lastly, a significant positive correlation was found between reductions in vulvar pain and distress, based on Spearman's rho ($\rho = .27$, $p < .05$). No significant correlations were found for the variable definition of sex. See Appendix E for all the exploratory correlation tables.

Feedback

The feedback sample consisted of 61 participants. When asked about how clearly the information in the talk was presented, 63.9% of participants responded *very clear*, 31.1% *somewhat clear*, 3.3% *neutral*, and 1.6% *somewhat unclear*. Most participants found the length of the talk appropriate (62.3%), while 36.1% considered it too long and 1.6% too short. Regarding the usefulness of the talk, 72.1% stated that it provided practical tools or strategies they could apply in their own life, followed by 18.0% who were unsure and 9.8% who answered no. See Table 4 for a full overview of the responses to the relevance item, with *moderately relevant* being the most frequently selected response category (39.3%).

[5] This discrepancy may be due to the smaller sample size in the current study.

Table 4

Percentages of how relevant the talk was for participants personal experiences or understanding of relationships and sexuality

Answer category	Percentage at post-test	Frequency
Completely relevant	8.2%	5
Very relevant	36.1%	22
Moderately relevant	39.9%	24
Slightly relevant	13.1%	8
Not relevant at all	3.3%	2
Total	100%	61

At the end of the questionnaire, participants were asked for suggestions on how the talk could be improved. Based on a content analysis of 61 responses several themes emerged (12 in total)[6]. The most frequently mentioned themes were a need for more practical guidance (n = 10), a clearer structure (n = 8), and a shorter talk (n = 7). Other feedback included that the talk was too repetitive (n = 5), requests for more interaction (n = 4), and suggestions for improved language accessibility, such as subtitles (n = 4). Seven participants stated that they had no feedback and thought the talk was good as it was. The full coding scheme is presented in Appendix F. Participants who provided feedback seemed generally engaged. One respondent noted: “More structured approach by shortening the answers to more concise ones and giving Esther as an interviewer more chances to ask questions”. Another wrote: “I felt so "seen" and in a safe space during the talk as the topics were extremely relatable to me. I think I would like to deep dive also some practical advice on how to spice the sex up and being more creative with my partner.”. In addition, several participants expressed appreciation for the talk, with one commenting: “I do not think you can improve the talk, it was very clear!” and another writing: “It was fun. I'd watch more.”.

When asked whether the talk made them reflect on their definition of sex, 50.8% of

[6] Some responses were assigned to multiple categories.

participants answered "*yes*," 29.5% "*no*," and 19.7% "*I don't know*" ($N = 61$). Those who responded "*yes*" ($n = 31$) were asked to elaborate on their answer. Five themes emerged from their responses[7]. The most common theme was an expanded conceptualization of sex ($n = 19$), where participants described broader or more nuanced understandings following the intervention. As one participant noted: "At first I saw sex as the definition of penetration, but since the talk I see sex as much more and that penetration and an orgasm is not always needed to be satisfied." A second theme was self-reflection triggered ($n = 13$), referring to increased awareness of one's own thoughts and assumptions. For example, one participant wrote: "It made me think about my own sex life."

The third theme, social and relational awareness ($n = 8$), captured how participants reflected on sex in the context of relationships and partner communication. As one person put it: "It also made me reflect on ideas I have held about the frequency of sex [...] I talked about this with my partner." Less frequently mentioned were insight and practical take-aways ($n = 5$), such as learning new perspectives or tools to apply in the future, and affirmation of existing views ($n = 2$), where participants felt the talk confirmed what they already believed. See Appendix G for the complete coding scheme.

Discussion

This study aimed to explore whether an intervention designed to expand definitions of sex would broaden women's conceptualization of sex, decrease sexual distress, increase sexual satisfaction, and reduce vulvar pain. The study was inspired by the findings of Oesterling and colleagues (2025), who reported a high prevalence of pain during penile-vaginal intercourse (PVI) among women and demonstrated that a restrictive definition of sex is associated with higher levels of vulvar pain and sexual distress. The intervention consisted of an online talk between certified psychotherapist Charmaine Brog and the author

[7] Some responses were assigned to multiple categories.

of this thesis, during which they addressed gender and cultural norms influencing ideas about sex, challenged sexual myths, and provided tips to increase sexual and relationship cohesion, such as improving communication, engaging in diverse sexual activities, and planning sex, some of which have been linked to higher sexual satisfaction in empirical research (Frederick et al., 2016).

The results showed that Hypothesis 1, stating that women's definition of sex would broaden, was not supported. Hypothesis 2, predicting a reduction in sexual distress after the intervention, was statistically supported. Hypothesis 3, which predicted an increase in sexual satisfaction, showed a trend towards significance (p = .054), but did not reach conventional levels of statistical significance. Finally, Hypothesis 4, which stated a decrease in vulvar pain, was not supported. Although not framed as a formal hypothesis, this study also aimed to replicate the findings regarding the prevalence of pain during PVI reported by Oesterling and colleagues (2025). In both studies, approximately 70% of women in a relatively healthy student sample reported experiencing pain during PVI *at least sometimes*, and about 40% reported engaging in sexual intercourse despite pain *most of the time* or *always*.[8] These high percentages show that pain during PVI remains a prevalent and pressing issue that warrants further attention in both research and clinical practice.

Theoretical Implications

Our study has important theoretical implications. We have replicated the prevalence of pain in a relatively healthy student sample, which was shown in the study by Oesterling and colleagues (2025). Moreover, the percentages of women proceeding with sexual intercourse despite pain were also similar. The numbers are high, and they signal an important problem requiring more attention in research and interventions.

[8] When making this comparison, differences in sample size and study design should be considered. In the present study, the prevalence rates were measured at pre-test as the focus was on change scores following the intervention, whereas Oesterling et al. (2025) conducted a cross-sectional study. Additionally, Oesterling et al. used a considerably larger sample (N = 232) compared to this study (N = 57), which is important to keep in mind when directly comparing the prevalence rates.

Additionally, we showed with an exploratory analysis significant correlations between the change scores of sexual distress, vulvar pain and sexual satisfaction. These correlations suggest that participants who experienced a greater decrease in distress or vulvar pain also reported a greater increase in sexual satisfaction. Additionally, greater decreases in vulvar pain were associated with greater decreases in distress. This adds to the literature by showing connections between several sexual health variables, which has to some extent been shown before, for instance by Stephenson & Meston (2010), who demonstrated that sexual satisfaction and distress are distinct but related constructs. Interestingly, no significant correlations were found between changes in the definition of sex and the other main variables, possibly due to the limited sample size.

Practical Implications

Regarding the practical implications, to our knowledge, no previous intervention study has directly targeted the definition of sex. This study therefore provides one of the first exploratory contributions to this emerging area of research. The definition of sex did not change significantly after the intervention, which might be due to the relatively small effect size and limited statistical power. Nonetheless, we found evidence that an easy to implement online intervention can impact important sexual health outcomes such as sexual distress and sexual satisfaction. Below, we try to connect the results to already existing research on interventions aimed at enhancing sexual pleasure, sexual satisfaction or sexual distress.

Two online interventions have previously aimed to enhance women's sexual pleasure through self-directed website use: OMGYES and PleaSure. In both studies, participants were given access to the website for four weeks. In OMGYES, participants were invited to explore the platform at their own pace without guidance or structure, whereas PleaSure followed a structured format with a new theme and practical exercises introduced each week. Both interventions focused on self-exploration, pleasure-related knowledge, and bodily exercises.

Although these interventions did not directly aim to change sexual scripts, they might do so indirectly by presenting women's pleasure as something to explore with curiosity, rather than as something shameful or taboo. Fedorova and Vorobevskii (2025) describe how societal norms impose unspoken "rules" on women's sexual behavior, such as putting the man's needs first, fulfilling "sexual duties," and staying silent about pain or discomfort. These norms can shape how women experience sex, leading to shame, guilt, and a reluctance to express their desires or seek help. So, while no interventions are known to explicitly target the definition of sex, some seem to challenge dominant sexual scripts in more implicit ways.

Results from these studies were mixed but promising. The PleaSure intervention led to a significant improvement in one out of six dimensions of sexual pleasure, while OMGYES reported medium to large effects on outcomes such as sexual agency, knowledge, confidence, and pleasure in both solo and partnered sex. These findings, together with suggestive evidence from our own intervention, indicate that brief accessible online interventions have the potential to increase sexual satisfaction or pleasure and decrease sexual distress, in part by challenging limiting sexual scripts.

Limitations and Future Directions

Although participants reported slightly less restrictive definitions of sex after the intervention, this change was not statistically significant. As noted earlier, this may be due in part to the relatively small sample size and limited statistical power, since the study did not reach the predetermined sample size calculated in G*Power (see Method section).

However, another possible explanation lies in the nature of sexual scripts themselves. These scripts are shaped early in life and tend to be reinforced through cultural norms, media, education, and interpersonal experiences, making them relatively stable and resistant to change (Simon & Gagnon, 1986; Gavey, 2004; Masters et al., 2012). In addition, gender norms typically prioritize male pleasure, while neglecting women's sexual agency and

experiences (Beres, 2013). Even when female pleasure is emphasized, this can take a normative turn where orgasm becomes something to be achieved, thus placing new pressures on women rather than offering liberating alternatives (Cacchioni, 2007; Frith, 2013).

Even though it was a strength of this study to test and provide some evidence for potential positive effects of a short, easily accessible intervention, this might not be enough to bring about deeper changes in sexual scripts. This is also reflected to some extent in participants' feedback: several participants suggested that the talk could be more structured and concise. A recommendation for future research is that, rather than simply shortening the talk, it could be worthwhile to experiment with a series of shorter, more focused videos. This would allow for repetition across sessions without overloading a single video. Repetition seemed important for a topic like this, but in the current format it may have felt like too much for some participants, which was also something they mentioned in the feedback.

In addition to the quantitative results, the qualitative data provided valuable insights into participants' engagement with the topic. While only about half of the participants indicated that the intervention made them reflect on their definition of sex, those who did often described meaningful shifts. The most frequently mentioned theme was an expanded conceptualization of sex, where participants expressed broader or more nuanced understanding of sex. Very few participants simply affirmed their existing views, suggesting that for many, the intervention prompted some form of critical engagement. Although this qualitative feedback was based on a subset of participants and relied on self-report, it suggests that even a short intervention may encourage reflection which could be a first step in shifting sexual scripts. Future research could build on these findings through research with more in depth interviews. Including interrater reliability checks for the qualitative coding would also help strengthen the validity of the results.

Another important limitation is that participants were encouraged to watch the

intervention with their male partners, however no measure was included to verify which participants watched the intervention together with their partners. Furthermore, this study only collected data from female participants, a recommendation for future research could be to focus more on both genders and assess both partners' definitions of sex, to explore whether discrepancies in these definitions are associated with specific sexual health outcomes.

Additionally, not necessarily a limitation, but an important methodological consideration is that for both sexual satisfaction and sexual distress, we tested the significance of change between time 1 and time 2 with one-tailed paired t-tests. When considering two-tailed p-values, results were no longer significant. This outcome is not unexpected, given the small sample size and the small magnitude of the observed effects. As we had set up directional hypotheses before the data collection began, it was appropriate to use one-tailed tests. However, since this is a pilot study, we aim to present the findings as transparently and ethically as possible.

Finally, we initially aimed to control for sexual activity, but this variable was ultimately not included in the analyses. Statistically, including this variable would have required more complex models, which were beyond the scope of this pilot study. Conceptually, it raised a paradox: in order to control for sexual activity, we would have needed to define what "counts" as sexual activity, which would contradict the intervention's goal of challenging restrictive definitions of sex.

As previously discussed, we found a small but statistically significant decrease in sexual distress and a marginally significant increase in sexual satisfaction following the intervention. Interestingly, this reduction occurred even though no significant change in the definition of sex was observed. It is possible that subtle shifts in participants' perceptions took place but were not captured by our measurement or as discussed, the sample may have been too small. Alternatively, the intervention may have influenced other psychological processes.

One possible mechanism is partner communication. Participants were encouraged to watch the intervention with their partners, and several tips were provided during the intervention, such as improving communication and planning sex. Which may have helped reduce distress and increase sexual satisfaction. Previous studies support this idea: Oesterling and colleagues (2025) found that poor pain communication mediates the link between restrictive definitions of sex and negative sexual outcomes. Similarly, Witting and colleagues (2008) reported that poor sexual communication was the strongest predictor of sexual distress among compatibility factors. Additionally, Frederick and colleagues (2016) found that engaging in diverse sexual activities, planning sex, and improving communication are all associated with higher sexual satisfaction. Future research should consider including communication-related variables to further explore this potential pathway as a reason behind the changes in the variables sexual distress and sexual satisfaction.

As for vulvar pain, a slight decrease was observed, but the change was not statistically significant. The different framing of pre- and post-test questions likely contributed to this. In addition, pain during intercourse is a complex phenomenon that may require a longer period of behavioral change to shift meaningfully. Future studies should use a randomized controlled design with more standardized measurement windows to assess the intervention's potential impact on pain more reliably.

Unexpectedly, we also found that despite clearly stated exclusion criteria, 24 participants with diagnosed sexual dysfunctions enrolled in the study. Eleven of them completed both the pre- and post-test. These participants were excluded from the main analyses due to the likelihood of elevated baseline distress, which could bias the results. However, their interest in the intervention suggests that this population may be actively seeking content aimed at improving sexual and relational cohesion. Future studies should consider adapting and testing the intervention for individuals with sexual dysfunctions.

Moreover, the absence of a control group makes it impossible to draw causal conclusions, as we cannot rule out the possibility that changes in outcomes were due to other factors such as time effects, external influences, or the impact of repeated measurement. Finally, the homogeneity of the sample limits the generalizability of the findings. Most participants were young adults recruited via SONA, the University of Groningen's psychology research platform. This suggests a higher likelihood of familiarity with psychological topics compared to the general population. Broader studies including more diverse age groups, cultural backgrounds and educational background are needed to examine whether the effects of the intervention extend beyond this relatively narrow sample.

Conclusion

Taken together, this study provides, to our knowledge, the first exploratory evidence evaluating a short, accessible, and easily implementable online intervention aimed at broadening women's definition of sex. While the intervention did not significantly change how participants defined sex, it did lead to a significant reduction in sexual distress and a small, marginally significant, increase in sexual satisfaction, offering partial support for its intended effects. These findings form a valuable starting point for future research on this topic. Moreover, the relatively high prevalence of pain during penile–vaginal intercourse (PVI) observed in this study mirrored previous findings by Oesterling and colleagues (2025), highlighting the continued importance of addressing this issue in research and clinical practice.

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Appendix A

Detailed reasoning of exclusion criteria

Participants were required to identify as exclusively or predominantly heterosexual. Predominantly heterosexual was defined as being primarily attracted to men, while open to experiences with women. This category was included to capture variation within heterosexual-identified women while maintaining proximity to heterosexual sexual scripts. Additionally, participants had to be in a relationship with a man for at least two weeks to ensure contextual relevance.

Bisexual and lesbian women were excluded from participation because prior research on women who have sex with women (WSW) has shown that, although their conceptualizations of sex and first sexual experiences are not entirely different, they tend to deviate from dominant heterosexual sexual scripts as there is no direct equivalent to PVI in women-on-women relationships (Dion & Boislard, 2022). As the aim of this pilot study was to explore whether it is possible to shift the coital imperative embedded in heterosexual scripts, it was reasonable to assume that participants identifying as bisexual or lesbian might already hold a broader definition of sex, potentially introducing conceptual variability that could confound the results.

Participants with a diagnosed mental disorder were excluded from this study. This decision was based on evidence indicating a high prevalence of sexual dysfunction among individuals with mood, anxiety, psychotic, and certain personality disorders, which could significantly confound with certain outcome variables of interest, including sexual satisfaction and sexual distress (Jonusiene & Griffioen, 2013). Although not all psychiatric disorders show clear associations with sexual dysfunctions, it proved difficult to draw consistent and well-founded inclusion boundaries (e.g., whether to include ADHD, autism spectrum disorders and other neurodevelopmental disorders). Therefore, in order to reduce

confounding influences and maintain internal consistency, the decision was made to exclude all individuals with psychiatric diagnoses. Additionally, pregnant women were excluded from participation, as sexual dysfunction is frequently reported during pregnancy (Burke et al., 2013, p.1286). These changes, driven by both physiological and psychological factors, could substantially influence sexual satisfaction, sexual distress, and vulvar pain, and would therefore confound the outcome measures in this study.

Appendix B

Detailed Results of the Video Manipulation Check

To provide transparency regarding the manipulation check used to assess whether participants watched the full video, the following shows the distribution of responses to the question about the colour mentioned at the end of the video, alongside self-reported viewing durations.

Of the 61 participants:

- 42 correctly answered “red”
- 14 either left the question blank or indicated they did not remember
- 2 gave incorrect answers (“yellow” and “pink”)
- 2 mentioned two colours, one of which was red
- 1 explicitly stated they had not watched the talk to the end

These results are largely consistent with participants’ self-reported viewing durations:

- 49 participants indicated they watched 100% of the video
- 10 participants reported watching between 77% and 95%
- 1 participant watched 50%
- 1 participant watched 25%

The numbers align well, and given that the colour was mentioned near the very end of the talk, it is plausible that participants who did not remember or did not know the colour had not watched the final minutes.

Appendix C

Pre-test questionnaire

The questionnaire can be found on the following page.

university of groningen

Descriptives

INFORMATION ABOUT THE RESEARCH

SEXUAL AND RELATIONSHIP COHESION
PSY-2425-S-0228

Dear Participant,

Welcome, and thank you for your interest in our study on sexual and relationship cohesion! In this research, we explore how people's experiences and beliefs about sex and intimacy within their romantic relationships impact their overall satisfaction and well-being.

This study is conducted by Esther Spil (Master's student) under the supervision of Prof. Dr. Sabine Otten. Additional advisors include Dr. Charmaine Borg (c.borg@rug.nl) and Dr. Carlotta Oesterling. Research support is provided by Katsiaryna Bortnikava (Postgraduate trainee) and Akshaya Balaji (BSc student). The study has been reviewed and approved by the Ethical Committee of Psychology at the

University of Groningen.

For any questions, feel free to reach out at sexualcohesionstudy@gmail.com. Esther Spil (main researcher) will review all messages and respond to inquiries, she has signed a non-disclosure agreement (NDA) to ensure participants privacy. We appreciate your time and contribution to this research!

Who can participate?

- I am 18 or older.
- My gender is female
- My sexual orientation is exclusively or predominantly heterosexual (e.g., primarily attracted to men but open to experiences with women)
- I am in a romantic or sexual relationship with a man for at least two weeks at the start of the study
- I am not pregnant
- I am not diagnosed with a mental illness
- I am not diagnosed with a sexual disfunction (e.g., vaginismus, pain during sex, problems achieving sexual arousal or orgasm)

Do I have to participate in this research?

Participation in the research is voluntary. However, your

consent is needed. Therefore, please read this information carefully. Ask all the questions you might have, for example because you do not understand something. Only afterwards you decide if you want to participate. If you decide not to participate, you do not need to explain why, and there will be no negative consequences for you. You have this right at all times, including after you have consented to participate in the research.

What do we ask of you during the research?

Before participating in the study, you will be asked to provide your informed consent. The study consists of three parts.

1. Pre-test questionnaire
   You will start by completing a 15 minute online questionnaire about various aspects of your sexual and romantic experiences, including satisfaction, distress, and physical sensations.
2. Exclusive online talk
   One week after completing the pre-test questionnaire, you will receive access to an exclusive online talk led by Charmaine Borg and Esther Spil. In this talk, we will explore how social and cultural influences shape our views on sex and relationships, and discuss ways to enhance sexual and relationship cohesion with your partner. Cohesion refers to the sense of connection and

harmony in your relationship. The talk will last approximately 45 minutes. Please check your spambox for this e-mail as well.

3. Post-test questionnaire
   Two weeks after the talk, you will receive a link to the post-test questionnaire. This questionnaire will include approximately the same questions as the pre-test and will take 15 minutes to complete.

Compensation

Participants recruited via SONA will receive course credits as compensation. For all other participants, no compensation is provided

What are the consequences of participation?

Some of the questions in this study are of a personal nature, which may cause discomfort for participants. If you experience any discomfort, please remember that participation is voluntary, and you may withdraw at any time. There may also be indirect benefits to participating, such as gaining new insights into sexual topics. However, these benefits cannot be guaranteed. If you have any questions about the study or the intervention, you can contact us via email at sexualcohesionstudy@gmail.com. This email will be deactivated after the study and master

thesis ends which is 20-07-2025.

How will we treat your data?

This study is conducted for educational and academic purposes, with potential publication of results. We will collect email addresses to communicate with participants and send the links to the intervention and post-test. To ensure privacy, we will generate a unique code that allows us to match pre- and post-test data without using names or other identifying information.

- Email addresses will be stored separately from your data and used only for communication. They will be deleted after data collection ends (by 11-05-2025).
- SONA IDs will only be used to allocate credits and will also be deleted after data collection (by 11-05-2025).
- We will collect demographic and health-related information (e.g., age category, gender, educational level, sexual orientation, relationship status, mental health or sexual dysfunction diagnoses, pregnancy). These details are solely for eligibility screening and sample description. Once participants who are ineligible are excluded, the demographic data will be deleted (by 11-05-2025).
- After this process, only anonymized data (where a participant number is the sole link between pre- and post-test responses, with all other identifiable

information deleted) will be retained and analyzed in accordance with institutional guidelines.
- If you wish for your data to be deleted, you can ask this by emailing us your participant number at sexualcohesionstudy@gmail.com before 04-05-2025. After that we will do the analysis and it will not be possible to delete your specific data from the analysis.

What else do you need to know?

You may always ask questions about the research: now, during the research, and after your participation until 20-07-2025. You can do so by emailing to sexualcohesionstudy@gmail.com.

Do you have questions/concerns about your rights as a research participant or about the conduct of the research? You may also contact the Ethics Committee of the Faculty of Behavioural and Social Sciences of the University of Groningen: ec-bss@rug.nl.

Do you have questions or concerns regarding the handling of your personal data? You may also contact the University of Groningen Data Protection Officer: privacy@rug.nl.

As a research participant, you have the right to a copy of this research information.

Information form for participants pdf

INFORMED CONSENT

“SEXUAL AND RELATIONSHIP COHESION”
PSY-2425-S-0228

- I have read the information about the research. I have had enough opportunities to ask questions about it.
- I understand what the research is about, what is being asked of me, which consequences participation can have, how my data will be handled, and what my rights as a participant are.
- I understand that participation in the research is voluntary. I myself choose to participate. I can stop participating at any moment. If I stop, I do not need to explain why. Stopping will have no negative consequences for me.
- Below I indicate what I am consenting to.

When consenting I confirm that:

- I am 18 years or older
- My gender is female
- My sexual orientation is exclusively or predominantly heterosexual (e.g., primarily attracted to men but open to experiences with women)
- I am in a romantic or sexual relationship with a man for at least two weeks at the start of the study
- I am not pregnant
- I am not diagnosed with a mental illness
- I do not have a diagnosed sexual disfunction (e.g., vaginismus, pain during sex, problems achieving sexual arousal or orgasm)

Consent to participate in the research:

- ○ Yes, I consent to participate.
- ○ No, I do not consent to participate

Consent to the processing of personal data:

- ○ Yes, I consent to the processing of my personal data
- ○ No, I do not consent to the processing of my personal data

What is your gender?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

What is your age?

- 18-22
- 23-27
- 28-32
- 33-37
- 38-42
- 43-47
- 48-52
- Above 52

What is your highest completed education?

- No formal education
- Primary education
- Secondary education (VMBO, MAVO, HAVO, VWO)

- Vocational education (MBO, HBO)
- University education (WO)
- Other

How would you describe your sexual orientation?

- Exclusively heterosexual
- Predominantly heterosexual (e.g., primarily attracted to men but open to experiences with women)
- Bisexual
- Other

Are you currently in a sexual relationship with a man?

- Yes
- No

How would you describe your current relationship status?

- Married
- In a committed long-term relationship
- In a new relationship (for at least two weeks)
- In an ongoing sexual relationship with one person (for at least two weeks)
- None of the above

Are you diagnosed with a mental illness?

- Yes
- No

Are you diagnosed with a sexual dysfunction? (e.g., vaginismus, pain during sex, problems achieving sexual arousal or orgasm)

- No
- Yes

Are you pregnant?

- Yes
- No

I consider the following behaviours as "having sex" (please indicate regardless of whether you engage in them or not):

This list is not exhaustive. We recognize that different people

may have different definitions of what counts as sex. If there are any activities you consider to be part of your definition of sex that are not listed, please specify them in the 'Other' option.

	Strongly disagree	Somewhat disagree	Undecided	Somewhat agree	Strongly agree
Penile-Vaginal Intercourse with orgasm	○	○	○	○	○
Penile-Vaginal Intercourse without orgasm	○	○	○	○	○
Oral stimulation of the penis and/or scrotum (Fellatio)	○	○	○	○	○
Oral stimulation of vulva, clitoris etc. (Cunnilingus)	○	○	○	○	○
Giving anal sex	○	○	○	○	○
Receiving anal sex	○	○	○	○	○
Kissing	○	○	○	○	○
Mutual masturbation (i.e., engaging in masturbation together or manually stimulating each other)	○	○	○	○	○
Masturbation	○	○	○	○	○
Intimacy and physical touch without penetration	○	○	○	○	○
Other:	○	○	○	○	○

I engaged in the following behaviors during the last six months...

This list is not exhaustive. We recognize that people may engage in different sexual behaviors. If there are any activities you engaged after the workshop that are not listed, please specify them in the 'Other' option."

	Not once	Rarely	Sometimes	Often	All the time
Penile-Vaginal Intercourse with orgasm	○	○	○	○	○
Penile-Vaginal Intercourse without orgasm	○	○	○	○	○
Oral stimulation of the penis and/or scrotum (Fellatio)	○	○	○	○	○
Oral stimulation of vulva, clitoris etc. (Cunnilingus)	○	○	○	○	○
Giving anal sex	○	○	○	○	○
Receiving anal sex	○	○	○	○	○
Kissing	○	○	○	○	○
Mutual masturbation (i.e., engaging in masturbation together or manually stimulating each other)	○	○	○	○	○
Masturbation	○	○	○	○	○
Intimacy and physical touch without penetration	○	○	○	○	○

	Not once	Rarely	Sometimes	Often	All the time
Other:					

Thinking about your sex life during the last two weeks. Please rate your satisfaction with the following aspects:

	Not at all satisfied	A little satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
My “letting go” and surrender to sexual pleasure during sex					
The way I sexually react to my partner					
The quality of my orgasms					
My partner’s emotional opening up during sex					
My focus/concentration during sexual activity					
My partner’s sexual creativity					
My partner’s initiation of sexual activity					
The variety of my sexual activities					

	Not at all satisfied	A little satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
My partner's sexual availability	○	○	○	○	○
My emotional opening up in sex	○	○	○	○	○
My body's sexual functioning	○	○	○	○	○
The balance between what I give and receive in sex	○	○	○	○	○
Attention check, please select not at all satisfied with this statement	○	○	○	○	○
My partner's surrender to sexual pleasure ("letting go")	○	○	○	○	○
The pleasure I provide to my partner	○	○	○	○	○
The intensity of my sexual arousal	○	○	○	○	○
My partner's ability to orgasm	○	○	○	○	○
The frequency of my sexual activity	○	○	○	○	○
The frequency of my orgasms	○	○	○	○	○
The way my partner takes care of my sexual needs	○	○	○	○	○

	Not at all satisfied	A little satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
My mood after sexual activity	○	○	○	○	○

Do you experience physical discomfort or pain when you attempt to or engage in penetration/vaginal intercourse with your partner?

- ○ Yes, always
- ○ Yes, most of the time
- ○ Yes, more then half of the times
- ○ Yes, sometimes
- ○ No

For which reasons have you experienced physical discomfort or pain (more than one option possible)?

- ☐ The sexual activity was too long or too frequent
- ☐ I was not aroused or lubricated enough
- ☐ The thrusts were too deep
- ☐ The penis was too large
- ☐ I always experience discomfort during the first few thrusts
- ☐ I experienced discomfort due to a yeast infection
- ☐ I don't know why I experience(d) pain

☐ Other

On a scale from 0 (no pain) to 10 (worst pain), how would you rate your average level of pain during intercourse in the past 2 weeks?

	0	1	2	3	4	5	6	7	8	9	10	
Average Pain during Sexual Intercourse	○											

Do you engage in sexual intercourse despite experiencing pain?

- ○ Yes, always
- ○ Yes, most of the times
- ○ Yes, sometimes
- ○ Yes, but rarely
- ○ No

Below is a list of feelings and problems that women may have concerning their sexuality. Please read each item

carefully, and indicate how often that problem has bothered you or has caused you distress during the past two weeks.

During the past two weeks, how often did you feel....

	Never	rarely	Occasionally	Frequently	Always
Unhappy about your sexual relationship	○	○	○	○	○
Bothered by low sexual desire	○	○	○	○	○
Embarrassed about sexual problems	○	○	○	○	○
Guilty about sexual difficulties	○	○	○	○	○
Regrets about your sexuality	○	○	○	○	○
Sexually inadequate	○	○	○	○	○
Dissatisfied with your sex life	○	○	○	○	○
Distressed about your sex life	○	○	○	○	○
Angry about your sex life	○	○	○	○	○
Inferior because of sexual problems	○	○	○	○	○
Worried about sex	○	○	○	○	○
Frustrated by your sexual problems	○	○	○	○	○

	Never	rarely	Occasionally	Frequently	Always
Stressed about sex	○	○	○	○	○

Please enter your email address below.
(so we can send your participant number, as well as the intervention and post-test links. If you don't receive them, please check your spam folder.)

If you have a SONA ID number add it here (this is so that you can receive course credits for your participation)

Appendix D

Post-test questionnaire

The questionnaire can be found on the following page.

university of groningen

Descriptives

Please paste the unique participant number you received via email after completing the first questionnaire.

Main questions

I consider the following behaviours as "having sex" (please indicate regardless of whether you engage in them or not):

This list is not exhaustive. We recognize that different people may have different definitions of what counts as sex. If there are any activities you consider to be part of your definition of sex that are not listed, please specify them in the 'Other' option.

	Strongly disagree	Somewhat disagree	Undecided	Somewhat agree	Strongly agree
Penile-Vaginal Intercourse with orgasm	○	○	○	○	○
Penile-Vaginal Intercourse without orgasm	○	○	○	○	○
Oral stimulation of the penis and/or scrotum (Fellatio)	○	○	○	○	○
Oral stimulation of vulva, clitoris etc. (Cunnilingus)	○	○	○	○	○
Giving anal sex	○	○	○	○	○
Receiving anal sex	○	○	○	○	○
Kissing	○	○	○	○	○
Mutual masturbation (i.e., engaging in masturbation together or manually stimulating each other)	○	○	○	○	○
Masturbation	○	○	○	○	○
Intimacy and physical touch without penetration	○	○	○	○	○
Other:	○	○	○	○	○

I engaged in the following behaviors after watching the talk...

This list is not exhaustive. We recognize that people may

engage in different sexual behaviors. If there are any activities you engaged in after watching the talk that are not listed, please specify them in the 'Other' option."

	Not once	Rarely	Sometimes	Often	All the time
Penile-Vaginal Intercourse with orgasm	○	○	○	○	○
Penile-Vaginal Intercourse without orgasm	○	○	○	○	○
Oral stimulation of the penis and/or scrotum (Fellatio)	○	○	○	○	○
Oral stimulation of vulva, clitoris etc. (Cunnilingus)	○	○	○	○	○
Giving anal sex	○	○	○	○	○
Receiving anal sex	○	○	○	○	○
Kissing	○	○	○	○	○
Mutual masturbation (i.e., engaging in masturbation together or manually stimulating each other)	○	○	○	○	○
Masturbation	○	○	○	○	○
Intimacy and physical touch without penetration	○	○	○	○	○
Other:	○	○	○	○	○

Since watching the talk, how satisfied have you been with the following aspects of your sex life?

	Not at all satisfied	A little satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
My focus/concentration during sexual activity	○	○	○	○	○
The intensity of my sexual arousal	○	○	○	○	○
My mood after sexual activity	○	○	○	○	○
My “letting go” and surrender to sexual pleasure during sex	○	○	○	○	○
The variety of my sexual activities	○	○	○	○	○
The way I sexually react to my partner	○	○	○	○	○
The balance between what I give and receive in sex	○	○	○	○	○
Attention check, please select not at all satisfied with this statement	○	○	○	○	○
My partner’s sexual availability	○	○	○	○	○
My partner’s emotional opening up during sex	○	○	○	○	○
The frequency of my sexual activity	○	○	○	○	○

	Not at all satisfied	A little satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
The pleasure I provide to my partner	○	○	○	○	○
My partner's sexual creativity	○	○	○	○	○
My partner's surrender to sexual pleasure ("letting go")	○	○	○	○	○
My emotional opening up in sex	○	○	○	○	○
The frequency of my orgasms	○	○	○	○	○
My partner's ability to orgasm	○	○	○	○	○
My partner's initiation of sexual activity	○	○	○	○	○
The quality of my orgasms	○	○	○	○	○
The way my partner takes care of my sexual needs	○	○	○	○	○
My body's sexual functioning	○	○	○	○	○

Have you experienced physical discomfort or pain when attempting to or engaging in penetration/vaginal intercourse with your partner since watching the talk?

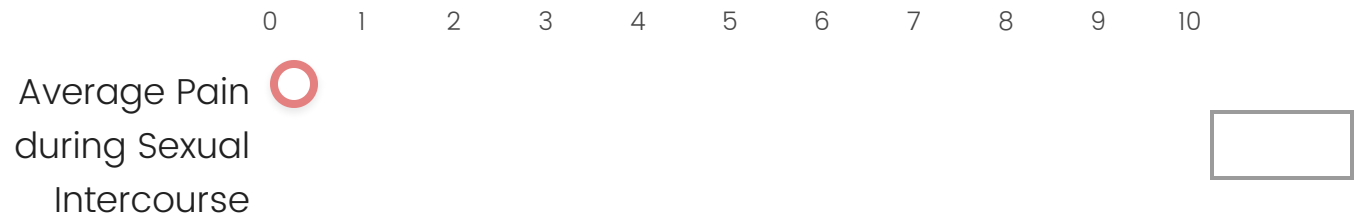
- ○ Yes, always
- ○ Yes, most of the time
- ○ Yes, more then half of the times
- ○ Yes, sometimes
- ○ No

For which reasons have you experienced physical discomfort or pain when attempting to or engaging in penetration/vaginal intercourse with your partner since watching the talk? (More than one option possible)

- ☐ The sexual activity was too long or too frequent
- ☐ I was not aroused or lubricated enough
- ☐ The thrusts were too deep
- ☐ The penis was too large
- ☐ I always experience discomfort during the first few thrusts
- ☐ I experienced discomfort due to a yeast infection
- ☐ I don't know why I experience(d) pain
- ☐ None of the above
- ☐ Other

On a scale from 0 (no pain) to 10 (worst pain), how would you rate your average level of pain during intercourse since

watching the talk?



Since watching the talk, have you engaged in sexual intercourse despite experiencing pain?

- Yes, always
- Yes, most of the times
- Yes, sometimes
- Yes, but rarely
- No

Below is a list of feelings and problems that women may have concerning their sexuality. Please read each item carefully, and indicate how often that problem has bothered you or has caused you distress during the past two weeks.

Since watching the talk, how often have you felt...

	Never	rarely	Occasionally	Frequently	Always
Inferior because of sexual problems	○	○	○	○	○
Bothered by low sexual desire	○	○	○	○	○
Distressed about your sex life	○	○	○	○	○
Unhappy about your sexual relationship	○	○	○	○	○
Frustrated by your sexual problems	○	○	○	○	○
Guilty about sexual difficulties	○	○	○	○	○
Dissatisfied with your sex life	○	○	○	○	○
Regrets about your sexuality	○	○	○	○	○
Sexually inadequate	○	○	○	○	○
Embarrassed about sexual problems	○	○	○	○	○
Worried about sex	○	○	○	○	○
Stressed about sex	○	○	○	○	○
Angry about your sex life	○	○	○	○	○

Questions regarding the talk

On which date did you watch the talk? (day/month/year)

How much of the talk/workshop did you watch? (Move the slider to the point that best represents your viewing experience)

0 25 50 75 100

How much percent of the talk did you watch?

Do you feel that the talk made you reflect on your own definition of sex?

- Yes
- No
- I don't know

If you answered yes to the previous question, in what way did you reflect on your definition of sex?

How clear was the information presented in the talk?

- Very unclear
- Somewhat unclear
- Neutral
- Somewhat clear
- Very clear

How relevant was the talk to your personal experiences or understanding of relationships and sexuality?

- Not relevant at all
- Slightly relevant
- Moderately relevant
- Very relevant
- Completely relevant

Did the talk provide practical tools or strategies you can apply in your own life?

- Yes
- No
- I don't know

Did you find the length of the talk appropriate?

- Too short
- Just right
- Too long

What aspects of the talk do you think could be improved if we were to develop it further?

Which colour did Charmaine mention at the end of the talk?

Since it's been a while, if you don't remember, that's okay! Just write that down.

Debriefing form

Debriefing Form

Dear Participant,

Thank you for participating in our research on sexual and romantic cohesion in women. While we initially informed you that the study would explore how people's experiences and beliefs about their sexual and romantic lives affect their overall relationship satisfaction and well-being, the more specific aim of this study was to examine whether an intervention designed to broaden the definition of sex effectively achieves this. Additionally, we sought to understand the intervention's impact on factors such as female sexual distress, sexual satisfaction, and vulvar pain. The full purpose was not disclosed initially to avoid any potential bias in your responses.

If you have any questions or concerns regarding the study's

objectives or the intervention, please feel free to contact us at our dedicated research email: sexualcohesionstudy@gmail.com. This email account is monitored by Esther Spil, who has signed a non-disclosure agreement (NDA).

Please note that the email account will remain active until 20-07-2025, which marks the conclusion of this research and the connected master's thesis. After this period, all data and communications will be permanently deleted. If at any point you feel that you need additional support or have emotional concerns related to the content of this study, please don't hesitate to reach out to us. We will provide you with relevant resources.

Withdrawal of Consent:

You have the right to withdraw your consent to participate at any time without any negative consequences, including for any compensation you may have been promised. If you wish to withdraw, please contact us with your participant number before 20-05-2025 at sexualcohesionstudy@gmail.com.

Recommended Resources for Further Information:

If you would like more information regarding sexual health and vulvar pain, here are some resources that may be helpful. The links to the websites are added in the debriefing

pdf file if you want to be directed right away:

1. National Vulvodynia Association (NVA)

A patient-friendly source offering clear information on vulvar pain and its management.

2. British Society for Sexual Medicine (BSSM)

Provides scientifically-grounded and accessible information on sexual health.

3. Sense.info

Sense.info is a resource supported by organizations such as Rutgers, GGD, the Ministry of Health, and SOAIDS. It provides accessible information about sexual health and vulvar pain. While the information is well-supported by reputable organizations, it may not always be fully aligned with the latest scientific research.

4. OMGYes

OMGYes is a subscription-based platform offering scientifically-backed resources aimed at enhancing sexual pleasure for women. It can be a valuable resource for those looking to improve their sexual experiences.

5. Netflix: The Principles of Pleasure

This Netflix series provides a visual and engaging exploration of sexual pleasure, supported by expert research and real-life stories. While it's more of an introductory resource, it offers valuable insights into sexual well-being.

If you have any questions about these resources or need

further recommendations, please feel free to contact us.

We greatly appreciate your participation and contribution to research aimed at enhancing sexual pleasure and well-being for women. Your involvement plays a crucial role in advancing knowledge in this field.

Yours sincerely,

Esther Spil

Debriefing form - definition of sex study

Appendix E

Exploratory analysis tables

Table 5

Exploratory Correlations Between Key Variables at Pre-Test (T1)

			Pre-Average Pain during Sexual Intercourse	mean_pre_satisfaction	mean_pre_distress	pre_definition_sex
Spearman's rho	Pre-Average Pain during Sexual Intercourse	Correlation Coefficient	1,000	-,421**	,401**	,151
		Sig. (1-tailed)	.	<,001	<,001	,135
		N	57	57	57	55
	mean_pre_satisfaction	Correlation Coefficient	-,421**	1,000	-,686**	-,062
		Sig. (1-tailed)	<,001	.	<,001	,325
		N	57	57	57	55
	mean_pre_distress	Correlation Coefficient	,401**	-,686**	1,000	-,166
		Sig. (1-tailed)	<,001	<,001	.	,113
		N	57	57	57	55
	pre_definition_sex	Correlation Coefficient	,151	-,062	-,166	1,000
		Sig. (1-tailed)	,135	,325	,113	.
		N	55	55	55	55

**: Correlation is significant at the 0.01 level (1-tailed).

Table 6

Exploratory Correlations Between Change Scores on the Key Variables

		diff_definition_sex	diff_distress	diff_satisfaction	diff_vulvar_pain
diff_definition_sex	Pearson Correlation	1	,064	-,156	,039
	Sig. (2-tailed)		,644	,255	,777
	N	55	55	55	55
diff_distress	Pearson Correlation	,064	1	-,391**	,184
	Sig. (2-tailed)	,644		,003	,171
	N	55	57	57	57
diff_satisfaction	Pearson Correlation	-,156	-,391**	1	-,340**
	Sig. (2-tailed)	,255	,003		,010
	N	55	57	57	57
diff_vulvar_pain	Pearson Correlation	,039	,184	-,340**	1
	Sig. (2-tailed)	,777	,171	,010	
	N	55	57	57	57

**: Correlation is significant at the 0.01 level (2-tailed).

Table 7

Exploratory Spearman's Correlations Between Change Scores on the Key Variables

			diff_definition_sex	diff_distress	diff_satisfaction	diff_vulvar_pain
Spearman's rho	diff_definition_sex	Correlation Coefficient	1,000	,017	-,092	-,004
		Sig. (2-tailed)	.	,905	,502	,976
		N	55	55	55	55
	diff_distress	Correlation Coefficient	,017	1,000	-,425**	,267*
		Sig. (2-tailed)	,905	.	<,001	,044
		N	55	57	57	57
	diff_satisfaction	Correlation Coefficient	-,092	-,425**	1,000	-,340**
		Sig. (2-tailed)	,502	<,001	.	,010
		N	55	57	57	57
	diff_vulvar_pain	Correlation Coefficient	-,004	,267*	-,340**	1,000
		Sig. (2-tailed)	,976	,044	,010	.
		N	55	57	57	57

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix F

Coding scheme feedback

A link to the Google Sheet is provided, which contains two tabs. Sheet 1 shows the full coding scheme as presented above. Sheet 2 includes a summary table with the number of responses per theme and illustrative example quotes. http://bit.ly/GoogleDoc_Feedback

The coding scheme can be found on the following page.

Respondent answer:	# Frequency	Label 1	Label 2	Label 3
	6	No answer		
I think in general it was a good and interesting talk but sometimes I feel like implementing tips is very difficult especially when you're young and insecure	1	Need more practical guidance		
-	4	No answer		
a bit more guidance on how exactly one could implement different strategies	1	Need more practical guidance		
A bit shorter	1	Talk should be shorter		
a summary - highlighting the key points	1	More structure		
Annomously interactive	1	More interaction		
Clearer overview in the beginning	1	More structure		
Divide it into sections with clear tools for people to use in their relationship	1	Need more practical guidance	More structure	
don't talk too long about one subject, maybe move on quicker so you can speak about more topics	1	Too long answers		
How to communicate with your partner about eachothers sex drive	1	Communication		
I didn't really thought about it personally it felt more like a general toping and thing that's going on, not really something I should do something with but maybe that's because I don't really feel like I have a problem with my sex life and am happy about it	1	Other		
I do not think you can improve the talk, it was very clear!	1	No feedback, the talk was good!		
i don't know	1	Unclear / No opinion		
I don't know	1	Unclear / No opinion		
I don't remember the entire talk, but if there would have been something to be improved on, I would have remembered that. So I think the talk was good as it was.	1	No feedback, the talk was good!		
I don’t know	1	Unclear / No opinion		
I don’t think there is something to be improved	1	No feedback, the talk was good!		
I felt like the only tool presented was to schedule intimate time. It is a helpful tip, but I feel like in reality there are so many reasons for that to not work (e.g. long distance, menstruation, holidays etc.). Still it was an interesting way to think about intimacy.	1	Need more practical guidance		

Respondent answer:	# Frequency	Label 1	Label 2	Label 3
I felt so "seen" and in a safe space during the talk as the topics were extremely relatable to me. I think I would like to deep dive also some practical advice on how to spice the sex up and being more creative with my partner.	1	Need more practical guidance		
I honestly thought it was really interesting to watch, but it's a little hard to stay concentrated for 45 minutes. I think it was on the border of being too long, but it was still fine.	1	No feedback, the talk was good!		
I missed some practical tools, things to 'work with'. Maybe that's also quite difficult, because you have a broad group of people facing different kinds of problems. But maybe I missed some more specific advice.	1	Need more practical guidance		
I think it could be a bit more concise. In my opinion it was a little repetitive and extensive. Sometimes a bit hard to keep listening (in English; I'm Dutch). Could be a bit more structured; what is the 'problem', elaboration on that with examples etc., a professionals point of view of you, and a conclusion/tips/tricks.	1	Language accessibility (e.g., subtitles)	Repetitive	More structure
I think the topics discussed were interesting and in some cases stimulate starting a conversation with your partner, which is really good. However, sometimes it felt like the conversations were a bit too stretched out where the point could've gotten across easier if it would've stayed more to the point (mainly for the first half of the video). Furthermore, I think it could maybe focus a bit more on the interaction of a couple as well, instead of solely on the female (e. g. what can a partner do to help with discomfort, how can you engage in healthy conversation with each other about sex?).	1	Repetitive	Other	
I would say maybe the length is the only problem. Seeing the entire video in one sitting sometimes feels hard to digest. Maybe a series of shorter videos based on subtopics would be nicer and access to them for a longer period of time.	1	Talk should be shorter		
It could be more organized, more clearly divided into discussed topics	1	More structure		
It could have been a bit more concise and less repetitive at times. Though overall it was very interesting and informative.	1	Repetitive		
it was all clear, so none	1	No feedback, the talk was good!		
It was fun. I'd watch more.	1	No feedback, the talk was good!		

Respondent answer:	# Frequency	Label 1	Label 2	Label 3
it's a bit too long ago to answer this question.	1	Unclear / No opinion		
Maybe a little shorter, because my concentration at the end was low	1	Talk should be shorter		
maybe add some pictures or other examples to make it more interesting to watch	1	Need more practical guidance		
Maybe even more practical examples.	1	Need more practical guidance		
Maybe have a bit more back and forth between Esther and Charmaine.	1	More interaction		
Maybe make the presentation a bit shorter, in that way people can manage to stay focussed during the whole talk. By instance in a time range from 30-45 minutes	1	Talk should be shorter		
Maybe some more specific ideas or tools that can be implemented rather than broader based concepts.	1	Need more practical guidance		
Maybe talk and devide a bit better for different 'experience' levels of people having sex. From people with lots of experience and that are in relationships trying to mantain their sexual relationship to people that are still figuring out for themselves (and themselves in relationship to their (new) partner)	1	Other		
More practical tips. Or maybe they were there, but I don't remeber them now. So they maybe could have been more clear, or repeated at the end.	1	Need more practical guidance		
More structured approach by shortening the answers to more concise ones and giving Esther as an interviewer more chances to ask auestions	1	More interaction	More structure	Too long answers
N/A	1	No answer		
nothing	1	No feedback, the talk was good!		
Perhaps a more structured interview could be more helpful. At times you talked about the same thing over and over.	1	More structure	Repetitive	
shorter	1	Talk should be shorter		
Shorter, maybe more interactive. More of a conversation then one person doing al the talking.	1	Talk should be shorter		
shoter	1	Talk should be shorter		
Sometimes it was a bit repeating	1	Repetitive		
Subtitles	1	Language accessibility (e.g., subtitles)		
Te lange antwoorden vermijden als het niet nodig is	1	Too long answers		

Respondent answer:	# Frequency	Label 1	Label 2	Label 3
The aspect about being satisfied with quality of the sex, but not the frequency	1	Other		
The better structure of the conversation	1	More structure		
The English accents	1	Language accessibility (e.g., subtitles)		
The language barrier sometimes made it difficult to understand everything properly. Perhaps subtitles would have been an option.	1	Language accessibility (e.g., subtitles)		
The talk could me a little bit more from two sides so it would be more interesting to watch	1	More interaction		
Total	61			

Appendix G

Coding Scheme – Reflections on the Definition of Sex

A link to the Google Sheet is provided, which contains two tabs. Sheet 1 shows the full coding scheme as presented above. Sheet 2 includes a summary table with the number of responses per theme and illustrative example quotes. https://bit.ly/GoogleDoc_definitionsex

The coding scheme can be found on the following page.

Respondent answer	Frequency	Label 1	Label 2	Label 3
At first I saw sex as the definition of penetration, but since the talk I see sex as much more and that penetration and an orgasm is not always needed to be satisfied.	1	Expanded Conceptualization	Self-reflection triggered	
Enlarging the definition of sex by giving more ideas of what intimacy and sex could look like (options)	1	Expanded Conceptualization	Insight & Practical Take-Aways	
How other things such as enjoying your bodies without arousal can also be considered a moment of intimacy/connection	1	Expanded Conceptualization	Self-reflection triggered	
I did think about it, but I'm generally satisfied with my sex life. With the word 'sex' or 'sexual intercourse' I think mostly of penetration, however, this does not impact my pleasure. I still experience all other types of sexual/loving behaviour (kissing, intimacy, even emotional intimacy, cuddling, etc.) as satisfying. And in our relationship, penetration (and a male orgasm) is not the main goal when being intimate. Mutual pleasure/comfort is. So to me, exact wording or attaching meaning to the word 'sex' does not really impact my sex life/satisfaction.	1	Affirmation of Existing Views		
I reflected on my definition of sex when thinking about the sexual activities I engage in. I try to have more variety in sexual activities with my partner.	1	Expanded Conceptualization	Insight & Practical Take-Aways	
I think it showed that sex is so much more than just penetration	1	Expanded Conceptualization	Self-Reflection Triggered	
I think mainly on not judging the different sexual experiences I engage in by whether there is an orgasm or penetration even. It made me aware that I should enjoy all the different aspects of intimacy and try not to have narrow expectations about what it should be.	1	Expanded Conceptualization	Self-Reflection Triggered	
I tried to adopt a broader perception of sex, sex isn't only intercourse but also so many other aspects	1	Expanded Conceptualization	Self-Reflection Triggered	
In the talk, the two experts discussed about how sex can be viewed not only as penetration or getting to the maximum pleasure, but also a time for being intimate with your partner. That is, even cuddling and taking care of the partner through small gestures may be significant enough to be considered Sex.	1	Expanded Conceptualization		
Included other things than simple penetration	1	Insight & Practical Take-Aways		
It broadend what I consider as sex and it gave me some really insightful knowledge and useful tips	1	Expanded Conceptualization	Self-Reflection Triggered	
It felt like in Charmaine's definition intimacy and touches were already sex.	1	Social/Relational Awareness		
It made me realize that sex does not necessarily need to include penetration every time.	1	Self-Reflection Triggered	Social/Relational Awareness	
It made me think about my own sex life	1	Self-Reflection Triggered		
It made me think that sex is not necessarily just about penetration.	1	Self-Reflection Triggered	Expanded Conceptualization	
Kissing can be sexual activity as well	1	Expanded Conceptualization		
Sex is more vital than most would imagine. The eroticism is everywhere.	1	Social/Relational Awareness		
That it is more than just penetration, and that communication and quality time with eachother is as important as having sex	1	Expanded Conceptualization	Insight & Practical Take-Aways	
That it is mostly about giving/receiving pleasure, not only something physical	1	Expanded Conceptualization	Insight & Practical Take-Aways	
That it made me more aware of what I see as sex.	1	Self-Reflection Triggered	Social/Relational Awareness	
that my definition is not necessarily the same as that of others	1	Social/Relational Awareness		
that sex is more than just penetrative sex	1	Expanded Conceptualization		
That sex is not only the penetration part, but also the rest of it. And the mental foreplay you can have as a couple.	1	Expanded Conceptualization		
That the definition of sex only contains penetration, but it is more than that	1	Expanded Conceptualization		

Respondent answer	Frequency	Label 1	Label 2	Label 3
That there are a lot of ways to be intimate with your partner	1	Self-Reflection Triggered	Social/Relational Awareness	
The questions and conversation, make you aware of all the different aspects related to sex and intimacy. It makes you become aware of these again.	1	Self-Reflection Triggered	Social/Relational Awareness	
The talk made me reflect on the idea that only penetrative sex can be seen as 'real sex' and that other forms of sex, e.g. kissing and oral sex is a secondary form of sex. I think that I now have a more inclusive view on sex. It also made me reflect on ideas that I have held on the frequency of sex, that it is 'normal' to have sex at least twice a week, which sometimes caused me to feel pressure to have sex. I talked about this with my partner.	1	Self-Reflection Triggered	Social/Relational Awareness	Insight & Practical Take-Aways
To view sex as a broader spectrum of activities and intimacy rather than just penetration.	1	Expanded Conceptualization		
We often see sex only as penetration, but it can be so much more than only that.	1	Expanded Conceptualization		
What sex is. The most interesting part for me was about orgasms and especially the low rate of women that experience orgasms just from penetration. I would have found it interesting to hear a little bit more about that.	1	Expanded Conceptualization		
While watching the talk, I confirmed my own definition and often related with the definition the expert gave in the talk	1	Affirmation of Existing Views		
Total	31			