Understanding the interpersonal dynamics of sexual pain: 

The impact of sexual stimuli and partner presence on the experience of vaginal pressure

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Overview

1. Basic mechanisms of genital pain
   ✓ Psychological models on sexual pain: role of fear, sexual arousal
   ✓ Physiological mechanisms: pelvic floor and genital sensitivity
   ✓ Studying sexual pain in the lab -> vaginal pressure inducer

2. Interpersonal dynamics of sexual pain
   ✓ Role of the partner and relationship interactions
   ✓ Bringing the partner into the lab
   ✓ General considerations on the interpersonal perspective on sexual pain
Sexual pain

- Prevalent health problem: 6-34 % (most prevalent sexual dysfunction in clinical practice, especially young women 18-35 years)

- Biopsychosocial condition: most research on physical markers, now more attention for psychological factors, social dimension is still under-studied
pain or thoughts about pain

mechanical friction

lubrication ↓ + pelvic floor muscle tension ↑

arousal ↓ + muscle tension ↑

anxiety ↑

Spano & Lamont, 1978
Lack of sexual arousal?

- Fear of pain causes vaginal dryness. Lack of sexual arousal most important cause of sexual pain?

- No experimental evidence on lack of genital arousal (Payne et al., 2006; Brauer et al., 2006)

- Most consistent evidence on lack of subjective arousal

- BUT sexual arousal during vaginal penetration important to prevent/overcome pain
Physiological mechanisms of pain

- Accessibility of vagina and experience of pain influenced by activity of pelvic floor muscles

- Fear of pain increases pelvic floor activity -> restriction of vaginal opening + vaginal pressure => pain (superficial: introitus and outer third part of vagina)

- Relation between arousal and pelvic floor -> Relaxation of pelvic floor during initial stages of arousal and contractions during higher levels of sexual arousal (Both, 2012)

- Sexual arousal
  - increases genital sensitivity during introitus
  - decreases vulvar pain threshold in ♀ with and without pain (King & Alexander, 2000; Payne, et al., 2007; Paterson et al., 2013)
Physiological mechanisms of pain

- Clear link between pelvic floor activity, vaginal pressure, and sexual arousal

- Studying sexual pain in the lab: simulate pain experience in a sexual context
  => relation between vaginal pressure, pain threshold, and sexual arousal

- New instrument to induce pressure in outer third of the vagina during sexual arousal (*Melles*)

  => first study to validate instrument: no induction of pain, but threshold of unpleasantness
Vaginal pressure inducer (Melles, 2016)

Pressure measure, pump, hot water tank
Procedure first validation study

- Watching high-arousing sexual vs. low-arousing sexual vs. neutral film clip with vs. without vaginal pressure

- Instruction: when the pressure starts to feel unpleasant, press the button immediately
  -> Stop pressure and movie => vaginal pressure tolerance/threshold

- Max duration film clip: 5 minutes
Procedure experiment:

Determining unpleasantness threshold:

Neutral documentary + Pressure

SEQ + distraction task (5 min)

Control condition: High arousal sex film without pressure

SEQ + distraction task (5 min)

4 conditions randomized

High arousal sex film + pressure
SEQ + distraction task
Remainder 3 conditions

Low arousal sex film + pressure
SEQ + distraction task
Remainder 3 conditions

High arousal non-sex film + pressure
SEQ + distraction task
Remainder 3 conditions

Low arousal non-sex film + pressure
SEQ + distraction task
Remainder 3 conditions

Exit interview
Results

- Vaginal applicator instrument is well tolerated
- Reactions range from ‘a little strange’, ‘twinkeling’, to ‘doable’
Results

- Clear link between vaginal pressure and sexual arousal
- Pressure threshold higher when presented in the context of sexual stimuli compared to neutral stimuli
- Vaginal pressure can be experienced as sexually arousing
What are we missing?

- Most research on the impact of pain on **sexual arousal**: role of anticipation anxiety, catastrophizing, ...

- Also important to study the impact of pain on **sexual behaviour**: fear-avoidance

- Sexual pain studied in **individual** context: relying on individual explanatory models and designs
Impact on sexual behavior: fear-avoidance

- Avoiding sexual stimulation and activity because they fear pain
- But no difference in sexual frequency
- Persistence of sexual activity despite the pain => pain continues/increases
  => role of motives
- Avoidance motives => distress (Elmerstig et al., 2008)
  - Fear of losing partner
  - Pleasing partner
  - Wanting to feel normal
  - Guilt
Interpersonal dynamics of sexual pain

- Sex as intra-individual feature -> dyadic interactional process

- Individual explanatory models

- Individual laboratory research -> solitary sexual responding
  => low ecological validity

- Partner is part of the sexual pain experience -> role of partner and relationship characteristics
  => get research more aligned with complex reality of having sex in a relationship
What do we know about impact of partner on sexual arousal and pain?

- Type of partner responses (hostile, solicitous, facilitative) influence pain experience. (*Rosen et al., 2010; 2015*)
  - Hostile and solicitous increase pain experience, facilitative responses (support but encouraging change) decrease pain experience.

- Partner presence in lab influences sexual arousal. (*Van Lankveld et al., 2014*)
  - Women more (subjective) sexual arousal when partner present, men less arousal when partner present.
The impact of partner on sexual arousal and pain

✓ Motivational perspective: Are sexual arousal, experience of vaginal pressure, and pain threshold higher when the partner is present?

-> persistence of sex despite pain?

-> investigate whether and for what reasons women will tolerate or avoid vaginal pressure
Procedure experiment:

Individual

Neutral documentary + Pressure

Neutral documentary without pressure

SEQ + pain expectation

SEQ

Sex movie + Pressure

Sex movie without pressure

SEQ + distraction task

SEQ

Exit interview

With partner

How sexually aroused are you?

How sexually aroused is your partner?

How unpleasant is the vaginal pressure for your partner?

Randomized
Research questions

✓ Does the sexual arousal of women, their experience of vaginal pressure, and the interrelation between both differ as a function of partner presence?

✓ Does pressure threshold vary as a function of partner presence?

✓ Does the sexual arousal of men vary as a function of partner presence?

✓ Can men estimate the sexual arousal and vaginal pressure experience of their partner and is this estimation related to their own level of sexual arousal?
More sexual arousal in response to sexual film compared to neutral, in both men and women

More sexual arousal in presence of partner, in both men and women

Incongruence in appraisal of vaginal pressure -> men underestimate unpleasantness

Lower unpleasantness ratings in men are related to more sexual arousal
Thresholds Unpleasant Pressure (sec)

- 180000
- 182000
- 184000
- 186000
- 188000
- 190000
- 192000
- 194000
- 196000
- 198000
- 200000
- 202000

without partner  with partner

- Sex
- Neutral

***p < .001
Appraisal of vaginal pressure

**p < .01**

Sex

Neutral
Preliminary results
(24 couples)

- More sexual arousal in response to sexual film compared to neutral, in both men and women
- More sexual arousal in presence of partner, in both men and women
- Incongruence in appraisal of vaginal pressure -> men underestimate unpleasantness
- Lower unpleasantness ratings in men are related to more sexual arousal
- Higher pain threshold in response to sexual film, no impact of partner presence
- More positive appraisal of vaginal pressure in response to sexual film, no impact of partner presence
Future analyses and plans

- Increase sample up to 40 couples
- Factors influencing threshold and experience of vaginal pressure
- Moderating influence of personality traits \([e.g., \text{catastrophizing}]\); sexual functioning/distress; relationship characteristics \([\text{relationship and sexual satisfaction}]\); partner characteristics \([\text{perceived partner responsiveness}; \text{partner responses to (hypothetical) pain}]\)
- Manipulate partner responses (using hostile vs. support messages)
- Measure both subjective and genital arousal (thermography?) \(\rightarrow\) what is the role of vaginal dryness and the relation to pain thresholds?
- Clinical sample
Future analyses and plans

✓ Coregulation: the unfolding of individual responses that are continuously modified by the continuously changing responses of the partner -> psychophysiological homeostasis.

✓ Sexual responses of one partner depend on responses of the other partner and this depends on nature of relationship -> each partner serves as regulator for other partner
  -> examine the interrelation between both partner’s (subjective and genital) sexual arousal

✓ Adaptive value of coregulation in response to distress -> Sexual problems signal loss of coregulatory reward, disturb psychophysiological homeostasis
Future analyses and plans

✓ Induce vaginal pressure and examine temporal (co)variation between partners’ sexual arousal responses

- Cascade of negative arousal responding (negative affect reciprocity)
- Benefiting from partner’s arousal (excitation transfer)
- Independent variation
Clinical conclusion

✓ Psycho-education: importance of adequate and strong sexual stimulation
  -> to compensate for unpleasant/painful pressure? Cognitive distraction?

✓ Appraisal of vaginal pressure

✓ Counter-conditioning: vaginal pressure – arousal

✓ Role of the partner and relationship context => couples therapy + focus on both woman and partner as identified patients
Thank you

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