

# European Journal of Ageing

## The Mechanisms Underlying the Association between Perceived Discrepancy in Sexual Interest and Sexual Satisfaction among Partnered Older Adults in Europe --Manuscript Draft--

|  |   |                       |
|--|---|-----------------------|
| <b>Manuscript Number:</b>                            | EJOA-D-18-00212   |                       |
| <b>Full Title:</b>                                   | The Mechanisms Underlying the Association between Perceived Discrepancy in Sexual Interest and Sexual Satisfaction among Partnered Older Adults in Europe   |                       |
| <b>Article Type:</b>                                 | Original Investigation  |                       |
| <b>Corresponding Author:</b>                         | Nantje Fischer<br>Universitetet i Oslo<br>NORWAY  |                       |
| <b>Corresponding Author Secondary Information:</b>   |   |                       |
| <b>Corresponding Author's Institution:</b>           | Universitetet i Oslo  |                       |
| <b>Corresponding Author's Secondary Institution:</b> | Universitetet i Oslo  |                       |
| <b>First Author:</b>                                 | Nantje Fischer  |                       |
| <b>First Author Secondary Information:</b>           |   |                       |
| <b>Order of Authors:</b>                             | Nantje Fischer<br>Bente Træen<br>Alexander Štulhofer<br>Gert Martin Hald  |                       |
| <b>Order of Authors Secondary Information:</b>       |   |                       |
| <b>Funding Information:</b>                          | Norwegian Research Council<br>(250637)  | Professor Bente Træen |
| <b>Abstract:</b>                                     | <p>The ways in which the discrepancy between one's own interest in sex and that of one's partner may affect personal sexual satisfaction has rarely been systematically studied, especially among older adults. Previous research among younger adults indicates that a discrepancy in sexual desire can be detrimental in terms of several relationship outcomes, including sexual satisfaction. This study aimed to investigate a conceptual model of sexual satisfaction among coupled older adults which posits that the association between perceived discrepancy in sexual interest and sexual satisfaction is mediated by the frequency of sexual activity and emotional closeness during sex. Data from a probability-based postal survey that included 2833 partnered adults aged 60–75 year from Europe was used to test the mediation model. Due to expected gender differences in the two mediators, all analyses were carried out separately for men and women. The findings supported the proposed model, suggesting that as an individual's perception of a discrepancy in sexual interest increases, his or her levels of sexual frequency and perceived closeness during sex decrease—which in turn diminishes sexual satisfaction. The results of this study provide insights into links among sexual interest, sexual frequency, emotional closeness, and sexual satisfaction in older adults, and point to substantial similarities in the sexuality of aging men and women in this regard.</p> |                       |

**The Mechanisms Underlying the Association between Perceived Discrepancy in  
Sexual Interest and Sexual Satisfaction among Partnered Older Adults in Europe**

---

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

## Abstract

1  
2 The ways in which the discrepancy between one's own interest in sex and that of one's  
3  
4 partner may affect personal sexual satisfaction has rarely been systematically studied,  
5  
6 especially among older adults. Previous research among younger adults indicates that a  
7  
8 discrepancy in sexual desire can be detrimental in terms of several relationship outcomes,  
9  
10 including sexual satisfaction. This study aimed to investigate a conceptual model of sexual  
11  
12 satisfaction among coupled older adults which posits that the association between perceived  
13  
14 discrepancy in sexual interest and sexual satisfaction is mediated by the frequency of sexual  
15  
16 activity and emotional closeness during sex. Data from a probability-based postal survey that  
17  
18 included 2833 partnered adults aged 60–75 year from Europe was used to test the mediation  
19  
20 model. Due to expected gender differences in the two mediators, all analyses were carried out  
21  
22 separately for men and women. The findings supported the proposed model, suggesting that  
23  
24 as an individual's perception of a discrepancy in sexual interest increases, his or her levels of  
25  
26 sexual frequency and perceived closeness during sex decrease—which in turn diminishes  
27  
28 sexual satisfaction. The results of this study provide insights into links among sexual interest,  
29  
30 sexual frequency, emotional closeness, and sexual satisfaction in older adults, and point to  
31  
32 substantial similarities in the sexuality of aging men and women in this regard.  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52

53 *Keywords:* perceived sexual desire discrepancy, sexual activity, emotional closeness, sexual  
54  
55 satisfaction, older adults' sexuality  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

## Introduction

### Background

Many studies indicate that remaining sexually active and satisfied in later life is contingent on both partner's receptivity to sexual stimuli/advances, and the couple's motivation to seek sexual interaction (DeLamater, 2012; DeLamater, Hyde, & Fong, 2008; Heywood et al., 2018; Huang et al., 2009; Hyde et al., 2010; Laumann, Das, & Waite, 2008). However, with an increase in age, the risk of substantial health problems also increases, e.g. poorer general health or age-related chronic diseases (Corona et al., 2010), and one result may be reduced sexual function (Field et al., 2013; Laumann et al., 2005; Lee, Nazroo, O'Connor, Blake, & Pendleton, 2016; Rosen, Heiman, Long, Fisher, & Sand, 2016; Syme, Klonoff, Macera, & Brodine, 2013). Poorer partner health or problematic sexual functioning are likely to affect older adults' sexual activity, desire, and sexual satisfaction (Fischer, Træen, & Hald, 2018; Iveniuk & Waite, 2018; Kontula & Haavio-Mannila, 2009; Rosen et al., 2016; Stroope, McFarland, & Uecker, 2015; Syme et al., 2013).

Studies have also found that a decline in sexual activity may increase with age (Corona et al., 2010; DeLamater & Moorman, 2007; Field et al., 2013; Howard, O'Neill, & Travers, 2006; Kontula & Haavio-Mannila, 2009; Lee et al., 2016; Palacios-Ceña et al., 2012). This may be especially present among aging women, who generally report lower levels of sexual activity and interest than aging men (Lee et al., 2016; Lindau & Gavrilova, 2010; Palacios-Ceña et al., 2012). However, research has also pointed to the role of male partner's sexual functioning (Fischer et al., 2018; Mitchell et al., 2013). These gender-specific findings (Lindau & Gavrilova, 2010; Mitchell et al., 2013), and the fact that the frequency of partnered sexual activity is strongly associated with sexual satisfaction (DeLamater & Moorman, 2007; Hartmann, Philippssohn, Heiser, & Rüffer-Hesse, 2004;

1 Heiman et al., 2011; Lee et al., 2016; Stroepe et al., 2015), raise questions about the  
2 dynamics of men and women's sexual satisfaction at older ages (Træen et al., 2017).  
3

4  
5 Some studies have suggested that the emotional aspects of sexuality become more  
6 important than physical qualities (e.g. having an orgasm, partner's physical attractiveness,  
7 importance of erection, and/or penetrative intercourse) with an increase in age (Hartmann et  
8 al., 2004; Janssen, McBride, Yarber, Hill, & Butler, 2008; Lodge & Umberson, 2012;  
9 Sandberg, 2013; Træen, Štulhofer, Jurin, & Hald, 2018). For instance, a study among middle-  
10 aged and older women found that emotional and physical intimacy were important  
11 determinants of sexual satisfaction during intercourse (Hartmann et al., 2004). The study  
12 found that, compared to younger women, older women reported more relationship-related  
13 aspects (feelings of emotional closeness with their partner) than physical aspects (a lack of  
14 restlessness and having an orgasm) when they were sexually satisfied. Likewise, a recent  
15 study among older European adults found a significant association between feeling  
16 emotionally close to one's partner during sex and unchanged or greater sexual enjoyment at  
17 present compared to 10 years prior (Træen, Štulhofer, Jurin, et al., 2018). Additionally,  
18 several qualitative studies have emphasized the importance of emotional closeness with one's  
19 partner in later life sexuality (Fileborn et al., 2017; Lodge & Umberson, 2012; Sandberg,  
20 2013). For instance, according to a qualitative study of Swedish heterosexual men aged 67–  
21 87 years, the concept of 'intimacy' operates as a way to reconstruct the meaning of sexuality  
22 when sexual function declines, and opens up the opportunity for more variability than the  
23 imperative of penetrative intercourse in old age (Sandberg, 2013). However, although the role  
24 of emotional intimacy seems to gain importance with age (Lodge & Umberson, 2012;  
25 Sandberg, 2013), research indicates that changes in sexual experience due to diminished  
26 sexual functioning can be distressing nevertheless (Hinchliff, Gott, & Wylie, 2009; Lodge &  
27 Umberson, 2012).  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

1 Thus, despite knowing that age-specific circumstances may challenge sexual health  
2 in older age, to the best of our knowledge, there are no studies exploring how the relational  
3 context, such as perceived discrepancy in sexual interest between partners, may affect sexual  
4 satisfaction among older adults. Using a national probability-based sample of individuals 60–  
5 75 years old from four European countries, this study addresses the association between  
6  
7 perceived discrepancy in sexual interest and sexual satisfaction, and explores if/how this  
8  
9 association is mediated by sexual frequency and emotional intimacy during sex (see Figure 1  
10  
11 for our conceptual model).  
12  
13  
14  
15  
16  
17  
18

19 Figure 1 (about here)

### 20 21 22 **Conceptual Framework** 23

24 The literature on sexual desire discrepancy (actual and perceived) is relatively sparse,  
25 and to the knowledge of the authors, no studies have yet explored the perceived discrepancy  
26 in sexual interest among older adults. Research on sexual desire discrepancy among younger  
27 adults, however, indicates negative associations between desire discrepancy and relational  
28 factors, such as lowered sexual satisfaction, relationship satisfaction, decreased quality of  
29 sexual interactions, less sexual contact, more reported couple conflicts, and less positive  
30 interpersonal communication (Bridges & Horne, 2007; Davies, Katz, & Jackson, 1999; Mark,  
31 2014; Mark & Murray, 2012; Willoughby, Farero, & Busby, 2014). Both actual and  
32 perceived discrepancy in sexual interest can have many causes (Ellison, 2002) and it is likely  
33 that relationship problems, poorer health, physical limitations, decreased sexual functioning  
34 and/or medical treatment results in different (actual or perceived) levels of sexual interest in a  
35 couple.  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52

53 The Interpersonal Exchange Model of Sexual Satisfaction (Lawrance & Byers, 1995)  
54 may explain the reasons that discrepancy in sexual interest between partners adversely affects  
55 sexual satisfaction. According to this model, sexual satisfaction is the result of the perceived  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

1 level of sexual rewards and costs that partners experience in their relationship. Furthermore,  
2 the model states that the balance of sexual rewards to costs is appraised relative to what one  
3 expects that one deserves in the relationship, and by the perceived equality between one's  
4 own sexual costs/rewards and those of one's partner. Several studies have shown that sexual  
5 satisfaction increases or decreases relative to the history of either favorable or unfavorable  
6 sexual encounters between partners (Byers & Macneil, 2006; Lawrance & Byers, 1995).  
7 Accordingly, greater (actual or perceived) discrepancy in sexual interest between partners  
8 may indicate that previous sexual interactions have had a higher cost and were less rewarding  
9 than expected, which in turn, decreased sexual satisfaction. This complements the findings of  
10 previous research, which has shown that a discrepancy in sexual desire adversely affects the  
11 quality and frequency of sexual interaction, as well as personal sexual satisfaction (Bridges &  
12 Horne, 2007; Mark, 2014; Mark & Murray, 2012). In particular, a study which used a daily  
13 diary approach found that on days when there was a greater discrepancy between partner's  
14 interest in sex, women, perceived the sexual encounter as lower in quality (Mark, 2014).  
15 Another study among women in same-sex relationships found negative associations between  
16 problematic desire discrepancy and frequent sexual contact, and sexual satisfaction (Bridges  
17 & Horne, 2007). This suggests that an increased discrepancy in sexual interest will diminish  
18 the frequency of mutually rewarding sexual interactions, which in turn decreases an  
19 individual's sexual satisfaction.

20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46 Research on factors related to women's sexuality seems to emphasize the centrality of  
47 emotional factors such as closeness, bonding, commitment, love, affection, acceptance, and  
48 tolerance (Basson, 2000; 2002). For instance, according to Basson's Alternative Sexual  
49 Response Cycle (2000), a woman's sexual response cycle is retroactively strengthened by  
50 mainly non-sexual rewards, such as increased emotional closeness with her partner. The  
51 model was particularly tailored for women in long-term relationships and suggests that,  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

1 compared to women, men's sexual response cycle is less dependent on contextual factors.  
2  
3 However, Basson adds that emotional rewards are not irrelevant to men, but may be less  
4  
5 often the core motivators prompting them to seek, or be receptive to, sexual contact. This  
6  
7 complements the findings of previous research indicating that men's sexuality is more  
8  
9 grounded in physical qualities such as sexual frequency and variation (Baumeister, 2000;  
10  
11 Lawrence & Byers, 1995; McNulty & Fisher, 2008; Peplau, 2003; Regan & Bersched, 1996;  
12  
13 Sánchez-Fuentes, Santos-Iglesias, & Sierra, 2014; Træen, Štulhofer, Jurin, et al., 2018). In  
14  
15 contrast, more recent studies suggest that emotional intimacy is also important for men's  
16  
17 sexual desire and satisfaction (Ferreira, Narciso, Novo, & Pereira, 2014; Janssen et al., 2008;  
18  
19 Mark & Lasslo, 2018; Štulhofer, Ferreira, & Landripet, 2014). For instance, a focus group  
20  
21 study of men aged 18–70 years indicated that feelings of emotional connectedness were  
22  
23 central for men's sexual arousal and desire, which was particularly important among older  
24  
25 men (Janssen et al., 2008).  
26  
27  
28  
29  
30

31 Thus, according to Basson's model (2000, 2001), a history of rewarding sexual  
32  
33 encounters in terms of sexual and/or nonsexual benefits (e.g. bonding, acceptance,  
34  
35 commitments, affection, love and emotional closeness) in turn serve as strong motivators for  
36  
37 responding to and seeking sexual stimuli, and thus reinforce the positive sexual response  
38  
39 cycle of individuals and couples. However, in the case of previous negative and disappointing  
40  
41 experiences, such as, for example, conflicts due to discrepancy in sexual desire or negative  
42  
43 feelings related to past sexual encounters, the couple's positive sexual response cycle may be  
44  
45 disrupted (Basson, 2001; Lee et al., 2016). Both a rejection of a partner's sexual invitations or  
46  
47 being frequently rejected are often related to negative feelings, such as guilt, anger, anxiety,  
48  
49 sadness, frustration, lower self-esteem, and feelings of being a sexually incompetent partner  
50  
51 (Træen, 2008). Accordingly, a perceived discrepancy in sexual interest is likely to inhibit  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65



1 feeling emotionally close to one's partner, which decreases sexual satisfaction and weakens  
2 the couple's sexual response cycle.  
3

4  
5 Based on the proposed theoretical rationale and previous research, four specific  
6  
7 hypotheses are tested in this study:  
8

9  
10 **Hypothesis 1:** We hypothesize that there is a negative association between participants'  
11  
12 perceived discrepancy in sexual interest and personal sexual satisfaction in both men and  
13  
14 women.  
15

16  
17 **Hypothesis 2:** We hypothesize that the link between perceived discrepancy in sexual interest  
18  
19 and sexual satisfaction is mediated by an individual's intercourse activity. The assumed  
20  
21 mechanism behind the association is that a perceived imbalance in sexual interest between  
22  
23 partners diminishes pleasurable and rewarding sexual intercourse, which decreases personal  
24  
25 sexual satisfaction. We expect this to be true for both genders.  
26  
27

28  
29 **Hypothesis 3:** We hypothesize that the association between the perceived discrepancy in  
30  
31 sexual interest and personal sexual satisfaction is mediated by participants' feelings of  
32  
33 emotional closeness to their partner during sex. We expect that perceiving an imbalance in  
34  
35 sexual interest will be negatively related to emotional closeness during sex, which in turn will  
36  
37 be negatively associated with personal sexual satisfaction. We expect this to be true for both  
38  
39 genders.  
40  
41

42  
43 **Hypothesis 4:** Finally, we hypothesize that the two mediations will be gender-specific. We  
44  
45 expect that among men, the indirect effect of sexual frequency will be stronger than the  
46  
47 indirect effect of emotional closeness during sex. In women, we expect to find the opposite.  
48  
49

## 50 51 **Methods**

### 52 53 **Participants and Procedure**

54  
55 From October 2016 to February 2017, a study on healthy sexual aging was carried out  
56  
57 using national probability-based samples of individuals aged 60–75 years from Norway,  
58  
59

1 Denmark, Belgium, and Portugal. A benchmark of 700–800 individuals was set for each  
2 country with the final sample including 3814 individuals (1760 men and 2054 women): 1270  
3 from Norway, 1045 from Denmark, 990 from Belgium, and 509 from Portugal. Details about  
4 sampling methods and data collection have been described elsewhere (BLINDED FOR  
5 REVIEW). In brief, the poll organization, Ipsos, conducted recruitment interviews by phone  
6 to contact the subjects. In Norway, Denmark, and Belgium, national phone registries  
7 (landline and mobile) were used to draw the samples from each country. However, due to the  
8 non-existence of an updated and complete telephone registry in Portugal, the polling agency  
9 had to implement standard multi-stage stratified sampling, which is typically used for public  
10 opinion surveys in this country. Self-administered questionnaires were sent out through the  
11 mail to those who agreed to participate. Reminders were sent out continuously approximately  
12 a week after the participants received their first letter. The participation rates (those who  
13 agreed to participate and returned the survey) were 68.2% in Norway, 52.3% in Denmark,  
14 56.9% in Belgium, and 25.5% in Portugal. All analyses in this paper were restricted to the  
15 1475 men and 1358 women who reported that they were in a committed/steady relationship  
16 or married.

### 38 Measures

39 *Sexual satisfaction* was measured by the following question: ‘Thinking about your sex  
40 life in the last year: All things considered, how satisfied are you with your sexual life?’ The  
41 response categories were evaluated on a 5-point scale which ranged from 1 = completely  
42 dissatisfied to 5 = completely satisfied.

43 *Perceived discrepancy in sexual interest* was measured by two separate items: ‘My  
44 partner has no interest in sex’ (Perception of partner’s interest in sex) and ‘I am not interested  
45 in sex’ (Personal interest in sex). The participants were asked to indicate their level of  
46 agreement with each statement using a scale which ranged from 1 = strongly agree to 5 =

1 strongly disagree. To examine discrepancy in sexual interest, a new variable was constructed  
2 to represent the difference between one's own sexual interest and perception of the sexual  
3 interest of one's partner. Zero indicated no discrepancy. For men, the mean scoring on the  
4 discrepancy variable was negative, indicating that men tended to perceive their own sexual  
5 interest as higher than that of their partner (mean = -.60; *SD* = 1.1, range = -4.0 to 3.0).  
6  
7 Contrary to men, most women tended to perceive their own sexual interest as lower than their  
8 perception of that of their partner (mean = .17; *SD* = 1.0, range = -4.0 to 4.0). This means that  
9 the scoring of men and women moved in opposite directions. However, in this study, we will  
10 argue that the degree of discrepancy is the most important factor in determining satisfaction,  
11 not the direction in which men and women tend to score. For this reason, the discrepancy  
12 variable used in the multivariate analyses was calculated as the absolute scores of  
13 participants' own sexual interest and the perceived sexual interest of the partner. Responses  
14 for the new variable ranged from 0 to 4, with 0 indicating no discrepancy, and higher scores  
15 reflecting an increasing discrepancy.  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32

33  
34 *Intercourse frequency* was measured by the question previously used in Lee et al.,  
35 2016: 'How many times have you had or attempted sexual intercourse (vaginal, anal, or oral  
36 sex) during the past month?' The response options were 1 = none to 7 = more than once a  
37 day.  
38  
39  
40  
41  
42

43 *Emotional closeness during sex* was assessed by the following item: 'Thinking about  
44 your relationship with your partner, how often does this apply to your situation: I feel  
45 emotionally close to my partner when we have sex together'. The response options were 1 =  
46 Always, 2 = Most of the time, 3 = Sometimes, 4 = Not very often, 5 = Hardly ever. The item  
47 was reverse scored (higher scores reflect higher levels of perceived emotional closeness  
48 during sex).  
49  
50  
51  
52  
53  
54  
55  
56  
57

## 58 **Statistical Analysis**

59  
60  
61  
62  
63  
64  
65

1 Hayes' PROCESS, a macro for IBM SPSS statistical software package, was used to  
2 test the *parallel multiple mediation model* (Hayes, 2018). In order to formally test whether  
3 there is statistical evidence of mediation, Hayes proposes bootstrapping a 95% confidence  
4 interval around indirect effects (path  $a_1b_1$  and path  $a_2b_2$ , respectively; see Figure 1). For cases  
5 in which the interval does not include zero, mediation is confirmed. PROCESS also provides  
6 a statistical test for the difference between two indirect effects. If the two indirect effects are  
7 statically different from each other and the point estimates of the compared indirect effects  
8 are of the same sign, the absolute strengths of the indirect effects can be compared. Here, we  
9 used bootstrapping with 10,000 resamples to: (1) formally test the hypothesized mediation  
10 and (2) test whether the two indirect effects (related to sexual frequency and emotional  
11 closeness during sex, respectively) were statistically different from each other. Cases with  
12 missing values were excluded listwise (Hayes, 2018). All statistical analyses were carried out  
13 using IBM SPSS 24.0.

## 31 Results

### 34 Sample Characteristics

36 Table 1 presents the sociodemographic and partner related characteristics of the  
37 sample. Both men and women had a mean age of 67 years. With regard to the level of  
38 education, most participants reported either secondary (40% of men and 44% of women), or  
39 tertiary education (41% of men and 36% of women). Most participants, (more men than  
40 women) were retired from paid work (74% and 70%, respectively). Nearly all participants  
41 reported being in a relationship with a partner of the opposite sex (99%), with a majority  
42 being in their relationship for 30 years or more. Most participants reported that they had been  
43 sexually active (sexual intercourse, masturbation, petting or fondling) in the past year (91%  
44 of men and 85% of women).

1 The majority of surveyed individuals reported no perceived discrepancy between their  
2 own level of sexual interest and that of their partner (60% of men and 69% of women).  
3  
4 However, more than one-third of men (37%) reported that their female partner was less  
5 interested in sex than they were. The respective proportion was substantially lower among  
6  
7 women (10%).  
8  
9  
10

11  
12 Insert Table 1 about here  
13

14 Table 2 presents the mean scores of one's own perceptions and those of one's partner  
15 regarding interest in sex, sexual satisfaction, emotional closeness during sex, and sexual  
16 frequency, as well as their intercorrelations, separately for men and women. Most participants  
17 disagreed with the statement that they or their partner had no interest in sex. On average, men  
18 and women reported intercourse activity (vaginal, anal, or oral sex) between once a month,  
19 and two to three times in the past month. Most of the time, participants felt emotionally close  
20 to their partner during sex.  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30

31 Insert Table 2 about here  
32

33 The highest bivariate correlation found in men appeared between intercourse activity  
34 and sexual satisfaction ( $r = .53; p < .001$ ). In women, the highest correlation was found  
35 between the perception of the partner's interest in sex and intercourse activity ( $r = .54; p <$   
36  $.001$ ). In men, the weakest bivariate correlation was between emotional closeness during sex  
37 and personal interest in sex ( $r = .18; p < .001$ ). In women, the weakest correlation was  
38 between emotional closeness during sex and intercourse activity ( $r = .30; p < .001$ ).  
39  
40  
41  
42  
43  
44  
45  
46  
47

#### 48 **Multiple mediation analysis** 49

50 Multiple mediation analysis was carried out separately for men (Table 3) and women  
51 (Table 4) to test the hypothesized structure of the associations in the proposed model.  
52  
53

54  
55 **Hypothesis 1.** We found a direct association between perceived discrepancy in sexual  
56 interest and personal sexual satisfaction in both aging men ( $b = -.23; p < .001$ ), and women ( $b$   
57  $= -.17; p > .001$ ).  
58  
59  
60  
61  
62  
63  
64  
65

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

**Hypothesis 2.** Sexual frequency significantly mediated the association between the perception of a discrepancy in sexual interest and personal sexual satisfaction in both men (estimate = -.11, 95% BCI [-.131, -.085]), and women (estimate = -.12, 95% BCI [-.152, -.097]). Aging men and women who perceived a discrepancy between their personal interest in sex and that of their partner experienced lower levels of intercourse activity, which in turn is negatively associated with their level of sexual satisfaction.

Insert Table 3 and 4 about here

**Hypothesis 3.** Emotional closeness during sex also significantly mediated the key association in both men (estimate = -.04, 95% BCI [-.063, -.028]), and women (estimate = -.05, 95% BCI [-.080, -.032]). Aging men and women who perceived an imbalance between their personal interest in sex and that of their partner experienced lower emotional closeness during sex, which in turn is negatively related to their level of sexual satisfaction.

**Hypothesis 4.** Comparing the two indirect effects (path  $a_1b_1$  vs. path  $a_2b_2$ ) revealed a significant difference between the mediation by intercourse frequency and the mediation by emotional closeness during sex among both men (estimate = -.06, 95% BCI [-.093, -.033]), and women (estimate = -.07, 95% BCI [-.106, -.033]). The mediation by intercourse frequency was significantly greater than the mediation by emotional closeness during sex among both men (path  $a_1b_1 = -.11$  vs. path  $a_2b_2 = -.04$ ), and women (path  $a_1b_1 = -.12$  vs. path  $a_2b_2 = -.05$ ).

## Discussion

The aim of this study was to investigate the mechanisms underlying the association between perceived discrepancy in sexual interest and sexual satisfaction among partnered older adults. We found that both intercourse activity and perceived emotional closeness during sex significantly mediated the association between perceived discrepancy in sexual interest and sexual satisfaction. When the two indirect effects were compared, the frequency

1 of sexual activity was a significantly stronger mediator than emotional closeness during sex  
2 for both genders.  
3

4           Confirming Hypothesis 1, we found that those who perceived a greater discrepancy in  
5 sexual interest had lower personal sexual satisfaction for both men and women. This finding  
6 is similar to that of Davies et al. (1999), who examined the individual's perception of a sexual  
7 desire discrepancy among young couples and found that perceived desire discrepancy was  
8 associated with lower sexual satisfaction, which in turn diminished relationship satisfaction.  
9 Likewise, empirical support has been obtained for the detrimental impact of incompatibilities  
10 in sexual interest among older adults (Hartmann et al., 2004; Heywood et al., 2018; Lee et al.,  
11 2016). Accordingly, it has been found that the individual with higher sexual interest may  
12 experience a mismatch between the desired or expected sexual activity and the "actual"  
13 frequency, which in turn is shown to be negatively associated with sexual satisfaction in both  
14 older men and women (Heywood et al., 2018). Conversely, the person with lower interest in  
15 sex may feel obligated to accept sexual invitations or initiate sexual interaction (Hartmann et  
16 al., 2004), which in turn is shown to be associated with increased concerns about the overall  
17 sex life in older men and increased dissatisfaction in older women (Lee et al., 2016).  
18

19           Pertaining to our second study hypothesis, we found that the association between  
20 perceived discrepancy and personal sexual satisfaction was mediated by the frequency of  
21 sexual activity. This confirms our second study hypothesis and indicates that when men and  
22 women perceive a discrepancy in their own interest in sex and that of their partner, the  
23 frequency of intercourse is reduced; as a result, the overall level of sexual satisfaction  
24 decreases. This corresponds well with previous research that has shown a negative  
25 relationship between the discrepancy in the partner's sexual interest and frequency of sexual  
26 contact (Bridges & Horne, 2007), as well as the quality of sexual experiences (Mark, 2014).  
27 Moreover, many studies have shown a significant association between partnered sexual  
28

1 activity and sexual satisfaction (DeLamater et al., 2008; Fisher, 2010; Heiman et al., 2011;  
2 Heywood et al., 2018; Kontula & Haavio-Mannila, 2009; Lee et al., 2016; Stroope et al.,  
3  
4 2015). Within the context of the Interpersonal Sexual Exchange Model of Sexual Satisfaction  
5  
6 (Lawrance & Byers, 1995), a couple's discrepancy in sexual interest may reflect an  
7  
8 unfavorable balance between sexual costs and rewards, which in turn is likely to adversely  
9  
10 affect sexual contact and personal sexual satisfaction.  
11  
12

13  
14 In Hypothesis 3, we proposed that as men and women perceive an increasing  
15  
16 discrepancy between their own interest in sex and that of their partner, they feel less  
17  
18 emotionally connected during sexual interactions, which is negatively related to their sexual  
19  
20 satisfaction. Our data confirmed this hypothesis. The finding is consistent with previous  
21  
22 research, which shows a negative link between reduced sexual desire and satisfaction with  
23  
24 emotional closeness during sex (Rosen et al., 2016). For instance, Rosen et al. (2016) found  
25  
26 that women whose partners lacked interest in sex for one month or longer reported less sexual  
27  
28 satisfaction and less satisfaction with the amount of emotional closeness during sexual  
29  
30 activity. Our findings are also consistent with Basson's (2001, 2002) alternative female  
31  
32 response cycle, where previous negative sexual experiences (caused by, for example,  
33  
34 discrepancy in sexual interest) can lead to avoidance of sexual interaction in women.  
35  
36

37  
38 Although the model proposes that emotional rewards are more central to the sexual response  
39  
40 cycle of women than to that of men (Basson, 2000), recent studies suggest that emotional  
41  
42 factors are also relevant to men's sexual desire and sexual satisfaction (Ferreira et al., 2014;  
43  
44 Mark & Lasslo, 2018; Štulhofer et al., 2014), and that this may hold particularly true for older  
45  
46 men (Basson, 2001, 2008; Janssen et al., 2008; Træen, Štulhofer, Jurin, et al., 2018).  
47  
48

49  
50 Accordingly, the finding that the relationship between perceived discrepancy in sexual  
51  
52 interest and personal sexual satisfaction was negatively mediated by emotional closeness  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65



1 during sex for both genders, supports Basson's model of the female sexual response cycle,  
2 while extending the response cycle as one that is also valid for older men.  
3

4  
5 Finally, although we proposed that both the frequency of sexual contact and the  
6 emotional component played important roles in the sexual satisfaction of older adults, we  
7 assumed a gender difference in the importance of the two paths (Hypothesis 4). Specifically,  
8 based on previous research and theory, it was hypothesized that compared to the emotional  
9 components, the frequency of intercourse would be the most important for men's sexual  
10 satisfaction, and qualities of emotional closeness would be more important for women's  
11 sexuality than the frequency of sexual activity. However, in contrast to the proposed gender  
12 difference, it was found that for both genders, the path through sexual frequency was  
13 significantly larger than the path through emotional closeness, implying that frequency of  
14 intercourse was the more important of the two paths. The finding that, for women, the  
15 frequency of sexual activity was a significantly stronger mediator than emotional closeness  
16 during sex, may be related to the gender-specific relationship between older adults' general  
17 health and partnered sexual activity (Karraker, DeLamater, & Schwartz, 2011). Many  
18 previous studies have indicated that aging men have more sexual and health problems than  
19 aging women (Laumann et al., 2005; Lindau & Gavrilova, 2010; Mitchell et al., 2013), and it  
20 has been suggested that likelihood of sexual intercourse seems to be more dependent on  
21 men's sexual capability than on that of women (Karraker et al., 2011; Træen et al., 2017). For  
22 instance, previous research shows that, compared to aging women, older men's poorer health  
23 is more commonly associated with sexual inactivity in both partners (DeLamater &  
24 Moorman, 2007; Kontula & Haavio-Mannila, 2009; Lindau et al., 2007). Thus, it is  
25 reasonable to assume that older women's interest in sex should be understood in the context  
26 of her male partner's sexual restrictions, which inhibits coupled sexual activity and in turn,  
27 diminishes her sexual satisfaction.  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

When evaluating the study findings, some limitations have to be taken into consideration. Although our mediation model describes a causal process owing to the cross-sectional data used in the analysis, causality is not implied by our study, which was only able to establish and test non-causal associations in the proposed model (Hayes, 2018). Further, our study precludes dyadic data and relies exclusively on individual reports and assessment. Some existing literature has implied that there may be differences between a person's perceived desire discrepancy and couples' actual desires discrepancy scores (Davies et al., 1999); therefore, the use of non-dyadic data may bias results. Finally, we can reasonably assume that older adults who were more sexually active and interested in sex were more likely to participate in our study, compared to those who were sexually inactive and/or had no interest in sex. Thus, the generalizability of the findings may be limited to older partnered adults with higher levels of sexual activity and interest.

### **Conclusion**

This study identified a significant association between perceived discrepancy in sexual interest and sexual satisfaction among partnered older adults across four European countries. Further, this association was negatively mediated by the frequency of sexual activity and perceived emotional closeness during sex. Accordingly, the findings suggest that as older adults perceive a discrepancy between their own interest in sex and that of their partners, their level of intercourse activity is reduced, and they tend to feel less emotionally connected during sex; this, in turn, diminishes their sexual satisfaction. Moreover, the study findings support previous suggestions regarding the complexity of the sexual response of not only women but also men (Ferreira et al., 2014; Štulhofer et al., 2014). Increasing the knowledge of healthcare professionals related to older couple's sexual concerns, needs, and habits, will be important in reducing misconceptions about the sexuality of older adults.

### **References**

- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65
- Basson, R. (2000). The female sexual response: A different model. *Journal of Sex & Marital Therapy*, 26(1), 51-65. doi:10.1080/009262300278641
- Basson, R. (2001). Human sex-response cycles. *Journal of Sex & Marital Therapy*, 27(1), 33–43. doi:10.1080/00926230152035831
- Basson, R. (2002). Women's sexual desire—Disordered or misunderstood? *Journal of Sex & Marital Therapy*, 28(1), 17–28. doi:10.1080/00926230252851168
- Basson, R. (2008). Comment on Janssen et al. (2008). *Archives of Sexual Behavior*, 37(4), 511. doi: 10.1007/s10508-008-9351-z
- Baumeister, R. F. (2000). Gender differences in erotic plasticity: The female sex drive as socially flexible and responsive. *Psychological Bulletin*, 126(3), 347–374. doi:10.1037/0033-2909.126.3.347
- Bridges, S. K., & Horne, S. H. (2007). Sexual satisfaction and desire discrepancy in same sex women's relationships. *Journal of Sex & Marital Therapy*, 33(1), 41–53. doi: 10.1080/00926230600998466
- Byers, E. S., & Macneil, S. (2006). Further validation of the interpersonal exchange model of sexual satisfaction. *Journal of Sex & Marital Therapy*, 32(1), 53–69. doi:10.1080/00926230500232917
- Corona, G., Lee, D. M., Forti, G., O'Connor, D. B., Maggi, M., O'Neill, T. W., . . . The Emas Study Group. (2010). Age-related changes in general and sexual health in middle-aged and older men: Results from the European male ageing study (EMAS). *The Journal of Sexual Medicine*, 7(4), 1362–1380. doi: 10.1111/j.1743-6109.2009.01601.x
- Davies, S., Katz, J., & Jackson, J. L. (1999). Sexual desire discrepancies: Effects on sexual and relationship satisfaction in heterosexual dating couples. *Archives of Sexual Behavior*, 28(6), 553–567. doi:10.1023/A:1018721417683

- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65
- DeLamater, J. (2012). Sexual expression in later life: A review and synthesis. *The Journal of Sex Research*, 49(2–3), 125–141. doi:10.1080/00224499.2011.603168
- DeLamater, J., Hyde, J., & Fong, M. (2008). Sexual satisfaction in the seventh decade of life. *Journal of Sex & Marital Therapy*, 34(5), 439–454. doi:10.1080/00926230802156251
- DeLamater, J., & Moorman, S. M. (2007). Sexual behavior in later life. *Journal of Aging and Health*, 19(6), 921–945. doi:10.1177/0898264307308342
- Ellison, C. (2002). A research inquiry into some American women's sexual concerns and problems. *Women & Therapy: A Feminist Quarterly*, 24(1-2), 147–159. doi:10.1300/J015v24n01\_17
- Ferreira, L. C., Narciso, I., Novo, R. F., & Pereira, C. R. (2014). Predicting couple satisfaction: The role of differentiation of self, sexual desire and intimacy in heterosexual individuals. *Sexual and Relationship Therapy*, 29(4), 390–404. doi:10.1080/14681994.2014.957498
- Field, N., Mercer, C. H., Sonnenberg, P., Tanton, C., Clifton, S., Mitchell, K. R., ... Johnson, A. M. (2013). Associations between health and sexual lifestyles in Britain: Findings from the third national survey of sexual attitudes and lifestyles (NATSAL-3). *The Lancet*, 382(30), 1830–1844. doi:10.1016/S0140-6736(13)62222-9
- Fileborn, B., Hinchliff, S., Lyons, A., Heywood, W., Minichiello, V., Brown, G., ... Cramer, P. (2017). The importance of sex and the meaning of sex and sexual pleasure for men aged 60 and older who engage in heterosexual relationships: Findings from a qualitative interview study. *Archives of Sexual Behavior*, 46(7), 2097–2110. doi:10.1007/s10508-016-0918-9
- Fischer, N., Træen, B., & Hald, G. M. (2018). Predicting partnered sexual activity among older adults in four European countries: The role of attitudes, health, and relationship factors. *Sexual and Relationship Therapy*, 1–19. doi:10.1080/14681994.2018.1468560

- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65
- Fisher, L. (2010). *Sex, romance and relationships: AARP survey of midlife and older adults*. (AARP Publication No. D192234). Washington, DC: AARP
- Hartmann, U., Philippsohn, S., Heiser, K., & Ruffer-Hesse, C. (2004). Low sexual desire in midlife and older women: Personality factors, psychosocial development, present sexuality. *Menopause, 11*(6), 726–740. doi:10.1097/01.GME.0000143705.42486.33
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (second edition)*. New York: The Guilford Press
- Heiman, J., Long, J., Smith, S., Fisher, W., Sand, M., & Rosen, R. (2011). Sexual satisfaction and relationship happiness in midlife and older couples in five countries. *Archives of Sexual Behavior, 40*(4), 741–753. doi:10.1007/s10508-010-9703-3
- Heywood, W., Lyons, A., Fileborn, B., Hinchliff, S., Minichiello, V., Malta, S., . . . Dow, B. (2018). Sexual satisfaction among older Australian heterosexual men and women: Findings from the sex, age & me study. *Journal of Sex & Marital Therapy, 4*(3), 295–307. doi:10.1080/0092623X.2017.1366959
- Hinchliff, S., Gott, M., & Wylie, K. (2009). Holding onto womanhood: A qualitative study of heterosexual women with sexual desire loss. *Health, 13*(4), 449–465. doi:10.1177/1363459309103917
- Howard, J. R., O'Neill, S., & Travers, C. (2006). Factors affecting sexuality in older Australian women: Sexual interest, sexual arousal, relationships and sexual distress in older Australian women. *Climacteric, 9*(5), 355–367. doi:10.1080/13697130600961870
- Huang, A., Subak, L., Thom, D., Van Den Eeden, S., Ragins, A., Kuppermann, M., . . . Brown, J. (2009). Sexual function and aging in racially and ethnically diverse women.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

*Journal of the American Geriatrics Society*, 57(8), 1362–1368. doi:10.1111/j.1532-5415.2009.02353.x

Hyde, Z., Flicker, L., Hankey, G., Almeida, O., McCaul, K., Chubb, S., & Yeap, B. (2010). Prevalence of sexual activity and associated factors in men aged 75 to 95 years. *Annals of Internal Medicine*, 153(11), 693–702. doi:10.7326/0003-4819-153-11-201012070-00002

Iveniuk, J., & Waite, L. (2018). The psychosocial sources of sexual interest in older couples. *Journal of Social and Personal Relationships*, 35(4), 615–631. doi:10.1177/0265407517754148

Janssen, E., McBride, K. R., Yarber, W., Hill, B. J., & Butler, S. M. (2008). Factors that influence sexual arousal in men: A focus group study. *Archives of Sexual Behavior*, 37(2), 252–265. doi:10.1007/s10508-007-9245-5

Karraker, A., DeLamater, J., & Schwartz, C. (2011). Sexual frequency decline from midlife to later life. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 66B(4), 502–512. doi: 10.1093/geronb/gbr058

Kontula, O., & Haavio-Mannila, E. (2009). The impact of aging on human sexual activity and sexual desire. *The Journal of Sex Research*, 46(1), 46–56. doi:10.1080/00224490802624414

Laumann, E. O., Das, A., & Waite, L. J. (2008). Sexual dysfunction among older adults: Prevalence and risk factors from a nationally representative U.S. probability sample of men and women 57–85 years of age. *The Journal of Sexual Medicine*, 5(10), 2300–2311. doi:10.1111/j.1743-6109.2008.00974.x

Laumann, E. O., Nicolosi, A., Glasser, D. B., Paik, A., Gingell, C., Moreira, E., & Wang, T. (2005). Sexual problems among women and men aged 40–80 y: Prevalence and correlates identified in the global study of sexual attitudes and behaviors.

*International Journal of Impotence Research*, 17(1), 39–57.

doi:10.1038/sj.ijir.3901250

1  
2  
3  
4  
5 Lawrance, K., & Byers, E. S. (1995). Sexual satisfaction in long-term heterosexual  
6  
7 relationships: The interpersonal exchange model of sexual satisfaction. *Personal*  
8  
9 *Relationships*, 2(4), 267–285. Retrieved from |https://doi.org/10.1111/j.1475-  
10  
11 6811.1995.tb00092.x  
12

13  
14 Lee, D. M., Nazroo, J., O'Connor, D. B., Blake, M., & Pendleton, N. (2016). Sexual health  
15  
16 and wellbeing among older men and women in England: Findings from the English  
17  
18 longitudinal study of ageing. *Archives of Sexual Behavior*, 45(1), 133–144.  
19  
20  
21 doi:10.1007/s10508-014-0465-1  
22

23  
24 Lindau, S. T., & Gavrilova, N. (2010). Sex, health, and years of sexually active life gained  
25  
26 due to good health: Evidence from two US population based cross sectional surveys  
27  
28 of ageing. *British Medical Journal*, 340(c810), 1–11. doi:10.1136/bmj.c810  
29  
30

31  
32 Lindau, S. T., Schumm, L. P., Laumann, E. O., Levinson, W., O'Muircheartaigh, C. A., &  
33  
34 Waite, L. J. (2007). A study of sexuality and health among older adults in the United  
35  
36 States. *The New England Journal of Medicine*, 357(8), 762-74.  
37  
38  
39 doi:http://dx.doi.org/10.1056/NEJMoa067423  
40

41  
42 Lodge, A. C., & Umberson, D. (2012). All shook up: Sexuality of mid- to later life married  
43  
44 couples. *Journal of Marriage and the Family*, 74(3), 428-443. doi:10.1111/j.1741-  
45  
46 3737.2012.00969.x  
47

48  
49 Mark, K. P. (2014). The impact of daily sexual desire and daily sexual desire discrepancy on  
50  
51 the quality of the sexual experience in couples. *Canadian Journal of Human*  
52  
53 *Sexuality*, 23(1), 27–33. doi:10.3138/cjhs.23.1.A2  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65
- Mark, K. P., & Lasslo, J. A. (2018). Maintaining sexual desire in long-term relationships: A systematic review and conceptual model. *The Journal of Sex Research*, 55(4-5), 563–581. doi:10.1080/00224499.2018.1437592
- Mark, K. P., & Murray, S. H (2012). Gender differences in desire discrepancy as a predictor of sexual and relationship satisfaction in a college sample of heterosexual romantic relationships. *Journal of Sex & Marital Therapy*, 38(2), 198–215. doi:10.1080/0092623X.2011.606877
- McNulty, J. K., & Fisher, T. D. (2008). Gender differences in response to sexual expectancies and changes in sexual frequency: A short-term longitudinal study of sexual satisfaction in newly married couples. *Archives of Sexual Behavior*, 37(2), 229–240. doi:10.1007/s10508-007-9176-1
- Mitchell, K. R., Mercer, C. H., Ploubidis, G. B., Jones, K. G., Datta, L., Field, N., ... Wellings, K. (2013). Sexual function in Britain: Findings from the third national survey of sexual attitudes and lifestyles (NATSAL-3). *The Lancet*, 382, 1817–1829. Retrieved from [https://doi.org/10.1016/S0140-6736\(13\)62366-1](https://doi.org/10.1016/S0140-6736(13)62366-1)
- Palacios-Ceña, D., Carrasco-Garrido, P., Hernández-Barrera, V., Alonso-Blanco, C., Jiménez-García, R., & Fernández-de-las-Peñas, C. (2012). Sexual behaviors among older adults in Spain: Results from a population-based national sexual health survey. *The Journal of Sexual Medicine*, 9(1), 121–129. doi:10.1111/j.1743-6109.2011.02511.x
- Peplau, L. A. (2003). Human sexuality. How do men and women differ. *Current Directions in Psychological Science*, 12(2), 37–40. doi:10.1111/1467-8721.01221
- Regan, P. C., & Bersched, E. (1996). Beliefs about the state, goals, and objects of sexual desire. *Journal of Sex & Marital Therapy*, 22(2), 110–120. doi:10.1080/00926239608404915



- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65
- Rosen, R., Heiman, J., Long, J., Fisher, W., & Sand, M. (2016). Men with sexual problems and their partners: Findings from the international survey of relationships. *Archives of Sexual Behavior*, 45(1), 159–173. doi:10.1007/s10508-015-0568-3
- Sandberg, L. (2013). Just feeling a naked body close to you: Men, sexuality and intimacy in later life. *Sexualities*, 16(3-4), 261–282. doi:10.1177/1363460713481726
- Sánchez-Fuentes, M. M., Santos-Iglesias, P., & Sierra, J. C. (2014). A systematic review of sexual satisfaction. *International Journal of Clinical and Health Psychology*, 14(1), 67–75. Retrieved from [https://doi.org/10.1016/S1697-2600\(14\)70038-9](https://doi.org/10.1016/S1697-2600(14)70038-9)
- Stroope, S., McFarland, M. J., & Uecker, J. E. (2015). Marital characteristics and the sexual relationships of U.S. older adults: An analysis of national social life, health, and aging project data. *Archives of sexual behavior*, 44(1), 233–247. doi:10.1007/s10508-014-0379-y
- Štulhofer, A., Ferreira, L. C., & Landripet, I. (2014). Emotional intimacy, sexual desire, and sexual satisfaction among partnered heterosexual men. *Sexual and Relationship Therapy*, 29(2), 229–244. doi:10.1080/14681994.2013.870335
- Syme, M. L., Klonoff, E. A., Macera, C. A., & Brodine, S. K. (2013). Predicting sexual decline and dissatisfaction among older adults: The role of partnered and individual physical and mental health factors. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 68(3), 323–332. doi:10.1093/geronb/gbs087
- Træen, B. (2008). When sex becomes a duty. *Sexual and Relationship Therapy*, 23(1), 61–84. doi: 10.1080/14681990701724758
- Træen, B., Carvalheira, A., Kvaalem, I. L., Štulhofer, A., Janssen, E., Graham, C. A., . . . Enzlin, P. (2017). Sexuality in older adults (65+)—An overview of the recent literature, part 2: Body image and sexual satisfaction. *International Journal of Sexual Health*, 29(1), 11–21. doi: 10.1080/19317611.2016.1227012

1 Træen, B., Stulhofer, A., Janssen, E., Carvalheira, A. A., Hald, G. M., Lange, T., & Graham,

2 C. (2018). Sexual activity and sexual satisfaction among older adults in four European

3 countries. *Archives of Sexual Behavior*, Retrieved from

4  
5  
6  
7 <https://doi.org/10.1007/s10508-018-1256-x>

8  
9 Træen, B., Štulhofer, A., Jurin, T., & Hald, G. M. (2018). Seventy-five years old and still

10 going strong: Stability and change in sexual interest and sexual enjoyment in elderly

11 men and women across Europe. *International Journal of Sexual Health*, 1–29.

12  
13  
14  
15  
16  
17 [doi:10.1080/19317611.2018.1472704](https://doi.org/10.1080/19317611.2018.1472704)

18  
19 Willoughby, B. J., Farero, A. M., & Busby, D. M. (2014). Exploring the effects of sexual

20 desire discrepancy among married couples. *Archives of Sexual Behavior*, 43(3), 551–

21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
562. [doi:10.1007/s10508-013-0181-2](https://doi.org/10.1007/s10508-013-0181-2)

Figure 1. The conceptual mediator model illustrating the association between perceived discrepancy in sexual interest and personal sexual satisfaction with sexual frequency and emotional closeness during sex as parallel mediators.

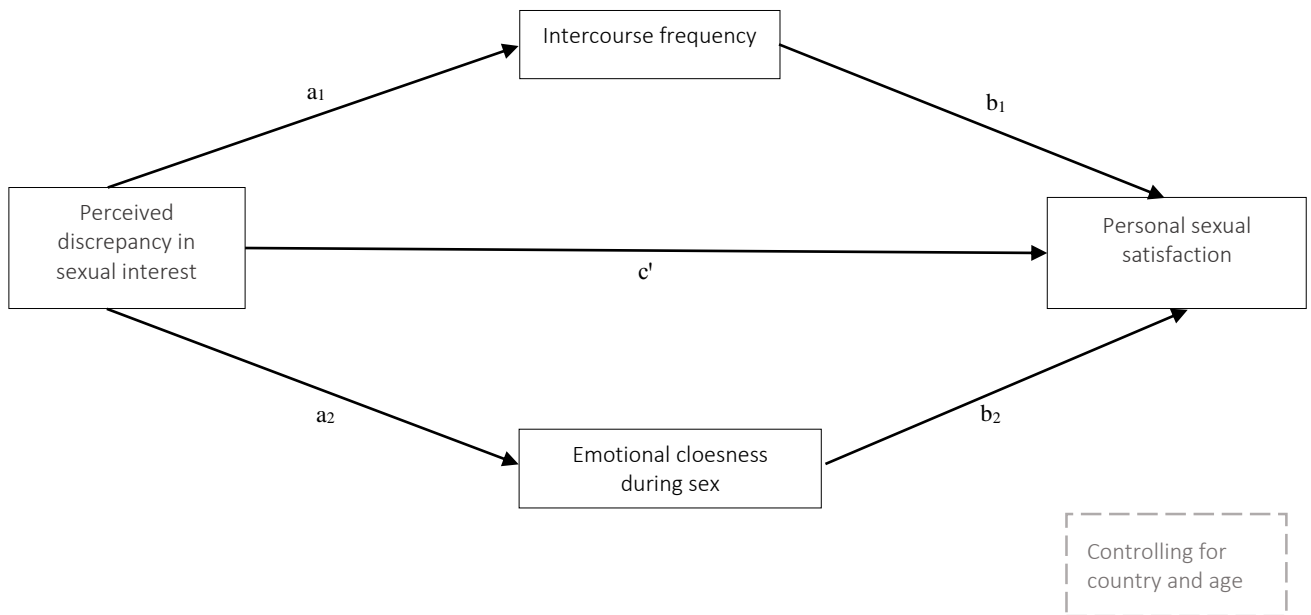




Table 1. An overview of the sociodemographic and partner related variables in partnered men and women aged 60-75 years

|   |                          | <b>Men</b> |      | <b>Women</b> |      |
|---|--------------------------|------------|------|--------------|------|
|   |                          | n          | %    | n            | %    |
| Age groups                                  |                          |            |      |              |      |
|   | 60-64                    | 440        | 29.8 | 509          | 37.5 |
|   | 65-69                    | 482        | 32.7 | 449          | 33.1 |
|   | 70-75                    | 553        | 37.5 | 400          | 29.5 |
| Level of education                          |                          |            |      |              |      |
|   | Primary                  | 277        | 18.8 | 259          | 19.2 |
|   | Secondary                | 586        | 39.8 | 599          | 44.4 |
|   | Tertiary                 | 609        | 41.4 | 491          | 36.4 |
| Work status                                 |                          |            |      |              |      |
|   | Retired                  | 1095       | 74.2 | 954          | 70.3 |
|   | In paid work             | 372        | 25.2 | 270          | 19.9 |
| Partner's gender                            |                          |            |      |              |      |
|   | Men                      | 19         | 1.3  | 1303         | 98.9 |
|   | Women                    | 1392       | 98.7 | 13           | 1.0  |
| Relationship duration (in years)            |                          |            |      |              |      |
|   | ≤ 1                      | 91         | 6.6  | 71           | 5.5  |
|   | 2-9                      | 95         | 6.9  | 86           | 6.7  |
|   | 10-29                    | 230        | 16.7 | 189          | 14.7 |
|   | ≥ 30                     | 959        | 69.7 | 937          | 73.0 |
| Sexual active in the past year <sup>a</sup> |                          |            |      |              |      |
|   | Yes                      | 1281       | 90.8 | 1057         | 84.6 |
|   | No                       | 130        | 9.2  | 192          | 15.4 |
| Perceived discrepancy in sexual interest    |                          |            |      |              |      |
|   | No perceived discrepancy | 793        | 59.9 | 807          | 68.5 |
|   | Partner more interested  | 42         | 3.2  | 255          | 21.6 |
|   | Partner less interested  | 489        | 36.9 | 116          | 9.8  |

*Notes.* <sup>a</sup>Includes sexual intercourse, masturbation, petting or fondling.

Table 2. Bivariate associations between sexual satisfaction, sexual intercourse activity, emotional closeness during sex, and sexual interest variables, separately for men (n = 1289) and women (n = 1113)

|  |       | 1      | 2      | 3      | 4      | 5 | <i>Mean</i> | <i>SD</i> | min | max |
|--|-------|--------|--------|--------|--------|---|-------------|-----------|-----|-----|
| 1. Sexual satisfaction                 | Men   | 1      |        |        |        |   | 3.5         | 1.0       |     |     |
|  | Women | 1      |        |        |        |   | 3.5         | 1.0       | 1   | 5   |
| 2. Perceived partner's interest in sex | Men   | .45*** | 1      |        |        |   | 3.9         | 1.2       |     |     |
|  | Women | .38*** | 1      |        |        |   | 4.1         | 1.0       | 1   | 5   |
| 3. Personal interest in sex            | Men   | .22*** | .43*** | 1      |        |   | 4.5         | 0.8       |     |     |
|  | Women | .31*** | .52*** | 1      |        |   | 4.0         | 1.1       | 1   | 5   |
| 4. Intercourse activity                | Men   | .53*** | .44*** | .37*** | 1      |   | 2.8         | 1.4       |     |     |
|  | Women | .53*** | .54*** | .49*** | 1      |   | 2.6         | 1.4       | 1   | 7   |
| 5. Emotional closeness during sex      | Men   | .32*** | .37*** | .18*** | .19*** | 1 | 4.5         | 0.8       |     |     |
|  | Women | .36*** | .32*** | .47*** | .30*** | 1 | 4.3         | 1.0       | 1   | 5   |

*Note.* \*\*\* $p < 0.001$  (2-tailed).

Table 3

Table 3. Model coefficients for the mediation analysis among partnered men ( $n = 1289$ ) illustrating the role of perceived discrepancy in sexual interest on sexual satisfaction via two parallel mediators (sexual frequency and emotional closeness during sex, respectively) with country affiliation and age (not presented in the table) as covariates. Unstandardized regression coefficients ( $b$ ), standard errors ( $SE$ ), multiple correlations squared ( $R^2$ )

| Dependent variable                       | Intercourse frequency |                   |      | Emotional closeness during sex |       |                   | Sexual satisfaction |        |       |                   |     |        |
|--|-----------------------|-------------------|------|--------------------------------|-------|-------------------|---------------------|--------|-------|-------------------|-----|--------|
|  |                       | $b$               | $SE$ | $p$                            | $b$   | $SE$              | $p$                 | $b$    | $SE$  | $p$               |     |        |
| Perceived discrepancy in sexual interest | $a_1$                 | -.34              | .04  | < .001                         | $a_2$ | -.24              | .02                 | < .001 | $c'$  | -.23              | .02 | < .001 |
| Intercourse frequency                    |                       | ---               | ---  | ---                            |       | ---               | ---                 | ---    | $b_1$ | .32               | .02 | < .001 |
| Emotional closeness during sex           |                       | ---               | ---  | ---                            |       | ---               | ---                 | ---    | $b_2$ | .18               | .03 | < .001 |
| Denmark                                  |                       | -.15              | .09  | .098                           |       | .02               | .05                 | .734   |       | .08               | .05 | .152   |
| Belgium                                  |                       | -.07              | .11  | .508                           |       | -.19              | .06                 | .003   |       | -.10              | .06 | .123   |
| Portugal                                 |                       | .45               | .12  | < .001                         |       | -.13              | .07                 | .060   |       | -.10              | .07 | .179   |
|  |                       | $R^2 = .10^{***}$ |      |                                |       | $R^2 = .10^{***}$ |                     |        |       | $R^2 = .38^{***}$ |     |        |

|  | Point Estimate | Boot $SE$ | 95% BCI |       |
|--|----------------|-----------|---------|-------|
|  |                |           | Lower   | Upper |
| Indirect effects   |                |           |         |       |
| Total indirect effects                                   | -.15           | .01       | -.180   | -.124 |
| Intercourse frequency                                    | -.11           | .01       | -.131   | -.085 |
| Emotional closeness during sex                           | -.04           | .01       | -.063   | -.028 |
| Contrasts  |                |           |         |       |
| Intercourse frequency vs. emotional closeness during sex | -.06           | .02       | -.093   | -.033 |

Note. \*\*\*  $p > 0.001$ ; Norway is reference category; bootstrapped with 10,000 resamples; BCI = 95% bootstrapped confidence interval





Table 4

Table 4. Model coefficients for the mediation analysis among partnered women ( $n = 1113$ ) illustrating the role of perceived discrepancy in sexual interest on sexual satisfaction via two parallel mediators (sexual frequency and emotional closeness during sex, respectively) with country affiliation and age (not presented in the table) as covariates. Unstandardized regression coefficients ( $b$ ), standard errors ( $SE$ ), multiple correlations squared ( $R^2$ )

| Dependent variable                       | Intercourse frequency |                   |      | Emotional closeness during sex |       |                   | Sexual satisfaction |        |       |                   |     |        |
|--|-----------------------|-------------------|------|--------------------------------|-------|-------------------|---------------------|--------|-------|-------------------|-----|--------|
|  |                       | $b$               | $SE$ | $p$                            | $b$   | $SE$              | $p$                 | $b$    | $SE$  | $p$               |     |        |
| Perceived discrepancy in sexual interest | $a_1$                 | -.40              | .04  | < .001                         | $a_2$ | -.32              | .03                 | < .001 | $c'$  | -.17              | .03 | < .001 |
| Intercourse frequency                    |                       | ---               | ---  | ---                            |       | ---               | ---                 | ---    | $b_1$ | .31               | .02 | < .001 |
| Emotional closeness during sex           |                       | ---               | ---  | ---                            |       | ---               | ---                 | ---    | $b_2$ | .17               | .03 | < .001 |
| Denmark                                  |                       | -.06              | .10  | .549                           |       | -.05              | .07                 | .438   |       | .05               | .06 | .374   |
| Belgium                                  |                       | -.12              | .11  | .263                           |       | -.17              | .08                 | .022   |       | -.06              | .06 | .336   |
| Portugal                                 |                       | .11               | .13  | .408                           |       | -.13              | .09                 | .144   |       | -.09              | .08 | .264   |
|  |                       | $R^2 = .08^{***}$ |      |                                |       | $R^2 = .10^{***}$ |                     |        |       | $R^2 = .35^{***}$ |     |        |

|  | Point Estimate | Boot $SE$ | 95% BCI |       |
|--|----------------|-----------|---------|-------|
|  |                |           | Lower   | Upper |
| Indirect effects   |                |           |         |       |
| Total indirect effects                                   | -.18           | .02       | -.215   | -.144 |
| Intercourse frequency                                    | -.12           | .01       | -.152   | -.097 |
| Emotional closeness during sex                           | -.05           | .01       | -.080   | -.032 |
| Contrasts  |                |           |         |       |
| Intercourse frequency vs. emotional closeness during sex | -.07           | .02       | -.106   | -.033 |

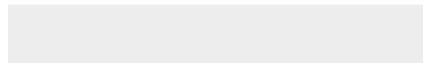
Note. \*\*\*  $p > 0.001$ ; Norway is reference category; bootstrapped with 10,000 resamples; BCI = 95% bootstrapped confidence interval



[Click here to access/download](#)

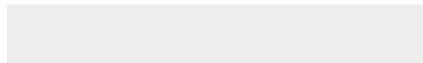
**Supplementary Material**

File not for review\_Acknowledgment.docx





Click here to access/download  
**Supplementary Material**  
File not for review\_coverpage.docx





Click here to access/download  
**Supplementary Material**  
Letter.docx

