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Exploring the Impact of Personal and Partner Traits on Sexuality: Sexual Excitation, Sexual Inhibition, and Big Five Predict Sexual Function in Couples

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Sexual difficulties are common among women and men and are associated with various mental and physical health problems. Although psychological traits are known to impact sexual attitudes and behavior, sexuality- and personality-related traits have not been jointly investigated to assess their relevance for sexual functioning in couples. The aim of this study was to investigate how psychological traits of two partners influence women's and men's sexual function. Data from 964 couples, representative of the adult population in Germany, were analyzed. Sexual function was assessed with the Female Sexual Function Index (FSFI) and the International Index of Erectile Function (IIEF). Sexuality-related traits were measured with the Sexual Excitation/Sexual Inhibition Inventory for Women and Men (SESII-W/M). Personality was measured with self-report and partner-rating versions of the Big Five Inventory (BFI). Sexual excitation was a positive and sexual inhibition was a negative predictor of sexual function in both genders. Women whose partners were sexually inhibited reported lower sexual function. Conscientious individuals reported better sexual function. Women whose partners were more conscientious also had better sexual function. Assessing partner-related factors may be helpful to identify predisposing and maintaining factors of sexual dysfunctions, especially in women.

From a biopsychosocial approach, sexual function is influenced by biological (e.g., age, health), psychological (e.g., traits, cognitions), sociocultural (e.g., norms, values), and relationship-related (e.g., discord, communication) factors (for a review, see Brotto et al., 2016). In men, the most common sexual dysfunctions include erectile or ejaculatory problems; in women, they include low desire and arousal, problems reaching orgasm, or genitopelvic pain (McCabe et al., 2016). The sexual lives of partners in a steady relationship are intertwined and are often negatively affected if one partner experiences sexual difficulties (Hendrickx, Gijs, Janssen, & Enzlin, 2016; Rosen et al., 2000).

It is, however, still unclear how etiological factors interact in predicting sexual function, especially in the context of steady relationships, where one's sexual function might be significantly impacted by partner variables. A partner's personality may influence whether he or she is open to new experiences, thorough and dutiful in general, easily sexually excited, or worried by sexual performance anxiety. Thus, the personality of a partner may affect a couple's sexual experiences in multiple ways, also depending on the other partner's predispositions (Orth, 2013; Watson, Hubbard, & Wiese, 2000). To date, few studies have investigated the relevance of psychological traits of a partner for women's and men's sexual function. This article aims to address this research gap by investigating how different traits of two sexual partners jointly predict each partner's individual sexual functioning. More precisely, this article focuses on the relevance of two propensities that are closely related to sexual function, namely sexual excitation (SE) and sexual inhibition (SI) (Bancroft & Janssen, 2000), and examines their relevance in comparison to the more general Big Five personality traits (Costa & McCrae, 1992).

Sexual Excitation and Sexual Inhibition As Predictors of Sexual Function

A key tenet of the dual control model of sexual response is that sexual function is influenced by two trait factors: SE and SI. Thus, a low level of SE, combined with a high level of SI, should be related to sexual difficulties in women and men (Bancroft, 1999; Bancroft, Graham, Janssen, & Sanders, 2009; Bancroft & Janssen, 2000). Since the late 1990s, studies have investigated and confirmed these proposed associations across genders (Bancroft et al., 2009; Bloemendaal & Laan, 2015; Sanders, Graham, Milhausen, Graham, & Milhausen, 2008; Velten,

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Scholten, Graham, & Margraf, 2017). Several questionnaires have been developed to assess SE and SI in women and men (Graham, Sanders, & Milhausen, 2006; Janssen, Vorst, Finn, & Bancroft, 2002). These instruments consist of up to 10 subscales that measure different aspects of SE and SI. SE-related scales often assess how easily one is aroused by internal (e.g., thoughts, fantasies) or external (e.g., partner characteristics) stimuli. SI-related scales assess how readily one is turned off by distractions, worries, or performance anxiety (Graham et al., 2006; Janssen et al., 2002). A recent review summarized the latest findings and demonstrated that there is strong evidence for the predictive value of SI for sexual function in both genders and of SE to predict sexual function in women (Velten, 2017). The dual control model can be seen as a state-trait model and proposes that processes related to SE and SI occur within individuals in response to sexual stimuli (Janssen, 2011). The model also describes SE and SI as stable individual traits that influence the sexual lives of women and men across a variety of situations (Janssen & Bancroft, 2007). Studies have almost exclusively focused on the trait component of the model, with a recent study in women reporting a high temporal stability of both factors over a four-year period (Velten, Zahler, Scholten, & Margraf, 2018).

Few studies have investigated how the SE and SI levels of two partners in a steady relationship interact and how they influence sexual function of either of the partners (Lykins, Janssen, Newhouse, Heiman, & Rafaeli, 2012; Mark, Milhausen, & Maitland, 2013). As sexual function of one partner within a partnership is directly linked to the other partner's sexual life, one could assume that if one partner is more (or less) easily aroused or more (or less) sexually inhibited, this might substantially impact the other partner's sexuality. Investigating this research question in a small sample of 35 newlyweds, greater similarity between partners for SI was associated with fewer sexual problems in wives. In other words, a mismatch in SI between partners was related to more sexual problems in women (Lykins et al., 2012). Investigating the relative impact of perceived and actual sexual compatibility in a sample of 133 heterosexual college students, Mark et al. (2013) found that sexual satisfaction was impacted only by the degree to which couples perceived themselves as compatible. Actual differences on several subscales of SE and SI did not predict couples' satisfaction with their sexual life. While sexual satisfaction, defined as one's evaluation of positive and negative dimensions of one's sexual relationship (Lawrance & Byers, 1995), is not the same as sexual function—which includes how often or reliably one experiences a sexual response, namely erection, lubrication, or orgasm during sexual activity (Rosen et al., 2000; Rosen, Cappelleri, & Gendrano, 2002)—both factors tend to be highly positively correlated (Althof et al., 2010; Heiman et al., 2011; Velten & Margraf, 2017). Until now, the direct impact of partner scores of SE and SI on sexual function, however, has not been assessed and an adequate statistical technique that addresses the nonindependence of dyadic data (Cook & Kenny, 2005) has not been used. While previous studies focused on trait similarity, to our knowledge, no study so far has investigated how SE and SI influence the sexual function of a sexual partner.

Personality Traits and Sexual Function

Research linking personality factors and sexual function in men and women is still scarce. Despite the relevance of sexuality for general well-being and the extensive work that has been carried out in the field of personality measurement, few researchers have focused on the association of personality traits and sexuality-related outcomes (Bancroft, 2009, p. 228).

One exception is Eysenck (1971, 1976), who, more than 40 years ago, started to investigate the impact of extraversion, emotional stability,[1] and psychoticism on sexual attitudes and behavior using samples of undergraduate students. He found that individuals with high levels of extraversion were more open to sexual experiments, had more partners, and engaged more often in sexual activities compared to more introverted people. Individuals low on emotional stability reported more frequent sexual dysfunction and lower sexual satisfaction. Other researchers who conducted similar analysis using comparable measures contradicted Eysenck by emphasizing "a general lack of contribution of personality variables […] to sexuality, as measured" (Farley, Nelson, Knight, & Garcia-Colberg, 1977, p. 118).

Using a five-factor model of personality, also known as the big five, Costa, Fagan, Piedmont, Ponticas, and Wise (1992) investigated the relationship between extraversion, agreeableness, conscientiousness, emotional stability, openness to experience, and various sexuality-related outcomes in a sample of 454 adults seeking evaluation at a sexual health clinic. The results for men were as follows: Higher emotional stability was correlated with higher sexual satisfaction, and higher extraversion was associated with higher sexual drive. Agreeableness was not correlated to sexual drive and satisfaction but was negatively related to symptoms of sexual dysfunctions. Openness to experience was positively correlated with a greater sexual drive, more sexual fantasies, and a greater range of sexual experiences. The authors concluded that openness to experience seems to have a broad impact on different aspects of sexual function. Conscientiousness was associated with lower sexual drive but also fewer dysphoric symptoms. In women, personality factors were mostly unrelated to their sexual experiences and satisfaction (Costa et al., 1992). While not directly investigating the impact of personality on sexual function, but rather on sexuality-related attitudes as well as sexual satisfaction, Heaven et al. (2003) were able to support some of the previous findings. Friendliness (a lower order factor of extraversion) and self-consciousness (a facet of emotional

[1] In this study, we decided to name this personality trait, with its "positive" label, emotional stability. Some of the studies cited in the introduction, however, used the negative end point of the scale, namely, neuroticism. The two labels refer to opposite end points of the same factor.

stability) were positively correlated to sexual satisfaction in a sample of 125 undergraduate students. The generalizability of some previous studies is, however, limited by the use of highly selective (young, highly educated) samples. In addition, most studies did not directly address the role of personality for sexual function but rather for a more general cognitive-emotional evaluation of one's sexual life.

In one study, men with a diagnosed sexual dysfunction had significantly lower emotional stability than sexually healthy participants (Quinta Gomes & Nobre, 2011). When controlling for age, education, and marital status, sexual function—measured with the International Index of Erectile Function (IIEF; Rosen et al., 2002)—was correlated with greater extraversion and emotional stability. When entering all personality factors as predictors in a multiple regression analysis, extraversion was no longer significant and emotional stability remained the only significant predictor. Another study used a sample of 526 women and assessed the impact of personality on sexual function with a well-validated questionnaire, the Female Sexual Function Index (FSFI; Rosen et al., 2000). Higher levels of extraversion, conscientiousness, emotional stability, and openness to experience were associated with better sexual function (Crisp, Vaccaro, Fellner, & Kleeman, 2015). In a sample of 50 women, the association between personality factors and distress caused by sexual difficulties was investigated. Results indicated that openness was negatively correlated with sexual distress and extraversion showed a trend toward significance in the same direction (Crisp et al., 2013).

Using Dyadic Data to Investigate the Impact of Partner Traits

To evaluate the impact of one partner's traits on the sexual function of their partner, the use of dyadic data is required. By including the personality profiles and sexual function levels of both partners, the relative contribution of one's own traits (actor effect) and the partner's traits (partner effect) on sexual function can be estimated. In addition, a data analysis technique is needed to account for the nonindependence of responses of the two individuals involved in a dyadic relationship (Cook & Kenny, 2005). The actor–partner interdependence model (APIM) allows simultaneously estimating actor and partner effects and investigating the interdependence between two members of a couple and includes the appropriate statistical methods for testing it (Kenny, Kashy, & Cook, 2006; Raudenbush & Bryk, 2002). Therefore, the APIM has been increasingly applied and recommended for the study of close relationships (Cook & Kenny, 2005).

To our knowledge, no study so far has investigated the impact of partner personality on sexual function in a sample of couples. It is clear that sexual difficulties such as erectile dysfunction impact the sexual life within a partnership (Fisher, Rosen, Eardley, Sand, & Goldstein, 2005) and that discrepancies in sexual desire can cause significant distress in both partners (Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). Little is known about how individual and partner levels of sexuality-related factors such as SE and SI, as well as the big five personality traits, influence sexual function within the context of steady relationships. In other words, it is unclear whether general personality traits can add to the explanation of sexual function above and beyond sexuality-related traits. Therefore, the aim of the present study was to explore how the previously mentioned trait factors of two partners can be used to explain sexual function levels in a population-based sample of dyadic/romantic couples.

Method

Participants

In total, 964 couples (N = 1,928 individuals) completed a survey about relationships and sexuality. Table 1 gives an overview of the sample characteristics.

In our sample, men were significantly older than women, $t(922) = -4.72$, $p < .001$, $d = 0.21$. Significant gender differences were also found for college education, $\chi^2(2) = 53.34$, $p < .001$, $d = 0.34$, with more men than women having a college degree; and occupation, $\chi^2(4) = 495.71$, $p < .001$, $d = 1.18$, with men more likely to be working full time or to be retired. In this sample, 98% (n = 950) of the couples were in a heterosexual relationship. The remaining 2% included 9 (0.9%) male–male and 5 (0.5%) female–female couples.

Measures

Personality Traits. The big five personality traits were assessed with a short version of the Big Five Inventory (BFI; Rammstedt & John, 2007), an instrument that includes 11 items rated on a scale ranging from 1 (*Disagree strongly*) to 5 (*Agree strongly*). The BFI is a reliable and valid measure to assess the big five in research contexts where participation time is limited (Rammstedt & John, 2007). In addition to the self-rating version of the questionnaire (e.g., Item 3: "I tend to be lazy"), a slightly modified version was used to assess the participant's evaluation of their partner's personality (e.g., Item 1: "My partner is reserved"). As self and partner ratings of big five traits were significantly correlated ($.38 < r < .53$, $p < .001$), aggregated scores (calculated as the mean value between self-reports and partner ratings) were used as an indicator of an individual's "true" personality (Watson et al., 2000).[2]

Sexual Excitation and Inhibition. The two propensities of the dual control model were assessed with the Sexual Excitation/Sexual Inhibition Inventory for Women and Men (SESII-W/M; Milhausen et al., 2010). This self-report questionnaire assesses SE and SI with 30 items that are answered on a Likert-type rating scale from 1 (*Strongly disagree*) to 4 (*Strongly agree*). The original measure has

[2] The amount of variance explained and the overall pattern of results were similar if only self-report or partner ratings were used. Please contact the author for further information.

Table 1. *Sample characteristics.*

	Complete sample (*N* = 1928)
	M (SD)
Age (Range: 18–90)	51.28 (12.73)
Partnership duration (in years; Range: 0–66)	23.98 (13.79)
Children (Range: 0–8)	1.70 (1.14)
	n[a] (%)
Marital status	
Married	1667 (87.1)
Unmarried	140 (7.3)
Other (e.g., divorced, widowed)	106 (5.6)
Relationship status	
Consensual monogamy	1206 (62.8)
No explicit agreement concerning monogamy	650 (33.9)
Agreed to have sex with others (e.g. threesomes)	45 (2.3)
Consensual nonmonogamy	19 (1.0)
Household income per month in Euro	
< 2,000	273 (15.2)
2,000–3,000	470 (26.2)
3,000–4,000	422 (23.5)
> 4,000	628 (35.0)
Education level	
No high-school degree	625 (32.4)
High-School degree	208 (10.8)
College degree	1095 (56.8)
Occupation	
Full-time occupation	933 (49.0)
Part-time occupation	367 (19.3)
Retired	375 (19.7)
Housewife/House husband	130 (6.8)
Other	123 (6.7)

Note. [a] Numbers vary due to missing data.

demonstrated good test-retest reliability as well as construct validity (Milhausen et al., 2010). The German version of the SESII-W/M exhibited good convergent and discriminant validity (Velten, Scholten, & Margraf, 2018). The two complete SE and SI scales also showed acceptable to good internal consistency, with a Cronbach's alpha (α) of .78 for SE and .85 for SI (Velten, Scholten, & Margraf, 2018).

Sexual Function. Because of its gender specificity, two different questionnaires were used to measure sexual function in women and men. The FSFI (Rosen et al., 2000) was used to assess sexual function in women. It consists of 19 items and six subscales (i.e., desire, arousal, lubrication, orgasm, satisfaction, and pain) that are answered on a 0 or 1 to 5-point scale, with higher scores indicating better sexual function. Subscales can be combined into one total score, ranging from 1.2[3] to 36 points, with a clinical cutoff of 26.55 (Wiegel, Meston, & Rosen, 2005); women scoring below that cutoff are deemed at risk for sexual dysfunction. The validation of the German FSFI yielded good psychometric properties (Berner, Kriston, Zahradnik, Härter, & Rohde, 2004). In the present study, internal consistency of the total scale was excellent, α = .97.

Men's sexual function was assessed with the 15-item IIEF (Rosen et al., 2002). Items are answered on a scale from 0 to 5, with higher scores indicating better sexual function. A total score can be calculated, ranging from 5 to 75. In a German validation study of the IIEF, a value of 53 for the total scale was the appropriate cutoff score to identify men with erectile dysfunction (Wiltink, Hauck, Phädayanon, Weidner, & Beutel, 2003). Good psychometric properties of the IIEF have been found in various populations and language versions (Rosen et al., 2002). In this study, internal consistency was excellent, α = .91.

Other Relevant Variables

To control for their influence on sexual function, several variables were included in our data analysis. Age and relationship duration are known correlates of sexual function in women and men (Gades et al., 2009; Liu, 2003; Martelli et al., 2012). General health is also significantly associated with sexual function, with more healthy participants also reporting better sexual function (Davison, Bell, LaChina, Holden, & Davis, 2009; Gallicchio et al., 2007). Finally, relationship satisfaction is a predictor of sexual satisfaction (Heiman et al., 2011; Rellini & Meston, 2007). A single-item measure was used to assess relationship satisfaction. Participants were asked how satisfied they were with their current relationship and answered the question on a scale ranging from 0 to 100, with lower scores indicating lower satisfaction. Individuals with high emotional stability, agreeableness, conscientiousness, and extraversion are generally more satisfied with their intimate relationships (Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke, 2010). To control for the impact of a more general satisfaction with the current relationship on sexual function, this variable was also included in our model.

Procedure

Computer-assisted telephone interviews were conducted for screening purposes and to gather participants' informed consent. The study aimed to include a representative sample of the adult population in Germany. To accomplish representativeness, the sample was drawn from the residential population aged 18 years and older that was accessible via landline or mobile phones. Landline telephone numbers were chosen based on regional stratification, while mobile phone numbers were stratified by providers. A within-household random-sampling technique was used to facilitate random selection of individuals and to minimize sampling bias.

During the telephone screening, it was assessed whether the respective household member was in a steady relationship. If the person answered affirmatively, the interviewer asked if he or she

[3] To allow for a calculation of the total score of women who had missing values, we calculated the mean scores of all subscales before weighting them according to the instructions of Rosen et al. (2000). This led to a change of the total range from 2–36 to 1.2–36. This procedure had no impact on the results of this study.

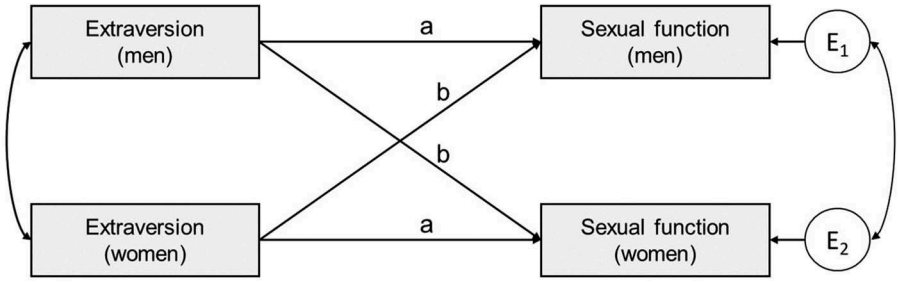

Figure 1. Actor–partner interdependence model (APIM). The boxes on the left indicate the independent variables for men and women. The boxes on the right indicate the dependent variable for each. E1 and E2 represent the residual error of sexual function for men and women, respectively. Single-headed arrows indicate predictive paths. Double-headed arrows indicate correlated variables. Paths labeled with *a* indicate actor effects, and paths labeled with *b* indicate partner effects.

would be willing to participate in a study on relationship factors and sexuality together with their partner. After receiving detailed information about the study, informed consent of both partners was obtained verbally. Participants were assured that they could withdraw their consent at any given point without negative consequences. Individuals without a steady partner were also eligible and received a modified version of the questionnaire (data presented elsewhere). All participants could choose to participate via online or paper-and-pencil survey. Study information (e.g., content, duration, and voluntariness) was again presented on the first page of the survey. The Ethics Committee of the Faculty of Psychology at the authors' university approved the study.

Participants were informed not to discuss the content of the study before both partners had completed and submitted their surveys. A maximum of three reminder calls were made or reminder e-mails were sent to increase response rates. The study was conducted between September 2015 and January 2016. Of 8,153 identified target persons, 3,467 individuals (42.5%) gave their informed consent to participate. Of all 2,275 couples that agreed to participate, 964 (42.4%) returned questionnaires from both partners. A total of 1,144 (59.2%) individuals participated online; the remaining participants chose the paper-and-pencil format.

Data Analysis

Before data analysis, sexual function that was assessed with two gender-specific questionnaires was standardized to allow for cross-gender comparisons. To account for the nonindependence of the data, we calculated one two-level model where individuals are nested within dyads (Raudenbush & Bryk, 2002). The APIM technique was used to simultaneously estimate actor and partner effects on the actor's sexual function (Kenny et al., 2006). An important advantage of APIM is that it accounts for the nonindependence of responses of the two individuals that are involved in a dyadic relationship. Thereby, it allows researchers to investigate the interdependence between two individuals of a couple and includes the appropriate statistical methods for testing it (Cook & Kenny, 2005). The APIM has been increasingly applied to and recommended for the study of close relationships. Figure 1 shows an example of an APIM for extraversion as a predictor of sexual function.

The model that investigated the impact of trait factors on sexual function used the following formula: Sexual function $_{ij} = \beta_{0i} + \beta_1$(Actor trait[4]) $_{ij} + \beta_2$(Partner trait) $_{ij} + \beta_3$(Actor trait * G) $_{ij} + \beta_4$(Partner trait * G) $_{ij} + r_{0i} + \varepsilon_{ij}$, where sexual function $_{ij}$ is the $_i$th individual's sexual function in dyad $_j$, with gender as the distinguishing variable as moderator (denoted as G). In this model, β_{0i} is the individual-specific intercept, β_1 to β_8 are individual-specific predictors, r_{0i} describes the random intercept, and ε_{ij} indicates the residuals. One model was calculated to simultaneously assess the impact of all personality factors under investigation.

Data were analyzed by an online application that is based on the program R (Kenny, 2015; R Development Core Team, 2010). The APIM analysis used generalized least squares analysis with correlated errors and restricted maximum likelihood estimation. The tests of coefficients within the APIM analysis were *Z* tests and the tests of correlations were based on *t* tests of correlation coefficients. All predictors were grand-mean-centered before the analysis. The partial correlations between predictor and outcome variables, controlling for all other predictors, were calculated as effect sizes. Values above $r = .10$ indicate a small effect size, between $r = .30$ and $r = .50$ a medium effect size, and above $r = .50$ a large effect size (Cohen, 1988).

Results

Descriptive Analyses

Table 2 shows an overview of the predictor and outcome variables for women and men. In all, 43.1% ($n = 395$) of women and 27.7% ($n = 257$) of men reported sexual function

[4] To improve readability, this formula includes only one personality trait. Our complete formula, however, included all trait factors as well as control variables and their interaction with gender.

Table 2. *Sample characteristics for predictor and outcome variables*

	Complete Sample (N = 1928)		Women (n = 960)		Men (n = 968)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*p*	*d*
Sexual function (range: women = 1.2 to 36.0, men = 5 to 75)			24.18	9.77	54.92	18.35		
Relationship duration (range: 0 to 66 years)	23.98	13.79						
Relationship satisfaction (range: 0 to 100)	81.58	17.69	81.65	17.94	81.54	17.43	.914	0.00
Health (self-reported) (range: 0 to 100)	79.20	15.49	79.85	15.92	78.56	15.04	.068	0.08
Sexual excitation (range: 1 to 4)	2.37	0.40	2.26	0.39	2.48	0.37	< .001	0.58
Sexual inhibition Range: 1 to 4)	2.64	0.45	2.82	0.41	2.46	0.42	< .001	0.87
Extraversion (range: 1 to 5)	3.38	0.81	3.42	0.78	3.34	0.83	.038	0.10
Agreeableness (range: 1 to 5)	3.43	0.55	3.51	0.52	3.35	0.56	< .001	0.30
Conscientiousness (range: 1 to 5)	3.92	0.65	4.00	0.63	3.84	0.66	< .001	0.25
Emotional stability (range: 1 to 5)	3.19	0.76	2.97	0.72	3.42	0.74	< .001	0.62
Openness to experience (range: 1 to 5)	3.46	0.81	3.63	0.76	3.29	0.81	< .001	0.28

levels that fell below the clinical cutoffs of the FSFI and IIEF, respectively, indicating that they were deemed at risk for sexual dysfunction. The average relationship duration was approximately 24 years (SD = 13.79). Relationship satisfaction and self-reported health did not differ between male and female participants. In line with previous studies, men reported higher SE and women reported higher SI (e.g., Velten et al., 2018). While men scored higher on emotional stability, women showed higher values of extraversion, agreeableness, conscientiousness, and openness to experience.

Correlational Analysis

Correlation patterns were similar for women and men; however, some gender differences were found, especially concerning the relationship between the big five and sexual function (see Table 3). Sexual function between partners was positively correlated, r = .71, p < .001. Sexual function was negatively correlated with relationship duration and both actor and partner age, suggesting that sexual function levels were lower in longer relationships and older couples. Relationship satisfaction of both members was positively correlated with actor sexual function. Self-reported health of actor and partner were associated with higher sexual function. SE showed positive associations and SI showed negative associations with sexual function. While the previously mentioned correlations had small effect sizes, the following correlations were even smaller ($r \leq .10$), despite their statistical significance: Actor and partner extraversion were positively correlated with sexual function in women and men. Actor agreeableness was predictive of higher sexual function, but only in women. Actor conscientiousness and emotional stability were positive predictors in both genders, while partner conscientiousness and emotional stability were significant in women only. Finally, actor openness to experience was a positive predictor in men, while partner openness was a positive predictor of sexual function in women. Table S1 in the online supplemental material includes bivariate correlations between all outcome and predictor variables for women and men.

Actor–Partner Interdependence Model

Gender made a difference in the explanation of sexual function, as was indicated by a significant test of overall distinguishability, χ^2 (23) = 49.78, p < .001. Therefore, separate actor and partner effects were estimated for women and men. For the APIM analysis, a total of 920 dyads were included. The amount of variance explained by the full model was R^2 = .29 for women and R^2 = .32 for men. The bivariate correlation between the two partners' scores on sexual function was r = .70, p < .001; the partial correlation controlling for all predictors was r = .63, p < .001. Of the total nonindependence in sexual function between partners, 37.3% could be explained by the APIM. Table 4 shows the results of the APIM for sexual function in women and men.

Table 3. *Bivariate correlations between sexual function and all predictor variables for women (top, right) and men (bottom, left)*

Variables	Actor/ Partner	Men's Sexual Function	Women's Sexual Function
Relationship duration	Actor	−.21**	−.16**
Relationship satisfaction	Actor	.27**	.28**
	Partner	.24**	.23**
Age	Actor	−.24**	−.18**
	Partner	−.24**	−.18**
Health	Actor	.22**	.15**
	Partner	.11**	.15**
Sexual excitation	Actor	.14**	.15**
	Partner	.11**	.08**
Sexual inhibition	Actor	−.22**	−.21**
	Partner	−.15**	−.10**
Extraversion	Actor	.14**	.08**
	Partner	.05*	.07**
Agreeableness	Actor	.02	.05*
	Partner	.03	.04
Conscientiousness	Actor	.07**	.08**
	Partner	.01	.07**
Emotional stability	Actor	.10**	.08**
	Partner	.03	.08**
Openness to experience	Actor	.07**	.03
	Partner	.01	.09**

*Correlation is significant at the .05 level (two tailed); **correlation is significant at the .01 level (two tailed).

Actor Effects. First, we are reporting the effects of an individual's predictor scores on his or her own sexual function. Men's sexual function was predicted by their age; older men reported significantly lower sexual function than younger men. Actor relationship satisfaction was predictive of greater sexual function in women and men. Better self-reported health was a positive predictor of sexual function in men. SE was a positive predictor, and SI was a negative predictor in both genders. Of the big five, only actor conscientiousness was a positive predictor in women and men.

Partner Effects. Now we consider the effects of partner variables on sexual function. Partner relationship satisfaction was a positive predictor of sexual function among men/ women. In addition, better self-reported health of a sexual partner was predictive of greater sexual function in women but not men. Women whose partners had high SI reported lower sexual function. Lower agreeableness of a sexual partner was predictive of better sexual function in women but not in men. Partner conscientiousness was a positive predictor of sexual function in women. Men whose partners had less emotional stability reported better sexual function.

Actor–Partner Interaction Effects. Significant actor–partner interaction effects indicate that the impact of a partner variable on one's sexual function varies depending on one's own score on the same predictor. First, we found a significant partner–actor interaction for age. The interaction equaled −0.00069 and was statistically significant, $p < .001$. The partner effect for men and women who were one *SD* above the mean on age overall was −0.016, $p < .001$, and for actors one *SD* below the mean was 0.001, $p = .704$. This finding indicates that a partner's age was a negative predictor of sexual function in older but not in younger individuals.

A significant actor–partner interaction was also found for men concerning SE. The interaction equaled 0.35 and was statistically significant, $p = .048$. The partner effect for men who were one *SD* above the mean on sexual excitation was 0.21, $p = .042$, and for men one *SD* below the mean was −0.06, $p = .572$. In men with a high level of SE, meaning that they reported being easily aroused by a variety of sexual stimuli, a partner who also reported a high level of SE was predictive of greater sexual function. No other significant actor–partner interaction effects were found. Figure 2 shows the interaction between actor and partner SE to predict sexual function in women (nonsignificant) and men.

Discussion

The main goal of this study was to investigate the relevance of sexuality- and personality-related traits for sexual function within partnerships in a representative population-based sample. To evaluate the relative impact of individual and partner variables, traits of both partners were explored simultaneously using a data analysis approach that accounted for the interdependence of dyadic couples' data.

Sexual Excitation and Sexual Inhibition as Predictors of Sexual Function

First, the relevance of two propensities of the dual control model, SE and SI, is considered. In line with previous findings, actor SE was associated with higher sexual function and actor SI was associated with lower sexual function in women (Bloemendaal & Laan, 2015; Sanders et al., 2008; Velten et al., 2017). Women who are easily aroused by a variety of stimuli and who are not inhibited by, for instance, worries about sexual performance, reported higher sexual function levels. In line with previous studies with male samples (Bancroft, Carnes, Janssen, Goodrich, & Long, 2005; Janssen et al., 2002), both SI and SE were significant predictors. The effect of SE on sexual function in men was small, suggesting that some studies with smaller samples may not have had sufficient statistical power to detect this effect. In addition, a significant actor–partner interaction effect was found concerning the impact of SE on men's sexual function. Only in men with high SE, having a partner with high SE contributed to better sexual function. In men who are easily aroused by erotic fantasies or visual stimuli, having a partner who responds in a similar way may facilitate sexual function. For men who are not as easily aroused, having a partner with high SE does not lead to the same result. This finding is in line with studies about sexual incompatibility or sexual desire discrepancy that emphasize the negative impact of one partner (usually the male) desiring sex more often than the other partner (usually

Table 4. *Actor–partner interdependence model for sexual function in women and men*

		Women						Men					
			95% Confidence Interval						95% Confidence Interval				
Variable	Effect	Estimate			*p*	β	Partial *r*	Estimate			*p*	β	Partial *r*
Sexual function	Intercept	0.00	−0.05	0.06	.969			−0.01	−0.06	0.04	.724		
Relationship duration		−0.01	−0.01	0.00	.134	−.07	−.06	0.00	−0.01	0.00	.308	−.04	−.04
Age	Actor	0.00	−0.01	0.01	.770	.02	.02	−0.01	−0.02	0.00	.026	−.15	−.07
	Partner	−0.01	−0.02	0.00	.110	−.11	−.05	0.00	−0.02	0.01	.462	−.05	−.02
Partnership satisfaction	Actor	0.01	0.01	0.02	< .001	.23	.21	0.01	0.01	0.02	< .001	.22	.20
	Partner	0.01	0.01	0.01	< .001	.15	.16	0.01	0.00	0.01	.001	.11	.11
Health	Actor	0.00	0.00	0.01	.394	.03	.02	0.01	0.01	0.02	< .001	.20	.20
	Partner	0.01	0.00	0.01	< .001	.12	.13	0.00	−0.01	0.00	.614	−.02	−.02
Sexual excitation	Actor	0.29	0.14	0.45	< .001	.11	.13	0.17	0.02	0.33	.036	.07	.07
	Partner	0.14	−0.03	0.30	.097	.05	.06	0.05	−0.12	0.21	.549	.02	.03
Sexual inhibition	Actor	−0.32	−0.47	−0.18	< .001	−.13	−.14	−0.41	−0.55	−0.27	< .001	−.17	−.18
	Partner	−0.22	−0.36	−0.07	.003	−.09	−.09	−0.13	−0.27	0.01	.073	−.05	−.06
Extraversion	Actor	0.02	−0.05	0.10	.547	.02	.01	0.06	−.02	0.13	.101	.05	.06
	Partner	0.02	−0.05	0.09	.505	.02	.02	0.00	−0.07	0.07	.913	.00	.00
Agreeableness	Actor	−0.01	−0.12	0.10	.828	−.01	−.01	−0.05	−0.16	0.06	.366	−.03	−.04
	Partner	−0.11	−0.22	−0.01	.036	−.06	−.08	−0.05	−0.16	0.05	.331	−.03	−.03
Conscientiousness	Actor	0.15	0.06	0.24	.001	.10	.10	0.10	0.01	0.19	.023	.07	.10
	Partner	0.10	0.01	0.19	.027	.07	.08	0.04	−0.05	0.13	.377	.03	.03
Emotional stability	Actor	−0.07	−0.16	0.01	.087	−.05	−.05	−0.04	−0.13	0.04	.302	−.03	−.03
	Partner	−0.07	−0.15	0.01	.078	−.05	−.06	−0.10	−0.18	−0.02	.020	−.07	−.06
Openness to experience	Actor	0.03	−0.05	0.11	.447	.02	.02	0.03	−0.05	0.10	.478	.02	.02
	Partner	0.03	−0.05	0.10	.494	.02	.02	−0.04	−0.11	0.03	.275	−.03	−.04

the female) on couple's relationship and sexual satisfaction (Davies, Katz, & Jackson, 1999; Mark & Murray, 2012).

In women, a partner effect for SI was found, indicating that women whose partners had high scores on SI reported lower sexual function. As described earlier, high SI in men is associated with erectile problems and low general sexual function (e.g., Bancroft et al., 2005). As women's sexuality has been argued to be more context dependent than men's (McNulty & Fisher, 2008), this may in turn negatively affect the sexuality of a female partner (Brotto et al., 2016). Especially in couples who limit their sexual interactions to penile-vaginal intercourse, women whose partners are more sexually inhibited and prone to sexual difficulties may experience fewer sexual interactions that provide enough stimulation and/or last long enough for them to feel aroused or reach orgasm (O'Connor et al., 2012). Some women may also feel discouraged or frustrated by a partner's propensity for erectile problems, early ejaculations, or low sexual desire. Finally, a male partner's high SI might reduce a woman's sexual function by lowering her sexual esteem or her feeling of sexual attractiveness (Dove & Wiederman, 2000; Wiederman, 2000). While a recent study suggested a

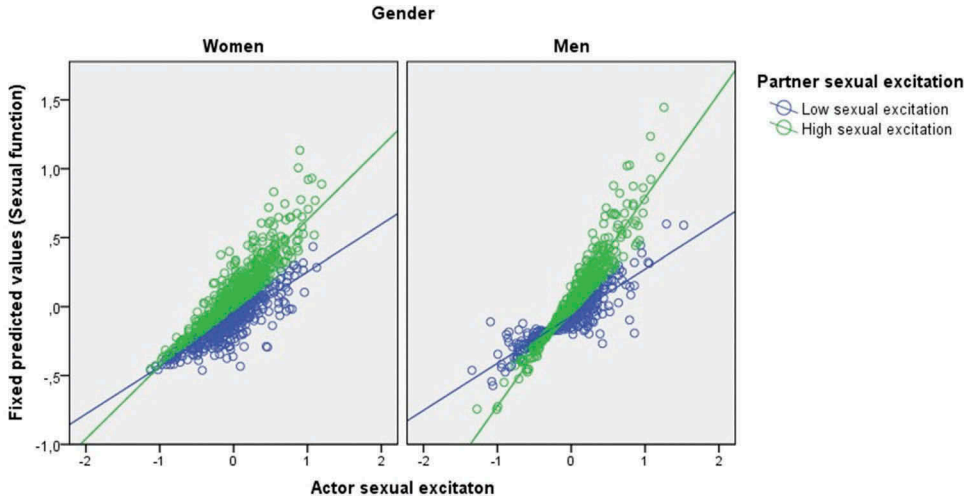

Figure 2. Interaction between actor and partner sexual excitation to predict sexual function in women (left) and men (right).

relatively high temporal stability of SE and SI in a female sample (Velten, Zahler, Scholten, & Margraf, 2018), this cross-sectional study did not allow for a causal interpretation of data. Thus, we cannot rule out that the experience of women's and men's sexual difficulties might not also impact levels of SE and SI.

The Big Five as Predictor of Sexual Function

Bivariate correlations between the big five personality traits and sexual function in men and women revealed positive associations between all factors—extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience—and our outcome variable. Effects were small; the highest correlations were found between individual levels of extraversion and sexual function in men. This pattern of results is in line with other studies that reported significant correlations between several aspects of personality and sexual function in men and women (Crisp et al., 2015, 2013; Eysenck, 1972; Quinta Gomes & Nobre, 2011).

Roberts, Kuncel, Shiner, Caspi, and Goldberg (2007) proposed three processes that mediate the effects of personality on relationship outcomes. First, personality impacts a couple's exposure to certain relationship events, such as conflicts or abuse. Second, personality traits shape people's responses to their partners' behaviors. This factor may be especially relevant for the area of sexuality, as the sexual life within steady relationships is shaped by the interaction of sexual needs and responses of both partners. For example, agreeable individuals might be able to successfully regulate emotions of frustration or disappointment when confronted with a sexual difficulty experienced by them or by their sexual partners (Jensen-Campbell & Graziano, 2001; Lopes, Salovey, Côté, & Beers, 2005). Conscientious partners may respond to sexual problems with an integrating conflict resolution strategy that involves a high level of concern for both themselves and their partners, rather than avoiding the issue or assigning blame (Antonioni, 1998). The third process proposed by Roberts et al. (2007) refers to the fact that personality traits can evoke responses from partners that can contribute either to the maintenance or resolution of sexual difficulties. Individuals low on emotional stability or agreeableness may be more likely to behave in a way (i.e., express criticism, avoid communication) that triggers a negative response from a partner (Gottman, 2014), which in turn may lead to inadequate sexual communication and result in lower sexual functioning (Velten & Margraf, 2017).

Because our study sample was significantly larger than the samples of most other studies on personality and sexual function, we may have been able to detect small effects that would not have reached statistical significance in smaller samples. When taking all other variables into consideration, few personality traits contributed significantly to the explanation of sexual function. Actor conscientiousness was predictive of sexual function in both genders. Conscientious individuals are characterized as careful, thorough, dutiful, and having the desire to do a task well (Costa & McCrae, 1992). A post hoc explanation for this unexpected finding is that high conscientiousness can be especially beneficial when it comes to putting effort into a satisfying sexual life or to postpone one's own needs and interests to focus on resolving a sexual problem within the context of committed, long-term relationships (Baker & McNulty, 2011). In line with our findings, conscientious, newlywed women were more satisfied sexually than less conscientious counterparts. Their husbands' level of conscientiousness was not a predictor of their satisfaction (Meltzer & McNulty, 2016). In our study, however, we also found a significant partner effect, with women whose partners had higher scores on conscientiousness experiencing higher sexual function. This finding can also be explained by the already mentioned mechanisms: Men who are thorough and dutiful may feel the need to satisfy their partner sexually, which may in turn lead to better sexual function of their partners. Research has shown that spontaneous, passionate sexual desire is not the most common reason to engage in sexual activity, especially for women in long-term relationships (Basson, 2001; Meston & Buss, 2007). Therefore, conscientious individuals might have the tendency "not to let it slip" and to continue working on the sexual relationships with their partners.

Interestingly, two other personality traits—agreeableness and emotional stability—that have traditionally been found to be positive predictors of sexuality-related outcomes—showed negative partner effects in our study. Women whose partners were more agreeable reported lower sexual function. To date, the impact of partner responses to women's sexual difficulties has been investigated only in women with genitopelvic pain, with research showing that having a partner who responds with sympathy, attention, and support to a woman's genital pain is associated with greater pain symptoms (Rosen, Bergeron, Leclerc, Lambert, & Steben, 2010). However, because the current study was not focused on sexual pain conditions, more research is needed to identify which partner responses are indeed helpful to women who experience other symptoms related to low sexual function (i.e., low desire, orgasmic problems). Both agreeableness and emotional stability, however, showed nonsignificant zero-order correlations with our outcome variable and only became negative predictors when all other variables were controlled for.

The two remaining personality traits—extraversion and openness to experience—were not predictive of sexual function, even though positive zero-order correlations were found. A possible explanation might be the positive associations of extraversion and, to a lesser extent, of openness with other variables that were included in our model, such as SE, SI, and emotional stability. Extraverted individuals are characterized as outgoing, assertive, and enthusiastic—aspects which should be associated with sexual function (McCrae & Costa, 1991). In the context of our analysis, however, there might have been substantial overlap with

sexuality-related traits (i.e., SE) that already explained this amount of outcome variance. In contrast, conscientiousness might represent a unique aspect of personality that was not captured by other predictors.

Other Predictors of Sexual Function

Finally, considering our control variables, age was a significant predictor of male sexual function. This is in line with other studies showing that male sexual function, especially erectile capacity, is more strongly age related than female sexual function (Mitchell et al., 2013). Men's health was a positive predictor of both male and female sexual function. This finding is supported by epidemiological studies that emphasize the relevance of physical health for men's sexual function (Gades et al., 2009; Laumann, Paik, Rosen, & Page, 1999; Travison et al., 2007), which may in turn also impact their partners' sexuality. Compared to all other predictors, both actor and partner relationship satisfaction were the strongest positive predictors of sexual function across genders. In other words, individuals who reported high satisfaction with the state of their partnership also reported good sexual function. This finding is rather unsurprising, as relationship and sexual satisfaction are highly correlated (Byers, 2016; Velten & Margraf, 2017). Relationship duration was not a predictor of sexual function. This finding implies that a healthy sexual life is possible even in long relationships. When controlling for other variables such as relationship satisfaction, couples who have been married for 50 years can have satisfying sex lives (Velten & Margraf, 2017).

Implications for Research and Practice

Our study has some implications for future research and clinical practice. SE, SI, as well as the big five factors, were associated with sexual function in our population-based sample of couples. As effect sizes were mostly small, one might argue that the impact of psychological traits on sexual function is rather limited, not practically relevant, or does not deserve further consideration. In line with this, Roberts et al. (2007) stated that the "idea that personality traits are the validity weaklings of the predictive panoply has been reiterated in unmitigated form to this day" (p. 314). By showing that the effect sizes of personality measures, socioeconomic status, and intelligence are comparable, for instance, in predicting divorce rates, the authors concluded that most effects found in psychological research are small and can still be of great relevance if important life outcomes are under investigation (Roberts et al., 2007). In agreement with that, we recommend that future studies should replicate and expand our findings by using more comprehensive personality inventories that allow for the analysis of specific facets of personality, especially with respect to the one scale that was particularly relevant for sexual function in our study, namely, conscientiousness.

While a previous study suggested that general personality traits may be as relevant as sexuality-related traits in predicting hypersexuality (Rettenberger, Klein, & Briken, 2016), our results, in line with another study on hypersexuality (Miner et al., 2016), suggest that traits that more closely reflect aspects of sexual behavior and response may explain more variance in sexuality-related behaviors than personality traits. To assess both personality- and sexuality-related traits of both partners offers more information than limiting assessment to traits of one partner. This is especially true for SE and SI, which interact to predict sexual function in couples. Depending on the SE/SI levels of one partner, the other partner's sexual traits can substantially impact his or her partner's sexual function.

Limitations

Several limitations challenge the internal validity and generalizability of our findings. The volunteer bias that is common in sex research may have been particularly relevant for our study (Wiederman, 1999). Although our sample was selected to be representative of the general adult population —which is an advantage compared to most previous studies that relied on undergraduate or convenience samples—individuals with more conservative sexual attitudes may have felt uncomfortable with the study's topic and thus have been unlikely to participate. In addition, our study required the consent of both partners to participate. Couples with relationship discord are therefore most likely underrepresented in our study. Sexual function in men and women was assessed with two different questionnaires; thus, direct comparisons between sexual function levels across genders was not feasible. Future research should also focus on specific aspects of sexual function, such as sexual desire, orgasm, or sexual distress, and investigate the relevance of actor and partner traits for those more closely defined outcomes.

To our knowledge, the relationship between actor and partner traits and sexual function in couples has not been investigated previously. Therefore, we decided to explore the potential relationships and refrained from proposing specific hypotheses. Replication of our findings, for example, in couples that are reporting relationship discord, is encouraged.

Conclusion

When sexual interactions happen in the context of steady relationships, an individual's sexual function is not only influenced by his or her own psychological traits but is also significantly impacted by trait characteristics of the sexual partner. How couples cope with a sexual difficulty (e.g., erectile problem, low desire, or sexual pain) is influenced by the personality of both partners and might in turn significantly impact the development and persistence of this sexual concern. Taking sexuality- and personality-related traits of both partners into consideration might improve our understanding of the complex etiology of sexual function and dysfunction. Improving our knowledge about intra- and interpersonal factors contributing to sexual concerns is valuable to further develop psychological treatments for individuals and couples who are distressed by low sexual function.

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