Is the Association Between Sexual Satisfaction and Neuroticism in Treatment-Seeking Couples Curvilinear?

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Neuroticism is generally regarded as an inherently negative characteristic. However, previous findings suggest that this trait may have adaptive features in the context of close relationships. The current study examined the curvilinear association among neuroticism and sexual satisfaction in both partners of couples from a clinical population. The sample was composed of 539 treatment-seeking couples who completed measures of personality and sexual satisfaction. Results indicated that very low to low levels of self-reported neuroticism were positively associated with self-reported sexual satisfaction, whereas low to high levels were negatively associated with sexual satisfaction. Thus, both very low and high levels of neuroticism predicted poorer sexual satisfaction, whereas low to moderate levels of neuroticism predicted higher levels of sexual satisfaction. This association remained significant after controlling for the other dimensions of the five-factor model of personality. The current findings suggest that, in clinical couples, the association between neuroticism and couple outcomes may be more complex than the linear relation that has been the focus of past studies.

Keywords: personality, neuroticism, five-factor model of personality, sexual satisfaction, treatment-seeking couples

Results from the National Health and Social Life Survey (Laumann, Gagnon, Michael, & Michaels, 1994) showed that 88% of married individuals report high levels of sexual satisfaction. More recently, results from the world wide Global Better Sex Survey (Mulhall, King, Glina, & Hvidsten, 2008) showed that 58% of women and 57% of men are not fully satisfied with their sexual relationships. However, this

proportion is likely to be more elevated in couples from the clinical population, given that dissatisfaction with the sexual relationship is a frequent reason for seeking couple therapy (Doss, Simpson, & Christensen, 2004).

Sexual functioning is too often neglected by couple therapists, and interventions for sexual problems are still considered by many professionals to require specialized treatments

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(Bergeron, Benazon, Jodoin, & Brousseau, 2008). Sex therapists may be prone to overlook the dyadic aspects of the couple relationship in their understanding of sexual functioning, and to assume that improvements in sexual functioning will necessarily lead to improvements in other aspects of the relationship. Couple therapists, despite their focus on a wide range of intrapersonal and interpersonal variables that impact relationship quality and stability, are likely to assume that changes in the attachment system (Johnson, 2004; Johnson & Zuccarini, 2010), improvements in communication or problem-solving behaviors (Epstein & Baucom, 2002), or better acceptance of irreconcilable personality differences between partners (Jacobson & Christensen, 1996) will naturally lead to positive changes in sexual functioning without directly intervening on the sexual aspects of the relationship. In addition, apart from diagnosed sexual dysfunctions, additional studies specifically targeting the more global construct of sexual satisfaction are needed (Patrick et al., 2013; Simons & Carey, 2001). This distinction is important because poor sexual satisfaction is frequently observed even in the absence of clear sexual dysfunction. For example, partners may report dissatisfaction with the frequency of sex, or feelings of anxiety and worries about sex (Christopher & Sprecher, 2000). In some cases, the erosion of passion can even result in a total absence of sexuality between intimate partners (Sabourin & Lefebvre, 2008).

Given that sexual dissatisfaction has been consistently, but not perfectly, associated with dyadic adjustment and couple instability (see Christopher & Sprecher, 2000, for a review), the determinants and negative consequences of sexual unhappiness in clinical couples deserve more attention. The current study examines the complex role of neuroticism in sexual dissatisfaction, a robust predictor of various couple outcomes.

Neuroticism

The study of personality traits in the prediction of important areas of human functioning has proven to be fruitful (Ozer & Benet-Martinez, 2006). Among the dimensions of the five-factor model of personality (FFM; Costa & McCrae, 1992) consisting of Neuroticism, Extraversion, Openness to Experience, Agreeable-

ness, and Conscientiousness, Neuroticism has certainly been the most significantly and extensively scrutinized. First, this trait is common to most personality models. Despite their different labels, negative affectivity (Watson & Clark, 1984), trait anxiety (Spielberger, Gorsuch, & Lushene, 1970), repression-sensitization (Byrne, 1961), and neuroticism (Costa & McCrae, 1992; Eysenck & Eysenck, 1968) all refer to a similar underlying construct describing individual differences in the propensity to experience negative emotions (Costa & McCrae, 1992). Individuals who are high on neuroticism are more reactive to stressful situations, tend to worry a great deal, and are susceptible to distress even in the absence of anxiogenic events. In contrast, low-neurotic individuals are more emotionally stable, confident, and secure (Watson & Clark, 1984). This personality dimension is also associated with numerous life outcomes. In addition to being related to a wider range of physical and psychological disorders than any other personality trait (Lahey, 2009), this dimension has been found to negatively impact happiness and general well-being (Ozer & Benet-Martinez, 2006), and to predict lower life, job, and marital satisfaction (Heller, Watson, & Hies, 2004).

The impressive range of negative outcomes to which neuroticism is related naturally conveys the misleading idea that this trait is intrinsically undesirable. However, some observations suggest that the picture may be more complex. For instance, Watson and Casillas (2003) argued that although neuroticism is generally viewed as a vice, it can also be a virtue. That is, they reviewed empirical evidence showing that neuroticism has adaptive features and may enhance an individual's security through vigilance and responsiveness to danger (Clark & Watson, 1999; Gray, 1987). Thus, neuroticism should not be considered as an inherently negative trait, given that unpleasant emotions are a necessary signal to keep individuals away from threats (Nesse, 1991; Watson & Casillas, 2003). The cost of extremely low levels of neuroticism is further supported by recent evidence from clinical research showing that extreme scores falling at both ends of the dimensions of the FFM (Costa & McCrae, 1992) are associated with specific potential problems (Mullins-Sweatt & Widiger, 2006; Widiger, Costa, & McCrae, 2013). In the case of neuroticism, extremely low scorers tend to lack normal concern for actual or potential problems and consequences, to have a sense of invincibility and unrealistic optimism, to commit social blunders by lack of attention to the reactions of others, and to be emotionally restricted, nonreactive, or uninterested in life (Widiger, Costa, & McCrae, 2002). Very low neuroticism scores have also been associated with narcissistic personality disorder and psychopathic traits (Campbell & Miller, 2013; Derefinko & Lynam, 2013).

Neuroticism in Marital Research

An increasing number of studies show that neuroticism is negatively associated with marital adjustment (Barelds, 2005; Botwin, Buss, & Shackelford, 1997; Bouchard, Lussier, & Sabourin, 1999; Brock & Lawrence, 2014; Donnellan, Conger, & Bryant, 2004; Dyrenforth, Kashy, Donnellan, & Lucas, 2010; McNulty, 2013, for a review; Razeghi, Nikiju, Mujembari, & Masihi, 2011; Robins, Caspi, & Moffitt, 2000; Watson, Hubbard, & Wiese, 2000). The transactional and mutual influence of this personality trait on both partners' adjustment is supported by the fact that associations were observed between one's neuroticism and one's dyadic adjustment (actor effect), as well as between one's neuroticism and one's partner's dyadic adjustment (partner effect).

Not surprisingly, among well-known personality traits that have been studied, neuroticism shows the strongest association with marital satisfaction, with average correlations of -.26for the actor effect and -.22 for the partner effect (Heller et al., 2004; Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke, 2010). In order to explain the deleterious effect of high neuroticism on relationship quality, many significant mediators have been identified: negative evaluation of the quality of the relationship (McNulty, 2008), deleterious cognitive biases (Finn, Mitte, & Neyer, 2013), frequency and intensity of negative behavioral exchanges between partners (Caughlin, Huston, & Houts, 2000; Donnellan et al., 2004; McNulty, 2008), and conflict resolution style (Hanzal & Segrin, 2009).

Along with other fields of study, marital research has traditionally focused on the harmful consequences of high neuroticism. In this regard, lower neuroticism scores are assumed to predict higher levels of marital satisfaction, whereas elevated scores are expected to predict lower levels of marital satisfaction. This assumption has led researchers to design their studies in order to examine the linear association between this dimension and couple outcomes exclusively. Only recently, Daspe, Sabourin, Péloquin, Lussier, and Wright (2013) investigated the curvilinear association between neuroticism and dyadic adjustment in both partners of treatment-seeking couples. They found an inverted U-shaped relationship between neuroticism and marital satisfaction for both actor and partner effects, above and beyond the contribution of the other dimensions of the FFM. This finding supports the adaptive features of neuroticism at low levels (Watson & Casillas, 2003), and suggests that the positive outcomes generalize to the context of couple relationships. At low levels, neuroticism may promote awareness and motivation to react proactively to couple difficulties, hence explaining this positive association between low levels of neuroticism and marital satisfaction. Consequently, these observations are coherent with the assumption of a more complex, most likely nonlinear, association between neuroticism and various outcomes. The goal of the current study was thus to examine whether the curvilinear association observed between neuroticism and dyadic adjustment can be extended to another important couple outcome: sexual satisfaction.

Neuroticism and Sexual Functioning

Only a few studies have addressed the association between neuroticism and sexual functioning, and results are somewhat inconsistent. Overall, neuroticism has been found to be positively associated with sexual guilt (Heaven, Fitzpatrick, Craig, Kelly, & Sebar, 2000), unprotected sex, and sex with multiple partners (Hoyle, Fejfar, & Miller, 2000). With respect to sexual satisfaction, results are mixed (see Mc-Nulty, 2013, for a review). Whereas some findings point to a negative relationship (Costa, Fagan, Piedmont, Ponticas, & Wise, 1992; Donnellan et al., 2004; Eysenck, 1976; Heaven et al., 2000; Schenk, Pfrang, & Rausche, 1983), others suggest no association between neuroticism and sexual satisfaction (Barnes, Malamuth, & Check, 1984; Schenk & Pfrang, 1986).

Given that only one study has investigated the link between neuroticism and sexual satisfaction in treatment-seeking individuals (Costa et al., 1992), more studies are needed to better clarify the association between these variables in clinical populations. As noted by Smith, Nezlek, Webster, and Paddock (2007), the associations between personality traits and sexual attitudes and behaviors are generally weak and may therefore be affected by differences in the nature of the samples, sample size, and measurement strategies across studies, leading to inconsistent results. Another possible reason for the divergent findings is that only a linear association between neuroticism and sexual satisfaction has been tested. Studies may have found incongruent or nonsignificant results because they failed to capture the complexity of the relation between neuroticism and sexual satis-

At high levels of neuroticism, a negative association with sexual satisfaction is not surprising, given neurotic individuals' pervasive dissatisfaction with various areas of their life (Watson & Casillas, 2003). Goldenberg, Pyszczynski, McCoy, Greenberg, and Solomon (1999) found some support for the idea that highly neurotic individuals have difficulty managing their fear of sexuality and are more likely to experience anxiety, guilt, and disgust toward sex. At the other extremity of the dimension, the lack of interest and reactivity of individuals who score very low on scales of neuroticism (Widiger et al., 2002) may contribute to lower sexual arousal, or to instrumental sexuality without subjective satisfaction. This assumption is supported by some observations showing that neuroticism is positively associated with sexual excitability (Eysenck, 1972, 1976; Heaven et al., 2000) and sexual curiosity (Heaven et al., 2000). It is therefore plausible that the association between neuroticism and sexual satisfaction is nonlinear, with extreme scores at both ends of the continuum predicting poor sexual satisfaction. In addition, within a dyadic perspective, the individual approach to sexuality is likely to influence its investment in the couple's sexual life, thereby impacting his or her partner's sexual experience. In consequence, the hypothesized curvilinear association should be observed for both actor (the association between one's neuroticism and one's sexual satisfaction) and partner (the association between one's neuroticism and one's partner's sexual satisfaction) effects. To our knowledge, this hypothesis has never been tested. Given recent findings on the curvilinear association between both partner's neuroticism and dyadic adjustment (Daspe et al., 2013), further investigations are needed to examine whether these associations can be extended to other areas of couple functioning.

Overview of the Current Study

The main goal of this study is to examine whether there exists a curvilinear association between neuroticism and sexual satisfaction in a sample of treatment-seeking couples. We hypothesized that scores falling at both extremes of the neuroticism dimension would predict poorer sexual satisfaction, whereas moderate scores would predict higher levels of sexual satisfaction. Given growing evidence supporting the systemic influence of each partner's personality on both members of the couple (Dyrenforth et al., 2010; Orth, 2013; Robins et al., 2000), we examined actor and partner effects with the assumption that one individual's neuroticism predicts his or her own sexual satisfaction (actor effect) as well as his or her partner's sexual satisfaction (partner effect). The study is also designed to account for sexual satisfaction associations between partners. As opposed to a purely intraindividual examination, this dyadic approach is consistent with a systemic view of couples that takes into account the interactive nature of the relationship, in which one partner simultaneously influences and is influenced by the other (Stanton & Welsh, 2012). This is important because past studies on couple sexuality are often based on data collected from individuals (Dewitte, 2014), which does not allow the simultaneous investigation of data from both partners.

The current study is conducted using a large sample of treatment-seeking couples. The use of clinical couples is an advantage given that marital research has mainly been conducted on community samples (Cooper & Sheldon, 2002). It is hazardous to generalize findings between healthy and clinical couples, especially in studies on the association between personality dimensions and sexual satisfaction, which are largely conducted with samples of undergraduate students or with only one partner. The examination of the relationship between personal-

ity and couple functioning in community couples is certainly necessary but it tells little about this relationship in clinical couples. In addition, in clinical couples facing relationship difficulties, adaptive aspects of neuroticism (i.e., vigilance and willingness to react to threats to the relationship) may play a particularly important role. Consequently, the present study is an opportunity to improve knowledge about the relationship between neuroticism and sexual satisfaction in treatment-seeking couples.

Method

Participants

The sample was composed of 539 heterosexual, treatment-seeking couples. Partners had been living together for an average of 12.57 years (SD = 9.31). Forty-six percent (n = 246) were legally married and 54% (n = 290) were cohabiting. The number of children per couple ranged from 0 to 6 (M = 1.43, SD = 1.11), with 81.8% (n = 438) having at least one child and 18.2% (n = 98) having no children. On average, women were 40.02 years old (SD = 8.70), ranging from 22 to 70 years, and men were 42.73 years old (SD = 9.04), ranging from 23 to 70 years. Women's annual income ranged from less than \$5,000 to more than \$200,000, with most of them earning between \$30,000 and \$59,999 in Canadian currency. Men's annual income ranged from less than \$5,000 to more than \$200,000, with the majority earning between \$50,000 and \$79,999. Less than 1% of women (n = 3) had not completed high school, 11.8% (n = 63) had a high school degree, 23.5% (n = 126) had a college degree, 37.7%(n = 202) had an undergraduate degree, and 20.7% (n = 109) had a graduate degree. Among men, 4.1% (n = 22) had not completed high school, 13.6% (n = 73) had a high school degree, 26.5% (n = 142) had a college degree, 31.9% (n = 171) had an undergraduate degree, and 20.5% (n = 110) had a graduate degree. Regarding ethnicity, 94.6% (n = 505) of women were Canadian, 2.8% (n = 15) were European, 1.2% (n = 6) were Asian, 0.2% (n = 1) were African, 0.2% (n = 1)were South American, and 0.6% (n = 3)belonged to another ethnic group. Among men, 93.8% (n = 495) were Canadian, 2.7%(n = 14) were European, 1.5% (n = 8) were

Asian, 0.4% (n=2) were African, 0.2% (n=1) were South American, and 0.4% (n=2) belonged to another ethnic group. Finally, 93.8% of the participants were native French speakers, 3.9% were native English speakers, and 2.3% had another native language but were comfortable either with English or French.

Procedure

Couples were recruited at their first therapy session in a fee-for-service clinic located in Montreal, Canada. Partners were either selfreferred or had been referred to couple therapy by a mental health professional, and were generally seeking help for communication problems, lack of emotional intimacy, and sexual difficulties. As part of a comprehensive assessment process, each partner was invited to complete a consent form, a demographic questionnaire, and a series of questionnaires aimed to evaluate various aspects of their couple functioning. Among others, the questionnaires included the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992) and the Index of Sexual Satisfaction (ISS; Hudson, Harrison, & Crosscup, 1981). The French or English version of each questionnaire was used according to the preference of the participant. Couples were asked to complete the questionnaires at home, without consulting their partner, and to return them by mail before the second therapy session. At the end of the assessment process, partners were provided with a summary of their results on the questionnaires along with recommendations, and therapeutic goals in line with these results were proposed before beginning a treatment in traditional cognitive-behavioral or integrative cognitive-behavioral approaches.

Measures

Sexual satisfaction. The ISS (Comeau & Boisvert, 1985; Hudson et al., 1981) was used to assess sexual satisfaction. The ISS is a 25-item, self-reported questionnaire measuring the magnitude of problems in sexual relationships. Each item reflects a common complaint reported by partners when discussing sexual issues and is rated on a 5-point Likert scale (1 = rarely or none of the time, 5 = most or all of the time). Because the questionnaire is designed to assess the degree of sexual dissatisfaction,

scores range from 0 to 100, with higher scores indicating greater sexual dissatisfaction. Hudson et al. (1981) proposed a cutoff of 30 to discriminate between clinically dissatisfied individuals and satisfied ones. In the present study, we reversed the scoring of the ISS to obtain a score of sexual satisfaction in order to facilitate comparison of the results with those found for marital satisfaction (Daspe et al., 2013). Thus, higher scores indicate greater sexual satisfaction, with scores below 70 indicating dissatisfaction with the sexual relationship. The ISS has good reliability (alpha coefficient of .92), good construct validity, and performs better than other well-established measures to discriminate between individuals with and without sex problems (Hudson et al., 1981). In the present study, the alpha coefficient was .93.

Personality. Personality dimensions were measured using the French translation of the NEO-FFI (Costa & McCrae, 1992; Sabourin & Lussier, 1992). The NEO-FFI is a self-reported, 60-item questionnaire assessing the dimensions of the FFM: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Each dimension is measured by 12 items (total of 60 items), each rated on a 5-point Likert scale assessing the extent of agreement for each statement (1 = strongly disagree, 5 =strongly agree). In order to interpret scores on the dimensions, Costa and McCrae (1992) suggested the following ranges: very low (T score = 34 or below), low (T score = 35 to 44), moderate (T score = 45 to 55), high (T score = 56 to 65), and very high (T score = 65 or above). The NEO-FFI shows adequate estimates of construct validity and the Neuroticism scale has good reliability with an alpha coefficient of .86 (Costa & McCrae, 1992). In the present study, alpha coefficients were .85 for Neuroticism, .74 for Extraversion, .72 for Openness to Experience, .72 for Agreeableness, and .79 for Conscientiousness.

Data Analysis

Actor-partner interdependence model (APIM; Kenny, Kashy, & Cook, 2006) analyses were conducted to examine the associations between neuroticism and sexual satisfaction for both partners. Kenny et al. (2006) proposed a set of methodological and data analytic approaches that are specifically designed for the

study of dyadic phenomena. In APIM analyses, data from both partners are considered simultaneously, and dependent variables (here, sexual satisfaction) are allowed to correlate between partners, which takes into account the nonindependence of partners' data. In addition, contrary to multiple regression, in which analyses are conducted separately for women and men, actor effects (i.e., the relationship between one's neuroticism and one's sexual satisfaction), partner effects (i.e., the relationship between one's neuroticism and one's partner's sexual satisfaction), as well as gender differences are examined in one comprehensive model.

In the current study, path analyses were performed using Mplus 7 (Muthén & Muthén, 1998-2014) with maximum likelihood estimation. Several fit indices were used to examine whether the specified models were welladjusted to the data. First, a nonsignificant p value for the chi-square statistic supports the null hypothesis of no difference between the theoretical model and the observed variances and covariances (Bollen, 1989). Second, comparative fit index (CFI; Bentler, 1990) values range from 0 to 1, with values above .90 indicating good fit (Bentler, 1992) and values above .95 indicating ideal fit (Hu & Bentler, 1999). Finally, a root mean square error of approximation (RMSEA; Browne & Cudeck, 1993) below .05 indicates good fit, and a RMSEA below .08 indicates reasonable fit (Browne & Cudeck, 1993). The confidence interval (CI) represents the precision of the RMSEA in assessing the fit of the model (MacCallum, Browne, & Sugawara, 1996). A 90% CI with an upper bound below .08 indicates good fit to the data.

Results

Correlation coefficients for sexual satisfaction and neuroticism are reported in Table 1. As expected, sexual satisfaction correlated between partners. Preliminary analyses were conducted to examine possible differences between women and men on the studied variables. Because partners' scores on sexual satisfaction were correlated, paired-samples *t* tests using gender as a repeated measure were conducted. Results are presented in Table 1. As expected with couples seeking therapy, mean scores for sexual satisfaction fell in the clinical range. Results showed that, compared with men,

Table 1 Correlation Coefficients, Means, and Standard Deviations for Sexual Satisfaction and Neuroticism Scores for Women and Men

Measure	1	2	3	4	М	SD
1. Women's sexual satisfaction	_	13*	.70**	03	64.69	19.61
2. Women's neuroticism		_	05	02	51.59	10.80
3. Men's sexual satisfaction			_	07	65.89	18.27
4. Men's neuroticism				_	51.14	11.02

^{*} p < .01. ** p < .001.

women showed significantly higher levels of neuroticism, t(531) = 2.14, p = .032, d = 0.13. Women and men did not differ on their level of sexual satisfaction, t(520) = 1.86, p = .063, d = 0.06. Fifty-six percent (n = 302) of women and 59% (n = 315) of men were sexually dissatisfied (i.e., scored below 70 on the ISS). Both partners showed clinical levels of sexual dissatisfaction in 45% of the couples (n = 242).

APIMs

Curvilinear associations were examined by including a quadratic term for neuroticism (Neuroticism × Neuroticism) in addition to the linear term in the model. For women and men. linear and quadratic terms for neuroticism were treated as exogenous variables, whereas sexual satisfaction was treated as an endogenous variable. Women's and men's sexual satisfaction were allowed to correlate, thus accounting for the nonindependence of partners' data. To examine actor and partner effects, all possible covariances and paths from exogenous to endogenous variables were included in the model. Estimation of the structural paths indicated a significant association between women's linear term for neuroticism and women's sexual satisfaction (actor effect), b = -.12, p = .012, as well as a marginally significant association between women's quadratic term for neuroticism and women's sexual satisfaction, b = -.06, p = .084. Path coefficients from the linear (b =-.02, p = .597) and quadratic terms (b =-.033, p = .342) for women's neuroticism to men's sexual satisfaction (partner effects) were nonsignificant. In men, both actor (b = -.05, p = .266, for the linear, and b = -.05, p =.157, for the quadratic terms of neuroticism) and partner effects (b = -.03, p = .474, for the linear, and b = -.04, p = .243, for the quadratic terms of neuroticism) were nonsignificant. In order to obtain an overidentified model allowing for the computation of fit indices, nonsignificant covariances between partners' linear and quadratic terms for neuroticism were excluded. This model resulted in similar parameter estimates and showed good fit indices, $\chi^2(4) = 3.65$, p = .455, CFI = 1, RMSEA = 0, 90% CI [0.000, 0.062].

Before estimating a final model, we examined whether women and men were empirically distinguishable. Theoretically, partners are expected to be distinguishable by their gender. It is possible, however, that gender does not make a meaningful difference on the studied variables. To test this assumption, an omnibus test of distinguishability was conducted, as described in Kenny et al. (2006). Because the aim was to explore possible gender differences by empirically examining whether associations between neuroticism and sexual satisfaction differ across gender, a distinct model was estimated on the variances and covariances between all variables in the model (both within- and between-partners), adding equality constraints across women and men. The omnibus chisquare test was nonsignificant, $\chi^2(9) = 8.62$, p = .473, indicating that the pattern of variances and covariances for women and men did not differ significantly. This completely independent test allows for a statistical examination of the validity of a model in which parameters across women and men are constrained to be equal. In a more conservative way, this test is a prerequisite for the estimation of the constrained model (Kenny et al., 2006).

The final model was therefore estimated with equality constraints on the variances, covariances, and structural paths across women and men. The chi-square difference test between the constrained and unconstrained models was nonsignificant, $\Delta \chi^2(8) = 8.06$, p = .427. This indicates that adding equality constraints did not worsen the fit, further supporting the validity of this more parsimonious model. Goodness of fit indices showed that the model provided was a very good representation of the data, $\chi^2(12) =$ 11.72, p = .469, CFI = 1, RMSEA = 0, 90%CI [0.000, 0.043]. As illustrated in Figure 1, results suggested a significant negative actor effect from neuroticism to sexual satisfaction for both the linear (b = -.08, p = .009) and the quadratic (b = -.05, p = .024) terms. Partner effects, however, were nonsignificant (b =-.03, p = .367, for the linear term, and b =-.03, p = .143, for the quadratic term). It can be noted that the parameter estimates of the unconstrained model differ from those of the constrained model. This is explained by the number of parameters to be estimated in each model. Adding equality constraints across men and women resulted in fewer parameters to be estimated, thus changing the computation of standard errors and, consequently, p values (Hatcher, 1994).

The negative values of the path coefficients from self-reported quadratic neuroticism to selfreported sexual satisfaction indicate an inverted U-shaped relationship between these variables, as illustrated in Figure 2. This suggests that the relationship between neuroticism and sexual satisfaction is initially positive, until an inflection point at which higher neuroticism scores predict lower sexual satisfaction. The following equation allows the identification of this inflection point, in which b_1 represents the path coefficient of the linear association, and b_2 represents the path coefficient of the curvilinear association (Aiken & West, 1991): X_{inflection} = -b₁/2b₂. Only the inflection point for actor effect was calculated, given that results showed no partner effect between neuroticism and sexual satisfaction. The inflection point corresponds to a neuroticism score of 42. This score, which represents a low level of neuroticism (Costa & McCrae, 1992), predicted the highest degrees of sexual satisfaction. In other words, a score around 42 seems to be the optimal level of neuroticism in regard to sexual satisfaction. Together, self- and partner-reported neuroticism explained 1.7% of the variance of sexual satisfaction.1

Discussion

The aim of this study was to examine the association between neuroticism and sexual satisfaction in a sample of treatment-seeking couples. Traditionally, marital research has focused on the linear associations between personality dimensions and couple outcomes with the assumption that certain traits are adaptive in the context of romantic relationships, whereas others are not. In parallel, clinical personality researchers increasingly emphasize the fact that personality dimensions are not inherently positive or negative, and that scores falling at either end of the continuum may be maladaptive in some ways (Mullins-Sweatt & Widiger, 2006; Widiger et al., 2013). The results of the present study support the latter assumption, demonstrating that the relationship between neuroticism and couple outcomes seems to be more complex. In fact, we observed a curvilinear association between self-reported neuroticism and self-reported sexual satisfaction. The inverted U-shaped relationship indicates that both extremely low and elevated neuroticism scores predict poorer sexual adjustment in clinical couples. As expected, we found sexual satisfaction to be related between partners. This significant association supports the necessity of considering sexual satisfaction not only at an individual level but also at an interpersonal level (Dewitte, 2014).

These findings are consistent with the curvilinear association between neuroticism and dyadic adjustment previously reported (Daspe et

¹ Additional APIM analyses were conducted to verify whether the curvilinear relationship remained significant after controlling for the association between the four other dimensions of the FFM (Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) and sexual satisfaction. Results showed that the actor effect between the quadratic term for neuroticism (b = -.05, p = .029) and sexual satisfaction was still significant after the inclusion of other dimensions of the FFM in the model. Here again, no significant partner effect was observed between neuroticism and sexual satisfaction. Results also highlighted positive actor and partner effects of extraversion on sexual satisfaction (b = .08, p = .022, for actor effect; b = .09, p = .008, for partner effect). Together, actor and partner neuroticism (linear and quadratic) and extraversion explained 2.8% of the variance of sexual satisfaction. The strength of these findings is thus further supported by the fact that the curvilinear association between neuroticism and sexual satisfaction remained significant even after controlling for the linear associations with the other dimensions of the FFM.

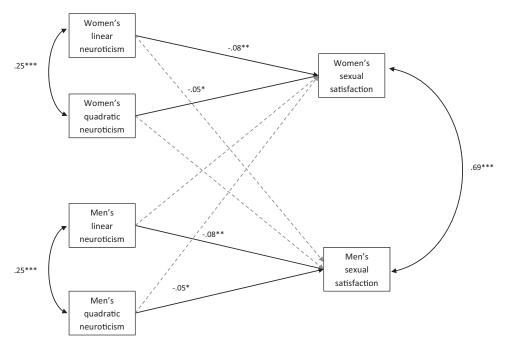


Figure 1. Actor–partner interdependence model for neuroticism and sexual satisfaction. Regression coefficients are based on standardized scores. * p < .05. *** p < .01. *** p < .001.

al., 2013), and suggest that this complex association can be extended to diverse couple outcomes. In the current study, however, neuroticism and sexual satisfaction were related only through actor effects. That is, neuroticism seems to be more closely associated with one's own sexual satisfaction than with one's partner's. For instance, high neuroticism has been related to fear, anxiety, guilt, and disgust about

sex (Goldenberg et al., 1999). Furthermore, because they tend to be nonreactive (Widiger et al., 2002) and show lower levels of sexual excitability and curiosity (Eysenck, 1976; Heaven et al., 2000), low-neurotic individuals may experience a lack of interest and enjoyment in sexuality or sexuality may become instrumental. In addition, sexual satisfaction may be an aspect of couple functioning that is less fre-

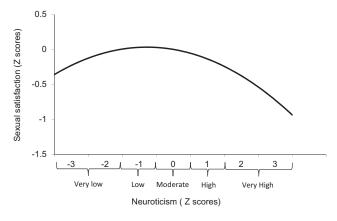


Figure 2. Curvilinear association between self-reported neuroticism and sexual satisfaction.

quently brought up by distressed spouses, for whom these issues might lead to overwhelming emotions. Consequently, the partner is likely to be unaware of the negative emotions that the individual feels about sexuality, and thus be less directly affected by it.

From low to high levels of neuroticism, findings are in line with empirical evidence showing a negative association between this personality trait and sexual satisfaction (Costa et al., 1992; Donnellan et al., 2004; Eysenck, 1976; Heaven et al., 2000; Schenk et al., 1983). Furthermore, the findings uncover a part of the association between these variables that may have been overlooked by previous researchers, that is, a positive association from very low to low levels of neuroticism. The shape of the curvilinear effect suggests that scoring very low on neuroticism scales is not as detrimental as scoring high on this personality dimension, which may explain the relative consistency of the negative association reported in marital research. However, these findings are of practical significance in alerting clinicians to potential adverse consequences of very low levels of neuroticism, which, despite seeming to have a smaller impact than high levels of this trait, can significantly affect the quality of the relationship. Thus, instead of reflecting beneficial emotional stability, as has been traditionally assumed in marital research, poor reactivity to negative emotions is likely to lead to a lack of necessary vigilance and concern for difficulties in the relationship. Very low-neurotic individuals thus seem to lack adaptive aspects of this dimension in regard to consideration and motivation to react to potential threats (Watson & Casillas, 2003). McNulty and Fincham (2012) have argued that psychological characteristics are not intrinsically positive or negative, and that their impact on wellbeing rather depends on contextual factors. They reviewed evidence suggesting that forgiveness and optimism, among others, are related to well-being in healthy couples, whereas in more troubled relationships, being less optimistic or forgiving toward offending behaviors from the partner tends to foster improvements in couple difficulties. Applied to neuroticism, a certain level of reactivity to the problematic aspects of the relationship, including sexual aspects, might be necessary to promote change. Without an appropriate awareness of the challenges faced in the relationship and adequate responsiveness to them, marital difficulties are susceptible to further deteriorate and negatively impact the quality of the relationship.

The present findings indicate no gender difference in the associations between personality dimensions and sexual satisfaction. In contrast, some investigations on personality traits and sexual satisfaction have revealed gender discrepancies (Costa et al., 1992; Heaven et al., 2000; Schenk et al., 1983). However, researchers have mostly reported gender differences in coefficients without statistically testing the significance of these differences. In addition, gender differences in couple research are rarely examined in a dyadic approach accounting for both partners' data simultaneously. When they are, results generally suggest no gender difference in the relationship between neuroticism and dyadic adjustment (Fisher & McNulty, 2008; Robins et al., 2000). This is consistent with the gender similarities hypothesis (Hyde, 2005), which proposes that men and women are more similar than different on a wide range of psychological variables. In her review of metaanalytic work, Hyde observed that effect sizes for gender differences on personality variables are generally of low magnitude or close to zero. In addition, although gender differences on some measures of sexual functioning were large, the effect size for gender differences in sexual satisfaction was near zero (Oliver & Hyde, 1993). The results of the current study are in line with the gender similarities hypothesis, showing that the association between neuroticism and sexual satisfaction is not statistically different for women and men. Alternatively, Del Giudice, Booth, and Irwing (2012) argued that gender differences in personality may be present at the facet level, but obscured at the level of broader personality traits such as those examined in the current study. It is thus possible that an examination of the relationship between personality and sexual satisfaction at the facet level would reveal some gender differences that may have been overlooked in the present investigation.

The current study has some methodological limitations. First, the cross-sectional, correlational design used in the present study does not allow any causal inference between neuroticism and sexual satisfaction. Future research using longitudinal designs is needed to clarify this issue. Second, the study relies solely on self-

reported data, which are susceptible to problems of shared method variance. This limitation may have been avoided by using partner-reported assessment of the individual's personality or by using observational data (Piedmont & Rodgerson, 2013). Third, although the large sample of treatment-seeking couples is a strength of the current study, it is not possible to verify if the finding of a curvilinear association between neuroticism and sexual satisfaction can be generalized to couples from the community. Fourth, the results of the present study suggest that neuroticism explains only a small percentage of the variance in sexual satisfaction. As suggested by Shafer (2001), weaker associations may be expected with broader personality dimensions. For example, narrow traits (e.g., sexuality trait terms) might be better predictors of sexual attitudes and behaviors than the dimensions of the FFM. The use of the more specific FFM facets might also reveal stronger associations than the broader dimensions. Future research could also investigate the relationship between neuroticism and sexual satisfaction at the facet level in order to examine potential gender differences that may have been overlooked with broader traits (Del Giudice et al., 2012). Lastly, we argue that the association between neuroticism and sexual satisfaction may differ between distressed and nondistressed couples. This question should be addressed more directly in studies specifically designed to test this assumption.

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