Predictors of sexual distress in women with desire and arousal difficulties: Distinguishing between personal-, partner-, and interpersonal distress

Abstract

Introduction. Although impaired sexual function is relatively common, not all sexual impairments are associated with distress. To date, most studies on protective and risk factors for sexual distress have asked about distress in a more general manner and have failed to distinguish between different dimensions of sexual distress.

Aim. To examine the association of several intra- and interpersonal factors with personal-, perceived partner-, and interpersonal distress due to an impairment in sexual functioning in women.

Methods. Cross-sectional representative population-based survey study with a two level random selection of Flemish women aged 14 to 80 years from the Belgian National Register. The data of 520 sexually active heterosexual women with a partner (weighted *N*) with an impairment in sexual desire (*N*=291) and/or in sexual arousal (*N*=273) were used for analysis.

Main Outcome Measures. Demographical information, the 5-item Mental Health Inventory (MHI-5), the Marital Adjustment subscale of the Maudsley Marital Questionnaire (MMQ-MA), and the 4-item Dyadic Sexual Communication Questionnaire (DSC). Presence and severity of sexual impairments and associated sexual distress were assessed by means of the Sexual Functioning Scale (SFS).

Results. Severity and number of sexual impairments were predictive of all types of sexual distress. Also, for both desire and arousal impairments, lower mental well-being predicted personal distress, and lower relationship satisfaction predicted perceived partner distress. For desire impairments, lower relationship satisfaction and less communication about sexual needs were predictive of interpersonal distress. For impairments in sexual arousal, lower mental well-being and lower relationship satisfaction were predictive of interpersonal distress.

Conclusions. Personal-, perceived partner- and interpersonal distress due to sexual impairments have different types of predictors. Clinical assessment and treatment could benefit from differentiating between different types of distress, and between the intra- and interpersonal factors that are associated with them.

Keywords: sexual distress; female sexual dysfunctions; predictors; population-based study

Introduction

Epidemiologic studies have found that 40% to 45% of adult women report at least one impairment in sexual function with common sexual impairments being low desire and low arousal (with prevalence rates varying between 7-55% resp. 11-31%).[1-9] Since the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV),* the diagnosis of a sexual dysfunction is based on the presence of both a sexual impairment *and* distress due to this impairment.[10] Only a few epidemiological studies to date have included the assessment of sexual distress. Findings from these studies indicate that impairments in sexual functioning are associated with distress in some but not all women. For example, European epidemiological studies have found that between 46% to 65% of women with a sexual impairment experience this as distressing.[4, 11, 12] Although a number of studies have assessed correlates of sexual impairments, very few have examined predictors of sexual distress, i.e., distress that is experienced due to a sexual impairment. The studies that did explore this found that sexual impairments and sexual distress do not always share the same predictors and in cases where they do have a common predictor, this predictor can be differently related to the two. For example, age has been found to be a positive predictor of sexual impairments, but a negative predictor of sexual distress.[13]

Studies on correlates of sexual distress can be categorized as focusing on *general* distress (e.g., "How much distress or worry has your own sexuality caused you?"[3]) or on more specific *sexual* distress, i.e., distress that is *due* to the impairment itself (e.g., "Do you currently have a persistent or recurrent inability to attain an adequate wetness and vaginal swelling response of sexual excitement?;" "If yes, does this cause you marked distress or relationship problems?").[14] General distress has consistently been found to be associated with psychological (e.g., depression and anxiety) and relational factors (e.g., lower relationship satisfaction).[3, 15-20] Some studies also found age, physical health, educational level, (not)

having a partner, and the partner's sexual difficulties to be associated with general sexual distress.[3, 15, 17, 20-22] The presence of sexual impairments appears to be a weak predictor of general distress when these other variables are controlled for.[3, 15, 17]

In contrast to studies on more general distress, only a few studies have explicitly asked women to evaluate the degree to which they experienced distress that was specifically *due to* the sexual impairment, and explored predictors of this type of sexual distress.[14, 23, 24] Öberg and Fugl-Meyer found, for most types of sexual impairments, that women´s sexual distress was related to low relationship satisfaction and the presence of a (male) partner's sexual problems.[23] Weiss and Brody found that women without distress due to lubrication impairments reported "greater vaginal orgasm consistency" and were more likely to have never masturbated than women whose lubrication impairments were associated with distress.[14] Finally, Stephenson and Meston found that certain consequences of impaired sexual functioning (i.e., decreased sexual pleasure) were perceived as more distressing by older women and women who were less satisfied in their relationship.[24]

In addition to the lack of differentiation between general and sexual distress, most research to date has failed to distinguish between different *types* of sexual distress. Yet, clinical practice clearly suggests that not only personal but also partner and/or interpersonal distress leads individuals to seek help.[22, 25] To date, only two studies have assessed predictors of different types of sexual distress.[3, 22] Bancroft and colleagues distinguished between "distress about the relationship" and "distress about one's own sexuality" and found lower mental well-being and negative feelings during sex to be the strongest predictors of both types of distress.[3] Stephenson and Meston differentiated between "personal concern about sexual difficulties" and "relational concern about sexual difficulties" and found that age was an important moderator of the relationship between low sexual desire and both types of sexual distress.[22] These studies did not reveal different predictors for the two types of distress.

However, a limitation of both studies is that they did not ask whether the distress was due to the sexual impairment itself. Thus, they assessed *general* distress, which could be a result of sexual impairments, but also of other sexual health-related factors (e.g., body image, sexual orientation, etc.).

The aim of the current study was to examine whether previously studied predictors of general distress in women also predict sexual distress, while distinguishing between three types of sexual distress: Personal, perceived partner, and interpersonal distress.

Method

Participants

Participants were 543 heterosexual women who took part in the *Sexpert* survey – a representative cross-sectional population-based study on sexual health in Flanders – and who, at the time of the survey, were in a relationship and who had been sexually active (i.e., involving some type of genital stimulation, including coitus) with a partner during the past six months (see Figure 1).[11, 26] The survey included Flemish men and women between 14 and 80 years of age who were randomly selected from the Belgian National Register.[11] The research protocol was approved by the Ethics Committee of Ghent University Hospital and the Commission for the Protection of Personal Privacy. Before completing the questionnaires, participants provided informed consent (for participants below the age of 16, the parents provided informed consent as well). Data were collected via face-to-face interviews, using a combination of computer-assisted personal interviewing (CAPI) and computer-assisted self-interviewing (CASI).

Main Outcome Measures

Outcome Variables

Personal, perceived partner, and interpersonal distress due to women's impaired sexual functioning were assessed using the Sexual Functioning Scale (SFS). The SFS is an expanded version of the Short Sexual Functioning Scale (SSFS).[27] This scale was developed with our clinical experience in mind and assesses several types of impairments in sexual response.[11] For each type of impairment, women can indicate whether the impairment is causing them to feel distressed, is causing their partner to feel distressed, and whether it is causing relationship problems. The SFS has been created with the input from clinically trained sexologists, and its face validity has been tested with 52 individuals (men and women of various ages, with different relationship status, with high and low educational degree, people with different ethnic background, heterosexuals and LGBT´s) to check the interpretability and clarity of the items. After asking about presence and severity of impairments in sexual desire (lack of spontaneous sexual desire and lack of responsive sexual desire, based on two items) and in sexual arousal (difficulty attaining lubrication and/or difficulty maintaining lubrication, and lack of subjective arousal, based on three items), whereby each item was scored on a four-point Likert scale ranging from 0 (no), 1 (mild), 2 (moderate), to 3 (severe or extreme), women with at least a mild impairment (scores 1-3) were asked to indicate to what degree this impairment caused problems for herself, the partner, and/or the relationship. The scale used for this ranged from "no or mild problem," "moderate problem," to "severe to extreme problem". The last two answer categories were considered indicative of sexual distress (see Table 1).

-Insert Table 1 here-

Predictor Variables

Demographic, relationship, and sexual variables. Respondents were asked to provide information about their age, religion, education, level of income, relationship duration, civil status, sexual frequency, satisfaction with their sex life (five-point Likert scale ranging from

‘very unsatisfied’ to ‘very satisfied’), and how important having sex was for them (five-point Likert scale ranging from ‘very unimportant’ to ‘very important’).

Physical health was measured using the physical component measure (PCS-12) of the Dutch version of the SF-12.[28] The SF-12 was constructed from a subset of 12 items of the SF-36.[29] Higher scores on PCS-12 are indicative of better physical health. In the present study internal consistency was satisfactory (Cronbach´s α = .81).

General mental health was assessed my means of the Dutch version of the 5-item short version of the Mental Health Inventory (MHI).[28-31] Each item was scored on a five-point Likert scale. Higher sum scores reflect a higher level of mental well-being, lower scores reflect the presence of more mental health problems (Cronbach´s α = .81).

Relationship satisfaction within the current relationship was measured by means of the Dutch version of the Maudsley Marital Questionnaire (MMQ).[32-34] For the purpose of this study, only the Marital Adjustment subscale of the MMQ (MMQ-MA) was used. This subscale consists of 10 items that are each scored on a nine-point Likert-type scale. Higher scores correspond with greater relationship dissatisfaction (Cronbach´s α = .90).

Sexual communication within the current relationship was assessed by means of the 4-item short version of the Dyadic Sexual Communication Questionnaire (DSC).[35-37] The original scale uses six-point Likert scales, but to remain consistent with other response items in the Sexpert-survey, we used a five-point Likert scale.[26] A higher score indicates more frequently experiencing difficulties discussing sexual topics with one’s partner (Cronbach´s α=.71).

Total number of impairments in sexual functioning was assessed by means of the SFS which included items on ‘sexual aversion’ (1 item), ‘sexual desire’ (3 items: too much desire, lack of spontaneous sexual desire, and lack of responsive sexual desire), ‘sexual arousal’ (3 items: difficulty attaining vaginal lubrication, difficulty maintaining vaginal lubrication, and lack of subjective sexual arousal), orgasm (3 items: absent orgasm, delayed orgasm, and early

orgasm) and sexual pain (2 items: dyspareunia and vaginismus). Each item was scored on a four-point Likert scale ranging from 0 (no), 1 (mild), 2 (moderate), to 3 (severe or extreme). A score of 1 (mild) or higher on at least one of the items per impairment was considered to indicate the presence of this type of impairment. A full description of the items can be found elsewhere.[11]

Severity of impairments in desire and in arousal was assessed by means of the SFS-items. Each item was scored on a three-point Likert scale 1 (mild), 2 (moderate), 3 (severe to extreme). An overview of how severity was scored for distressed and non-distressed women can be found in Table 2.

-Insert Table 2 here-

Statistical Analysis

Data were weighted by age and level of education in order to improve sample representativeness for Flemish women aged 14–80 years. All results were computed using survey weights. Data of women with incomplete responses were omitted from analyses. Chi-square tests and student´s t tests were used to compare distress groups on descriptive variables. Multivariate analysis of variance (MANOVA) and univariate analyses (ANOVA) were used to calculate differences between distress groups on the predictor variables. Multiple logistic regression analyses were conducted for women with an impairment in sexual desire and for women with an impairment in sexual arousal to examine the association between predictor variables and personal, perceived partner, and relationship distress. An alpha level of .05 was used to assess significance. Statistical analyses were performed using IBM SPSS Statistics for Windows, version 23 (IBM Corp., Armonk, N.Y., USA).

Results

Of the 520 (weighted *N*) sexually active heterosexual women with a partner, 291 (55.9%) reported an impairment in sexual desire. Of these women, 79 (27.2%) reported personal

distress, 145 (50.3%) reported perceived partner distress, and 97 (33.4%) reported interpersonal distress. 273 (52.5%) women reported an impairment in sexual arousal. Of these, 109 (40.0%) reported personal distress, 118 (44.0%) reported perceived partner distress, and 80 (29.5%) reported interpersonal distress. Table 3 provides a summary of demographic, relational, health-related, and sexual characteristics of participants with an impairment in sexual desire or sexual arousal.

-Insert Table 3 here-

For sexual impairments in desire and arousal, MANOVAs on age, mental health, relationship satisfaction, dyadic sexual communication, severity of the impairment in sexual functioning, and total number of sexual impairments revealed significant main effects of group (women with vs. women without distress; see Table 4). Results of follow-up ANOVAs (Table 4) and multiple logistic regression analyses (Table 5) will be described below. Collinearity tests were performed using the variance inflation factors (VIF) procedure and detected no multicollinearity (VIF range: 1.05 - 1.59; VIF < 10).[38]

Personal distress. Univariate analyses in women with an impairment in *sexual desire* showed that women with personal distress had a lower mental well-being (p ≤ .001, ɲ=.23), were less satisfied with their relationship (p ≤ .05, ɲ=.12), had a more severe impairment in sexual desire (p ≤ .001, ɲ=.44), and had more sexual impairments in general (p ≤ .001, ɲ=.18). Univariate analyses in women with an impairment in *sexual arousal* showed that women with personal distress had a lower mental well-being (p ≤ .001, ɲ=.24), were less satisfied with their relationship (p ≤ .001, ɲ=.21), had a more severe impairment in sexual arousal (p ≤ .001, ɲ=.41), and reported more sexual impairments in general (p ≤ .001, ɲ=.27). For both sexual desire and arousal, multiple logistic regression analyses indicated that the likelihood of reporting personal distress increased with severity of the impairment (moderate impairments compared to mild ones: 4.72≤OR≤5.42, p ≤ .001), with the total number of impairments in

sexual functioning (OR=1.28, $p \leq .05$ resp. OR=1.47, $p<.001$), and with the presence of a lower mental health status (OR=.90, $p \leq .05$ resp. OR=.90, $p<.01$).

Perceived partner distress. Univariate analyses in women with an impairment in *sexual desire* showed that women with distress had a lower mental well-being ($p = .01$, $\eta=.15$), were less satisfied with their relationship ($p \leq .001$, $\eta=.21$), had a more severe impairment in sexual desire ($p \leq .001$, $\eta=.52$), and reported more impairments in sexual functioning ($p \leq .001$, $\eta=.18$). Univariate analyses in women with an impairment in *sexual arousal* showed that women with distress had a lower mental well-being ($p \leq .01$, $\eta=.18$), were less satisfied with their relationship ($p \leq .001$, $\eta=.31$), had less dyadic sexual communication ($p \leq .001$, $\eta=.23$), had a more severe impairment in sexual arousal ($p \leq .001$, $\eta=.44$), and had more impairments in sexual functioning ($p \leq .001$, $\eta=.34$). Both for impairments in sexual desire and in sexual arousal, multiple logistic regression analyses indicated that the likelihood of reporting partner distress was associated with severity of the impairment (moderate impairments compared to mild ones: $4.57 \leq OR \leq 9.89$, $p \leq .001$), total number of impairments in sexual functioning (OR=1.40, $p=.001$ resp. OR=1.64, $p<.001$), and lower relationship satisfaction (OR=1.03, $p \leq .05$ resp. OR=1.03, $p \leq .05$).

Interpersonal distress. Univariate analyses in women with an impairment in *sexual desire* showed that women with distress had a lower mental well-being ($p \leq .001$, $\eta=.25$), were less satisfied with their relationship ($p \leq .001$, $\eta=.34$), had less dyadic sexual communication ($p \leq .001$, $\eta=.25$), had a more severe impairment in sexual desire ($p \leq .001$, $\eta=.52$), and had more impairments in sexual functioning ($p \leq .001$, $\eta=.21$). Univariate analyses in women with an impairment in *sexual arousal* showed that women with interpersonal distress had a lower mental well-being ($p \leq .001$, $\eta=.29$), were less satisfied with their relationship ($p \leq .001$, $\eta=.36$), had less dyadic sexual communication ($p \leq .01$, $\eta=.21$), had a more severe impairment in sexual arousal ($p \leq .001$, $\eta=.41$), and had more impairments

in sexual functioning ($p \leq .001$, ɲ=.29). Both for impairments in sexual desire and arousal, multiple logistic regression analyses indicated that the likelihood of reporting partner distress was associated with severity of the impairment (moderate impairments compared to mild ones: $2.39 \leq OR \leq 4.19$, p ≤,-.009) total number of impairments in sexual functioning (OR=1.29, $p \leq .05$ resp. OR=1.45, $p \leq .01$), lower relationship satisfaction (OR=1.05, $p = .001$ resp. OR=1.06, $p \leq .01$), and less communication about sexual needs with the partner (OR=1.11, $p \leq .05$ resp. OR=1.02, $p \leq .05$).

-Insert Table 4 and Table 5 here-

Discussion

The present study is the first to examine predictors of women´s sexual distress while verifying that women attributed the distress to a specific sexual impairment and while differentiating between personal-, perceived partner-, and interpersonal distress. Our analyses revealed that all our predictor variables except age and sexual communication were associated with the three types of sexual distress. Subsequent regression analyses showed that for all three types of distress, and for both types of sexual impairment, severity of the impairment and the total number of sexual impairments had the highest predictive power. In addition, lower levels of mental well-being remained a significant predictor of *personal* distress, and lower relationship satisfaction remained a significant predictor of *perceived partner* distress. For impairments in sexual desire, satisfaction with the relationship and communication about sexual needs remained significant predictors of *interpersonal* distress. For impairments in sexual arousal, mental well-being and relation satisfaction remained significant predictors of *interpersonal* distress.

Our study corroborates earlier findings on the predictive role of mental health for sexual distress, although in our study, this predictor was mainly relevant to the experience of

personal distress. In addition, our study confirmed earlier findings showing that relational satisfaction is relevant to the prediction of sexual distress due to desire and arousal impairments, but this was only significant for *perceived partner*- and *interpersonal* distress, [3, 15-20] Women have various reasons to engage in sex with their partner.[39] However, with the presence of a sexual impairment, the motivation to have sex is more likely to be influenced by interpersonal compared to intrapersonal reasons. Women with low quality relationships may be more likely to have sex because of partner approval reasons (that have been shown to elicit negative mood in partners, as they perceive these motives as 'not genuine') and women with high quality relationships are more likely to have sex because of partner approach motives (e.g., relational intimacy).[40] Interestingly, our results also showed that while relationship satisfaction was a predictor of perceived partner- and interpersonal distress, difficulty to communicate about sexual needs was relevant to the prediction of interpersonal distress, but only for desire impairments. Considering the very high prevalence estimates of low desire in women[41], the conceptual problems to define (low) desire[42], and the increasing number of studies suggesting that desire discrepancies within couples are the rule rather than the exception (e.g., [43, 44]), it is possible that couples who are able to communicate about their sexual needs are more likely to perceive desire impairments as an incompatibility between partners. Defining the desire impairment on a dyadic level (thereby avoiding labelling one partner as 'dysfunctional') may not lower the distress the partner feels, but it may prevent sexual impairments from causing relational problems.

In contrast to earlier studies, which assessed general sexual distress and found only a weak predictive role for the severity and total number of sexual impairments, we found both to be strong predictors – in fact, the strongest – of sexual distress.[3, 15, 17] This finding further underscores the importance of differentiating between general distress about sexuality and distress that is specifically due to a sexual impairment.

Some limitations of the current study should be acknowledged. First, the response rate in our representative sample was modest (40%), although this is not atypical in sex and sexual health surveys (e.g.,[45]). To minimize the resulting bias as much as possible, the data were weighted by sex, age, and educational status. However, we acknowledge that even with these efforts, possible self-selection biases remain a concern and may impact the representativeness of the sample and the generalizability of the results. Previous research has shown that volunteers for sexuality-related studies tend to have a more positive attitude towards their own sexuality and more sexual experience than non-volunteers (e.g., see [46, 47]). However, studies have also found that volunteers for sex research are not distinguishable from non-volunteers on most general personality dimensions (e.g.,[47]). In order to gain a more reliable picture concerning the generalizability of our findings, replication of the current research is key. Second, a cross-sectional study does not allow for the establishment of causal links between mental well-being or relationship factors and sexual distress. For example, it is possible that lower mental well-being in women with impaired desire or arousal contributes to the possibility of them experiencing sexual distress. However, it is equally likely that distress associated with impairments in desire or arousal negatively impacts mental well-being in general. Likewise, we do not know whether interpersonal distress associated with sexual impairments leads to lower relationship satisfaction and less couple communication about sex, or whether not being satisfied with the relationship or not talking about sexual needs contributes to the experience of interpersonal sexual distress. Third, we assessed *perceived* partner and interpersonal distress. It would be interesting for future research to include responses of both partners, to see whether this leads to the same results concerning partner and interpersonal distress. We anticipated that the distinction between personal, perceived partner, and interpersonal distress would not always be easy to make, especially all three types of distress are likely to influence each other as well. Still, women seemed to be able to

discriminate between these factors as evidenced by the fact that the three types of distress were differently represented across impairments and by the fact that different predictors emerged per type of distress. Fourth, we used the SFS to assess sexual distress, but the psychometric properties of this scale still need to be established. Although there are validated measures of *general* sexual distress[48], there is, as yet, no scale available to measure sexual distress *due to* specific impairments in sexual functioning. The revised version of the FSDS includes one item that assesses distress similar to the SFS (i.e., "How often were you bothered by low sexual desire?"[49, p 359]) but none for impaired sexual arousal. We recommend that future studies, while improving on some of these limitations, include couples and use a prospective design, which would permit a more in-depth understanding of the directionality of the associations we found. Also, future studies could explore whether specific types of interventions (i.e., augmenting mental well-being, relationship satisfaction, sexual communication) could reduce personal, perceived partner, and/or interpersonal sexual distress.

In conclusion, our study is the first to show that personal-, perceived partner- and interpersonal distress due to sexual impairments have different types of predictors. Although translating these results to clinical practice is difficult, we believe our findings are of relevance to clinical practice. Specifically, they confirm that sexual impairments and sexual distress should both, separately, be addressed in clinical assessment and treatment.[18, 19] Likewise, the presence of different types of sexual distress may have different implications for treatment. The findings of the current study may in particular be relevant to women whose impairments in sexual function are difficult to treat. For these patients, it has been suggested that reducing sexual distress could be an additional or even alternative target in clinical practice.[18, 22] Although the present study suggests that specific factors (e.g., mental well-being, sexual communication) might be important to take into account in clinical practice,

further research is needed to improve our understanding of *why* women are more likely to experience distress when they experience lower mental well-being, are in less satisfying relationships, or less able to communicate their sexual needs. In sum, increasing our understanding of risk- and protective factors of different types (personal, partner, and interpersonal) of sexual distress will, ultimately, enable professionals to improve the effectiveness of clinical interventions.

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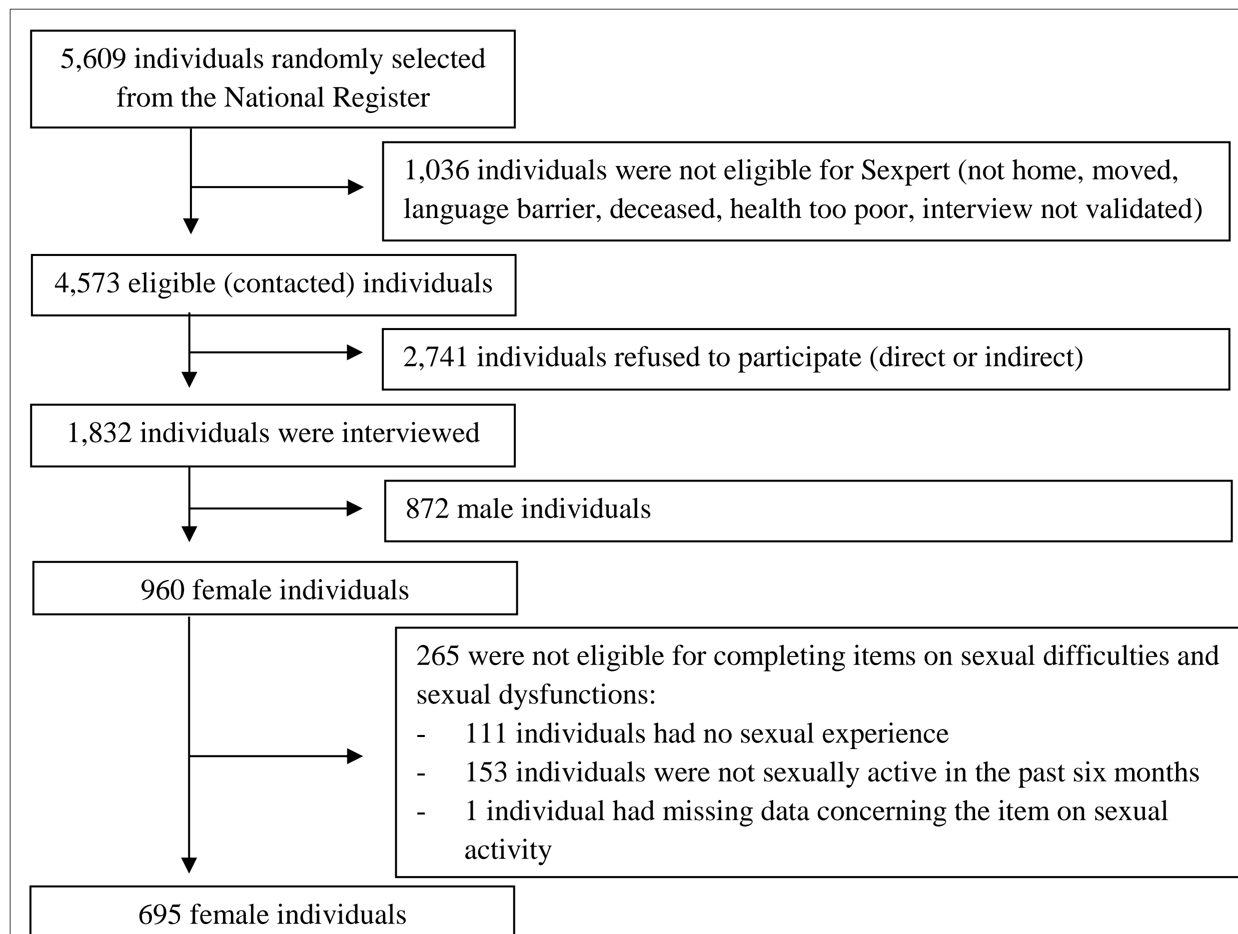

Figure 1. Unweighted number of heterosexual women (sexually active and in partner relationship) included in current study.

Table 5. Multiple logistic regression models with distress due to an impairment in sexual functioning as th

Independent variables	Distress due to an impairment in spontaneous sexual desire (N=218) β ± SE	OR	95% CI of OR	β ± SE
p Model ≤.001, df=8, Model=[illegible]				p Model ≤.00
% Correct=71.4, Nagelkerke R[illegible]				% Correct=78.
Age	[illegible]	.98	.96–1.01	-.01 ± .01
MHI-5	[illegible]	.96	.88–1.06	.03 ± .05
MMQ-MA	.02 ± .02	1.02	.99–1.05	.04 ± .02
DSC	.07 ± .06	1.08	.96–1.20	.14 ± .06
Severity difficulty	.58 ± .16	1.79***	1.31–2.43	1.11 ± .21
SIS1	.12 ± .06	1.13*	1.01–1.27	.13 ± .06
SIS2	.04 ± .04	1.04	.96–1.13	.04 ± .05
SES	-.03 ± .04	.97	.89–1.05	.00 ± .04

Independent variables	Distress due to an impairment in genital arousal (N=224) β ± SE	OR	95% CI of OR	β ± SE
p Model ≤.001, df=8, Model=70.65				p Model ≤
% Correct=79.0%, Nagelkerke R²=.38				% Correct
Age	.01 ± .01	1.01	.99–1.04	-.01 ± .01
MHI-5	-.03 ± .04	.98	.90–1.06	-.08 ± .05
MMQ-MA	.04 ± .02	1.05**	1.01–1.08	.02 ± .02
DSC	.03 ± .06	1.03	.93–1.15	.05 ± .06
Severity difficulty	.88 ± .17	2.40***	1.74–3.33	.36 ± .20
SIS1	.09 ± .06	1.09	.97–1.22	.20 ± .07
SIS2	-.03 ± .04	.97	.90–1.06	-.08 ± .05
SES	-.02 ± .04	.98	.90–1.06	.04 ± .04

** p ≤ .01 ; * p ≤ .05

Table 1. Items and cut-offs signaling the presence of sexual distress due to impairments in sexual desire and arousal.

Items and response items on impairments in sexual functioning:	Items and response items on sexual distress due to sexual impairment (if response on impairment in sexual functioning ≥1)	Cut off-scores "sexual distress" due to desire and arousal impairments
DESIRE IMPAIRMENT		**DISTRESS DUE TO DESIRE IMPAIRMENT:**
Item 1.1 Lack of spontaneous sexual desire During the past 6 months, did you have too little desire for sex, too little desire for sexual activities, too little sexual fantasies or erotic thoughts (= too little sexual desire)? 0. I did not have too little desire 1. I had mildly too little desire 2. I had moderately too little desire 3. I had severely or extremely too little desire	Item 1.2. If I experience too little sexual desire, A. I experience this as … B. My partner experiences this as… C. I experience this in my relationship as… 1. No or a mild problem 2. A moderate problem 3. A severe or extreme problem	**Personal distress** due to lack of spontaneous sexual desire and/or responsive sexual desire (items A) ≥ 2 **Partner distress** due to lack of spontaneous sexual desire and/or responsive sexual desire (items B) ≥ 2
Item 2.1. Lack of responsive sexual desire During the past 6 months, if your partner initiated sex and you began the sexual encounter with no sexual desire, did you then have difficulties to get sexual desire? 0. I then did not have difficulties to get sexual desire 1. I then had mild difficulties to get sexual desire 2. I then had moderate difficulties to get sexual desire 3. I then had severe or extreme difficulties to get sexual desire	Item 2.2. ties to get sexual desire when my partner initiates sex, A. I experience this as … B. My partner experiences this as… C. I experience this in my relationship as… 1. No or a mild problem 2. A moderate problem 3. A severe or extreme problem	**Interpersonal distress** due to lack of spontaneous sexual desire and/or responsive sexual desire (items C) ≥ 2

AROUSAL IMPAIRMENT		DISTRESS DUE TO AROUSAL IMPAIRMENT:
Item 3.1. Difficulty attaining lubrication During the past 6 months, when having pleasurable sex with your partner, did you experience difficulties with becoming lubricated (wet) during sex? 0. I did not experience difficulties becoming lubricated (wet) 1. I had mild difficulties becoming lubricated (wet) 2. I had moderate difficulties becoming lubricated (wet) 3. I had severe or extreme difficulties becoming lubricated (wet)	Item 2.2. If I have difficulties to become lubricated, A. I experience this as … B. My partner experiences this as… C. I experience this in my relationship as… 1. No or a mild problem 2. A moderate problem 3. A severe or extreme problem	**Personal distress** due to difficulty attaining lubrication and/or maintaining lubrication and/or subjective arousal (items A) ≥ 2
Item 4.1. Difficulty maintaining lubrication During the past 6 months, when having pleasurable sex with your partner and if you became lubricated (wet) during sex, were you able to maintain your lubrication sufficiently long during sex (or was there a 'loss of lubrication')? 0. I did not have difficulties maintaining lubrication for a sufficient time 1. I had mild difficulties maintaining lubrication for a sufficient time 2. I had moderate difficulties maintaining lubrication for a sufficient time 3. I had severe or extreme difficulties maintaining lubrication for a sufficient time	Item 4.2. If I maintain lubrication for an insufficiently long time, A. I experience this as … B. My partner experiences this as… C. I experience this in my relationship as… 1. No or a mild problem 2. A moderate problem 3. A severe or extreme problem	**Partner distress** due to difficulty attaining lubrication and/or maintaining lubrication and/or subjective arousal (items B) ≥ 2
Item 5.1. Lack of subjective arousal During the past 6 months, when you were having pleasurable sex with your partner, did you experience little or no feelings of (emotional/subjective) arousal? 0. I did not have difficulties experiencing subjective arousal 1. I had mild difficulties experiencing subjective arousal 2. I had moderate difficulties experiencing subjective arousal 3. I had severe or extreme difficulties experiencing subjective arousal	Item 5.2. If I experience little or no feelings of arousal, A. I experience this as … B. My partner experiences this as… C. I experience this in my relationship as… 1. No or a mild problem 2. A moderate problem 3. A severe or extreme problem	**Interpersonal distress** due to difficulty attaining lubrication and/or maintaining lubrication and/or lack of subjective arousal (items C) ≥ 2

Table 2. Scoring of severity of desire and arousal impairments for women with and without personal, partner, and interpersonal distress.

Women with a desire impairment		
With distress	**Without distress**	**Severity of impairment in desire**
If item 1.2>1* *and* Item 2.2>1*	If item 1.2=1* *and* Item 2.2=1*	(Item 1.1 + Item 2.1) / 2
If item 1.2>1* *and* (Item 2.1=0 *or* Item 2.2=1*)	If item 1.2=1* *and* Item 2.1=0	Item 1.1
If item 2.2>1* *and* (Item 1.1=0 *or* Item 1.2=1*)	If item 2.2=1* *and* Item 1.1=0	Item 2.1

Women with an arousal impairment		
With distress	**Without distress**	**Severity of impairment in arousal**
If item 3.2>1* *and* item 4.2>1* *and* item 5.2>1*	If item 3.2=1* *and* item 4.2=1* *and* item 5.2=1*	(Item 3.1 + Item 4.1 + Item 5.1) / 3
If item 3.2>1* *and* item 4.2>1* *and* (item 5.1=0 or item 5.2=1*)	If item 3.2=1* *and* item 4.2=1* *and* (item 5=0)	(Item 3.1 + Item 4.1) / 2
If item 3.2>1* *and* (item 4.1=0 or item 4.2=1*) *and* item 5.2>1*	If item 3.2=1* *and* (item 4.1=0) *and* item 5.2=1*	(Item 3.1 + Item 5.1) / 2
If (item 3.1=0 or item 3.2=1*) *and* item 4.2>1* *and* item 5.2>1*	If (item 3.1=0) *and* item 4.2=1* *and* item 5.2=1*	(Item 4.1 + Item 5.1) / 2
If item 3.2>1* *and* (item 4.1=0 or item 4.2=1*) *and* (item 5.1=0 or item 5.2=1*)	If item 3.2=1* *and* (item 4.1=0) *and* (item 5.1=0)	Item 3.1
If (item 3.1=0 or item 3.2=1*) *and* item 4.2>1* *and* (item 5.1=0 or item 5.2=1*)	If (item 3.1=0) *and* item 4.2=1* *and* (item 5.1=0)	Item 4.1
If (item 3.1=0 or item 3.2=1*) *and* (item 4.1=0 or item 4.2=1*) *and* item 5.2>1*	If (item 3.1=0) *and* (item 4.1=0) *and* item 5.2=1*	Item 5.1

* A-item for Personal distress; B-item for Partner distress; C-item for Interpersonal distress

Table 3. Demographic, relational, sexual and health-related variables of women who are (not) distressed by an impairment in sexual desire or sexual arousal.

	Impairment in sexual desire[1] (N=291)								
	Personal distress			Partner distress			Interpersonal distress		
Variables	Without distress (N=210)	With distress (N=79)	p	Without distress (N=143)	With distress (N=145)	p	Without distress (N=193)	With distress (N=97)	p
Demographical variables									
Education level			.335			.863			.462
Student	4.8%	6.3%		6.3%	4.8%		5.2%	5.2%	
< Bachelor degree	55.2%	45.6%		52.1%	52.7%		55.4%	47.9%	
≥ Bachelor degree	40.0%	48.1%		41.7%	42.5%		39.4%	46.9%	
Monthly family income			.178			.149			.892
< 2000 euro	16.1%	7.7%		17.4%	11.6%		13.5%	15.5%	
> 2000 euro	77.3%	58.9%		74.3%	83.6%		79.8%	78.4%	
No answer	6.6%	6.4%		8.3%	4.8%		6.7%	6.2%	
Religion			.471			.318			.406
None	14.2%	16.5%		11.8%	17.9%		12.5%	18.8%	
Catholic	40.8%	31.6%		42.4%	33.8%		40.6%	34.4%	
Christian	18.0%	24.1%		20.1%	19.3%		18.8%	21.9%	
Other	27.0%	27.8%		25.7%	29.0%		28.1%	25.0%	
Relational variables									
Relationship duration (years)	19.93 ± 14.77	18.47 ± 13.39	.443	19.69 ± 14.95	19.42 ± 13.92	.874	19.49 ± 14.53	19.75 ± 14.19	.886
Biological/health variables									
Physical health (PCS-12)	78.44 ± 21.33	74.13 ± 22.96	.135	78.65 ± 20.34	75.85 ± 23.17	..276	79.69 ± 20.31	72.48 ± 23.86	.012
Sexual variables									
Frequency of sex (per week)	1.35 ± 1.05	1.23 ±1.11	.414	1.29 ± 1.07	1.34 ± 1.07	.651	1.35 ± 1.08	1.23 ± 1.05	.380
Sexual satisfaction			.020			.004			.001
Very unsatisfied	3.3%	5.1%		4.9%	2.8%		3.6%	4.1%	
Unsatisfied	10.5%	20.5%		7.7%	17.9%		7.8%	23.7%	
Not satisfied, nor unsatisfied	14.8%	24.4%		18.2%	17.9%		18.8%	16.5%	
Satisfied	56.0%	39.7%		49.0%	53.8%		52.1%	49.5%	
Very satisfied	15.3%	10.3%		20.3%	7.6%		17.7%	6.2%	
Importance of having sex			.144			.040			.021
Very unimportant	2.4%	1.3%		1.4%	2.7%		1.6%	3.1%	
Rather unimportant	10.0%	20.5%		9.1%	15.8%		10.4%	18.6%	
Not important, nor unimportant	25.6%	28.2%		23.1%	30.1%		24.0%	30.9%	
Rather important	52.1%	42.3%		53.1%	45.9%		52.1%	44.3%	
Very important	10.0%	7.7%		13.3%	5.5%		12.0%	3.1%	
Mean duration of sexual impairment in sexual desire (years)	2.66 ± 5.10	3.43 ± 4.60	.240	2.10 ± 4.29	3.65 ± 5.49	.008	2.42 ± 4.73	3.79 ± 5.32	.034

Table 3. Demographic, relational, sexual and health-related variables of women who are (not) distressed by an impairment in sexual desire or sexual arousal.

	Impairment in sexual arousal[2] (N=273)								
	Personal distress			Partner distress			Interpersonal distress		
Variables	Without distress (N=164)	With Distress (N=109)	p	Without distress (N=151)	With distress (N=118)	p	Without distress (N=190)	With distress (N=80)	p
Demographical variables									
Education level			.243			.055			.803
Student	3.0%	4.6%		3.3%	3.4%		3.7%	2.5%	
< Bachelor degree	51.2%	59.6%		48.7%	63.0%		53.9%	57.5%	
≥ Bachelor degree	45.7%	35.8%		48.0%	33.6%		42.4%	40.0%	
Monthly family income			.372			.261			.241
< 2000 euro	14.6%	21.1%		13.9%	21.2%		15.8%	20.3%	
> 2000 euro	78.7%	73.4%		80.1%	72.0%		76.8%	77.2%	
No answer	6.7%	5.5%		6.0%	6.8%		7.4%	2.5%	
Religion			.116			.267			.904
None	15.9%	10.0%		13.2%	13.6%		13.6%	12.7%	
Catholic	43.9%	41.8%		46.4%	39.0%		44.5%	40.5%	
Christian	14.0%	24.5%		14.6%	23.7%		17.8%	20.3%	
Other	26.2%	23.6%		25.8%	23.7%		24.1%	26.6%	
Relational variables									
Relationship duration (years)	20.31 ± 15.32	22.26 ± 14.51	.294	19.68 ± 14.99	22.91 ± 14.95	.081	20.80 ± 15.23	21.80 ± 14.52	.619
Biological/health variables									
Physical health (PCS-12)	76.94 ± 23.39	75.44 ± 22.10	.596	78.17 ± 21.88	73.65 ± 24.14	.109	77.64 ± 22.41	72.91 ± 23.92	.123
Sexual variables									
Frequency of sex (per week)	1.42 ± 1.20	1.22 ± 1.15	.167	1.50 ± 1.24	1.15 ± 1.09	.015	1.43 ± 1.19	1.13 ± 1.17	.060
Sexual satisfaction			.004			.001			.000
Very unsatisfied	3.0%	6.4%		2.6%	6.8%		3.7%	5.1%	
Unsatisfied	7.9%	17.3%		6.6%	17.8%		6.3%	24.1%	
Not satisfied, nor unsatisfied	13.4%	20.0%		14.5%	18.6%		16.3%	22.8%	
Satisfied	55.5%	48.2%		55.3%	48.3%		56.5%	43.0%	
Very satisfied	20.1%	8.2%		21.1%	8.5%		19.9%	5.1%	
Importance of having sex			.173			.003			.268
Very unimportant	4.2%	2.8%		2.6%	4.2%		3.1%	5.0%	
Rather unimportant	11.5%	19.3%		7.3%	23.7%		12.6%	18.8%	
Not important, nor unimportant	21.2%	25.7%		23.8%	21.2%		21.5%	26.3%	
Rather important	46.7%	43.1%		49.0%	40.7%		46.6%	41.3%	
Very important	16.4%	9.2%		17.2%	10.2%		16.2%	8.8%	
Mean duration of sexual impairment in sexual arousal (years)	3.77 ± 6.08	2.74 ± 3.39	.108	3.22 ± 5.56	3.51 ± 4.78	.662	3.46 ± 5.74	3.05 ± 3.68	.558

[1] Impairments in sexual desire refer to mild, moderate, severe to extreme lack of spontaneous sexual desire and/or lack of responsive sexual desire.

[2] Impairments in sexual arousal refer to mild, moderate, severe to extreme difficulty to attain lubrication, and/or maintain lubrication, and/or lack of subjective arousal.

Table 4. Mean and SD´s of the independent variables in women with/without distress due to an impairment in sexual desire and sexual arousal.

Impairment in sexual desire[1]									
	Personal distress[4]			Partner distress[5]			Interpersonal distress[6]		
Independent Variables	Without distress (N=204-210)	With distress (N=76-79)	p	Without distress (N=139-143)	With distress (N=142-145)	p	Without distress (N=94-97)	With distress (N=187-193)	p
Age	43.29 ± 14.09	41.43 ± 13.22	.310	43.92 ±14.32	41.65 ± 13.35	.165	43.31±14.12	41.83±13.30	.393
MHI-5	75.11 ± 14.12	67.14 ± 4.11	.000	74.99 ± 14.73	70.26 ± 16.06	.010	75.46 ± 13.32	67.09 ± 18.12	.000
MMQ-RA	14.85 ± 11.16	18.13 ± 16.45	.037	13.32±11.55	18.48±12.47	.000	12.98±10.40	21.80±13.55	.000
DSC	8.91 ± 3.35	9.64 ± 3.61	.114	8.73 ±3.36	9.52 ±3.47	.055	8.52 ±3.28	10.34 ±3.40	.000
Severity imp.	1.20 ± 0.43	1.85 ± 0.59	.000	1.09± 0.26	1.56± 0.61	.000	1.17± 0.34	1.65± 0.66	.000
Total sexual impairments[3]	2.64 ± 1.10	3.10 ± 1.13	.002	2.53±1.09	2.98±1.11	.001	2.59±1.10	3.10±1.10	.000

Impairment in sexual arousal[2]									
	Personal distress[7]			Partner distress[8]			Interpersonal distress[9]		
Independent Variables	Without distress (N=160-164)	With distress (N=104-109)	p	Without distress (N=146-151)	With distress (N=114-118)	p	Without distress (N=185-190)	With distress (N=77-80)	p
Age	44.22 ± 14.88	45.22 ± 13.98	.576	43.66 ± 14.53	45.38 ± 14.38	.333	44.59 ± 14.95	44.00 ± 13.26	.760
MHI-5	75.96 ± 13.58	67.84 ± 19.17	.000	75.18 ± 14.26	69.20 ± 18.61	.003	75.70 ± 14.23	65.26 ± 19.24	.000
MMQ-RA	13.91 ± 10.10	19.39 ± 14.87	.000	12.68 ± 9.79	20.39 ± 14.17	.000	13.24±10.70	22.93±13.74	.000
DSC	8.92 ± 3.62	9.63 ± 3.37	.109	8.43 ± 3.33	10.09 ± 3.58	.000	8.69 ± 3.45	10.31 ± 3.47	.001
Severity imp.	2.12 ± 0.38	2.49 ± 0.59	.000	2.09 ± 0.33	2.48 ± 0.59	.000	2.16 ± 0.40	2.51 ± 0.62	.000
Total sexual impairments[3]	2.67 ± 1.04	3.24 ± 0.97	.000	2.59 ± 1.03	3.31 ± 0.93	.000	2.71 ± 1.01	3.37 ± 0.98	.000

[1] Impairments in sexual desire refer to mild, moderate, severe to extreme lack of spontaneous sexual desire and/or lack of responsive sexual desire.
[2] Impairments in sexual arousal refer to mild, moderate, severe to extreme difficulty to attain lubrication, and/or maintain lubrication, and/or lack of subjective arousal.
[3] Sexual impairments include: sexual aversion, impairment in desire (hyperactive sexual desire or lack of spontaneous or responsive sexual desire), impairment in arousal (difficulty attaining or maintaining lubrication or lack of subjective arousal), impairment in orgasm (difficulty attaining orgasm or delayed orgasm or early orgasm) and sexual painpain (dyspareunia or vaginismus) (max 5).pain (dyspareunia or vaginismus) (max 5).
pain (dyspareunia or vaginismus) (max 5).
[4] MANOVA: $F(6, 252) = 6.18$, $p < .001$
[5] MANOVA: $F(6, 251) = 13.46$, $p < .001$
[6] MANOVA: $F(6, 254) = 17.56$, $p < .001$
[7] MANOVA: $F(6, 240) = 8.49$, $p < .001$
[8] MANOVA: $F(6, 237) = 13.96$, $p < .001$
[9] MANOVA: $F(6, 238) = 14.07$, $p < .001$

Table 5. Multiple logistic regression models with distress due to an impairment in desire and arousal as the dependent variable.

	Impairment in sexual desire[1]											
	Personal distress				Partner distress				Interpersonal distress			
	β ± SE	OR	95% CI of OR	p	β ± SE	OR	95% CI of OR	p	β ± SE	OR	95% CI of OR	p
Age	.00 ± .01	1.00	.98-1.02	.851	.00 ± .01	1.00	.98-1.02	.979	-.01 ± .01	.99	.97-1.01	.287
MHI-5	-.03 ± .01	.98	.95-1.00	.017	.00 ± .01	1.00	.98-1.02	.995	-.01 ± .01	.99	.97-1.01	.261
MMQ-RA	-.01 ± .02	1.00	.97-1.02	.757	.05 ± .02	1.05	1.01-1.08	.004	.05 ± .02	1.05	1.02-1.08	.002
DSC	.04 ± .05	1.04	.94-1.14	.449	.00 ± .05	1.00	.91-1.10	.994	.13 ± .05	1.14	1.03-1.22	.012
Severity impairment	1.10 ± .30	2.99	1.66-5.39	.000	2.51±.44	12.33	5.26-28.93	.000	1.55 ± .34	4.69	2.43-9.06	.000
Total sexual impairments[3]	.20 ±.14	1.23	.993-1.61	.145	.17 ±.13	1.19	.92-1.54	.190	.20 ± .14	1.22	.92-1.60	.163
	Model $\chi^2(6)$ = 39.29, p<.001, Nagelkerke R^2=.19				Model $\chi^2(6)$ = 83.00, p<.001, Nagelkerke R^2=.35				Model $\chi^2(6)$ = 88.34, p<.001, Nagelkerke R^2=.37			

	Impairment in sexual arousal[2]											
	Personal distress				Partner distress				Interpersonal distress			
	β ± SE	OR	95% CI of OR	p	β ± SE	OR	95% CI of OR	p	β ± SE	OR	95% CI of OR	p
Age	.00 ± .01	1.00	.98-1.02	.904	.00 ± .01	1.00	.98-1.02	.953	-.01 ± .01	.99	.97-1.01	.300
MHI-5	-.02 ± .01	.98	.96-1.00	.019	.00 ± .01	1.00	.98-1.02	.786	-.02 ± .01	.98	.96-1.00	.085
MMQ-RA	.01 ± .01	1.01	.98-1.04	.505	.03 ± .02	1.03	1.00-1.07	.034	.05 ± .02	1.05	1.02-1.09	.002
DSC	-.02 ± .05	.98	.89-1.08	.727	.05 ± .05	1.05	.952-1.15	.340	.02 ± .05	1.02	.92-1.14	.651
Severity impairment	1.28 ± .34	3.60	1.86-6.96	.000	1.67 ± .41	5.30	2.39-11.76	.000	.90 ± .31	2.46	1.33-4.56	.004
Total sexual impairments[3]	.39 ± .15	1.48	1.11-1.97	.008	.53 ± .15	1.69	1.25-2.28	.001	.47 ± .17	1.61	1.16-2.23	.005
	Model $\chi^2(6)$ = 52.68, p<.001, Nagelkerke R^2=.25				Model $\chi^2 6)$ = 75.23 , p<.001, Nagelkerke R^2=.34				Model $\chi^2(6)$ =68.21, p<.001, Nagelkerke R^2=.33			

[1] Impairments in sexual desire refer to mild, moderate, severe to extreme lack of spontaneous sexual desire and/or lack of responsive sexual desire.
[2] Impairments in sexual arousal refer to mild, moderate, severe to extreme difficulty to attain lubrication, and/or maintain lubrication, and/or lack of subjective arousal.
[3] Sexual impairments include: sexual aversion, impairment in desire (hyperactive sexual desire or lack of spontaneous or responsive sexual desire), impairment in arousal (difficulty attaining or maintaining lubrication or lack of subjective arousal), impairment in orgasm (difficulty attaining orgasm or delayed orgasm or early orgasm) and sexual pain (dyspareunia or vaginismus) (max 5)