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Is interpersonal abuse associated with sexual (dis)satisfaction among postmenopausal women?

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Abstract

Purpose: To investigate associations between past-year verbal and/or physical abuse (VA/PA) and sexual (dis)satisfaction, i.e., global or frequency-related (dis)satisfactions with sexual activity, among postmenopausal women in the Women's Health Initiative (WHI).

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Procedures: Cross-sectional analysis of archival data from the subset of 83,329 WHI participants (clinical trial and/or observational study components) who reported sexual activity in the year prior to baseline. Associations between VA/PA and global frequency (dis)satisfactions were modeled using logistic regression.

Main Findings: Most participants reported sexual satisfaction (global: 77%; frequency-related: 66%). Disappointment with sexual frequency, specifically a desire for more frequent sex, was the most common dissatisfaction expressed. Past-year VA/PA exposure was reported by $n = 9,410$ (11%) of participants. In regression models adjusted for sociodemographic, health/health risk, and menopausal symptom variables, VA/PA was associated with higher rates of global ([35% VA/PA exposed vs. 22% non-exposed], AOR: 1.66 [95% CI: 1.53- 1.80]) and frequency-related dissatisfactions ([50% of VA/PA exposed vs. 32% of non-exposed], AOR: 1.73 [95% CI: 1.57-1.90]).

Conclusions: Sexual satisfaction was common, but not universally reported by study participants. Sexual dissatisfactions were overrepresented in VA/PA exposed participants and associated with a desire for more frequent sexual activity. Opportunities for postmenopausal women to receive clinician-led education about safe and healthy ways to increase sexual activity are needed. Further research on this topic, particularly efforts to characterize safety concerns as well as modifiable barriers to satisfying sexual activity among postmenopausal women with recent VA/PA, would ensure that these interventions are evidence-based.

Abundant research, including work associated with the Women's Health Initiative, or WHI, (Baker et al., 2009; Cannell et al., 2015; Mouton, Rodabough, Rovi, Brzyski, & Katerndahl, 2010; Uebelacker et al., 2013), documents the negative impact of verbal and/or physical abuse (VA/PA) perpetrated by family members or close friends on women's physical and mental health (Campbell, 2002; Coker, Smith, Bethea, King, & McKeown, 2000). Research on the association between VA/PA and women's sexual functioning, however, is more limited. This is particularly true for postmenopausal women, a group for whom matters of sexuality and exposure to abuse have received little empirical attention to date (e.g., Laumann & Waite, 2008; Lindau, Schumm, Laumann, Levinson, O'Muircheartaigh, & Waite, 2007; Tracy & Speakman, 2012). Moreover, decline in sexual functioning among postmenopausal women is commonly attributed to general menopausal symptoms (e.g., vaginal dryness, urogenital symptoms, and vasomotor symptoms [VMS]) without due consideration of psychosocial risk factors such as VA/PA and common clinical co-factors of abuse (e.g., depression, posttraumatic stress, and substance use).

Sexual (dis)satisfaction typically refers to either: 1) global sexual (dis)satisfaction, i.e., self-reported (dis)satisfaction with the quality of current sexual activity, or 2) sexual frequency (dis)satisfaction, i.e., self-reported concordance between desired and actual frequency of current sexual activity (Basson et al., 2000; Rosen & Bachmann, 2008). Both are widely recognized as critical, patient-centered markers of good sexual functioning, physical and mental health, well-being, and quality of life (Basson et al., 2000; Guthrie, Dennerstein, Taffe, Leher, & Burger, 2004; McCall-Hosenfeld et al., 2008; Rosen & Bachman, 2008).

Despite the paucity of research on this topic, there are several compelling reasons to suspect that exposure to VA/PA committed by a family member or close friend could impact

subjective elements of sexuality, e.g., satisfaction. Contemporary biopsychosocial models of female sexual response (e.g., Basson, 2001; Basson, Wierman, van Lankveld, & Brotto, 2010) underscore the salience of psychological factors (e.g., sense of emotional safety with partner) in shaping women's interest and responsiveness to sexual stimuli. Burri and Spector's (2011) findings provide preliminary support for this, as they yield empirical evidence that partner maltreatment is disruptive to women's current sexual functioning. Cason, Resick, and Weaver (2002) highlight the salience of betrayal trauma (e.g., maltreatment at the hands of a partner, friend or trusted other) as a risk factor for traumatic stress. The psychological sequelae of traumatic stress symptoms commonly include disturbances in emotional bonding, intimacy and trust (American Psychiatric Association, 2013)- factors that are critical and foundational to sexual satisfaction. In this way, maltreatment at the hands of an intimate partner or trusted other, particularly if it results in traumatic stress symptoms, could interfere with sexual satisfaction.

Further, VA/PA is associated with impaired mental health functioning, e.g., substance abuse, posttraumatic stress disorder (PTSD), and depression (Capaldi, Knoble, Shortt, & Kim, 2012; Devries et al., 2013; Dutton et al., 2006). The psychobiological and functional impact of psychiatric illness (e.g., disrupted sleep, emotion regulation, fatigue, and lowered libido, and diminished cognitive, affective, and attentional functioning) could also impact sexual satisfaction (American Psychiatric Association, 2013; Field et al., 2016; Kalmbach, Kingsberg, & Ciesla, 2014). For example, the physiological arousal associated with PTSD may compromise a patient's ability for sexual arousal (see Yehuda, Lehrner, & Rosenbaum, 2015). Further, mental health symptoms (e.g., depression) could impair interpersonal functioning causing one to miss, or misconstrue, sexual overtures. This, in turn, may result in missed opportunities for satisfying sexual activity (see Wiegel, Scepkowski, & Barlow, 2006).

Research that deepens our understanding of how abuse exposure might impact sexual (dis)satisfaction in postmenopausal women is needed. This is a complex undertaking as the confounding effects of a vast array of clinically-relevant health (e.g., depression), health risk (e.g., cardiovascular disease), and menopausal symptom (e.g., vaginal dryness) variables that are linked with both VA/PA and sexual satisfaction in women (e.g., Baker et al., 2009; Cannell, et al., 2015; Mouton et al., 2010; Uebelacker et al., 2013) must be taken into account. As a first step in addressing this challenge, we evaluated associations between past-year exposure to VA/PA and sexual (dis)satisfaction (global/frequency) among 83,329 sexually active postmenopausal women in WHI. We hypothesized that women with past-year VA/PA exposure (vs. those without) would be more likely to report dissatisfactions (global/frequency).

Material and Methods

Overview of the WHI Participants and Procedures

The WHI consisted of an observational study (OS) and four randomized controlled trial components, including two hormone trials (Estrogen alone, and Estrogen plus Progestin) focusing on the impact of menopausal hormone therapy (MHT) on cardiovascular and cancer-related health outcomes; the dietary modification (DM) trial, which focused on the

health effects of a low-fat diet on cancer risk and cardiovascular health; and the calcium/vitamin D trial (Cal-D), which focused on the association between supplement consumption (calcium, vitamin D) and postmenopausal bone health (The WHI Study Group, 1998; for a detailed listing of WHI investigators, see Supplementary Appendix A).

WHI participants were healthy, postmenopausal women who voluntarily enrolled and completed baseline measurements between 1993 and 1998 via one of 40 WHI clinical centers strategically located across the U.S. Postmenopausal women (menopause was defined as absence of vaginal bleeding for 6 or more months if aged 55 or older, a 12-month absence of vaginal bleeding if aged 50 to 54, or prior hysterectomy with or without the use of postmenopausal hormones), aged 50 to 79 years at baseline, were eligible. Those who met eligibility criteria, provided informed consent, and expressed intent to reside in the area for three or more years were administered a baseline assessment (The WHI Study Group, 1998). Women with very poor health (e.g., less than three years expected survival) were excluded, as were those with known (i.e., diagnosed) mental health conditions (e.g., severe depression, alcohol/drug dependence, dementia) that could affect study adherence and/or participation.

The institutional review board of each WHI clinical center reviewed and approved all study procedures. Details of WHI recruitment efforts, study design, methods, and outcomes have been published elsewhere (Anderson et al., 2003; Curb et al., 2003; Hays et al., 2003; Langer et al., 2003; Manson, Chlebowski, & Stefanick, 2013; Stefanick et al., 2003; The WHI Study Group, 1998).

Overview of the Present Study

We analyzed archival, cross-sectional data on a subgroup of 83,329 WHI participants who reported partnered sexual activity in the past year, i.e., responded “yes” to the question “*Did you have any sexual activity with a partner in the last year?*” at baseline (Figure 1).

Variables

Exposure variable: past-year VA/PA.—VA/PA was assessed via two items: “Over the past year were you verbally abused by being made fun of, severely criticized, told you were a stupid or worthless person, or threatened with harm to yourself, your possessions, or your pets, by a family member or close friend?” (VA), and, “Over the past year, were you physically abused by being hit, slapped, pushed, shoved, punched, or threatened with a weapon by a family member or close friend?” (PA). Affirmative responses to either or both question(s) rendered the participant **VA/PA** positive, else negative. A conglomerate variable, that is, VA/PA, was used in lieu of separate abuse variables (that is, VA, PA) given the overwhelming prevalence of past-year VA exposure (i.e., 89% of women reporting past-year abuse indicated exposure to verbal maltreatment only), the limited prevalence of women exposed to past-year PA only (2% of those reporting past-year maltreatment), and the overlap of physical/verbal abuse exposure (9% reporting past-year abuse had exposure to both verbal/physical maltreatment).

Outcomes: sexual (dis)satisfaction.—*Global sexual (dis)satisfaction* was also assessed via self-report. Participants used a four-point Likert-type scale (*very unsatisfied, a*

little unsatisfied, somewhat satisfied, and very satisfied) to respond to the query: “How satisfied are you with your current sexual activities, either with a partner or alone?”. Scores were dichotomized, and participants who responded *somewhat* or *very* satisfied were classified as “satisfied,” else “dissatisfied.”

Sexual frequency (dis)satisfaction was assessed by patient self-report. Participants selected a response to the query: “Are you satisfied with the frequency of your sexual activity, or would you like to have sex more or less often?” using a three-point scale (*less often, satisfied with current frequency, and more often*). Participants who responded *satisfied with current frequency* were classified as “satisfied,” else “dissatisfied.”

Covariates.—Covariates used for statistical modeling were selected based on previous literature indicating that they likely confound the relationship between abuse and sexual satisfaction (Baker et al., 2009; Campbell, 2002; Cannell et al., 2015; Coker, et al., 2000; Gass et al., 2011; Kling et al., 2017; Laumann et al., 2008; McCall-Hosenfeld et al., 2008; Mouton et al., 2010; Rosen & Bachmann, 2008; Uebelacker et al., 2013).

Sociodemographic variables.: Sociodemographic variables, assessed by self-report at baseline, included age, race/ethnicity, income, marital status, education, and WHI study component.

Health/health risk variables.: Health/health risk variables included cigarette smoking (self-reported pack years) and body mass index (BMI established by clinical height/weight assessment at baseline). Self-reported hysterectomy status and current/historical symptoms of urinary incontinence, hypertension, cardiovascular disease (CVD), diabetes, cancer, and hip fracture were also included. Participants reported on their self-rated health (*poor, fair, good, very good, and excellent*) and use of selective serotonin reuptake inhibitors (SSRIs). Depressive symptoms were assessed via the 8-item Burnam scale (Burnam, Wells, Leake, & Landsverk, 1988) to yield a composite scale ranging from 0 to 1. Higher scores indicated a greater level of depression; a score at or above 0.06 suggested a depressive disorder.

Menopausal symptoms and current use of MHT.: Menopausal symptoms included self-reported presence/severity of hot flashes (*none* vs. *mild, moderate, or severe*), presence/severity of night sweats (*none, vs. mild, moderate, or severe*), and vaginal or genital dryness. Current use of MHT was assessed.

Statistical Analysis

Table 1 presents descriptive data for all variables of interest by past-year VA/PA status for the 83,169 women from the WHI who reported sexual activity in the previous year and whose VA/PA status was known (Figure 1). Descriptive statistics (Figure 2) characterize the prevalence of global and frequency-related sexual dissatisfactions by VA/PA status (Figure 2). Figures 3 and 4 graphically display the associations between age and VA/PA status (Figure 3), and age and (dis)satisfaction with frequency of sexual activity, separately characterizing the percent of respondents who desired more and those who desired less frequent sexual activity (Figure 4).

Multivariable logistic regression analyses evaluated the associations between VA/PA status and global sexual dissatisfaction, and between VA/PA status and sexual frequency dissatisfaction (Table 2) in sequentially adjusted models. Model 1 adjusted for sociodemographic characteristics including age, race/ethnicity, education, income, marital status, and WHI study component. Model 2 adjusted for Model 1 variables and added health/health risk factors including cigarette smoking, BMI, history of hysterectomy, history of urinary incontinence, hypertension, CVD, diabetes, cancer, hip fracture, self-rated health, depressive symptoms, and current use of SSRI. Model 3 adjusted for previous covariates (Model 1 and Model 2) and for menopausal symptoms/variables including night sweats, hot flashes, vaginal dryness, and current use of MHT. Interaction effects were examined to determine whether the associations between VA/PA and sexual dissatisfactions were consistent across the three age groups within our study population (i.e., 50-59, 60-69, and 70+ at baseline).

We used multiple imputation methods to correct for item nonresponse (i.e., missing data) in our primary exposure, VA/PA, and in our covariates. Ten imputations were generated using the Multivariate Imputation by Chained Equations (MICE) algorithm (van Buuren & Groothuis-Oudshoorn, 2011) in R version 3.4.3 (R core team, 2017) and RStudio version 1.1.383 (RStudio Team, 2016). Pooled estimates from the imputed data sets are reported below for all regression models (Table 2).

Sensitivity analyses tested the robustness of imputed study models and evaluated the association of abuse type (VA only, PA only, and both VA/PA) and sexual dissatisfaction to ensure that findings supported the same conclusions yielded by models featuring a conglomerate (VA/PA) exposure variable.

Results

Participant Characteristics

Prior to multiple imputation, our study population included 83,169 women who reported sexual activity in the last year. Among those, 9,410 (11.3%) reported past-year exposure to VA/PA. Descriptive statistics revealed that women with VA/PA exposure reported higher rates of urinary incontinence, obesity, smoking, diabetes, and menopausal symptoms, as well as higher depressive symptoms and poorer self-perceived health (Table 1).

Main Outcomes

Descriptive statistics.—Prevalence data for sexual dissatisfaction (global/frequency) by VA/PA status are presented in Figure 2. Rates of sexual frequency dissatisfaction were higher than rates of global dissatisfaction. VA/PA was associated with both. Most women (39.6% with VA/PA and 27.4% without) who reported frequency dissatisfaction expressed a desire for more frequent sexual activity (data not shown). Inverse relationships between age (decade) and past-year VA/PA exposure, and age (decade) and sexual dissatisfaction, are presented in Figures 3 and 4 respectively.

Multivariable analyses.—Results of the multivariable logistic regression analyses examining the odds of global and sexual frequency dissatisfaction as a function of VA/PA

status are presented in Table 2. Past-year VA/PA was associated with nearly twice the odds of global sexual dissatisfaction in both unadjusted models (OR: 1.91; 95% CI: 1.82-2.00) and those adjusted for sociodemographic factors, Model 1 (AOR: 1.85; 95% CI: 1.77 – 1.94). Findings held in models further adjusted for health/health risk factors, Model 2 (AOR: 1.65; 95% CI: 1.57 – 1.73), and menopausal symptoms, Model 3 (AOR: 1.66, 95% CI: 1.53 – 1.80) (Table 2). Age did not modify the association between VA/PA and global sexual satisfaction.

Past-year VA/PA was associated with roughly twice the odds of frequency dissatisfaction in unadjusted models (OR: 2.05, 95% CI: 1.96 – 2.14), those adjusted for sociodemographic factors, Model 1: (AOR: 1.95; 95% CI: 1.87 – 2.04); health/health risk factors, Model 2 (AOR: 1.74; 95% CI: 1.67 – 1.83); and menopausal symptoms, Model 3 (AOR: 1.73; 95% CI: 1.57 – 1.90) (Table 2). Age did not modify the association between VA/PA and satisfaction with frequency of sexual activity.

Sensitivity analyses.—Sensitivity analyses compared original, i.e., imputed, study models (Table 2) to those that excluded women who did not respond to VA/PA items. Findings were similar to the original models (data not shown). Sensitivity analyses also confirmed that abuse type was not associated with variability in odds of dissatisfaction (global/frequency), confirming the use of a conglomerate VA/PA variable neither impacted the interpretation of study findings nor distorted study conclusions.

Discussion

WHI presented a unique opportunity to investigate the association between age, past-year VA/PA exposure, and sexual (dis)satisfaction among postmenopausal women. While self-reported sexual satisfaction was the “norm” among study participants (77% reported global satisfaction, 66% reported frequency-related satisfaction), a sizeable minority expressed dissatisfactions. Past-year abuse exposure was associated with greater odds of both global and frequency-related dissatisfactions. Disappointment with the frequency of sexual activity – specifically a desire for more frequent sex – was the most commonly reported dissatisfaction, regardless of past-year VA/PA exposure. Findings were robust to adjustment for confounding sociodemographic, health/health risk, and menopausal symptom variables. Age did not modify the association between abuse and sexual dissatisfactions (global/frequency), and abuse type was not pertinent to predicting odds of dissatisfaction.

Taken together, these findings offer several salient lessons about postmenopausal sexual functioning. *First*, some findings are optimistic – rates of sexual satisfaction were high among WHI participants. The strong undercurrent of dissatisfaction amongst a minority of participants, however, also underscores the need to more deeply understand the barriers to sexual satisfaction among postmenopausal women. Among the clearest signals in the data was the finding that sexual frequency dissatisfaction was typically linked with desire for more – not less – frequent sexual activity. While identification/characterization of the barriers to more frequent sexual activity among postmenopausal women was beyond our scope, this represents an important direction for future research.

Second, results that highlight an association between past-year maltreatment and increased risk for sexual dissatisfaction were expected. However, given the high prevalence of past-year VA/PA exposure reported among young postmenopausal women (aged 50-59 at baseline), and the preponderance of non-physical forms of abuse reported by WHI participants (89% reporting past-year abuse indicated exposure to verbal abuse only), these findings illuminate *the salience of non-physical forms of maltreatment as a risk factor for diminished sexual satisfaction, particularly among young postmenopausal women*. Women aged 50-59 reported the highest exposure to past-year abuse (predominantly verbal abuse). Not surprisingly, they also evidenced the highest rate of sexual dissatisfaction in the study. No contextual information about their abuse exposure (i.e., relationship to perpetrator) is offered through WHI. Thus, whether any (or many) WHI participants were impacted by past-year partner driven abuse is not known. Nevertheless, these findings are highly consistent with prior work, which documents the considerable prevalence and formidable threat of partner driven abuse experienced by young postmenopausal women (Tjaden & Thoennes, 2000). While we cannot know for sure, we suspect that among this cohort of women, sexual satisfaction is likely best understood in the broader context of the health of women's intimate relationships and the safety and satisfaction they afford. In this light, findings related to a desire for *more* frequent sexual activity may simply reflect a healthy desire for pleasure, greater intimacy, and confirmation of being loved. Among young women with a history of recent VA/PA exposure, these findings may further relate to a desire for a safer and less conflictual intimate relationship. *Further research on key contextual factors (i.e., relationship to perpetrator, satisfaction with current relationship) that may inform the association between maltreatment and sexual dissatisfaction is warranted. Such efforts could help guide the development of interventions, including those designed to address partner-based conflict, that may improve women's safety and sexual functioning at midlife.*

The lowered risk of sexual dissatisfaction among the oldest women in our study (70+ at baseline), though at least partly explained by their lesser exposure to past-year abuse, also warrants comment. An optimistic interpretation might be that the lowered prevalence of past-year maltreatment is consistent with prior work suggesting that partner driven abuse, a major risk factor for maltreatment among women, declines in late life (Tjaden & Thoennes, 2000). This possibility, together with the effects of age-related protective factors (e.g., contentment) (see Steptoe, Deaton, & Stone, 2015) might buffer against the risk of dissatisfaction both by reducing the likelihood of abuse exposure, and by improving women's ability to cope with frustrations (i.e., lack of available partners, see Ambler, Bieber, & Diamond, 2012) that impact the quality/frequency of sexual activity in older adulthood. Alternatively, age and generational differences in women's ability to identify and disclose abuse, and comfort with expressing dissatisfaction with sexual activity, may account for these findings. Given that elder maltreatment (i.e., abuse of individuals above the age of 65) perpetrated by a spouse, family member, close friend, caregiver, or adult child is a commonly unrecognized threat to late life health and well-being (see Acierno, Hernandez, Amstadter, Resnick, Steve, Muzzy, & Kilpatrick., 2010), this possibility warrants serious consideration. Further work that seeks to clarify risk and protective factors associated with sexual (dis)satisfaction among older postmenopausal women is warranted, as is greater

attention to safe and effective ways to guide their efforts for increased sexual activity when desired.

Study limitations include an inability to specify the temporal ordering of variables (i.e., abuse exposure, depression, and sexual satisfaction), and, therefore, to draw causal inferences about associations. Our study population was based upon voluntary recruitment into WHI, not strategic or stratified sampling. Thus, whether baseline abuse exposure in our study population is representative of one-year VA/PA exposure in the general population of U.S. based postmenopausal women is unknown. VA/PA exposure is overrepresented among women with psychiatric illness (Staggs & Riger, 2005). However, as this population was excluded from WHI, our study findings may not fully represent the universe of maltreated postmenopausal women.

Lack of information about women's relationships to the perpetrator of their VA/PA, current relationship satisfaction, lifetime exposure to interpersonal abuse, and presence of PTSD – which commonly results from such abuse (Dutton et al., 2006) and can impact sexual functioning (c.f., Yehuda et al., 2015) – precludes a more contextualized understanding of our findings. It might be reasonable to expect that abuse perpetrated by a sexual partner (i.e., spouse, intimate partner) would be particularly impactful to sexual satisfaction. If true, the abuse-to-sexual dissatisfaction relationship reported here may be diluted by merging partner and non-partner driven abuse experiences into the same analysis. Further research that examines the role and salience of women's relationship to the perpetrator of their abuse could address this possibility.

WHI data is replete with sociodemographic, lifestyle, and health/health risk factor variables, ensuring that our models are robustly adjusted for potentially confounding factors. Nevertheless, we cannot fully account for the myriad of social factors (i.e., social determinants of health including poverty, ethnic, cultural and linguistic characteristics, long term access to health care services, and bias present among providers or within healthcare systems) that may influence women's beliefs about sexuality (Secretary's Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020, 2010), their likelihood of exposure to VA/PA, and their ability to seek treatment for abuse, and/or sexual functioning, if desired.

Study strengths include WHI's large, diverse, and representative group of U.S. postmenopausal women (Hays et al., 2003) and the inclusion of a myriad of variables consistent with contemporary biopsychosocial models of female sexual responsiveness – not simply biological predictors of sexual satisfaction. Formal assessment of postmenopausal health and functioning factors in the WHI facilitated examination of whether abuse exposure is associated with sexual dissatisfaction, in light of relevant sociodemographic, health, and functional confounders.

Implications for Practice and Policy

Implications for clinical practice relate to a need both for clinicians' increased recognition of the value of healthy sexuality among postmenopausal women, and their greater preparedness to guide patients' efforts to safely increase the frequency of sexual activity when and if

desired. Policy implications might include a need for dedicated research funding on this topic, as well as the need for broader clinical education and training opportunities for health practitioners who wish to address sexual functioning with their postmenopausal patients. Training should address the content knowledge and skills needed to provide high quality education about sexual functioning among postmenopausal women, but also foster greater awareness of how clinicians' personal (i.e., beliefs about the morality of some sexual techniques, e.g., masturbation) or professional (i.e., assumptions about the needs/wants of abuse survivors) beliefs could impact the quality of the education/care they provide (Institute of Medicine, 2001; Kilbourne, Switzer, Hyman, Crowley-Matoka & Fine, 2006 World Health organization, 2010). For example, existing models of sexual functioning assessment and intervention, like the PLISSIT model (Annon, 1976), may be bolstered with consideration of age-related factors (e.g., misinformed beliefs that postmenopausal vaginal dryness is indicative of low sexual desire).

Greater recognition of the prevalence of maltreatment among postmenopausal women, the particular vulnerability of young postmenopausal women (i.e., < 60 years), and the association of maltreatment and difficulties with sexual satisfaction is also warranted. Here policy implications might include an emphasis on universal screening for abuse (e.g., see MacMillan & Wathen, 2001; and Nelson, Nygren, McInerney, & Klein, 2004); dedicated funds for research designed to identify when, where, and for whom such screening is useful (e.g., see MacMillan & Wathen, 2001; and Nelson, Nygren, McInerney, & Klein, 2004); and opportunities for clinician education regarding best practices in the systematic assessment of sexual functioning among maltreated women.

Conclusions

This study is one of the first large-scale efforts to evaluate the association of VA/PA exposure and sexual satisfaction among postmenopausal women. Findings suggest that sexual satisfaction is normative among postmenopausal women, though a strong minority report dissatisfaction. Recent exposure to abuse is linked with greater odds of sexual dissatisfaction, and young postmenopausal women may be particularly vulnerable. We hope this work inspires others to research this topic and encourages greater awareness of these factors among women and the healthcare providers who treat them.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Biography

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Figure 1.
Creation of cohort for the current study.

Figure 2.
Sexual dissatisfaction by past-year VA/PA exposure.

Figure 3.
Variability in past-year VA/PA exposure by age decade.

Figure 4.
Variability in sexual dissatisfaction with sexual activity frequency by age decade.

Table 1.

Sociodemographic and Health History Characteristics of Women who Participated in the WHI by Abuse Exposure at Baseline (N = 83,169).

Characteristic	No recent VA/PA ^a	Any recent VA/PA ^a
	N = 73,759	N = 9,410
Age group, <i>n</i> (%)		
<50-59	30,955 (41.97)	4,839 (51.42)
60-69	32,708 (44.34)	3,687 (39.18)
70-79+	10,096 (13.69)	884 (9.39)
Missing	0 (0.0)	0 (0.0)
Race and ethnicity, <i>n</i> (%)		
White	62,361 (84.55)	7,705 (81.88)
Black or African American	5,740 (7.78)	767 (8.15)
Hispanic/Latina	2,687 (3.64)	518 (5.50)
Asian/Pacific Islander	1,832 (2.48)	199 (2.11)
American Indian/Alaska Native	267 (0.36)	56 (0.60)
Other	711 (0.96)	147 (1.56)
Missing	161 (0.22)	18 (0.19)
Education, <i>n</i> (%)		
College graduate	30,717 (41.65)	3,708 (39.40)
Missing	499 (0.68)	72 (0.77)
Income, <i>n</i> (%)		
< \$50,000	33,212 (45.03)	4,792 (50.92)
\$50,000+	35,805 (48.54)	3,997 (42.48)
Missing	4,742 (6.43)	621 (6.60)
Married or in an intimate relationship, <i>n</i> (%)		
Married or intimate relationship	61,553 (83.45)	7,547 (80.20)
Missing	2,388 (3.24)	341 (3.62)
Pack-years of smoking, <i>n</i> (mean) ^b	63,920 (7.93)	8,138 (9.00)
Body mass index ^c ,	N(%)	N(%)
< 25	11,828 (16.04)	1,302 (13.84)
25-29	9,840 (13.34)	1,170 (12.43)
30-34	4,296 (5.82)	601 (6.39)
35+	2,232 (3.03)	387 (4.11)
Missing	45,563 (61.77)	5,950 (63.23)
Hysterectomy ever, <i>n</i> (%) yes)	30,740 (41.68)	4,168 (44.29)
Missing	42,308 (57.36)	5,163 (54.87)
Urinary incontinence ever, <i>n</i> (%) yes)	53,769 (72.90)	7,454 (79.21)

Characteristic	No recent VA/PA ^a	Any recent VA/PA ^a
	<i>N</i> = 73,759	<i>N</i> = 9,410
Missing	41 (0.06)	8 (0.09)
Hypertension ever, <i>n</i> (%) yes	1,756 (2.38)	202 (2.15)
Missing	20,743 (28.12)	2,717 (28.87)
Cardiovascular disease ever, <i>n</i> (%) yes	867 (1.18)	118 (1.25)
Missing	13,851 (18.78)	2,160 (22.95)
Arthritis ever, <i>n</i> (%) yes	2,434 (3.30)	336 (3.57)
Missing	29,380 (39.83)	4,312 (45.82)
Diabetes ever, <i>n</i> (%) yes	3,213 (4.36)	532 (5.65)
Missing	69,404 (94.10)	8,739 (92.87)
Cancer ever, <i>n</i> (%) yes	437 (0.59)	55 (0.58)
Missing	6,251 (8.47)	855 (9.09)
Hip fracture at age 55 or older, <i>n</i> (%) yes	15 (0.02)	2 (0.02)
Missing	20,894 (28.33)	3,255 (34.59)
Good or better health ^d , <i>n</i> (%)	68,901 (93.41)	8,303 (88.24)
Missing	192 (0.26)	20 (0.21)
Depressive symptoms ^e , <i>n</i> (mean)	72,418 (0.03)	9,187 (0.09)
Current use of SSRI ^f , <i>n</i> (%) yes	921 (1.25)	209 (2.22)
Missing	50,063 (67.87)	6,526 (69.35)
Night sweats, <i>n</i> (%) yes	19,640 (26.63)	3,338 (35.47)
Missing	341 (0.46)	48 (0.51)
Hot flashes, <i>n</i> (%) yes	19,313 (26.18)	3,158 (33.56)
Missing	197 (0.27)	30 (0.32)
Vaginal or genital dryness, <i>n</i> (%) yes	24,710 (33.50)	3,686 (39.17)
Missing	261 (0.35)	45 (0.48)
Female hormones now, <i>n</i> (%) yes	517 (0.70)	55 (0.58)
Missing	73,069 (99.06)	9,328 (99.13)
WHI study component, <i>n</i> (%)		
CT	30,777 (41.73)	4,060 (43.15)
OS	42,982 (58.27)	5,350 (56.85)
Missing	0 (0.0)	0 (0.0)

^aBaseline data for women who had any sexual activity with a partner in the previous year and had a known VA/PA exposure status. Individual group counts (*n*) are not mutually exclusive.

^bPercent missing among women with no recent VA/AP = 13.34%; percent missing among women with recent VA/PA = 13.52%.

^cCalculated by weight and height (kg/m²) measured at initial physical examination.

^dSelf-rated health measured via self-report and categorized as excellent, very good, good, fair, and poor; excellent, very good, and good were combined.

^e Composite scale ranging from 0 to 1 assessed by self-report with the 8-item Burnam scale; percent missing among women with no recent VA/PA = 1.82%; percent missing among women with recent VA/PA = 2.37%.

^f SSRI = selective serotonin reuptake inhibitor.

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Table 2.

Unadjusted and Adjusted Odds of Global Sexual Dissatisfaction and Sexual Frequency Dissatisfaction at Baseline, Results from the Women's Health Initiative (WHI) (N = 83,329).

Any recent VA/PA ^a	Dissatisfied with sexual activity ^b				Dissatisfied with sexual activity frequency ^c			
	Unadjusted model		Adjusted model 1 ^d		Unadjusted model		Adjusted model 1 ^d	
	OR (95% CI)	Ref	OR (95% CI)	Ref	OR (95% CI)	Ref	OR (95% CI)	Ref
No								
Yes	1.91 (1.83 - 2.00)	1.85 (1.77 - .94)	1.65 (1.57 - 1.73)	1.66 (1.53 - 1.80)	2.05 (1.96 - 2.14)	1.95 (1.87 - 2.04)	1.74 (1.67 - 1.83)	1.73 (1.57 - 1.90)

^aVA= verbal abuse, PA = physical abuse. Recent VA/PA exposure measured as physical abuse and/or verbal abuse experienced within one year of baseline.

^bGlobal sexual dissatisfaction measured as level of satisfaction with current sexual activities, either with a partner or alone.

^cDissatisfaction with sexual activity frequency measured as satisfaction with the frequency of sexual activity.

^dModel 1: Adjusted for age, race, education.

^eModel 2: Adjusted for Model 1 covariates and health/health risk factors.

^fModel 3: Adjusted for Models 1 and 2 covariates and menopausal symptoms/treatment variables.