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The association between recent abuse and menopausal symptom bother: results from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS)

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Abstract

Objective: The aim of the study was to determine whether there is an association between current menopausal symptom bother and a history of abuse (physical, sexual, or emotional/verbal) in the last year.

Methods: A cross-sectional survey was completed using the Data Registry on Experiences of Aging, Menopause, and Sexuality and the Menopause Health Questionnaire. Data from the Menopause Health Questionnaire were collected from 4,956 women seen consecutively for menopause consultation in the Women's Health Clinic at Mayo Clinic (Rochester, MN) from January 1, 2006 through October 7, 2014. Data from 3,740 women were included in the analysis. Menopausal symptom ratings were compared between women reporting a history of abuse (physical, sexual, or emotional/verbal) in the last year and those not using a two-sample *t* test. Analysis of covariance was used to assess whether abuse was associated with menopausal symptom bother after adjusting for baseline participant characteristics.

Results: Of the 3,740 women, 253 (6.8%) reported experiencing one or more forms of abuse in the last year, the majority (96%) of which was verbal/emotional abuse. Those reporting abuse in the last year had higher ($P < 0.001$) mean total menopausal symptom bother scores. Consistent findings were obtained from multivariable analyses adjusting for all demographic and substance use characteristics.

Conclusions: In the present study from the Data Registry on Experiences of Aging, Menopause, and Sexuality, menopausal symptom bother scores were directly associated with recent self-reported abuse.

Key Words: Abuse – Domestic violence – Menopausal symptoms – Menopause – Violence.

Multiple factors may influence the frequency and/or severity of menopausal symptoms, including cigarette smoking, caffeine intake, obesity, and lower education levels.^{1,2} The effects of diet, exercise, alcohol intake, reproductive history, use of oral contraceptives, ambient temperature, and other factors on menopausal symptoms have also been investigated.² For example, women who consume alcohol on a daily basis experience more frequent hot flashes and night sweats than women who have never consumed alcohol.³ The effects of abuse on menopausal symptoms have not been well studied.

Abuse of women in the United States is prevalent, under-reported, and affects women irrespective of age, socioeconomic status, race, or educational background. The National Violence Against Women survey showed that approximately 25% of US women have experienced intimate partner violence (IPV) during their lifetime.⁴ Studies of women over 65 years of age reveal similar statistics.⁴ Abused women are reluctant to volunteer this information, and most health care providers do not routinely ask about current or prior abuse.⁵

All forms of abuse have been shown to be associated with adverse health outcomes, including poor mental health.⁶ Childhood and lifetime abuse are related to an increase in psychiatric disorders such as posttraumatic stress disorder, eating disorders, increased suicide attempts, and drug and alcohol abuse in adulthood.⁷ Sexual abuse is associated with increased utilization of health care services, overall poor health status, lower social support, poor self-esteem, and increased frequency of physical symptoms.^{6,8,9} Women who have experienced IPV have a higher rate of separation and divorce and are less likely to engage in sexual activity.⁹

Given the impact of abuse on overall health, one would expect an association between abuse and menopausal

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symptoms. The relationship between abuse and menopausal symptoms is, however, unclear. A previous prospective observational study regarding the association of IPV and health outcomes in mid-life women revealed lower mood and sexual function scores in those who reported abuse (physical and/or emotional and/or sexual IPV) 5 years earlier, but no difference in vasomotor symptoms.¹⁰ In contrast, the Study of Women's Health Across the Nation Mental Health Study revealed an association between adverse childhood experiences and increased reporting of vasomotor symptoms in adulthood.¹¹ No study, to our knowledge, has explored the association between recent physical, sexual, or verbal/emotional abuse and menopausal symptoms.

The present study aimed to look at the association between recent abuse and menopausal symptom bother related to both vasomotor and nonvasomotor symptoms. As abuse is known to be associated with poorer physical and emotional health, a better understanding of the association between abuse and menopausal symptoms may not only help health care providers identify women suffering from abuse, but it may also lead to improvements in their clinical care.

METHODS

All women presenting for consultation to the Women's Health Clinic (Rochester, MN) for menopausal concerns complete the Menopause Health Questionnaire (MHQ),¹ a comprehensive survey of menopause-related health information. In addition to demographic information, reproductive and gynecologic history, and personal habits, the questionnaire assesses menopausal symptom presence and degree of symptom bother. This information is entered into an electronic database, the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS). The MHQ data for all women aged 40 years or older who were seen for menopause consultation from January 1, 2006 through October 7, 2014 and who provided consent for use of their medical records for research purposes were considered for inclusion in this study. Approval for this study was obtained from the Mayo Clinic Institutional Review Board.

Menopausal symptom presence and severity were assessed by the MHQ with a set of 33 questions, with each symptom scored from 1 to 4 for degree of bother (1 = not at all; 2 = a little bit; 3 = quite a bit; 4 = extremely).¹ In addition to an overall total score, questions regarding menopausal symptoms were grouped into six domains based on content: vasomotor (items 1 and 2), sleep (items 3 and 4), neurocognitive (items 5-15), bowel/bladder function (items 16-20), sexual function (items 21-30), and general (items 31-33).¹ The presence of abuse in the last year was self-reported as present or absent (yes/no) with the questions: "Within the last year, have you been hit, slapped, kicked, or otherwise physically hurt by someone? Within the last year, has anyone ever forced you to have sexual activities? Do you feel you are verbally or emotionally abused by someone?" Menopause status was self-reported in the MHQ as premenopausal (before menopause; having regular periods), perimenopausal (with changes

in periods, but have not gone 12 consecutive months without a period), or postmenopausal (after menopause). Current tobacco use was assessed as present or absent (yes/no). Additional demographic data including body mass index, level of education, employment status, and race/ethnicity were obtained from the electronic medical record.

Data were summarized using mean (SD) for continuous variables and frequency percentages for nominal variables. The MHQ total score and subscale scores were calculated as the mean response of the items included in the given domain. Cronbach's α was calculated for each of the MHQ scales. The MHQ scores were analyzed as continuous variables, with the total score being the primary endpoint and subscale scores being secondary endpoints. The MHQ scores were compared between women who self-reported abuse and those not using the two-sample *t* test. In addition, the analysis of covariance was used to assess whether abuse was associated with menopausal symptom bother after adjusting for other baseline participant characteristics. For these analyses, the MHQ scale score was the dependent variable, abuse history was the explanatory variable of interest, and all characteristics listed in Table 1 were included as covariates, with age and body mass index treated as continuous variables and the remaining characteristics treated as categorical variables. In all cases, two-tailed *P* values ≤ 0.05 were considered statistically significant.

RESULTS

During the study period, a total of 4,956 women completed one or more MHQs. Of these, 283 were excluded because the participant did not provide authorization for use of their medical records for research, and an additional 394 women were excluded because they were under the age of 40 years for all MHQs completed. For the remaining women, the first MHQ completed after the age of 40 years was identified. Of these, 539 were excluded because the participant did not complete any of the MHQ items assessing menopausal bother or did not complete the items assessing a history of abuse in the last year. Compared with those who were included, the women who were excluded from the study due to missing information were significantly older (55.6 ± 9.0 vs 54.0 ± 7.9 y of age for those excluded vs included, respectively; $P < 0.001$), less likely to be white (95% vs 97%, $P = 0.043$) and less likely to use alcohol (47% vs 70%, $P < 0.001$).

Of the 3,740 women included in the present report, 253 (6.8%) reported experiencing one or more forms of abuse in the last year. Of the types of abuse listed on the form (physical, sexual, and/or verbal/emotional), 245 of 253 (96.8%) reported verbal/emotional abuse, 34 (13.4%) reported physical abuse, and 10 (3.9%) reported sexual abuse. For analysis purposes, all forms of abuse were combined into one category of abuse. The analysis data set includes 253 participants who self-reported experiencing abuse within the last year and 3,487 who self-reported not experiencing abuse.

TABLE 1. Participant characteristics

Characteristic	No abuse (N = 3,487)		Abuse (N = 253)		P
	n ^a	Mean ± SD	n ^a	Mean ± SD	
Age, y	3,487	54.0 ± 8.0	253	53.5 ± 7.7	0.316
Body mass index, kg/m ²	2,979	26.8 ± 5.6	202	26.7 ± 5.8	0.905
Race, n (%)	3,334		235		0.604
White		3,227 (97)		226 (96)	
Other ^b		107 (3)		9 (4)	
Ethnicity, n (%)	2,960		208		0.318
Hispanic		56 (2)		6 (3)	
Non-Hispanic		2,904 (98)		202 (97)	
Menstrual status, n (%)	3,215		232		0.990
Premenopausal		285 (9)		21 (9)	
Perimenopausal		754 (23)		55 (24)	
Postmenopausal		2,176 (68)		156 (67)	
Highest level of education, n (%)	3,249		242		0.519
High school graduate or less		418 (13)		38 (1)	
Some college or 2-y degree		1,004 (31)		78 (32)	
4-y college degree		915 (28)		59 (24)	
Graduate studies		912 (28)		67 (28)	
Employment status, n (%)	3,333		245		0.001
Employed		2,012 (60)		143 (58)	
Full-time homemaker		485 (15)		31 (13)	
Retired		512 (15)		33 (13)	
Unemployed		146 (4)		12 (5)	
Work disabled		97 (3)		20 (8)	
Other ^c		81 (2)		6 (2)	
Current cigarette use, n (%)	3,434	184 (5)	248	26 (10)	<0.001
Current alcohol use, n (%)	3,452	2,420 (70)	248	156 (63)	0.017
Self-reported alcoholism, n (%)	3,041	62 (2)	216	19 (9)	<0.001

^aNumber of participants with information available for the given characteristic.

^bOther races include American Indian/Alaska native (N = 10), Black (N = 31), Native Hawaiian/Pacific islander (N = 2), Asian (N = 28), and other not specified (N = 45).

^cOther employment status includes student (N = 19) and other not specified (N = 68).

For the 3,740 women included in the study cohort, the mean ± SD age was 54.0 ± 7.9 years (range 40-92 y). Most (97%) of the women were white, and the majority (68%) reported being postmenopausal. Demographics and substance use history are shown in Table 1, separately for those who reported abuse during the last year versus not. Demographic characteristics were similar between groups with the exception of employment status (P = 0.001), where a higher percentage of those who reported abuse in the last year was classified as work disabled. The prevalence of cigarette smoking was higher in those who reported abuse in the last year than those who did not (P < 0.001). The prevalence of current alcohol use was lower in women who reported abuse

in the last year than those who did not (P = 0.017), but the prevalence of self-reported alcoholism was higher in those who reported abuse (P < 0.001).

The symptom bother scores are shown in Table 2. The MHQ total score was found to have high internal consistency (Cronbach's α = 0.88), as did the majority of the subscores (Cronbach's α = 0.80, 0.71, 0.89, 0.56, 0.76, and 0.54 for vasomotor, sleep, neurocognitive, bowel/bladder, sexual function, and general). Compared with those who did not report abuse, those reporting abuse in the last year had higher (P < 0.001) mean total menopausal symptom bother scores, and also had higher (P < 0.001) scores for each of the individual subscales with the exception of vasomotor

TABLE 2. Menopausal symptom bother

Characteristic	No abuse (N = 3,487 ^a) mean ± SD	Abuse (N = 253 ^a) mean ± SD	P	Adjusted effect estimate ^b		
				Estimate	(95% CI)	P
Total	1.82 ± 0.42	2.08 ± 0.47	<0.001	+0.24	(+0.17, +0.30)	<0.001
Vasomotor	2.24 ± 0.91	2.29 ± 0.94	0.387	+0.02	(-0.13, +0.17)	0.764
Sleep	2.34 ± 0.90	2.61 ± 0.94	<0.001	+0.17	(+0.03, +0.32)	0.020
Neurocognitive	1.91 ± 0.62	2.30 ± 0.66	<0.001	+0.36	(+0.27, +0.46)	<0.001
Bowel/bladder	1.42 ± 0.42	1.57 ± 0.55	<0.001	+0.18	(+0.11, +0.25)	<0.001
Sexual function	1.67 ± 0.52	1.83 ± 0.57	<0.001	+0.16	(+0.08, +0.24)	<0.001
General	2.03 ± 0.71	2.32 ± 0.74	<0.001	+0.25	(+0.13, +0.36)	<0.001

^aThe number of participants with information available for the various scales ranged from 3,444 to 3,487 for those who did not report abuse, and 245 to 253 for those who reported abuse.

^bThe adjusted effect estimate is the estimated difference between abuse groups obtained from analysis of covariance with all characteristics from Table 1 included as covariates.

($P = 0.387$). In all cases, consistent findings were obtained from multivariable analyses adjusting for all demographic and substance use characteristics.

DISCUSSION

Of the menopausal women surveyed, 6.8% reported some type of abuse in the last year, the majority of which was verbal/emotional (96.8%). Recent self-reported abuse was associated with higher total menopausal symptom scores and more bothersome menopausal symptoms across the subscales of sleep, neurocognitive symptoms, bowel/bladder symptoms, sexual symptoms, and general symptoms (bloating/weight gain, breast tenderness, and joint pains). Interestingly, vasomotor symptoms were not more bothersome in women reporting recent abuse.

Our findings are consistent with those of the Melbourne Women's Health project. This study examined IPV over an 11-year span, and demonstrated that a history of IPV reported 5 years earlier was associated with a number of negative mental and sexual health outcomes. Women with more recent experience with IPV (within the last 12 mo) had higher negative mood scores, suggesting that recent abuse was associated with a greater impact on mental health. There was, however, no difference in the reporting of vasomotor symptoms in women who had experienced IPV compared with those who had not.¹⁰

In contrast, in the Study of Women's Health Across the Nation Mental Health Study, a history of childhood abuse or neglect was associated with increased reporting of vasomotor symptoms in the menopausal transition.¹¹ It is speculated that childhood abuse may cause permanent alterations in the hypothalamic–pituitary–gonadal axis, which may in turn affect bodily functions mediated by this pathway. Vasomotor symptoms are thought to be the result of changes in adrenergic and serotonergic pathways in the central nervous system, and an alteration in these pathways resulting from childhood abuse may explain the link between increased vasomotor symptoms in some mid-life women who experienced childhood abuse.^{12–14}

In addition to vasomotor symptoms, women with a prior history of childhood abuse may experience impaired sexual function, urogenital symptoms, fatigue, sleep disturbances, mental health impairment, worsening of preexisting physical conditions, and a decline in their general health.¹¹ Unfortunately, for many women who have experienced childhood abuse, the adverse health outcomes persist decades later into their adult lives.^{15,16}

The lack of impact of recent self-reported abuse on vasomotor symptoms in the present study is intriguing, though the reasons are not entirely clear. It is plausible that for those experiencing abuse in adulthood, established central nervous system pathways involved in the development of vasomotor symptoms, are less vulnerable to insult than those undergoing formation in childhood, thereby explaining the differences in symptom experience.

The finding that women experiencing recent abuse have higher menopausal symptom scores may have significance beyond care of the individual participant, and may impact the health care system in terms of cost and resource utilization. Gender disparities in health care spending and health care resource utilization across the lifespan are well documented and are higher in women than men.¹⁷ Although the majority of this lifetime cost difference is accounted for by expenditures on reproductive health and greater longevity in women, data from the Medical Expenditure Panel Survey revealed that the greatest disparity in spending occurred amongst women aged 45 to 64 years.¹⁸ This age range coincides with the menopausal transition, that is, a time when women experience significant bodily changes and bothersome symptoms. It is possible that women experiencing recent abuse may require more frequent interactions with the health care system for treatment of symptoms that are more bothersome than for those not experiencing abuse.

From an individual participant-care perspective, the presence of extremely bothersome menopausal symptoms in the appropriate context may cue health care providers to ask about potential abuse and to offer resources as necessary to help women. From a broader health care perspective, the availability of adequate health care resources may provide women experiencing abuse and its consequences access to much needed medical and psychological care, which is likely to translate into improved quality of life.

Strengths and limitations

Our study has several strengths. Ours is the first study to examine the association between recent abuse and menopausal symptom bother. Owing to the large number of women included in DREAMS, we are uniquely advantaged to reliably report the association of recent abuse with menopausal symptoms. Furthermore, this study examines the association of abuse (physical, sexual, and/or verbal/emotional) not limited to IPV with menopausal symptom bother.

This study has a number of limitations. First, unlike the behaviorally defined questions about physical and sexual abuse, the item used to measure verbal/emotional abuse on the MHQ relied on the participant's self-definition of verbal/emotional abuse. The subjective nature of this question may account for the higher frequency of those reporting verbal/emotional abuse relative to sexual or physical abuse. Furthermore, findings related to this question may not correlate with studies that assessed verbal/emotional abuse behaviorally.

The study population is composed of women lacking racial/ethnic and socioeconomic diversity, as 95% were white and 67% were employed. Similarly, women without access to health insurance were underrepresented in this study population. The percentage of women in our study reporting abuse in the last year (6.8%) is lower than that reported in other studies.¹⁹ This may have been influenced by the number of participants who did not answer abuse or menopausal symptom questions or by the lack of demographic diversity.

The women in this study presented for menopausal symptom evaluation to a menopause clinic in a tertiary care facility, which may limit the generalizability of the findings as these women were, for the most part, symptomatic and bothered by their symptoms. The study also relied on a survey instrument (MHQ) designed and used for clinical practice rather than for research purposes. In addition, with the descriptive nature of the study, self-reporting of menopausal symptom bother and abuse was vulnerable to recall bias. Furthermore, due to incomplete self-reporting of other variables potentially affecting menopausal symptoms (eg, depression), confounding is a possible concern. Finally, the lack of information about the use of medications (eg, antidepressants, hormone therapy) and type and timing of menopause (eg, natural, surgical, premature or early, menopause) could impact outcomes.

Action points for providers

The results of this study may allow for some action points. Because women experiencing recent abuse demonstrated higher total menopausal symptom scores and increased reporting of more bothersome menopausal symptoms across multiple domains, this can serve as a prompt for providers to ask about current abuse. The Institute of Medicine and the American Congress of Obstetricians and Gynecologists recommend health care providers' screen for current abuse and provide counsel as a part of a well women visit.²⁰ Women may present to their health care providers' offices as a result of health consequences of abuse, allowing for identification, acknowledgment, and provision of support for those suffering from abuse. The American Congress of Obstetricians and Gynecologists recommends screening for current abuse only when the participant is alone.²⁰ It can be helpful to ask about specific behaviors rather than use stigmatizing terminology, for example, "Has your partner ever threatened you?" versus "Has your partner verbally abused you?" Although a participant's disclosure of current abuse may be difficult for the health care provider, remaining nonjudgmental and empathic and providing resources to ensure safety are important.²¹

CONCLUSIONS

This is the first study to investigate the impact of recent abuse on menopausal symptom bother. Recent self-reported abuse is significantly associated with more bothersome menopausal symptoms, though not with vasomotor symptoms. Additional studies are needed to further understand the impact of both adverse childhood experiences and abuse in adulthood on the health of women in general and on menopausal symptoms specifically.

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