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ORIGINAL ARTICLE

A negative view of menopause: does the type of symptom matter?

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ABSTRACT

Objectives: To assess the association between the type of symptom and women's self-reported view of menopause.

Methods: The study was conducted at Mayo Clinic, Rochester MN, between January 2006 and October 2014. Women aged 40–64 were included. Data from 1420 women were analyzed in a cross-sectional design. The Menopause Health Questionnaire was used for symptom assessment. Odds ratios (ORs) and population attributable risk (PAR) (OR × percent frequency) were calculated for each symptom. Logistic regression analyses were performed with the view of menopause as the dependent variable.

Results: Anxiety (2.34), depressed mood (2.24), irritability (2.22), vaginal itching (2.27), crying spells (2.1) and breast tenderness (2.08) were associated with highest odds of having a negative view of menopause. Highest PAR (population impact) symptoms were anxiety (22.27), weight gain (20.66), fatigue (20.28) and irritability (19.41). Hot flushes and night sweats, although common, were not associated with a negative view of menopause (OR 1.3 and 1.16; PAR 3.85 and 4.42, respectively).

Conclusion: Mood symptoms, vaginal itching, weight gain, breast tenderness and fatigue, although less common than hot flushes, were noted to have greater association with a negative view of menopause. Specifically addressing these symptoms during menopausal consultation may improve patient satisfaction and outcomes.

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Introduction

Menopause can be viewed as a positive byproduct of our success in prolonging the human life span. The average age of menopause is 51 years¹, with 6000 women entering menopause daily². The number of postmenopausal women globally is estimated to increase from approximately 400 million in 1996, to 1.2 billion by 2030³. Thus, an increasing number of women are spending one-third or more of their lives in postmenopause. As a result, this group of women merits greater attention in order to improve understanding of their unique set of health-related concerns.

The menopausal transition may be viewed as a complex biopsychosocial construct with many factors influencing a woman's experience at this phase of life (Table 1). These include demographic characteristics and health behaviors such as age, race/ethnicity, socioeconomic status, and level of education, use of tobacco and alcohol, body mass index, prior knowledge of menopause, cultural norms and beliefs, and attitudes related to menopause^{4–11}. The presence of vasomotor and mood symptoms and stress during the menopausal transition can also impact women's physical and emotional well-being, and their health-related quality of life^{12–16}.

Vasomotor symptoms are the most commonly reported symptoms during menopausal transition and early postmenopause, and these are experienced by as many as 85% of mid-life women^{17,18}. Women may also experience a constellation

of other symptoms at midlife¹⁹. Erratic elevations in estrogen levels during perimenopause may cause bloating, breast tenderness, headaches or heavy bleeding. Declining estrogen levels may result in genitourinary syndrome of menopause, palpitations, sleep disturbance, and change in body fat distribution. Perimenopause is also a higher risk period for depression, anxiety and irritability, changes in memory and concentration, declining libido and joint pains^{18,20}. Women may also gain weight at midlife, which is often mistakenly attributed to menopause. Collectively, these symptoms can have a strong negative influence on women's quality of life.

Women with negative attitudes toward menopause are reported to have more frequent and severe vasomotor symptoms in some studies²¹, but not in others^{22–27}. A negative attitude toward menopause was found to be related to irritability, sleep disturbance, and headaches in some studies, but these associations were based on fairly small effects^{24,28,29}.

Most studies assessing menopausal attitudes and symptoms have focused on the frequency and/or severity of commonly reported symptoms. The focus of this study was to assess the impact of the specific type of symptom from the broad cluster of symptoms reported by women on their view of menopause. We hypothesized that the specific type of symptom, beyond its frequency, is likely to be associated with a woman's overall view of menopause.

Table 1. Determinants of menopausal experience.

- Sociodemographics
- Attitudes
- Beliefs
- Knowledge
- Co-morbidities
- Mental health issues

Methods

The Menopause Health Questionnaire (MHQ), a comprehensive survey of menopause-related health information, was completed by women who were seen in the Women's Health Clinic (WHC) at Mayo Clinic, Rochester MN, between January 1, 2006, and October 7, 2014 for menopause-related concerns³⁰. The MHQ was developed by the North American Menopause Society to efficiently collect pertinent menopause-related information in clinical practice. This is a clinical instrument that has been utilized in several studies^{31–33}. Information on women's self-reported 'view of menopause', was also obtained from the MHQ, wherein women reported their view as 'positive', 'negative', or 'other'.

Patients completed the MHQ survey before the initiation of treatment or alteration of existing treatment by their WHC provider. The information provided by women was entered into an electronic database, DREAMS (Data Registry on the Experiences of Aging, Menopause and Sexuality). Data were only included if women provided written informed consent for the use of their medical records for research purposes. Menopause-related symptom presence and degree of bother were assessed with a set of 33 questions from the MHQ, with bother rated as follows: not at all, a little bit, quite a bit, or extremely. Items were grouped into domains based on content (vasomotor, items 1 and 2; sleep, items 3 and 4; neuro-cognitive, items 5–15; bowel/bladder function, items 16–20; sexual function, items 21–30; and general symptoms/other, items 31–33). Menopausal status was self-reported as premenopausal (before menopause; having regular periods), perimenopausal (with changes in periods but have not yet experienced 12 consecutive months without a period), or postmenopausal (after 12 consecutive months without a period). View of menopause was self-reported as positive, negative or other (MHQ section 14).

Statistical analyses

Unless otherwise specified, data are presented using mean \pm standard deviation for continuous variables and frequency percentages for categorical variables. Each of the symptoms included in the MHQ was analyzed separately in order to determine whether the given symptom was associated with a negative view of menopause. For each symptom, responses were grouped as 'quite a bit' and 'extremely', versus 'a little bit' and 'not at all', to create a binary variable indicating bother from the given symptom (yes versus no). Logistic regression analyses were then performed with the view of menopause as the dependent variable and the given symptom variable as the explanatory variable. The results of these analyses are summarized using the odds ratio (OR),

with corresponding 95% confidence interval, with an OR greater than 1.0 indicating that the likelihood of a negative view of menopause is increased in those who experience 'quite a bit', or 'extreme', bother from the given menopausal symptom. This OR represents the relative increase in the odds of reporting a negative view of menopause for those who experience bother from the given symptom versus those who do not experience a negative view as a result of the bothersome symptom.

In order to take into account both the strength of the association between the given symptom and a negative view of menopause, and the percentage of women who reported bother from the given symptom, we also calculated the population attributable risk (PAR) for each symptom. The PAR corresponds to the relative reduction in the percentage of women with a negative view of menopause that would result if all bother from the given menopausal symptom was eliminated. In other words, eliminating a symptom with a high PAR would result in a greater impact on the percentage of women indicating a negative view of menopause than eliminating a symptom with a low PAR. We hypothesized that the association between menopausal symptom bother and view of menopause may be different for perimenopausal versus postmenopausal women. For this reason, supplemental logistic regression analyses were performed to assess the association of each symptom with negative view according to menopausal status. A Bonferroni type I error level of 0.0015 ($=0.05/33$) was used when looking at the association between symptom question and view of menopause.

Results

A total of 2226 consecutive patients completed one or more MHQs between January 1, 2006 and October 7, 2014. For each woman, one unique MHQ was included in the study. For women completing multiple MHQs, the first MHQ completed between the age of 40 and 64 was utilized. Of the total patients, 610 were excluded because either they did not complete any MHQ after the age of 40 ($n=367$), or before 65 ($n=196$), they reported being premenopausal ($n=126$), or their response to the question regarding their view of menopause was 'other' ($n=117$). Thus, a total of 1420 patients were included in the current report. The mean age of these women was 52.9 ± 5.5 years (range 40–64 years), and the majority of them postmenopausal (72.8%). Additional demographics are provided in [Table 2](#).

Of the 1420 women included, 222 (15.6%) indicated they had a negative view of menopause. The percentage of women reporting a negative view of menopause decreased with age (23.0%, 17.8%, 16.3%, 14.2% and 9.9% for women 40–44, 45–49, 50–54, 55–59, and 60–64 years of age, respectively; $p=0.030$). Of those who self-reported being perimenopausal, 17.1% reported a negative view of menopause compared to 15.1% of those who self-reported being postmenopausal ($p=0.35$).

The association between a negative view of menopause and each of the symptom bother questions included in the MHQ is summarized in [Table 3](#) and [Figure 1](#). Of the 33

Table 2. Demographic characteristics of women seen in the Women's Health Clinic at Mayo Clinic, Rochester, MN, between January 2006 and October 2014 for menopause-related concerns.

Characteristic	n (%)
Age (years) (n = 1420)	
Mean ± standard deviation	52.9 ± 5.5
Median (Q1, Q3)	53 (49, 57)
Menopausal status (n = 1420)	
Perimenopausal	386 (27.2%)
Postmenopausal	1034 (72.8%)
Race (n = 1420)	
White	1377 (97.0%)
Other	43 (3.0%)
Highest level of school completed (n = 1328)	
High school graduate/GED or lower	170 (12.8%)
Some college or 2-year degree	418 (31.5%)
4-Year college graduate	367 (27.6%)
Postgraduate studies	373 (28.1%)
Current employment status (n = 1356)	
Employed	916 (67.6%)
Full-time homemaker	174 (12.8%)
Retired	140 (10.3%)
Other	126 (9.3%)
Current marital status (n = 1348)	
Single	68 (5.0%)
Committed relationship	65 (4.8%)
Married	1100 (81.6%)
Separated/divorced	100 (7.4%)
Widowed	15 (1.1%)

symptoms included, 10 were significantly associated with a higher likelihood of reporting a negative view of menopause ($p < 0.0015$). Of the menopausal symptom clusters, the neurocognitive cluster was found to have the highest number of symptoms associated with a negative view of menopause. Symptoms associated with negative view and OR > 2 ($p < 0.0015$) included anxiety, depressed mood, irritability, crying spells, vaginal itching and breast tenderness. Symptoms associated with negative view and OR 1.5–2.0 ($p < 0.0015$) included, fatigue, difficulty concentrating, limited opportunity for sexual activity and bloating/weight gain. Commonly reported symptoms that did not reach statistical significance for a negative view of menopause included hot flushes, night sweats, vaginal dryness, pain with intercourse and difficulty achieving orgasm.

PAR was calculated for all 33 symptoms and was reflective of the relative burden/prevalence of each symptom included in the MHQ. For symptoms reaching a statistical significance for the negative view of menopause at $p < 0.0015$, the highest PARs were noted for anxiety (22.27), bloating/weight gain (20.66), fatigue (20.28) and irritability (19.41). Low PAR symptoms included vaginal itching (6.77), breast tenderness (7.58), mood swings (6.55) and increased frequency of urination (6.61).

We repeated the analyses assessing the association between a negative view of menopause and each of the symptom bother questions separately for women who were perimenopausal and postmenopausal (data not shown). Among perimenopausal women, stomach bloating/weight gain symptoms were found to be strongly associated with a negative view of menopause (OR 2.41; 95% CI 1.4–4.2; $p < 0.0017$). For postmenopausal women, seven out of the 11

neurocognitive symptoms were found to be significantly associated ($p < 0.0015$) with a negative view of menopause.

Discussion

This study demonstrates an association between the specific type of symptoms endorsed by women who presented for consultation regarding menopause, and their self-reported view of menopause. The symptoms associated with the highest odds of a negative view were anxiety, depressed mood, irritability, crying spells, vaginal itching and breast tenderness. Other symptoms associated with high odds of negative view were fatigue, difficulty concentrating, limited opportunity for sexual activity and bloating/weight gain.

Vasomotor symptoms

Hot flushes and night sweats, despite high prevalence, were not strongly associated with a negative view of menopause. This is not surprising, since women likely expect them at menopause and recognize their transient nature, and therefore do not attach negative health consequences to these symptoms. Several factors influence the impact of hot flushes and night sweats in perimenopausal and menopausal women. For example, Woods and colleagues reported important modulating effects of anxiety on hot flushes¹¹. Thurston and colleagues reported that, beyond the frequency of vasomotor symptoms, younger age, negative affect, sleep issues, and poorer health correlated with the highest symptom bother³⁴.

Age and stage of menopause

In our study, younger women viewed menopause with greater negativity than older women. We identified a trend toward a less negative view with advancing age. Similar findings have been reported by other researchers^{35,36}. A mismatch between women's expectations and reality when menopause presents sooner than anticipated may explain this observation. Alternatively, since happiness generally follows a U-shaped curve with age, an increasing sense of psychological well-being in older women may explain their less negative view of menopause³⁷. This study did not show an association between self-reported perimenopausal versus menopausal stage and a negative view of menopause. The existing data regarding this association are conflicting, with some studies reporting a more negative view of menopause for perimenopausal women^{35,38,39}, while other studies report a lack of association¹¹.

Symptoms with highest association with a negative view

One noteworthy finding from this study is a high association of anxiety, depression, and irritability with a negative view of menopause. Existing literature shows that the years before the final menstrual period are associated with higher depressive symptoms in women, which tend to improve 2 years

Table 3. The association between symptoms and women's negative view of menopause: symptom-specific odds ratio (OR) and population attributable risks (OR × symptom frequency). *p* Values <0.0015 (= 0.05/33) were considered statistically significant.

Symptom	Not at all/a little bit		Quite a bit/ extremely		PAR (%)	Odds ratio (negative vs. positive)	95% confidence interval	<i>p</i> Value
	Total	Negative	Total	Negative				
1. I have hot flushes	785	118 (15.0%)	595	99 (16.6%)	3.85	1.128	0.843–1.510	0.4169
2. I have night sweats	870	130 (14.9%)	515	87 (16.9%)	4.42	1.157	0.860–1.556	0.3347
3. I have difficulty getting to sleep	889	125 (14.1%)	496	94 (19.0%)	10.06	1.429	1.066–1.917	0.0171
4. I have difficulty staying asleep	647	91 (14.1%)	741	127 (17.1%)	10.04	1.264	0.943–1.693	0.1169
5. I get heart palpitations or a sensation of butterflies	1211	161 (14.4%)	255	57 (22.4%)	14.96	1.717	1.224–2.408	0.0018
6. I feel like my skin is crawling	1234	189 (15.3%)	145	27 (18.6%)	2.03	1.265	0.810–1.976	0.3013
7. I feel more tired than usual	690	86 (12.5%)	704	133 (18.9%)	20.28	1.636	1.219–2.196	0.0010
8. I have difficulty concentrating	887	113 (12.7%)	508	106 (20.9%)	18.51	1.806	1.350–2.416	<0.0001
9. My memory is poor	932	128 (13.7%)	459	90 (19.6%)	12.15	1.532	1.139–2.061	0.0048
10. I am more irritable than usual	1000	126 (12.6%)	396	96 (24.2%)	19.41	2.220	1.651–2.985	<0.0001
11. I feel more anxious than usual	971	118 (12.2%)	421	103 (24.5%)	22.27	2.341	1.745–3.142	<0.0001
12. I have more depressed moods	1083	141 (13.0%)	311	78 (25.1%)	16.72	2.237	1.638–3.054	<0.0001
13. I am having mood swings	1102	161 (14.6%)	281	59 (21.0%)	6.55	1.553	1.114–2.165	0.0094
14. I have crying spells	1206	169 (14.0%)	180	46 (25.6%)	10.37	2.106	1.452–3.057	<0.0001
15. I have headaches	1039	156 (15.0%)	348	60 (17.2%)	3.9	1.179	0.851–1.634	0.3218
16. I need to urinate more often than usual	1137	166 (14.6%)	255	54 (21.2%)	6.61	1.572	1.116–2.214	0.0097
17. I leak urine	1253	200 (16.0%)	135	18 (13.3%)		0.810	0.482–1.361	0.4259
18. I have pain or burning when urinating	1354	207 (15.3%)	35	11 (31.4%)	2.21	2.540	1.225–5.264	0.0122
19. I have bladder infections	1324	202 (15.3%)	56	12 (21.4%)	2.41	1.515	0.786–2.918	0.2144
20. I have uncontrollable loss of stool or gas	1279	203 (15.9%)	107	15 (14.0%)		0.864	0.491–1.522	0.6133
21. My vagina is dry	884	125 (14.1%)	484	87 (18.0%)	9.55	1.331	0.986–1.795	0.0615
22. I have vaginal itching	1283	187 (14.6%)	104	29 (27.9%)	6.77	2.266	1.437–3.575	0.0004
23. I have an abnormal vaginal discharge	1348	207 (15.4%)	35	10 (28.6%)	1.78	2.205	1.043–4.659	0.0383
24. I have vaginal infections	1331	200 (15.0%)	39	11 (28.2%)	3.89	2.222	1.089–4.534	0.0283
25. I have pain during intercourse	1027	150 (14.6%)	305	58 (19.0%)	6.58	1.373	0.983–1.918	0.0632
26. I have pain inside during intercourse	1054	154 (14.6%)	244	43 (17.6%)	6.54	1.250	0.863–1.812	0.2381
27. I have bleeding after intercourse	1277	197 (15.4%)	39	9 (23.1%)	1.32	1.645	0.769–3.518	0.1996
28. I lack desire or interest in sexual activity	748	100 (13.4%)	619	111 (17.9%)	14.49	1.416	1.055–1.900	0.0205
29. I have difficulty achieving orgasm	850	126 (14.8%)	475	77 (16.2%)	5.18	1.112	0.816–1.514	0.5016
30. My opportunity for sexual activity is limited	1083	149 (13.8%)	251	59 (23.5%)	12.00	1.926	1.372–2.704	0.0002
31. My stomach feels like it's bloated or I've gained weight	782	97 (12.4%)	611	122 (20.0%)	20.66	1.762	1.317–2.356	0.0001
32. I have breast tenderness	1232	178 (14.4%)	154	40 (26.0%)	7.58	2.078	1.402–3.080	0.0003
33. I have joint pains	843	118 (14.0%)	556	101 (18.2%)	10.47	1.364	1.020–1.823	0.0362

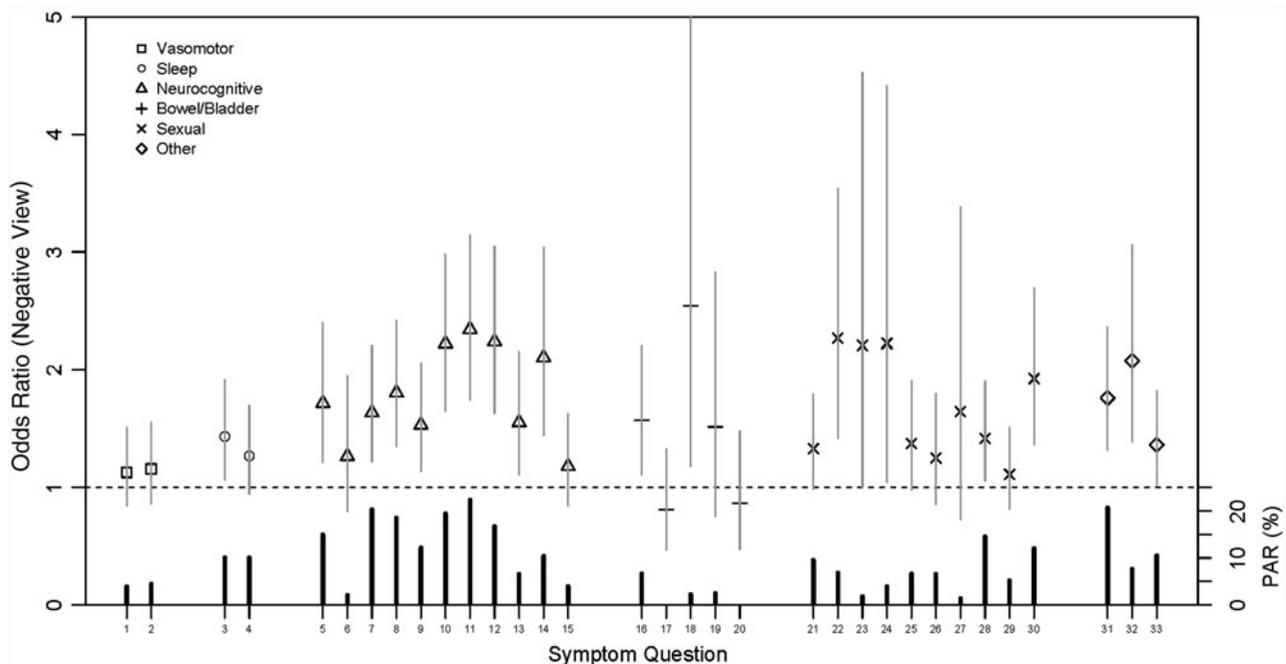


Figure 1. Odds of having a negative view, 'quite a bit' vs. 'a little'.

after the final menstrual period⁴⁰. Despite their strong biological underpinnings and putative association with several chronic illnesses^{41,42}, psychological symptoms are commonly perceived to carry a stigma, and thus may have a negative

influence on an individual's self-worth and self-efficacy. These symptoms are more common following a difficult childhood, poor psychosocial support, lower socioeconomic status, and co-morbidities⁴³. The onset of hormonal changes associated

with the menopausal transition may be the final factor that leads to clinically significant distress in women predisposed due to biology and life circumstances. However, women may ascribe psychological symptoms and related low self-worth predominantly to menopause without realizing the multifactorial nature of these symptoms.

Bloating/weight gain

The MHQ did not differentiate between the symptoms of bloating and weight gain. Clinical experience correlates with a large proportion of women reporting weight gain at mid-life. Weight gain was frequently reported in this study as well, and had high odds and high PAR of association with a negative view of menopause (1.76; 20.66). Existing literature suggests that, after adjusting for aging, menopause *per se* does not seem to increase the risk of weight gain. However, several studies suggest that menopause may result in body fat redistribution with a preferential deposition of fat in the abdominal area³². Despite the evidence against a direct link between menopause and weight gain, women tend to attribute the change in their body weight to menopause, which might explain the high association of weight gain with a negative view of menopause. The relation of weight gain to psychological distress^{44,45} and poor sense of well-being⁴⁶ has been reported previously in the literature, which is concordant with our findings.

Resilience and positive-well being

Avis and McKinlay, in their large population-based study of over 2500 middle-aged women showed that the majority of women had an overall positive experience as they entered menopause⁴⁷. However, we were surprised by the high proportion of women who viewed menopause positively (84.4%), given that we were studying women presenting for evaluation at a tertiary-care clinic for menopause-related concerns. Although it is possible that women did not correctly self-report their view of menopause, a more likely possibility is that women who reported a positive view had a preserved sense of positive well-being despite adverse external influences. Previous studies have demonstrated that menopause has less impact on women's ingrained positive traits, such as happiness, resilience, and well-being. In other words, women with a greater repertoire of ingrained positive emotions are likely to have an overall positive view of menopause⁴⁸.

The findings from this study carry considerable practice and research implications. Our results suggest that providers caring for perimenopausal and menopausal women must ask questions regarding the broader set of symptoms related to neurocognitive concerns, genitourinary health and constitutional symptoms, in addition to inquiring about vasomotor symptoms. We suggest that providers engage patients in a discussion regarding the broad multifactorial and sociocultural origins of mood-related symptoms, and provide perimenopausal women with education about their transient nature, in order to improve their outlook of menopausal experience. Knowledge-based interventions that change

beliefs and negative views of menopause have demonstrated efficacy in previous research^{49,50}.

Utilizing PAR as a tool to provide estimates of the population impact of menopausal symptoms, we found neurocognitive concerns, fatigue, and bloating/weight gain as the most impactful symptoms affecting women's view of menopause. Thus, specifically addressing these symptoms and providing education and treatment for these symptoms can have a positive impact on a larger segment of midlife women.

From a research standpoint, the assessment of the impact of type of symptoms on women's attitude of menopause may need to be evaluated objectively in future studies utilizing validated scales like the Menopause Attitude Scale or the Menopause Representation Questionnaire^{31,49}. Further, research focused on a greater understanding of women with an incongruent response to their menopausal symptoms, i.e. low symptom burden and more negative view or vice versa, needs to be carried out. Interventional studies assessing the impact of menopause-specific education and resilience training need to be done, with the goal of improving menopausal women's quality of life.

Conclusions

Several non-vasomotor symptoms appeared to be associated with a negative view of menopause. These could be grouped under three broad categories: (1) symptoms that may directly affect women's self-image and self-worth (e.g. psychological symptoms, neurocognitive symptoms, and weight gain); (2) symptoms that may potentially signal menopause as a period of loss of youth and vitality (e.g. vaginal symptoms and sexual concerns); and (3) symptoms that may instill fear (e.g. breast tenderness and fatigue). Health-care providers caring for midlife women need to pay particular attention to a broad array of symptoms, which can impact women's view of their menopausal transition and postmenopause. While additional studies are needed, menopause education and resilience training may be high-yield approaches to improving the experience of menopause for women.

Strengths

Our study is unique in assessing the association between the specific type, rather than frequency, of symptoms with women's view of menopause in a large cohort of peri- and postmenopausal women. We used the DREAMS database, a robust data set that includes women seen for consultation in the Women's Health Clinic at Mayo Clinic, in Rochester, MN. Given the large number of women who were included, we were able to assess multiple symptoms commonly reported by women during perimenopause and postmenopause, and study their association with women's view of menopause.

Limitations

Our study has several limitations. Our study population was comprised of primarily white, educated, and employed women who were seen in a tertiary-care center for

menopausal symptoms. This limits the generalizability of the findings to diverse racial/ethnic and socioeconomic groups. Our research tool, the MHQ, although widely used clinically for the assessment of menopausal symptoms, was not designed or validated for research. Our study design, utilizing a database as the source of information versus in-person interviews, lends itself to incomplete reporting of confounding variables, as well as a lack of information on the concurrent use of medications (e.g. hormone therapy and antidepressants), and co-morbid conditions (e.g. mood disorders). Given the cross-sectional design, we acknowledge the possibility of a bidirectional nature of the symptoms and view of menopause. Thus, women's views of menopause may influence their symptoms as much as their symptoms may affect their view of menopause. Finally, we also acknowledge the possibility of potential biases involved with self-reported patient information.

Conflict of interest The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper. The corresponding author, Richa Sood, MD, affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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