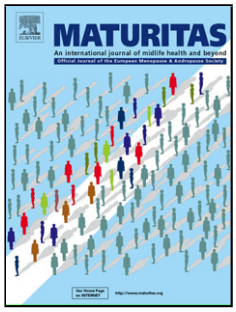

Association between Menopausal Symptoms and Relationship Distress

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Title: Association between Menopausal Symptoms and Relationship Distress

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Highlights

- Associations between menopausal symptoms and relationship distress were identified.
- Absence of relationship distress was associated with less severe menopausal symptoms.
- The relationship persisted for total and psychological domains in full analyses.
- Addressing psychosocial factors may prove useful for menopausal women.

Abstract

Objective: To determine the association between relationship distress and menopausal symptoms.

Study Design: A retrospective analysis was conducted of questionnaires completed by women 40-65 years of age seeking menopause or sexual health consultation between May, 2015 and May, 2017.

Main outcome measures: Associations between menopausal symptoms assessed using the Menopause Rating Scale (MRS) and relationship distress measured on the Kansas Marital Satisfaction Scale (KMSS) were evaluated with two-sample t-tests. Linear regression was used to assess associations after adjusting for potential confounders.

Results: The sample of 1,975 women averaged 53 years of age (SD = 6.1); most were white (95%), employed (66%), married (90%), and well-educated (≥ college graduate, 64%). Women reporting no relationship distress (KMSS ≥ 17) had less severe menopausal symptoms overall compared with women reporting relationship distress (total MRS score 13.1 vs 16.0, $P < 0.001$), with similar findings in each MRS domain. In multivariable analyses, this relationship persisted for total MRS scores and for psychological symptoms among women with no relationship distress, who scored an estimated 1.08 points (95% CI 0.47-1.49) lower on the MRS total and 0.77 points (95% CI 0.49-1.05) lower for psychological symptoms than women reporting relationship distress.

Conclusions: The absence of relationship distress was associated with less severe menopausal symptoms, particularly in the psychological domain, in women presenting to a women's health clinic. Given the cross=sectional design, the direction of the relationship is unknown.

Keywords: Menopause symptoms, Menopause, Relationship Distress

Introduction

By 2025, the number of postmenopausal women is expected to approach 1.1 billion worldwide [1]. A majority of women will develop symptoms during the menopausal transition, including but not limited to vasomotor symptoms (VMS), sleep disturbances, mood symptoms, and vaginal dryness [2]. It is important to understand the factors that may influence these symptoms given the rising number of symptomatic women, as well as the significant negative effect these symptoms may have on quality of life [3]. Relationship satisfaction is known to affect health outcomes positively, many times through dyadic coping strategies that may mitigate anxiety and depression [4,5]. On the other hand, poor partner health can negatively affect aspects of a relationship as was found with the negative impact of vulvovaginal atrophy on intimacy and the sex lives of women and their male partners [6]. Limited studies have assessed the association between relationship distress and menopausal symptoms.

Previous research has evaluated specific relationship factors and their association with menopausal symptoms. Lee and Kim (2012) found that marital satisfaction, as well as higher marital adjustment, satisfaction with children, and living with a first child was associated with fewer menopausal symptoms in Korean women. In another study, premenopausal women were found to be more satisfied and positive about their relationships than postmenopausal women, but menopausal stage itself was not associated with relationship satisfaction [7,8]. Other studies have suggested no association between marital or relationship problems and menopause symptoms, noting that menopausal experience was independent of women's perception about their relationship [9,10].

These partially contradictory findings demonstrate the complexities associated with both the menopause experience and partner relationship satisfaction. A woman's satisfaction with her partner has been shown to be impacted by many factors including her stage in the

family cycle (e.g. early marriage vs. having young children vs. having grown children), spousal depressive symptoms, poor self-esteem, poor physical health status, and negative partner interactions [11-16]. Additional studies have found associations between negative experiences in relationships, such as intimate partner violence (IPV) or childhood abuse, with more burdensome menopausal symptoms [17,18]. For example, 96.8% of women who had experienced IPV in the previous year reported higher menopausal symptom bother [17]. Evaluating menopausal symptoms and relationship distress in a large cohort can help identify and define any potential association between the two outcomes.

Our study aim was to evaluate associations between self-reported menopausal symptom severity and partner relationship distress in women presenting for consultation to a women's health specialty clinic.

Methods

Study participants

All women presenting for menopause or sexual health consultation to the Mayo Clinic Women's Health Clinic in Rochester, MN completed several validated questionnaires between May, 2015 and May, 2017. The responses to the questionnaires, as well as demographic and health history information were entered electronically into the Data Registry on Experiences in Aging, Menopause and Sexuality (DREAMS). Only questionnaires completed by women who gave permission for their personal health information to be used in research and were between the ages of 40 and 65 were included in this study. Only a small percentage (approximately 6%) of women declined participation. The study was approved by the Mayo Clinic Institutional Review Board.

Study Instruments & Data Collection

Menopausal symptom severity was assessed using the Menopause Rating Scale (MRS), a validated menopause questionnaire that includes 11 questions and assesses self-

reported menopause symptoms and the impact symptoms have on health-related Quality of Life (HRQoL)[19]. Each question is scored on a scale of 0-4 (0 = none; 4 = severe), with total scores ranging from 0 to 44 and higher scores indicative of more severe symptoms [19]. Total score responses are further stratified into 4 categories of severity: 0-4 is consistent with zero to little severe symptoms, 5-8 is mild, 9-16 is moderate, and 17+ is severe. Symptom domains include psychological symptoms (questions about depression, irritability, anxiety, and exhaustion), somato-vegetative symptoms (questions about sweating/flushing, cardiac complaints, sleeping disturbances, joint pain and muscle pain) and urogenital symptoms (questions about sexual problems, urinary complaints, and vaginal dryness) [19].

Relationship distress was assessed using the 3-question Kansas Marital Satisfaction Scale (KMSS) which asks about satisfaction with the partner, with the relationship/marriage, and with the relationship with the partner (1=extremely dissatisfied to 7 = extremely satisfied). Total scores range from 3-21, and a score of 16 or lower indicates some degree of relationship distress, while a score of greater than or equal to 17 reliably indicates a non-distressed relationship [20].

Demographic data collected included level of education (high school graduate/GED or lower, some college or 2-year degree, 4-year college graduate, or post-graduate studies), employment status (employed, full-time homemaker, retired, or other), marital status (married, partnership, single, widowed, separated, divorced), abuse in the past year, depression and anxiety screens, and race/ethnicity. Depression was evaluated using the PHQ-9, a 9-item survey with scores ranging from 0-27, and anxiety with the GAD-7, a 7-item survey with scores ranging from 0-21, where scores of 5, 10, and 15 indicate mild, moderate, and severe depression and anxiety, respectively and we controlled for scores ≥ 5 [21]. Recent abuse (physical, sexual, or emotional/verbal) was obtained from the clinic intake form by the question “Abuse in the past year yes/no; if yes, verbal/emotional, physical, sexual?”

Data Analysis

Data were summarized using mean (SD) for continuous variables and counts and percentages for categorical variables. Patient characteristics were compared between those with and without relationship distress using a t-test for continuous variables, and either a Chi-square or Fisher's exact test for categorical variables. A two-sample *t* test was used to compare menopausal symptom ratings between women reporting relationship distress and those who were non-distressed. Linear regression was used to assess if relationship distress (categorical) was associated with menopausal symptom severity (continuous) after adjusting for baseline participant characteristics (race and marital status), as well as depression, anxiety, and abuse (within the last year). These latter covariates were pre-specified and included because they can contribute both to relationship distress, as well as menopausal symptoms severity. Women that were not in a relationship were excluded from the analysis. For this analysis, MRS scale score was the dependent variable and KMSS scale score was the variable of explanation. Two-tailed *P* values ≤0.05 were considered statistically significant. All analyses were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC).

Results

During the study period, a total of 1,975 women who met inclusion criteria completed study questionnaires. A majority were married (90%), white (95%), employed (66%), well educated (≥ college graduate, 58%) and in their mid-50's (Table 1). Women reporting non-distressed relationships were more likely to be employed (66.1% vs. 63.7%, p=0.011), and white (96.7% vs 94.3%, p=0.024), and less likely to be abused in the last year (0.7% vs. 5.0%, p<0.001). Overall, 19% of women reported severe or very severe menopausal symptoms. In the univariate analysis, women reporting relationship non-distress had less severe menopausal symptoms overall compared to women distressed by their partner

relationships (MRS total 13.1±7.5 vs. 16.1±7.3, p<0.001), with similar findings in each MRS symptom domain, psychological (3.9±3.5 vs 5.8±3.9, p<0.001), somato-vegetative (5.0±3.0 vs. 5.8±2.9, p<0.001), and urogenital (4.1±2.8 vs. 4.6±2.7, p<0.001) (Figure 1). No additional statistically significant differences by participant characteristics were seen (Table 1).

Forty-four percent of women reported being on a treatment that has the potential to impact menopausal symptoms (menopausal hormone therapy, selective serotonin reuptake inhibitor (SSRI), serotonin norepinephrine reuptake inhibitor (SNRI), testosterone, progesterone, gabapentinoids (gabapentin/pregabalin)). Apart from gabapentinoids and testosterone, which few reported using, relationship distress did not significantly differ between those who did and did not receive a given treatment.

Results of the multivariable analyses revealed that women who reported relationship non-distress had less severe menopausal symptoms compared to those who were distressed. By menopause symptom domain, women reporting relationship non-distress had less severe psychological symptoms compared to women who reported being distressed. Women without relationship distress scored an estimated 1.15 points (95% CI 0.52-1.78) lower on the total MRS and 0.82 points (95% CI 0.53-1.10) lower in the psychological symptom domain (Table 2).

Discussion

In women presenting for consultation to a specialty women's health clinic, those who reported relationship non-distress had fewer menopausal symptoms, particularly in the psychological domain. This association is consistent with the findings of previous studies that have demonstrated associations between menopausal symptom severity and various life, health, or relationship factors, such as increased sleep disturbance, depression, intimate partner violence and lower perceived quality of life [2,3,11-18]. The findings also help to

clarify the contradictory findings of previous studies, and suggest that relationship factors associate with menopausal symptoms. This is in line with prior research that found that marital satisfaction had the strongest association with perceived menopausal symptoms, more so than attitudes toward menopause or being satisfied with their children [7]. Our study results conflict with some prior studies that did not demonstrate an association between menopausal symptoms and relationships, [9,10] possibly due to the more limited size of the cohorts in prior studies.

Depressed mood, anxiety, and a decreased sense of well-being are common during the menopausal transition, and women with a history of mood disorders or stressful early childhood life events are at increased risk for experiencing more severe psychological symptoms during menopause [1,17,18]. In the current analysis, 1.9% of women reported abuse in the last year. Although it is unclear if the abuse reported was from the women's partner, it is not surprising that those who reported experiencing recent abuse were more likely to report relationship distress. Recent abuse, current stressors and lack of confidence in one's coping skills may also contribute to more severe menopausal symptoms [17,22], and these factors need to be monitored and addressed.

Providers should screen their female patients for intimate partner violence and refer women that screen positive for support services [23]. Including a discussion of coping skills and tools to help build resilience should be part of the menopause evaluation. Resilient women who demonstrate the ability to overcome stressful life events are better able to cope with adversity during the menopause transition and are less likely to manifest depressive symptoms [2,24]. Stress management and resilience training, as well as marital counseling, may not only help women themselves, but may also help improve partner relationships, and has the potential to mitigate symptoms during the menopausal transition [25] Higher mindfulness and less stress has been associated with less menopausal symptoms as identified

in an article by Sood and colleagues [25]. These options, however, are not recommended as a solution for abusive relationships.

Given the cross-sectional nature of our study, the direction of the relationship of the findings is unclear. Thus, it may be that fewer menopausal symptoms lead to greater partner and relationship satisfaction. Research supports that satisfaction in a relationship is vulnerable to external factors, such as partner depression or having young children, as well as internal factors including poor physical health and self-esteem [11-16]. Whether treating menopausal symptoms may influence a woman's relationship is unclear, but these results support the idea that the severity of a woman's menopausal symptoms (eg, hot flashes, night sweats, sleep disturbance, mood issues, vaginal dryness, sexual pain) may also impact a woman's partner and her relationship with her partner. Therefore, addressing menopause symptoms may provide benefit beyond personal symptom relief. On the other hand, improving partner relationships may help with menopausal symptom burden.

Menopause, as a major life event, offers a unique opportunity for women and her healthcare provider to discuss and improve health-related practices. Providers caring for midlife women are in the position to discuss physiological changes, menopause-related symptoms and treatment options, screening recommendations, and psychosocial issues, including relationship factors. These discussions and consideration of a woman's concerns, values, and preferences may contribute to a woman's overall well-being during the menopause transition and beyond [1].

Strengths and Limitations

This study had several strengths. This study examines menopausal symptom severity across three symptom domains (psychological, somato-vegetative, and urogenital) in a large sample of women. Limitations include that the study population is homogenous and consists of primarily white, educated, and employed women. Additionally, the women who responded

to the surveys sought care at a women's health clinic in a tertiary care setting for menopause and sexual health consultation, limiting the generalizability of the study results. Using a retrospective approach with de-identified data does not allow all possible confounding variables to be accounted for, nor are we able to confirm reproductive status or surgical history (hysterectomy and/or oophorectomy) thereby limiting the analysis The multiple comparison approach utilized could have resulted in a type I error. Finally, because this was an observational study, the results are susceptible to recall bias and the direction of the observed observations cannot be established.

Conclusion

In partnered, employed, well-educated white women seeking consultation in a women's clinic, those who reported relationship non-distress reported fewer menopausal symptoms on average, particularly in the psychological domain, compared to women reporting relationship distress. Given the cross sectional design, the direction of the relationship is unknown. However, addressing psychosocial factors, including relationship factors, may prove useful when counseling women during the menopausal transition. Evaluating these associations in diverse populations is warranted.

Contributors

Juliana M. Kling contributed to conceptualization, data curation, methodology, supervision, and writing the original draft.

Megan Kelly contributed to conceptualization and writing the original draft.

Jordan Rullo contributed to conceptualization.

Ekta Kapoor contributed to conceptualization and data curation.

Carol L Kuhle contributed to data curation.

Suneela Vegunta contributed to data curation.

Kristin C. Mara contributed to formal analysis and methodology.

Stephanie S. Faubion contributed to conceptualization, data curation, methodology, and supervision.

All authors contributed to the review and editing of the manuscript, and saw and approved the final version.

Conflict of interest

Stephanie S. Faubion is a consultant for Mithra Pharmaceuticals and Procter and Gamble. All other authors declare they have no conflict of interest.

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Ethical approval

The study was approved by the Mayo Clinic Institutional Review Board and participants provided consent for use of their medical records for research.

All authors have contributed to and approved the final version of this original research manuscript.

CRediT roles: Conceptualization – JK, MK, JR, EK, SF; Data curation – JK, EK, CK, SV, SF; Formal analysis - KM; Methodology – JK, SF, KM; Supervision – JK,SF; Roles/Writing – original draft – MK, JK; Writing – review & editing – JK, MK, JR, EK, CK, SV, KM, SF.

Provenance and peer review

This article has undergone peer review.

Research data (data sharing and collaboration)

The research data are confidential but can be made available upon request.

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TABLE 1. *Participant characteristics*

	KMSS ≥ 17 (N = 1340)		KMSS < 17 (N = 544)		
Characteristic	n[a]	Mean ± SD	n[a]	Mean ± SD	*P*
Age, y	1,340	53.3± 6.1	544	53.2 ± 6.1	0.50
Race, n (%)	1,314		529		
White		1271 (96.7)		499 (94.3)	0.024
Non-white		43 (3.3)		30 (5.7)	
Education, n (%)	1,321		536		0.10
High school graduate/GED or less		104 (7.9)		25 (4.7)	
Some college or 2-yr degree		390 (29.5)		163 (30.4)	
4-yr college graduate		442 (33.5)		181 (33.8)	
Post-graduate studies		385 (29.1)		167 (31.2)	
Employment status, n (%)	1,323		541		0.011
Employed		874 (66.1)		339 (62.7)	
Full-time homemaker		212 (16.0)		85 (15.7)	
Retired		135 (10.2)		68 (12.6)	
Other		102 (7.7)		49 (9.1)	
Marital status, n (%)	1,340		544		0.15
Married		1274 (95.1)		505 (92.8)	
Partnership		6 (0.4)		4 (0.7)	
Separated		3 (0.2)		4 (0.7)	
Divorced		57 (4.3)		31 (5.7)	
Abuse in last year (yes)	1340	10 (0.7)	544	27 (5.0)	<0.001
Hormone therapy, n (%)	1,216		478		0.93
No		865 (71.1)		339 (70.9)	
Yes		351 (28.9)		139 (29.1)	
Treatment at time of visit, n (%)	701		271		0.84
No		393 (56.1)		150 (55.4)	
Yes		308 (43.9)		121 (44.6)	
Hot flashes/night sweats, n (%)					
None/mild/moderate		1128 (81.9)		472 (82.2)	0.87
Severe/very severe		249 (18.1)		102 (17.8)	
Menopause Rating Scale Total Score		13.1 (7.5)		16.1 (7.3)	<0.001
Treatment Type (can check more than one), n (%)	701		271		
Hormonal contraception		27 (3.9)		6 (2.2)	0.21
Estrogen		211 (30.1)		78 (28.8)	0.69
Estrogen – systemic		134 (19.1)		50 (18.5)	0.81
Estrogen – local (vaginal)		97 (13.8)		36 (13.3)	0.82
DHEA – local (vaginal)		4 (0.6)		0 (0.0)	0.21
Progestogen		86 (12.3)		28 (10.3)	0.40

Testosterone		19 (2.7)		3 (1.1)	0.13
SSRI/SNRI		76 (10.8)		35 (12.9)	0.36
Gabapentinoids		8 (1.1)		6 (2.2)	0.21
Other		4 (0.6)		1 (0.4)	0.69

[a]Number of participants with information available for the given characteristic

SSRI = Selective Serotonin Reuptake Inhibitor, SNRI = Serotonin and Norepinephrine Reuptake Inhibitor, DHEA = dehydroepiandrosterone

Table 2. Multivariable linear regression analysis, where the adjusted estimate represents the difference in outcome score between group MRS domains after adjusting for the other covariates in the table.

Outcome	**MRS Total**		**MRS Psychological**		**MRS somato vegetative**		**MRS urogenital**	
Variable	Adjusted Estimate (95% CI)	p-value	Adjusted Estimate (95% CI)	p-value	Adjusted Estimate (95% CI)	p-value	Adjusted Estimate (95% CI)	p-value
Race								
White	0.09 (-1.32, 1.51)	0.90	0.11 (-0.53, 0.75)	0.74	0.20 (-0.44, 0.84)	0.54	-0.29 (-0.95, 0.37)	0.39
Non-White	Ref		Ref		Ref		Ref	
Marital Status								
Married/Partnered	0.82 (-0.46, 2.10)	0.21	0.36 (-0.22, 0.94)	0.22	-0.07 (-0.64, 0.51)	0.81	0.54 (-0.05, 1.13)	0.075
Divorced/Separated	Ref		Ref		Ref		Ref	
Abuse in Last Year								
Yes	0.78 (-1.24, 2.79)	0.45	-0.21 (-1.13, 0.70)	0.64	0.77 (-0.14, 1.68)	0.10	0.21 (-0.73, 1.14)	0.67
No	Ref		Ref		Ref		Ref	
GAD-7								
≥ 5	5.52 (4.82, 6.21)	<0.001	3.52 (3.21, 3.84)	<0.001	1.21 (0.90, 1.52)	<0.001	0.80 (0.47, 1.12)	<0.001
< 5	Reference		Reference		Reference		Reference	
PHQ-9								
≥ 5	5.84 (5.17, 6.52)	<0.001	2.70 (2.39, 3.00)	<0.001	2.08 (1.78, 2.38)	<0.001	1.08 (0.76, 1.39)	<0.001
< 5	Reference		Reference		Reference		Reference	
KMSS								
≥ 17	-1.15 (-1.78, -0.52)	<0.001	-0.82 (-1.10, -0.53)	<0.001	-0.17 (-0.45, 0.12)	0.25	-0.16 (-0.46, 0.13)	0.27
< 17	Ref		Ref		Ref		Ref	

Ref = Reference group, KMSS = Kansas Marital Satisfaction Scale, PHQ-9 = Patient Health Questionnaire-9, MRS = Menopause Rating Scale, GAD-7 = Generalized Anxiety Disorder 7-item scale

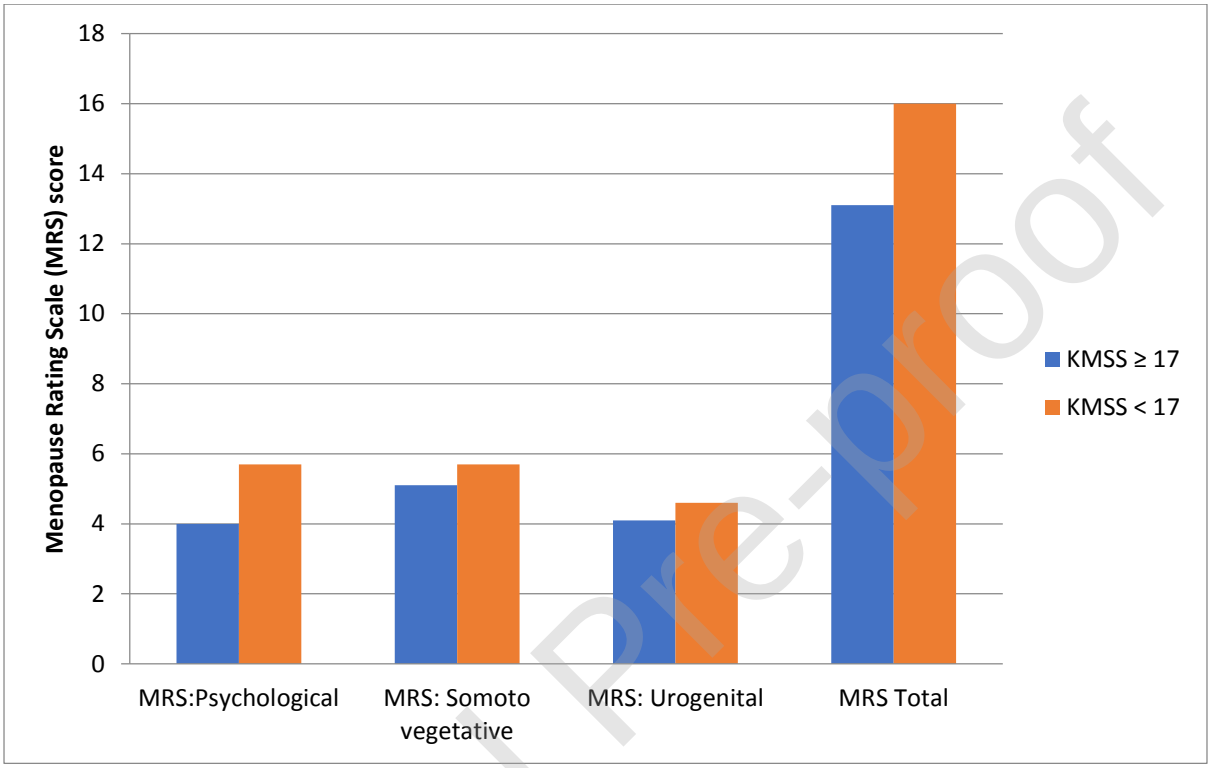

Figure 1. Total and symptom domain menopause rating scores compared to relationship distress