Association of menopausal symptoms on work performance in midlife Latin American women

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There are no linked research data sets for this article. The data from this study are not publicly available but can be upon reasonable request, for research collaboration projects, subject to consideration of ethical, privacy, and legislative issues.

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Abstract

Objective: To explore the association between the severity of menopausal symptoms and work-related outcomes and performance.

Methods: This cross-sectional study involved 3,523 women aged 40-60 from 30 health care centres across 12 Latin American countries. The severity of menopausal symptoms was assessed with the Menopause Rating Scale (MRS). Work-related outcomes were surveyed, including absenteeism, medical visits, perceived reduced work performance, impact of menopause on work performance, and job loss. Comparisons employed suitable tests based on data distribution, and logistic regression was used to assess associations, adjusting for covariates such as menopausal symptoms, comorbidities, age, and education.

Results: Women with severe menopausal symptoms (total MRS score $\geq$14 points) were significantly older (51.1 $\pm$ 5.1 vs 49.7 $\pm$ 5.6y), had a higher body mass index (27.4 $\pm$ 4.8 vs 26.7 $\pm$ 4.6 kg/m^2), were postmenopausal in a higher proportion (69.9% vs 52.2%), had more comorbidities (42.8% vs 27.6%), higher smoking prevalence, and lower educational attainment. In addition, these women significantly reported more medical leaves (42.4% vs 29.5%), more medical visits (mean: 3.9 vs 2.5 visits), and a more significant perceived reduction of work performance (82.1% vs 56.7%). They also were more likely to believe that menopause significantly reduced their work capacity (67.0% vs 24.0%), had a higher prevalence of job dismissals (6.9% vs 2.0%), and more voluntary resignations or early retirements (8.1% vs 4.7%). Binary logistic regression determined that severe menopausal symptoms, subsequently adjusted for covariates, were primarily associated with more work absenteeism (aOR: 1.64; 95% CI: 1.41-1.90), more medical visits (aOR: 2.45; 95% CI: 1.97-3.05), decreased work performance (aOR: 3.13; CI 95%: 2.65-3.69), the perception of menopause negatively impacting their work performance (aOR: 5.84; 95% CI: 5.01-6.80), more job dismissals (aOR: 3.23; 95% CI: 2.21-4.72), and more voluntary resignations or early retirements (aOR: 1.44; 95% CI: 1.08-1.93).

Conclusion: In this large sample of midlife Latin American women, severe menopausal symptoms were associated with reduced work capacity and adverse work-related outcomes.

Key Words: Menopausal symptoms, Menopause, Menopause Rating Scale, Performance, Work place.

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Over the past 2 decades, there has been significant progress in sex equality in the workplace and increased recognition of the critical role of women in economic and social development. The number of educated women participating in the labor market is unprecedented, and there is growing global awareness of the importance of women's employment in reducing poverty and driving sustainable growth.[1] Women now comprise nearly half of the workforce in high-income countries, such as Australia, North America, the United Kingdom, and Europe.[2] While female labor force participation remains lower in other regions, globally, nearly 45% of women are economically active, compared with 75% of men.[1] These figures reflect that women represent a substantial portion of the global workforce. Consequently, it is likely that nearly half of all female workers are either currently experiencing or will eventually face menopause-related symptoms during their working lives.

Despite this demographic reality, the link between menopausal health and workplace performance has historically been overlooked. Yet emerging evidence suggests that menopausal symptoms, ranging from vasomotor disturbances and sleep disorders to musculoskeletal pain, cognitive complaints, and mood changes,[3] can negatively influence work productivity, job satisfaction, and absenteeism. While some studies suggest that menopause does not affect the quality of women's work,[4-6] others report varying results depending on the type and severity of symptoms. For instance, a national survey in Australia found that most menopausal women reported adequate work performance, although those experiencing vasomotor symptoms were more likely to report poor or moderate work ability.[7] Similarly, a Dutch study showed that women with menopausal symptoms were 8.4 times more likely to report reduced work ability[8] and were at increased risk of long-term sickness absenteeism. This same research group also demonstrated that treating symptoms improved work capacity.[9] Studies from Nigeria[10] and Poland[11] have also identified a negative association between menopausal symptoms and perceived work ability, and Japanese data indicate a correlation between lower self-reported work performance and a higher number of menopausal symptoms.[12]

Despite the growing interest in this topic, most existing studies have been conducted in high-income countries, which limits the applicability of findings to other settings. In Latin America, the evidence remains scarce, and cultural, socioeconomic, and occupational differences may significantly influence both the experience of menopause and its repercussions on work. Addressing this gap is not only a matter of public health but also of organizational and economic relevance.

In this context, the present study aimed to test whether menopausal symptom severity is associated with diminished work performance among midlife Latin American women, using validated instruments. We hypothesized that severe symptoms would be associated with lower work performance.

METHODS

Study design and participants

The present study was conducted from June 2024 to January 2025 across 30 health care centers of 12 Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Paraguay, Peru, and the Dominican Republic. Participants

were women native speakers of Spanish or Portuguese (Brazil) language, aged 40-60 years who attended their annual routine gynecologic consultation with one of the doctors who is an affiliated member of REDLINC (Latin American Network for Research of the Climacteric). These women were considered otherwise healthy (ie, defined as a condition in which women are free from obvious diseases or clinical issues, demonstrating adequate physical, mental, and social functioning appropriate for their age and environment), thus enabling them to carry out daily activities without significant limitations. Each participant completed self-administered questionnaires that were subsequently reviewed by their physicians to ensure consistency and completeness. Data submission from each centre was conditioned to the 100% completion of all required fields;thus, incomplete records were excluded. Women who had received chemotherapy or radiotherapy, undergone bilateral oophorectomy, experienced menopause before the age of 40, or had a body mass index (BMI) below 18.5 kg/m^2, as well as those with hearing or vision impairments or with a diagnosis of dementia that could affect their understanding of the questionnaires were also excluded.

Studied variables

The following data were analysed: age (years), years of education (years), type of job (housewife, employed, and self-employed), weight (kg), height (m), BMI (weight/height^2), parity (number of children), partner status (yes/no), sexual activity (at least one sexual encounter in the past year, yes/no), menopausal status defined according to STRAW+10 criteria[13] as premenopausal, perimenopausal, or postmenopausal, ever use of menopausal hormone therapy (MHT; past or current: yes/no), current smoker (yes/no), physically inactive (engaging in fewer than 150 min/wk of moderate aerobic exercises such as brisk walking, cycling, light sports, or dancing, recorded as yes/no), current use of psychotropic medications (antidepressants, hypnotics, or anxiolytics; yes/no), and comorbidities (defined as presenting one or more of the following: receiving treatment for dyslipidaemia, diabetes mellitus, or hypertension; indicated as yes or no).

The Menopause Rating Scale (MRS) was used to assess the presence and severity of menopausal symptoms. The MRS is a validated instrument that assesses menopause-related symptoms through 11 items. The items are in 3 subscales: somatic (hot flashes, heart discomfort, sleep disturbances, and muscle/joint pain), psychological (depressive mood, irritability, anxiety, and physical/mental exhaustion), and urogenital (sexual problems, urinary issues, and vaginal dryness). Each item is scored on a Likert Scale as 0 (absent), 1 (mild), 2 (moderate), 3 (severe), or 4 (very severe). The total score for each subscale is calculated as the sum of the ratings obtained for each of its items; and the total MRS score is the sum of scores obtained for each subscale. Severe menopausal symptoms were defined as a total MRS score of 14 points or higher.[14] The Spanish and Portuguese (Brazil) validated language versions of the MRS were used in this study.[15,16]

Women were classified into 2 groups based on their total MRS scores: those with moderate or no symptoms (MRS total score <14 points) and those with severe menopausal symptoms (total MRS score ≥ 14 points). The following work-related outcomes were compared between the two groups: percentage of women on leave due to sickness in the past year (absenteeism), number of medical visits in the last 12 months, perception of decreased personal work performance, perception of the negative impact of menopausal symptoms on work performance, and prevalence of job loss through dismissal, voluntary resignation, or early retirement.

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Statistical analysis

Statistical analysis was conducted using SPSS software version 21.0 for Windows (SPSS Inc.). Numerical variables are presented as means and SDs, while categorical variables are shown as frequencies and percentages. The Levene test was used to evaluate the homogeneity of the variances, with a $P > 0.05$ indicating homogeneity, and the normality of the data distribution was evaluated with the Kolmogorov-Smirnov test. According to the results of these tests, differences between numerical variables were analyzed with the Mann-Whitney U test (for nonparametric data) or the Student's t-test (parametric data). For categorical variables, comparisons were performed with the χ^2 test, presenting results as odds ratios (OR) and their corresponding 95% CI.

Logistic regression analysis, with adjustment for covariates (aOR), was used to examine the association between the studied work-related characteristics (outcome variables) and the presence of severe menopausal symptoms, among other covariates. Categorical variables were binary and coded as 0 = no and 1 = yes. While some items were originally collected as multiple-choice or scaled responses, these were subsequently dichotomized to facilitate logistic regression analysis. Specifically, menopausal symptoms were categorized as nonsevere (0) or severe (1), based on the total MRS score, with a threshold of ≥ 14 indicating severe symptoms. Continuous independent variables were dichotomized using their median values when no established clinical cutoff was available.

All logistic regression models included the same set of covariates to ensure consistency and comparability across the different work-related outcomes. These covariates included menopausal symptoms, age, higher education, marital status, menopausal status, comorbidities, psychotropic drug use, etc (Table 3). A stepwise procedure was utilized to include in the model variables found upon bivariate analysis to have a significance level below 10%. The variance inflation factor (VIF) was used to control for multicollinearity, ensuring that all VIF values were below 10. Furthermore, interactions between statistically significant variables in the bivariate analysis were considered. For all calculations, a P value of <0.05 was considered statistically significant.

Ethical considerations

This study protocol was reviewed and approved by the Ethics Committee of the University of Cartagena (178-26-11-24-1-1) in Cartagena, Colombia, and adheres to the principles of the Declaration of Helsinki. Before participation, all women were informed about the study's objectives and procedures, and they provided written informed consent.

RESULTS

A total of 3,701 women aged 40-60 were asked to participate, of which 178 (4.8%) declined, thus 3,523 women were included in the analysis. Overall, their mean age, BMI, and years of education were 50.4 ± 5.4 years, 27.0 ± 4.7 kg/m^2, and 14.4 ± 4.9 years, respectively. Characteristics of women included in the study according to the severity of menopausal symptoms (none to moderate vs severe) are presented in Table 1. Women with severe symptoms (total MRS score ≥ 14 points) were significantly older (51.1 ± 5.1 vs 49.7 ± 5.6 y), had a higher BMI (27.4 ± 4.8 vs 26.7 ± 4.6 kg/m^2), and were postmenopausal in a higher prevalence (69.9% vs 52.2%). They also showed lower educational attainment, with higher prevalences of comorbidities (42.8% vs 27.6%), psychotropic drug use, physical inactivity, and current smoking habit. There were no differences between the groups regarding the proportion of women engaged in paid employment, having a partner, being sexually active, or ever use of MHT.

Table 2 reveals that the prevalence of women on leave in the past year due to sickness was higher among those with severe menopausal symptoms (42.4% vs 29.5%). In addition, women with severe menopausal symptoms reported more medical visits in the past year (mean: 3.9 vs 2.5 visits), and were more likely to perceive a decrease in their work performance (82.1% vs 56.7%). They also reported more job losses due to dismissals (6.9% vs 2.0%), more voluntary resignations, or early retirements (8.1% vs 4.7%), and were more likely to attribute decreased work performance to their menopausal symptoms (82.1% vs 56.7%).

Binary logistic regression showed that severe menopausal symptoms, adjusted for covariates (Table 3), were primarily associated with work absenteeism (aOR: 1.64; 95% CI: 1.41-1.90), increased medical visits (aOR: 2.45; 95% CI: 1.97-3.05), decreased work performance (aOR: 3.13; 95% CI: 2.65-3.69), the perception of menopause negatively influencing their work performance (aOR: 5.84; 95% CI 5.01-6.80), job dismissals (aOR: 3.23; 95% CI: 2.21-4.72), and voluntary resignations or early retirements (aOR: 1.44; 95% CI: 1.08-1.93). In addition, Table 3 shows that comorbidities, psychotropic drug use, and older age negatively affected women's work-related outcomes. In contrast, ever use of MHT was associated with fewer work-related negative outcomes, except for an increased likelihood of voluntary resignations or early retirements.

TABLE 1. Characteristics of women included in the study according to the intensity of menopausal symptoms

	Menopausal symptoms		*P*
	Absent to moderate; n = 1,985 (56.3%)	Severe; n = 1,538 (43.7%)	
Age (y)	49.7 ± 5.6	51.1 ± 5.1	< 0.0001[a]
Years of education	14.8 ± 4.7	13.8 ± 5.1	< 0.0001[a]
Women engaged in paid work	1,578 (79.5)	1,183 (76.9)	0.065[b]
Body mass index (kg/m2)	26.7 ± 4.6	27.4 ± 4.8	< 0.0001[a]
No. children	1.9 ± 1.2	2.1 ± 1.4	< 0.0001[a]
Has a partner	1,460 (73.6)	1,152 (74.9)	0.364[b]
Sexually active	1,550 (78.1)	1,190 (77.4)	0.614[b]
Postmenopausal status	1,036 (52.2)	1,075 (69.9)	< 0.0001[b]
Ever use of menopause hormone therapy	312 (15.7)	272 (17.7)	0.119[b]
Smoker	161 (8.1)	199 (12.9)	< 0.0001[b]
Physical inactivity	886 (44.6)	831 (54.0)	< 0.0001[b]
Current psychotropic drug use	323 (16.3)	604 (39.3)	< 0.0001[b]
Presence of comorbidities	547 (27.6)	659 (42.8)	< 0.0001[b]

Data are presented as mean ± SD or frequencies n (%).

Comorbidities are defined as having one or more of the following: treatment for dyslipidaemia, diabetes mellitus, or hypertension.

[a] *P* value as determined with the Mann-Whitney *U* test.

[b] value as determined with the $\chi 2$ test.

DISCUSSION

The present research reveals a significant association between severe menopausal symptoms and various work-related outcomes. Women experiencing severe symptoms reported higher prevalences of absenteeism, increased visits to the doctor, and decreased work performance. Importantly, the perception that menopausal symptoms were directly affecting their work was notably higher in those with severe symptomatology. The association with increased medical leaves and job dismissals further highlights that the repercussions extend beyond personal discomfort, potentially affecting job security and career progression. Our findings align with similar studies carried out in North America[17,18] and offer a valuable regional perspective, focusing on midlife Latin American women. The magnitude of the odds ratios, particularly regarding the perception that severe menopausal symptoms affect work and reduce work performance, underscores the potential burden that these symptoms may impose on work ability.

Menopausal symptoms present significant challenges in the workplace in relation to increased presenteeism (employees being present but underperforming), higher absenteeism, and more outpatient medical visits. In this context, the 2010 US National Health and Wellness Survey[17] found a correlation between the severity of vasomotor symptoms and productivity loss, reporting higher adjusted prevalences of presenteeism. This study evaluated only vasomotor symptoms, and did not consider other menopausal symptoms, such as musculoskeletal pain, fatigue, and insomnia, which have been reported to

TABLE 2. Work-related outcomes of women according to the intensity of menopausal symptoms

Work-related outcomes	Menopausal symptoms		
	Absent to moderate[a] (n = 1,985)	Severe[b] (n = 1,538)	Odds ratio (CI 95%) or *P*[c]
Workers on sick leave (past year)	585 (29.5)	652 (42.4)	1.76 (1.53-2.03)
No. medical visits (past year)	2.5 ± 2.5	3.9 ± 3.5	< 0.0001[c]
Perceived decreased work performance	1,126 (56.7)	1,263 (82.1)	2.18 (1.95-2.43)
Perceived negative impact of menopausal symptoms on work performance	477 (24.0)	1,031 (67.0)	6.43 (5.54-7.45)
Job loss through dismissal	39 (2.0)	106 (6.9)	3.69 (2.54-5.37)
Voluntary resignation, or early retirement	93 (4.7)	125 (8.1)	1.80 (1.36-2.37)

Data are presented as mean ± SD, frequencies n (%), or odds ratios with their corresponding 95% CI.
[a]Absent to moderate: total MRS score < 14 points.
[b]Severe menopausal symptoms: total Menopause Rating Scale score of 14 or more.
[c]*P* value as determined with the Mann-Whitney *U* test.

be even more prevalent[19] and can also affect work performance. In this sense, the results from a Mayo Clinic study[18] are particularly pertinent. This study, which also used the MRS instrument, found that menopausal symptoms were associated with reduced work performance and absenteeism. The likelihood of work-related difficulties increased with symptom severity, highlighting a substantial economic impact at the national level. Based on workdays missed due to menopausal symptoms, the study estimated an annual economic loss of $1.8 billion in the United States.

Ethnic differences across Latin American countries should also be taken into account when interpreting our findings, as some populations are predominantly of Amerindian descent, whereas others are mainly of European ancestry. A study by Ojeda et al[20] revealed significant differences in total MRS scores among indigenous populations, with higher scores observed among Quechua women (Peru) compared with Zenú women (Colombia). Both groups reported higher scores than those observed in Hispanic or European populations. Quechua women exhibited more intense somatic and psychological symptoms than Zenú women. In addition, the proportion of Quechua women experiencing severe somatic and psychological symptoms significantly increased with age, a trend not observed among Zenú women.

Our study also sheds light on the role of comorbidities, psychotropic drug use, and older age in further exacerbating negative work-related outcomes. Women with severe menopausal symptoms have been more often linked to various comorbidities, such as diabetes, hypertension, and dyslipidaemia. These conditions, which are known to adversely affect overall health, can also significantly impair work performance. Previous research supports this observation. For instance, studies have demonstrated that workers burdened with multiple comorbidities are at an increased risk for work disability, particularly when they experience high levels of job strain.[18] The presence of these chronic conditions not only exacerbates the challenges of managing menopausal symptoms but also contributes to diminished overall work productivity and efficiency. Consequently, our findings underscore the importance of a comprehensive approach to employee health that addresses both menopausal symptoms and associated comorbidities, thereby mitigating their combined influence on work performance.

Regarding psychotropic drugs, an American study[21] reported that the use of psychotropic medications was associated with higher worker compensation costs and more extended periods of disability. Specifically, compared with claimants who were never prescribed hypnotics, the odds ratios for claim costs of ≥ $100,000 were 2.8 for those prescribed hypnotics, 1.6 for the use of any antianxiety agent, and 2.9 for the use of antidepressants.

Age is another key factor influencing work-related outcomes, carrying significant economic implications at both the individual and macroeconomic levels. As the population ages, a well-documented trend of declining labor productivity emerges, which directly impacts national economic growth.[22] A European analysis[23] has shown that even a slight increase in the proportion of individuals aged 60 and older results in a measurable decline in productivity. Specifically, it has been estimated that a 1% increase in the number of older adults in the population results in a 0.21% reduction in gross domestic product growth per worker in Spain and a 0.32% reduction in Portugal. These findings underscore that population aging not only presents challenges to health and well-being but also threatens the long-term sustainability of productive systems and national economic competitiveness.

In the present study, we demonstrated that ever use of MHT was linked to fewer work-related impairments. Consistent with our findings, research conducted at the Barros Luco Hospital in Santiago, Chile,[24] revealed that women who received MHT experienced a significantly lower prevalence of absenteeism compared with those who did not receive hormone treatment. The leading causes of medical leave were osteoarticular diseases (44.3%) and psychiatric disorders (18.1%). Notably, no differences in absenteeism prevalences were observed across professional levels. This study concluded that MHT use is associated with enhanced work capacity in postmenopausal women.

An exception to the positive effects of MHT observed in the workplace is a higher likelihood of

TABLE 3. Factors associated with work-related outcomes: logistic regression analysis[a]

Factors	More work absenteeism	More medical visits	Reduced work performance	Menopause affects work performance	Job dismissal	Voluntary resignations or early retirements
Severe menopausal symptoms	1.64 (1.41-1.90)	2.45 (1.97-3.05)	3.13 (2.65-3.69)	5.84 (5.01-6.80)	3.23 (2.21-4.72)	1.44 (1.08-1.93)
Comorbidities	1.50 (1.28-1.75)	1.64 (1.31-2.06)	—	—	1.65 (1.17-2.33)	1.40 (1.05-1.87)
Psychotropic drug use	1.25 (1.06-1.47)	2.00 (1.51-2.65)	1.22 (1.02-1.47)	1.54 (1.30-1.83)	—	1.58 (1.17-2.12)
Older age	0.98 (0.96-0.99)	—	1.04 (1.03-1.06)	1.02 (1.01-1.03)	—	1.06 (1.03-1.09)
Higher education	1.04 (1.02-1.06)	—	—	—	0.92 (0.89-0.95)	—
Postmenopausal status	1.24 (1.03-1.48)	—	—	—	—	—
Higher body mass index	—	0.98 (0.96-0.99)	1.02 (1.01-1.04)	—	—	—
MHT ever use	0.82 (0.68-0.99)	0.27 (0.18-0.40)	0.66 (0.54-0.81)	0.67 (0.55-0.82)	—	1.65 (1.19-2.29)
Having a partner	—	—	—	—	—	0.73 (0.54-0.98)
Sexually active	—	—	—	0.77 (0.64-0.92)	—	—
Physically inactive	—	—	1.19 (1.02-1.38)	—	—	—

MHT, menopause hormone therapy.
[a]Only significant aORs are displayed.

voluntary resignations or early retirements among women who use it. This finding suggests that, although MHT may alleviate various symptoms, its use might be linked to other factors, such as a heightened awareness of symptom severity, socioeconomic differences, or individual health management strategies, which could influence the decision to leave the workforce.

Our study's weaknesses include its cross-sectional design, which limits the ability to make causal inferences. While robust associations exist between the severity of menopausal symptoms and adverse work outcomes, longitudinal studies are needed to confirm causation rather than mere co-occurrence.

We cannot rule out the possibility that women experiencing high absenteeism or job loss may be more attentive to their menopausal symptoms. Thus, it is plausible that absenteeism or job loss could result in a greater number of symptoms being reported, rather than the alternative explanation, that a higher number of reported symptoms leads to increased absenteeism. This limitation should be acknowledged, and caution must be exercised when interpreting the findings of this study.

In addition, reliance on self-reported data may introduce reporting bias, as women with severe symptoms might be more inclined to report negative outcomes, potentially exaggerating the observed associations.

Another point of consideration is the possible potential influence of cultural factors on the perception and interpretation of menopausal symptoms in the workplace.[25] The study spans several Latin American countries, each with its cultural attitudes toward menopause and female work participation. Future research might benefit from a more nuanced exploration of how cultural contexts modulate both the experience of menopausal symptoms and their occupational repercussions. Furthermore, while the study controlled for several covariates, there may be other unmeasured factors, such as stress levels, workplace environment, or support systems, that could influence both menopausal symptoms and work performance.

In our study, the decision to use binary logistic regression adjusting for covariates is appropriate; however, the interpretation of odds ratios in the context of relatively common outcomes (ie, work absenteeism) requires cautious consideration. Odds ratios can sometimes overstate the strength of associations when the outcomes are common, and it would be helpful to report risk ratios or absolute differences in future analyses.[26] Moreover, our study's exclusion criteria, while methodologically sound, might limit the applicability of the findings to a broader population. For instance, excluding women with a BMI below 18.5 kg/m^2 or those with significant clinical conditions might result in a sample that does not fully capture the spectrum of menopausal experiences across different health statuses.

One of the strengths of this study is the large sample size, obtained from 12 Latin American countries, encompassing a wide and diverse sample of women aged 40-60. This geographic and demographic diversity enhances the

generalizability of the findings within the region. The use of the MRS as the primary instrument for evaluating menopausal symptoms is another noteworthy aspect. Defining severe menopausal symptoms as a total MRS score of 14 points or higher provides a clear and clinically relevant threshold for analysis. In addition, controlling for covariates such as age, BMI, comorbidities, and psychotropic drug use during binary logistic regression is a prudent approach that enhances the credibility of the reported associations between menopausal symptoms and work-related outcomes.

CONCLUSION

This study highlights the significant influence of severe menopausal symptoms on work-related outcomes among midlife Latin American women. The findings offer region-specific insights that can inform workplace policies and clinical practice. By linking the severity of menopausal symptoms to absenteeism, reduced work performance, and job loss, the study emphasizes the need for targeted interventions. Employers, health care providers, and policymakers should collaborate to create supportive environments for midlife women. Future research should utilize longitudinal designs to explore the causality and underlying mechanisms explaining the association between menopausal symptoms and occupational outcomes.

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