

SYSTEMATIC REVIEW

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Experiences of menopausal transition among populations exposed to chronic psychosocial stress in the United States: a scoping review

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Abstract

Background The transition to menopause is a significant event affecting health, well-being, and quality of life. Menopause typically occurs between the ages of 44–57, accompanied by symptoms such as hot flashes, mood changes, and sleep disturbances. Being postmenopausal also increases the risk of cardiovascular disease, stroke, and osteoporosis. Despite its importance, menopause is under-researched and under-discussed, particularly concerning the impact of chronic psychosocial stress.

Methods A scoping review of qualitative, quantitative, and mixed methods research was conducted to map existing literature on the transition to menopause among populations experiencing chronic psychosocial stress in the United States. The review followed the PRISMA-ScR methodology, systematically searching literature in PubMed and SCOPUS databases using MeSH terms. Studies were included which focused on menopausal symptoms and psychosocial stressors. Data extraction and charting were performed using Covidence software.

Results Fifteen studies were included, highlighting relationships between socioeconomic status, intimate partner violence, childhood abuse, and racial disparities which influenced menopausal experiences. Lower- income, higher perceived stress, and negative attitudes towards menopause were associated with increased psychological and somatic symptoms and early onset of menopause (prior to age 45). African American women were found to experience earlier onset and more severe vasomotor symptoms compared to their White counterparts. Women veterans used hormone therapy more frequently than the general population, particularly those with mood or anxiety disorders. The review also identified a geographic bias, with most studies conducted in the Northeast, Midwest, and Western regions of the United States.

Conclusions This review underscores the necessity of considering social, cultural, and environmental factors in understanding menopausal experiences and addressing health disparities. Future research should aim to include diverse populations and adopt longitudinal and qualitative study designs to capture the dynamic nature of

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menopausal experiences. Policies and interventions directed at improving the well-being of women experiencing menopause in the context of chronic psychosocial stress are warranted.

Trial Registration N/A.

Keywords Discrimination, Psychological, Women's health, Postmenopause, Premenopause, Systemic racism, Stress disorders, Traumatic

Introduction

The transition to menopause is a significant life alteration for all who experience it and it impacts health, wellbeing, and quality of life. Menopause is a biological stage that marks the cessation of menstruation for at least 12 consecutive months, typically occurring between ages 44–57 [1]. Common symptoms include hot flashes, night sweats, mood changes, and sleep disturbances. Additionally, some women may experience vaginal dryness, weight gain, and thinning hair, all of which are primarily driven by the decline in estrogen levels during this transitional phase [2]. Importantly, the transition to this stage may occur over a decade or more. A key life course milestone, the onset of menopause can increase the risk for various health issues such as cardiovascular disease, stroke, and osteoporosis [3–5]. Compared with other life stages, menopause receives less attention in medical training curricula and is an under-discussed topic in media and patient education [6, 7]. A key barrier to improving understanding is that research on menopause has been historically underfunded compared with other health topics, leading to significant gaps in our knowledge of this important life stage [8]. The lack of attention to the transition is concerning as it can potentially limit quality of life and appropriate healthcare for women during this critical phase. As with other reproductive health issues, significant disparities are observed concerning menopause, thus it is an important topic of public health research and intervention [9].

Little is available in the scientific literature about the influence of societal factors on the transition to menopause and the lived experiences of people going through perimenopause/menopause. This transition is not just a biological process but is also affected by various complex social and psychological contexts [10]. In recent decades, greater recognition of the importance of social, emotional, and physical changes of midlife to a woman's overall health and well-being has developed [11]. Studies have shown that demographic characteristics like socioeconomic status as well as health-related factors can influence how a woman experiences menopause, including the timing of natural menopause [12–14]. Recent studies also have begun addressing the timing of natural menopause and how it may differ among varying populations of women. Henderson et al. [15]. reported race/ethnicity as a significant independent predictor of the timing of

natural menopause, supporting the hypothesis that the timing of natural menopause is driven by a combination of biological, reproductive, and lifestyle factors. However, most studies in the current literature focus on identifying the clinical symptomatology and biological determinants associated with the transition to menopause, with less attention paid to psychosocial factors. Studies have shown that chronic psychosocial stress is associated with characteristics of menopause [16, 17]. For example, studies show that experiencing intimate partner violence is associated with how menopause is experienced [12]. Disparities in menopause experiences by social identities, like race/ethnicity and socioeconomic status, may also be implicated in experiences of chronic psychosocial stress [9].

Two underlying theoretical paradigms are critical to understanding the role of chronic psychosocial stress and inequities in menopause: intersectionality and life course theory. Intersectionality is a theoretical lens related to socially rooted mechanisms of inequality that are understood to be experienced at multiple nexuses of gender, race, and class. Thus these 'intersections' result in more than the sum of sexism and racism, for example, disability, housing status, sexuality, and other subjectivities are also included in women's social experiences and sources of oppression. In the 1970s and 1980s, intersectionality was described by women of color scholars including Collins, [18] Moraga, [19] and Crenshaw [20] and has become an important lens for addressing health experiences. Identities, oppressions, and privileges affect each other and resulting inequities are cumulative affecting lived experiences, health and wellbeing.

Life course theory as drawn from the reproductive and maternal child health literature of the last two decades [21–23], is distinct from sociological life course theory as described by Elder [24] but related. Life Course Theory (LCT) examines health as an integrated continuum, as opposed to a series of distinct and independent stages. It posits that there is a dynamic interaction of social and environmental elements with biological, behavioral, and psychological factors that shape health outcomes over the course of an individual's lifetime [25]. According to this view, factors exert effect on a trajectory of health throughout the life course. The menopausal transition is a period in midlife that shapes the trajectory of a woman's life course. By considering both Intersectionality and Life

Course Theory, a more comprehensive understanding of how psychosocial stress and inequities play a major role in this important phase of a woman's life can be gained.

The purpose of this review is to map the existing literature on how the transition to menopause is experienced by individuals in the United States who are exposed to chronic psychosocial stress. The goal is to gain a better understanding of the relationship between such stress and the transition to menopause, in order to identify areas where gaps in the existing knowledge base, and suggest future research directions that can improve health-care for women.

Methods

In order to map the existing literature on transition to menopause among populations experiencing chronic psychosocial stress, a scoping review of qualitative, quantitative, and mixed methods research was conducted. The term women in this article refers to persons assigned female at birth and/or who experience cessation of menstruation regardless of current gender identity. This review followed the methodology described in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR) and adapted the framework outlined by Arksey and O'Malley [26], along with the process described by Peters et al [27] and Tricco et al. [28]. The scoping review process including the following steps: (1) identification of the research; (2) identification of the relevant studies; (3) selection of studies; (4) charting of the data; and (5) collating, summarizing, and reporting the results [27].

Determining the research question

The following research questions were formulated to guide the scoping review:

1. What evidence exists describing experiences of transition to menopause (TM) among populations exposed to chronic psychosocial stress in the United States?
2. What are the proposed explanations for the association between psychosocial stress and menopause experiences in the literature, and what future research priorities does this suggest?

Identifying relevant literature

The authors worked with a public health librarian to outline the search parameters and strategy. The following databases were searched: PubMed and Scopus, with an initial search using the National Library of Medicine's Medical Subjects Headings (MeSH) terms to uncover terms that were associated with research questions were conducted at the start of the summer of 2022. Literature

published from 1992 until present was considered. Once the terms were selected, the literature was systematically searched in the PubMed and SCOPUS databases.

Searches were conducted using the following key words or phrases, ((("Women"[Mesh]) AND ("Menopause"[Mesh] OR "Menopause, Premature"[Mesh] OR "Postmenopause"[Mesh] OR "Premenopause"[Mesh])) AND (((("Blacks"[Mesh]) OR "Hispanic or Latino"[Majr]) OR "Homeless Persons"[Mesh]) OR "Veterans"[Majr]) OR ("Stress Disorders, Traumatic, Acute"[Mesh] OR "Financial Stress"[Mesh] OR "Stress Disorders, Traumatic"[Mesh] OR "Stress, Psychological"[Mesh] OR "Occupational Stress"[Mesh] OR "Stress Disorders, Post-Traumatic"[Mesh])) OR ("Racism"[Mesh] OR "Systemic Racism"[Mesh]) OR ("Discrimination, Psychological"[Mesh] OR "Social Discrimination"[Mesh] OR "Perceived Discrimination"[Mesh] OR "Ageism"[Mesh]))).

Selecting the studies

Studies were included if: (1) the population or sample included women or people who experience menopause, (2) the study included information on earlier onset, longer duration, or subjectively different or worse clinical outcomes of perimenopause, menopause, or postmenopause, and (3) included context around chronic psychosocial stressors such as violence, trauma, anti-Black or Latine racism or discrimination, low socioeconomic status, veterans' status, or housing status. Studies were excluded if: (1) the article was not in English, (2) the participants were not in the United States, or (3) the article did not explicitly mention menopausal symptoms.

Including premenopausal women allowed for representation of early menopausal symptoms influenced by chronic psychosocial stress, providing a comprehensive view of the menopausal transition. This broader perspective informs how chronic stress impacts the onset and experience of menopause, enhancing future research and healthcare practices.

Data extraction

Data extraction and analysis were completed utilizing Covidence software. The citations from both PubMed and results were downloaded to Zotero Reference Software and exported to Covidence. Covidence is a web-based collaboration software platform that streamlines the production of systematic and other literature reviews.²⁸ For this review, after the articles were uploaded, duplicates were removed, and abstracts were screened by two principal reviewers for eligibility. A third reviewer resolved any conflicts regarding eligibility for inclusion. There were sixteen articles left for extraction of details, including study characteristics, participant demographics, and key findings.

Collate, summarize, and report the results

The final search results are displayed in the PRISMA-ScR Flow diagram (Fig. 1).

Results

Geographic distribution

Of the fifteen studies included in this scoping review, six were conducted in national or multi-city samples; four were conducted in the western region of the United States (U.S.) which includes California, Washington, and Arizona; one study took place in the Midwestern part of the US, specifically in Ohio; and two were in Northeastern region of the US, specifically in Pittsburgh.

Study design and population

Of the fifteen studies, eight studies were cohort studies, six were cross-sectional studies, and one was a qualitative study. Within the studies identified for this scoping review, the participants were women of various races and ethnicities between the ages of 35–65. Studies included participants who were premenopausal, transitioning to menopause, or menopausal.

The studies looked at different aspects of women's experiences during menopause, including their backgrounds, such as race, ethnicity, and socioeconomic status. Some studies focused on factors influencing menopausal symptoms, such as smoking, reproductive history, childhood abuse, vasomotor symptoms, and psychological distress. Other studies looked at broader aspects of midlife, such as predicting the menopausal transition, intimate partner violence, PTSD, and changes in sexual function. One investigation studied hormone replacement therapy among female veterans and how it affected their mental health. Additionally, studies explored differences in menopausal symptoms, self-care, and perceptions across racial and socioeconomic lines, providing insight into how women coped. Table 1 below contains details about the studies included in this scoping review.

Table 2 offers a comprehensive overview of studies that examined the relationship between psychosocial stressors and menopausal symptoms from the review. Each entry in the table includes the study authors and title, identifies the specific psychosocial stressors studied, and outlines the menopausal symptoms associated with these stressors. The table includes a variety of stressors, including socioeconomic status, racial discrimination, psychological distress, intimate partner violence, and childhood abuse, among others.

Study domains

Studies highlighted the association between socioeconomic factors and the experience of menopausal symptoms. DeMello [13] found that in Arizona, women from lower socioeconomic backgrounds, specifically those

uninsured or homeless, reported heightened psychological and somatic menopausal symptoms, regardless of age, race, menopausal stage, or hormone therapy use. Similarly, Nosek [29] identified that a woman's socioeconomic status, combined with her perceived stress and attitudes toward aging and menopause, played a significant role in shaping her menopausal symptom experience.

Among the studies reviewed, Gerber [30] conducted research that specifically examined the impact of hormone therapy on menopausal symptoms in women veterans. Their research revealed that hormone therapy was utilized by a significantly higher number of women veterans compared to the general population. Furthermore, their findings showed that women veterans who were diagnosed with mood or anxiety disorders were more likely to opt for hormone therapy. This correlation remained even after accounting for other factors, such as demographics and medical history.

Studies that focused on the effects of intimate partner violence and abuse on the menopausal transition found that a lifetime history of intimate partner violence or sexual assault was associated with increased severity of menopausal symptoms [12, 31].

Four of the fifteen studies found psychological distress and a decline in mental health to be correlated with increased severity of menopausal symptoms including hot flashes, night sweats, depressed mood, and irregular menses during midlife [30–33].

Studies that addressed racial and ethnic differences reported that African American women were more likely to reach menopause earlier and experience more vasomotor symptoms than White women [34–37].

Some of the included studies highlighted changes in sexual function during menopause, [38] self-care management strategies during late pre-menopause and early peri-menopause, [37] and the knowledge, attitudes, and practices of African American women toward menopausal health [39].

Discussion

This scoping review sought to examine the literature available on transition to menopause among populations experiencing chronic psychosocial stress in the US. Several findings are notable. First, socioeconomic position emerged as a significant factor influencing menopausal experiences, with lower incomes, higher perceived stress, and negative attitudes towards menopause associated with increased psychological and somatic symptoms and early-onset menopause [13, 36, 38, 40]. This aligns with findings from 2023 by Michopoulos et al. [41], which demonstrated that perimenopausal women, particularly those from urban, low socioeconomic backgrounds, experienced significantly higher PTSD and depression symptoms compared to premenopausal and

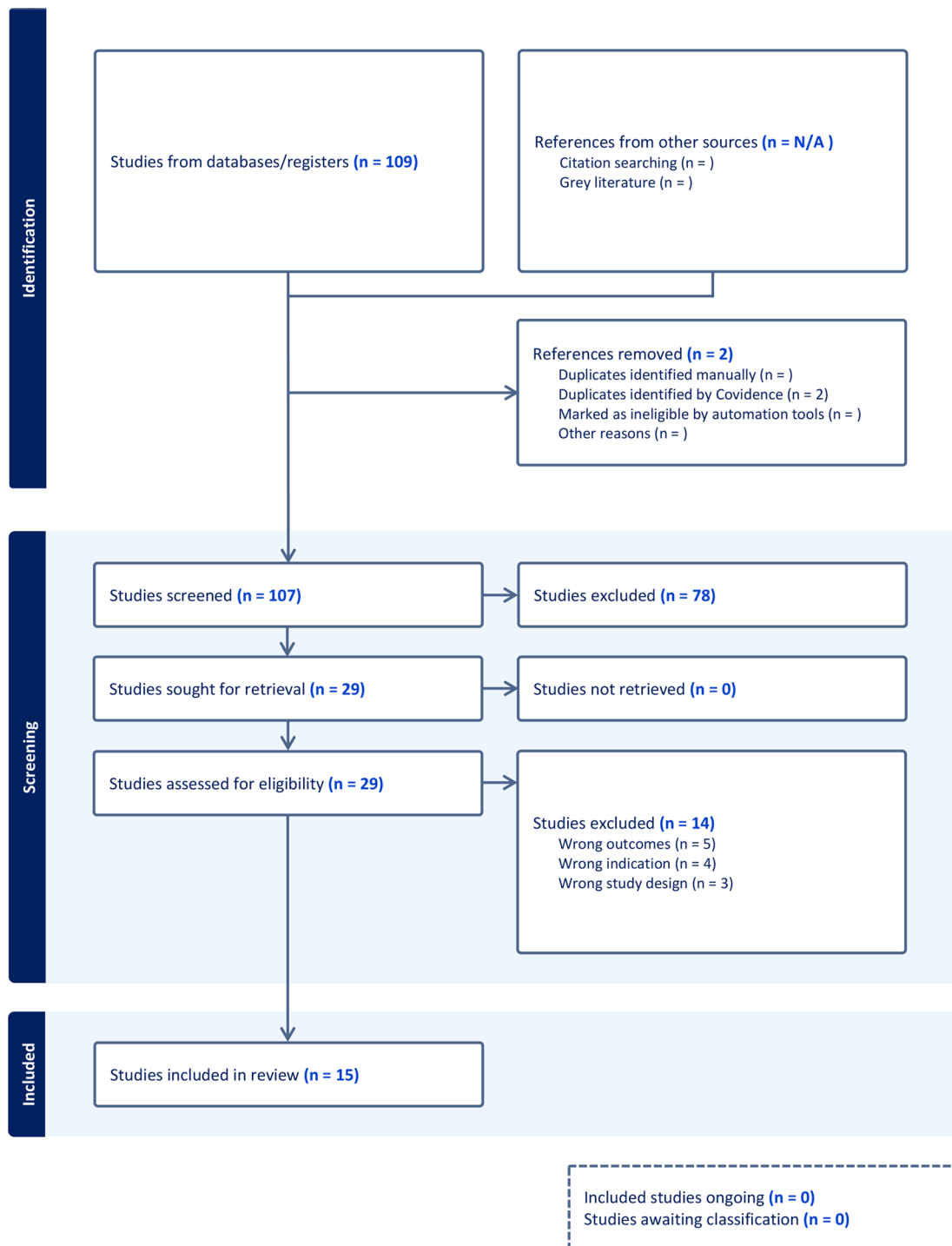


Fig. 1 The final search results are displayed in the PRISMA-ScR Flow diagram

postmenopausal women. This suggests that chronic stress and trauma, prevalent in lower socioeconomic populations, exacerbate menopausal symptoms. Next, associations were also found between intimate partner violence and abuse and the severity of menopausal symptoms, namely that experiences of childhood abuse and neglect, or history of intimate partner violence or sexual assault

were associated with increased menopausal symptoms [12, 34]. One study reviewed the usage prevalence of hormone therapy among female Veterans seeking care from the Veterans Administration exceeded that of the general population by more than two-fold, implying that Veterans experience high levels of stress and thus are more likely to experience menopausal systems, requiring

Table 1 Study characteristics

Author/Study Name	Aims	Study design	Population	Geographic location	Results
Bromberger/ Prospective study of the determinants of age at menopause	To investigate cigarette smoking, reproductive history, and socioeconomic status, among Caucasian and African American women and menopausal age.	Cohort study	Women were 42.5–47.5 years old and premenopausal	US (not specifically mentioned)	Premenopausal women who experienced irregular menstrual cycles, were smokers, were dieting, or were African American were likely to reach menopause earlier than their peers.
Glazer/ The Ohio midlife women's study	To examine predictors, moderators, and outcome variables associated with the transition to midlife in Caucasian and African American women.	Cohort Study	Community-based sample of healthy midlife (40–60 year old) women	Ohio	Attitude toward menopause and coping effectiveness consistently predicted health promoting activities. However, menopausal status was not determined to be a better predictor of negative health outcomes than stress.
Thurston/ Childhood abuse or neglect is associated with increased vasomotor symptom reporting among midlife women	The aim of the investigation was to examine the association between childhood abuse and vasomotor symptoms (hot flashes, night sweats) over the menopausal transition.	Cohort Study	Women 42 to 52 years, having an intact uterus and at least one ovary and in the previous 3 months at least one menstrual cycle, without pregnancy, breast-feeding, or reproductive hormone use.	Pennsylvania (Pittsburgh) SWAN site only	Childhood abuse and neglect was associated with increased vasomotor symptom reported in adulthood.
Thurston/ Beyond frequency: Who is most bothered by vasomotor symptoms?	The primary aim was to identify correlates of vasomotor symptoms beyond symptom frequency.	Cross Sectional Study	Women 42 to 52 years, having an intact uterus and at least one ovary and in the previous 3 months at least one menstrual cycle, without pregnancy, breast-feeding, or reproductive hormone use.	SWAN Study National Sample; Pittsburgh, Boston, Detroit, Michigan, and Chicago; Los Angeles; Newark, New Jersey; Oakland, California	Mood, symptom sensitivity, symptom duration, sleep problems, age, and race were factors associated with bothersome hot flashes.
Gerber/ Hormone Therapy Use in Women Veterans Accessing Veterans Health Administration Care: A National Cross-Sectional Study	To determine the frequency of HT use among women veterans in the VA and to ascertain whether documented mH conditions were associated with HT use in VA	Cross Sectional Study	Veteran status, at least one VA outpatient visit in FY 2009, and age greater than 45 years.	National sample of female VA users	The prevalence of HT use among women veterans using VA care was more than twice that of the general population.
Thomas/ Changes in sexual function among midlife women: "I'm older... and I'm wiser"	To explore how sexual function changes during midlife/transition to menopause	Qualitative Study	Women 45 to 60 years who had been sexually active with a partner at least once in the prior 12 months.	Pittsburgh, Pennsylvania	The study participants described changes in sexual function during midlife, the age of transition to menopause. When negative changes occurred, women adapted behaviorally and psychologically.
Gibson/ Associations of Intimate Partner Violence, Sexual Assault, and Posttraumatic Stress Disorder with Menopause Symptoms Among Midlife and Older Women	To examine the prevalence of intimate partner violence, sexual assault, and symptoms of PTSD in a large sample of community-dwelling midlife and older women, and evaluate the associations between these exposures and common menopause symptoms.	Cross Sectional Study	Women 40 years of age or older, enrolled in Kaiser Permanente Northern California (KPNC) before age 21, and who had at least half of any childbirth events at a KPNC facility.	Oakland, California	Lifetime history of intimate partner violence or sexual assault and current significant symptoms of posttraumatic stress disorder were common and were associated with menopause symptoms.

Table 1 (continued)

Author/Study Name	Aims	Study design	Population	Geographic location	Results
Palmer/ Onset of natural menopause in African American women	To assess the predictors of the onset of natural menopause in African American women	Cohort Study	Women who reported a natural menopause on the 1997 Black Women's Health Study questionnaire.	National Study	Earlier onset of natural menopause among African American women was strongly associated with smoking and inversely associated with body mass index and oral contraceptive use.
Woods/ Pathways to depressed mood for midlife women: Observations from the Seattle Midlife Women's Health Study.	To develop a test and a multidimensional model of depressed mood experienced by women during midlife.	Cohort Study	Women who had a menstrual period within the past year and were 35–55 years old, not pregnant or lactating, had a uterus and at least one ovary	Seattle, Washington	The stressful life context pathway was most influential in accounting for depressed mood. Health status had a direct effect on depressed mood and an indirect effect through stress.
Avis/ Is there a menopausal syndrome? Menopausal status and symptoms across racial/ethnic groups	The specific research questions addressed were: (1) How does the factor structure of symptoms among mid-aged women compare across racial/ethnic groups? (2) Is symptom reporting related to race/ethnicity or menopausal status? and (3) Does the relationship between menopausal status and symptoms vary across racial/ethnic groups?	Cross Sectional Study	Women 42 to 52 years, having an intact uterus and at least one ovary and in the previous 3 months at least one menstrual cycle, without pregnancy, breast-feeding, or reproductive hormone use.	SWAN Studies National Sample; Pittsburgh, Boston, Detroit, Michigan, and Chicago; Los Angeles; Newark, New Jersey; Oakland, California	Controlling for age, education, health, and economic strain, Caucasian women reported significantly more psychosomatic symptoms than other racial/ethnic groups. African-American women reported significantly more vasomotor symptoms.
Bromberger/ Psychologic distress and natural menopause: a multiethnic community study	To examine the association between psychological distress and natural menopause in a community sample of African American, White, Chinese, Hispanic, and Japanese women participating in a national women's health study.	Cross Sectional Study	Women 42 to 52 years, having an intact uterus and at least one ovary and in the previous 3 months at least one menstrual cycle, without pregnancy, breast-feeding, or reproductive hormone use.	SWAN Studies National Sample; Pittsburgh, Boston, Detroit, Michigan, and Chicago; Los Angeles; Newark, New Jersey; Oakland, California	Psychologic distress is associated with irregular menses in midlife.
Sharps/ Knowledge, attitudes, perceptions and practices of African American women toward menopausal health.	To identify the knowledge, attitudes, perceptions and practices of African American women toward menopausal health.	Cohort Study	African American women from diverse SES levels, between 40 to 65 years of age.	N/A	Among this group of women there were significant differences in use of HRT and health promotion behaviors. Most women sought information from printed materials. * HRT usage was a proxy for menopausal symptoms
Hudson/ Symptom experience and self-care strategies among healthy, midlife African American women.	To describe symptom prevalence, symptom distress, and the self-care management strategies of midlife African American women during the late pre-menopausal and early peri-menopausal transition.	Cohort Study	African American Women age 40–52	N/A;	Prevalent or severe symptoms included fatigue, headaches, cramps, night sweats, and depression. Most self-care strategies were "passive" strategies, such as "faith," "think," "accept," or "value/believe/forgive self".
Nosek/ The effects of perceived stress and attitudes toward menopause and aging on symptoms of menopause.	To explore the association of women's pre-existing attitudes toward menopause, aging, and perception of stress with subsequent intensity of vasomotor symptoms often associated with menopausal transition (hot flashes, night sweats, day sweats, and vaginal dryness).	Cohort Study	Women ages 40–50 began the study while pre-menopausal	Northern California	A lower income, higher perceived stress, a more negative attitude toward aging, and a more positive attitude toward menopause influenced menopausal symptom experience.

Table 1 (continued)

Author/Study Name	Aims	Study design	Population	Geographic location	Results
DeMello/ Menopausal symptoms in the Southwest United States: A cross-sectional survey of women from areas with different socioeconomic resources	To understand self-reported menopausal symptoms of women from areas of differing socioeconomic makeup: women who are uninsured or experiencing homelessness in downtown Phoenix and insured women living in socially advantaged areas in the neighboring community of Scottsdale.	Cross Sectional Study	Women aged 40–65 years	Phoenix, Arizona	In a group of women living in Arizona from distinct socioeconomic areas, significant differences were demonstrated in menopausal symptom bother specifically with higher psychological and somatic symptoms in women who were uninsured or experiencing homelessness independent of age, race, menopause stage and HT use.

Table 2 Psychosocial stressors and their linkage to menopausal symptoms across studies

Authors	Study title	Psychosocial stressors	Menopausal symptoms
Sharps et al.	Knowledge, attitudes, perceptions and practices of African-American women toward menopausal health	Diverse SES levels	*HRT usage
Hudson et al.	Symptom experience and self-care strategies among healthy, midlife African-American women	Race/Ethnicity	Fatigue, headaches, cramps, night sweats, depression
Avis et al.	Is there a menopausal syndrome? Menopausal status and symptoms across racial/ethnic groups	Race/Ethnicity	Sleep problems, vasomotor symptoms, mood disturbances
Bromberger et al. [35]	Psychologic distress and natural menopause: a multiethnic community study	Psychological distress	Earlier menopause, mood disturbances
Bromberger et al. (2005)	Prospective study of the determinants of age at menopause	Self-Reported Stress, Lower SES	Earlier age at menopause
DeMello et al.	Menopausal symptoms in the Southwest United States: A cross-sectional survey of women from different SES	Socioeconomic resources	Hot flashes, night sweats, joint pain, mood swings
Gerber et al.	Hormone Therapy Use in Women Veterans Accessing Veterans Health Administration Care	Veteran status	Hormone therapy usage, menopausal symptom management
Gibson et al.	Associations of Intimate Partner Violence, Sexual Assault, and PTSD with Menopause Symptoms	Intimate partner violence, Sexual assault, PTSD	Vasomotor symptoms, sleep disturbances, anxiety, depression
Glazer et al.	The Ohio Midlife Women's Study	Stress, health status	Vasomotor symptoms, mood disturbances
Nosek et al.	The effects of perceived stress and attitudes toward menopause and aging on symptoms of menopause	Perceived stress	Hot flashes, night sweats, mood disturbances
Palmer et al.	Onset of natural menopause in African American women	Experiences of racism	Earlier onset of natural menopause
Thomas et al.	Changes in sexual function among midlife women: "I'm older... and I'm wiser"	Aging	Changes in sexual function
Thurston et al. [31]	Childhood abuse or neglect is associated with increased vasomotor symptom reporting among midlife women	Childhood abuse, Neglect	Increased reporting of hot flashes and night sweats
Thurston et al. (2010)	Beyond frequency: Who is most bothered by vasomotor symptoms?	Negative affect	Bother from vasomotor symptoms
Woods et al.	Pathways to depressed mood for midlife women: Observations from the Seattle Midlife Women's Health Study	Life context, Mental health status	Depressed mood, vasomotor symptoms

* HRT usage was a proxy for menopausal symptoms

hormonal therapy [40]. Lastly, several studies highlighted racial and ethnic differences in experiences with the transition to menopause [31, 32, 35, 37, 42]. For instance, Black women, on average experienced earlier onset and more vasomotor symptoms, hot flashes and night sweats, than White women [36]. Williams et al. (2022) [43] further emphasize that African American women often face poorer health outcomes during menopause due

to chronic exposure to racial stress, as suggested by the 'weathering hypothesis' [add ref here to Geronimus] This chronic stress accelerates aging and increases the risk of chronic conditions, contributing to more severe menopausal symptoms compared to their White counterparts. These findings emphasize the necessity of incorporating the intersectionality of social identities and sources of racialized and other forms of psychosocial stress while

assessing menopausal experiences among populations. Lewis-Johnson et al. (2023) [44] found that everyday discrimination significantly impacts mental health during the menopausal transition, particularly among racially minoritized women. This supports the need to consider racial discrimination as a critical factor influencing menopausal experiences and outcomes.

The findings mentioned above are closely related to the theoretical frameworks discussed in the introduction of this scoping review, namely intersectionality and life course theory. Intersectionality highlights the complex interplay of various identities, such as gender, race, and class, that influence menopausal experiences [39, 45]. The factors identified in this study, including socioeconomic status, intimate partner violence, and racial disparities, demonstrate the cumulative impact of multiple forms of oppression and marginalization. Similarly, life course theory emphasizes the dynamic interaction of social, environmental, and individual factors over time [46, 47]. This theory underscores the importance of viewing menopausal experiences as part of a continuum and recognizing the impact of early-life experiences and social determinants of health in shaping health outcomes and how the transition is experienced during the menopausal transition.

Beyond the findings and theoretical underpinnings, this scoping review highlights a geographic skew in the included studies. They predominantly include participants from the Northeast, Midwest, and Western regions of the United States, leaving gaps in understanding of menopausal experiences among those in the Southern region [12, 13, 30, 32–34, 36, 38, 42, 48]. Additionally, studies like those reviewed by Williams et al. (2022) [43] indicate that women in the Southern United States, particularly African American women, experience earlier menopause onset. The South, and particularly the Gulf South, a region of the United States with a large low-income and racially minoritized population has high rates of poor health outcomes for women, including reproductive health outcomes as well as cardiovascular disease outcomes [3–5]. Future research must strive to bridge this gap, ensuring a broader representation of the menopausal experience among populations exposed to psychosocial stress across various geographical landscapes.

There is a need to examine the complexity of menopausal transitions from multiple perspectives, through rigorous study designs and including diverse population characteristics. Additional study designs are needed to further elucidate the unique nature of menopausal transition in the context of psychosocial stress, particularly longitudinal studies and qualitative studies are warranted. Longitudinal, or cohort studies, can track the progression of symptoms and stressors over time, while qualitative studies offer a personalized understanding of

women's experiences [49, 50]. Longitudinal studies are crucial for tracking changes over time. It's also important to note that findings from these studies may differ by demographic group, particularly for those experiencing significant psychosocial stress. Future studies should focus on including diverse populations and adopting longitudinal designs to capture the dynamic nature of menopausal experiences. Finally, in future research, the Adverse Childhood Experience measure [51], administered retrospectively, could be very useful in further examining the associations between chronic psychosocial stress and long-term health outcomes related to menopausal transition. Investigating these relationships may provide deeper insights into how early life stressors contribute to the severity of menopausal symptoms and overall health in later life, further establishing the usefulness of the life course theory in this work.

Limitations

While this scoping review provides valuable insights, it is essential to acknowledge its limitations. The exclusion of non-English articles and reliance on specific databases may have omitted relevant studies. Additionally, the scoping review approach does not evaluate the quality of individual studies. To address these limitations, future research could undertake systematic reviews or meta-analyses, and include articles published in other languages, to provide more robust evidence.

Conclusion

The life-altering transition of menopause, and its precursor perimenopause, considerably impact health, well-being, and overall quality of life. Therefore, it is critical to explore how this transition varies for individuals who have experienced chronic psychosocial stress and those with other experiences such as intimate partner violence or racialization as Black. Concepts and frameworks of health equity, racial and social justice, and human rights should be used to understand and address the problem of health care fragmentation impacting menopause. This means looking at both the upstream and downstream effects to understand solutions. Upstream oppression and racism impact health and the ability of the stress response system to respond effectively to challenges. Gaps in care systems, along with real barriers to access, make it challenging to achieve optimal health. This scoping review, guided by the theoretical frameworks of LCT and intersectionality, included several studies investigating the transition to menopause, extracting the essential findings, highlighting geographical bias, and identifying the need for future comprehensive study designs.

The review illustrated the diverse experiences of menopausal transition among populations experiencing psychosocial stress. The findings emphasize the significance

of considering social, cultural, and environmental factors in understanding menopausal experiences and tackling health disparities. Policymakers, healthcare providers, and public health practitioners should consider the identified factors and experiences to develop targeted interventions and support strategies that improve the well-being and quality of life of populations navigating the menopausal transition alongside psychosocial stressors.

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Author contributions

A.N.B. contributed to the conception or design of the work, provided interpretation of data analysis, and critically revised the article. E.A.B. and C.M. were responsible for data collection, data analysis and interpretation, drafting the article, and critically revising the article. C.B. and S.R. also provided an interpretation of the data analysis and critically revised the article. All authors were actively involved in interpreting the results, writing, revising, and approving the final manuscript. They have approved the submitted and ensure that questions related to the accuracy or integrity of any part of the work are appropriately investigated, resolved, and documented in the literature.

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Data availability

No data were generated or analyzed in this study. This manuscript is a scoping review that synthesizes existing literature; therefore, there are no primary research data to share.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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