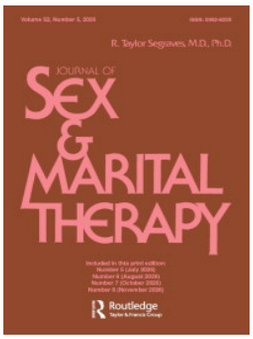

Journal of Sex & Marital Therapy

ISSN: 0092-623X (Print) 1521-0715 (Online) Journal homepage: www.tandfonline.com/journals/usmt20

Sexual self-schemas across midlife: examining differences using computerized text analysis

Kate B. Metcalfe, Chelsea D. Kilimnik & Cindy M. Meston

To cite this article: Kate B. Metcalfe, Chelsea D. Kilimnik & Cindy M. Meston (19 Jun 2026): Sexual self-schemas across midlife: examining differences using computerized text analysis, Journal of Sex & Marital Therapy, DOI: 10.1080/0092623X.2026.2689651

To link to this article: https://doi.org/10.1080/0092623X.2026.2689651

JOURNAL OF SEX & MARITAL THERAPY
https://doi.org/10.1080/0092623X.2026.2689651

Routledge
Taylor & Francis Group

RESEARCH ARTICLE

Sexual self-schemas across midlife: examining differences using computerized text analysis

Kate B. Metcalfe[a], Chelsea D. Kilimnik[b] and Cindy M. Meston[a]

[a]Department of Psychology, University of Texas at Austin, Austin, TX, USA; [b]Department of Psychology and Neuroscience & the Renée Crown Wellness Institute, University of Colorado Boulder, Boulder, CO, USA

ABSTRACT

Given the biopsychosocial shifts that often accompany aging, it is reasonable to expect changes in one's view of themself as a sexual being (i.e., sexual schemas), which then has important implications for sexual and overall well-being. Participants ($N=206$) wrote essays describing their sexual schemas, and responses were analyzed using computerized text analysis to identify seven central themes. Next, we conducted analyses to examine group differences in theme prominence by age group (ages 30–45, referred to as the early-midlife group, and the late-midlife group, 51–78), as well as the impact of sexual function on theme prominence. Late-midlife, compared to early-midlife women, had a *higher* prominence of relationship progressions and past abuse themes. Late-midlife women had a *lower* prominence of sexual pleasure and changes to their sense of self in their writings, though accounting for sexual function reduced these differences. The impact of one's sexual debut and the importance of emotional connection to one's schema did not differ between groups. Sexual function was associated with some (i.e., emotional connection, relationship progressions, sexual pleasure) but not all themes in both groups. In summary, sexual schemas appear to evolve across time, and these shifts may shape or be shaped by sexual function.

Social, occupational, relational, and hormonal changes across midlife—a period ranging from the late 30s to 50s (Gottschalk et al., 2020)—carry important implications for women's sense of self and their sexual quality of life (Lachman et al., 2015; Thomas & Thurston, 2016). Together, these changes are likely to influence how women at different points in midlife view themselves as sexual beings (i.e., their sexual self-schemas). Indeed, many women continue to engage in sex and rate it as important well into their 60s, 70s, and beyond (American Association of Retired Persons, 2005; Lindau et al., 2007; Nappi & Nijland, 2008), with sexual activity carrying a beneficial impact on the health and well-being of midlife women and their partners (Syme, 2014). Yet despite research indicating that sexual schemas have important implications for sexual functioning and overall well-being in younger women (Rellini & Meston, 2011; Stanton et al., 2015), little research to date has examined how sexual schemas differ across midlife and the impact they have on sexual function (Astle et al., 2025). The present study therefore addresses this gap by comparing sexual schemas in early- and late-midlife women, and examining how their schemas relate to sexual function.

Schemas are mental structures or cognitive frameworks that help individuals organize information and interpret or respond to situations. Sexual schemas in particular, comprise how one views themself as a sexual being, their sexual experiences and sexual partners, and sexuality

CONTACT Cindy M. Meston mestoncm@utexas.edu Department of Psychology, University of Texas at Austin, 108 East Dean Keeton Street, Stop A8000, Austin TX, 78712, USA.

more broadly. In one of the first studies on sexual schemas, Andersen and Cyranowski (1994) demonstrated that past sexual and interpersonal experiences create meaningful differences in sexual schemas, which then influence thoughts, feelings, expectations, behaviors, and physiological responses to sexual experiences. Follow up studies in samples of primarily midlife women revealed that more positive schemas predicted greater sexual frequency and better sexual function (i.e., desire, arousal, and orgasm), even after controlling for sexual frequency, menopausal symptoms, and cancer-related medical treatments (Andersen et al., 1997; Carpenter et al., 2009). More positive sexual schemas, particularly schemas with greater sexual self-efficacy and less sexual anxiety, also predicted more frequent sexual activity in women ages 60 and older (Steinke et al., 2008).

Despite the central role schemas appear to play in shaping sexual well-being, research examining the sexual schemas in midlife women, and how they may differ by age, remains limited (Astle et al., 2025). One exception is a study revealing that pre- and perimenopausal women with positive early adaptive schemas (e.g., high self-compassion, self-control, and social belonging) tended to report greater sexual function and satisfaction (Allen & Tully-Wilson, 2023). Notably, this effect was not significant among postmenopausal women. That said, wide age ranges within the pre-, peri-, and postmenopausal groups (ages 18–51, 21–52, and 33–77, respectively), make it difficult to infer the potential impact of midlife—which is comprised of so many additional relevant life changes and stages beyond menopausal status (e.g., changes in caregiving roles, occupational changes). Moreover, the existing literature on women's sexual schemas in midlife relies on self-report surveys to measure schemas, restricting schema content to the items asked instead of relying on participants' own self-descriptions. Given these limitations in the research, understanding how midlife women conceptualize their sexual schemas ideographically is an important next step. The following section draws on the broader biopsychosocial literature to contextualize how midlife experiences may shape sexual schemas during this period.

Factors influencing sexual schemas in midlife

Midlife encompasses a wide range of psychosocial experiences that shape identity, relationships, and sexuality differently depending on one's stage within this period (Gottschalk et al., 2020; Lachman et al., 2015). For those earlier in midlife, the transition out of emerging adulthood (ages 18–28) involves dynamic social, occupational, and relational changes that can feel like a loss of identity, desirability, and relational opportunities with implications for romantic experiences and sexual schemas (Wood et al., 2018). Work and caregiving demands also tend to peak earlier in midlife, increasing fatigue and reducing opportunities for sexual and romantic intimacy (Fisher et al., 2015; Wellings et al., 2023). In contrast, late midlife is often characterized by greater relational stability and contentment, with a meta-analysis of 165 studies revealing that relationship satisfaction tends to reach its lowest point around age 40, before increasing and stabilizing by age 65 (Bühler et al., 2021). Some late-midlife women report feeling content with their sexual experiences to date and do not desire more sexual activity or long-term relationships (Davidson, 2002; Miller, 2021; Watson & Stelle, 2011). Together the findings suggest that early- and late-midlife women may approach sexuality from meaningfully different psychosocial vantage points.

One of the most salient physical changes for later midlife women is the menopause transition, which brings biopsychosocial changes with implications for sexual schemas (Thomas & Thurston, 2016). Menopause often results in reduced sexual desire and lubrication (Avis et al., 2009; Thomas & Thurston, 2016), as well as genitourinary symptoms including dyspareunia, vaginal dryness, burning, or irritation, and urinary incontinence (Amore et al., 2007; Nappi & Lachowsky, 2009). These symptoms may also indirectly affect sexual function and schemas by increasing depression and anxiety (Spector et al., 2024; Woods & Mitchell, 2011), body image concerns from weight gain (Hoga et al., 2015; Vincent et al., 2023), and overall reduction in quality of life due to hot flashes, headaches, fatigue, and disrupted sleep (Amore et al., 2007). Still, it remains unclear whether menopause is the primary cause of declines in sexual well-being, or

if other psychosocial factors coinciding with midlife better explain changes in sexual function (Avis et al., 2009; Metcalfe & Meston, 2026; Ringa et al., 2013; Thomas et al., 2015). For example, longitudinal studies show that expectations at age 40 that menopause will decrease desire predict decreased desire at age 51 (Køster & Garde, 1993), and among women ages 40–65, importance of sex at baseline predicted sexual activity four years later, whereas current sexual function did not (Thomas et al., 2014).

Relational and sociocultural patterns may further shape sexual schemas in late midlife women. Dyadic factors such as partner's sexual dysfunction (Giraldi et al., 2024; Pio et al., 2024), illness or disability (Bradford & Meston, 2007), and partner availability (Lindau et al., 2007), can affect sexual frequency and satisfaction, while a partner's unsupportive response to age-related sexual changes may further influence how a woman views herself (Miller, 2021; Nosek et al., 2012). At the broader sociocultural level, women who associate midlife with a loss of womanhood may experience schema changes that contribute to sexual dysfunction (Hall et al., 2007; Hickey et al., 2022; Hoga et al., 2015; Nosek et al., 2010), particularly given portrayals of aging as anti-sexual and the emphasis on youth as a marker of beauty and attraction (Chrisler, 2013; Ussher et al., 2015). Ageist and anti-sexual stereotypes that frame sexual behavior as inappropriate for older women may create guilt or shame about one's sexual behavior, consequently leading some to suppress desire or avoid sex entirely (Simpson et al., 2017; Zhang et al., 2023). In contrast, some women experience aging as freeing, with relief from menstruation, pregnancy, and beauty standards allowing for greater focus on their own pleasure (Ballard et al., 2001; Hall et al., 2007; Hoga et al., 2015; Ling et al., 2008; Miller, 2021).

Sexual violence, which is, unfortunately, a common experience among women (Dworkin et al., 2021) can profoundly influence one's sexual schema, especially when it occurs during childhood (Astle et al., 2025; Meston et al., 2006; Stanton et al., 2015). Survivors of childhood sexual abuse, for example, tend to view their sexual selves as more dirty or immoral (Niehaus et al., 2010). Women who identify their experience as a sexually violent event (e.g., sexual assault, abuse, rape) tend to have schemas with more themes of sexual violence, less openness about sexuality, and greater sexual dysfunction (Kilimnik et al., 2018). Thus, nonconsensual sexual experiences likely influence sexual schemas in midlife both directly and indirectly through increased sexual dysfunction (Gibson et al., 2019), though this impact remains understudied to date.

The current study

Despite evidence that suggests that many aspects of the midlife experience shape sexual schemas (Astle et al., 2025; Ayers et al., 2010), little research has directly explored how midlife women conceptualize their sexual schemas based on their own words, or how schemas may differ at various stages of midlife. The present study aimed to address this gap by analyzing open-ended essay responses to a sexual schema writing prompt using the Meaning Extraction Method (MEM; Chung & Pennebaker, 2008)—a computerized language analysis that derives themes directly from participants own words from large samples of responses, rather than relying on pre-established scales (Huberman et al., 2021). We then examined how schema themes differed between early- and late-midlife women and examined associations between schema themes and sexual function. As MEM is an inductive, data-driven approach that derives themes from natural language use in written essays, all analyses were exploratory.

Methods

Participants

As part of a larger study, a sample of 206 women participated in an online assessment of their sexual schemas, sexual functioning, and other domains reported elsewhere (Kilimnik et al., 2018;

Metcalfe et al., 2024). Participant ages ranged from 30 to 78. To evaluate differences in sexual schemas across midlife, participants were divided into two age groups: early-midlife (ages 30–45; $n = 103$) and late-midlife (ages 51–78; $n = 103$).

We then conducted a series of Chi-Square and Mann–Whitney U tests to determine whether there were group differences in demographic variables (Table 1 reports all demographics stratified by midlife status). Analyses revealed no significant group differences in race or ethnicity, χ^2 (4, $N = 206$) = 3.30, p = .51, nor level of education, χ^2 (4, $N = 206$) = 3.37, p = .50. Given some sexual orientations were small in frequency, we combined all sexual orientations except heterosexual into a minoritized sexual orientation identity group. A chi-square analysis revealed no differences in the frequency of heterosexual and minoritized sexual orientation participants between early- and late-midlife women, χ^2 (1, $N = 206$) = 2.43, p = .12. There were no differences in age of first consensual sexual intercourse, $W = 5409$, p = .71. However, the early-midlife group tended to have their first oral sexual experience at an earlier age, $W = 3926$, p = .002. Both groups tended to begin menstruating at the same age, $W = 4711.50$, p = .19. That said, there was a significant association between relationship status and age group, such that the late-midlife group was more likely to report being single and not dating, and less likely to be married or living with their partner, χ^2 (4, $N = 206$) = 24.59,

Table 1. Participant demographics stratified by midlife status.

	Early-midlife (ages 30–45)		Late-midlife (ages 51–78)	
Continuous variables	*M*	*SD*	*M*	*SD*
Age	36.75	4.71	57.51	5.38
Age of first consensual penetration	18.05	3.97	17.65	3.30
Age of first consensual oral sex	18.25	4.23	20.29	7.40
Age at menarche	12.50	1.49	12.82	1.61
Categorical Variables	*N*	%	*N*	%
Nonconsensual sexual experience[a]	39	37.86	51	49.51
Race/Ethnicity				
African American/Black	7	6.80	6	5.83
Hispanic/Latin American	6	5.83	3	2.91
Asian	7	6.80	3	2.91
White	82	79.61	89	86.41
Other	1	0.97	2	1.94
Sexual orientation				
Heterosexual	83	80.58	92	89.32
Lesbian/Gay	4	3.88	7	6.80
Bisexual	11	10.68	3	2.91
Pansexual	3	2.91	0	0
Other	2	1.94	1	0.97
Highest obtained education				
Some high school or less	0	0	1	0.97
High school graduate	11	10.68	17	16.50
Some college/university	44	42.72	38	36.89
College diploma/university degree	30	29.13	33	32.04
Advanced degree (PhD, JD, MD, etc.)	18	17.48	14	13.59
Relationship status				
Single (not dating)	9	8.74	37	35.92
Single (casually dating)	10	9.71	7	6.80
Committed relationship	21	20.39	22	21.36
Living with my partner	9	8.74	4	3.88
Married	54	52.43	33	32.04
Experienced a divorce	23	22.33	54	52.43

Note. $N = 103$ participants per group. % indicates percentage of total age group.
[a]Defined as at least one lifetime experience of nonconsensual oral, anal, or vaginal sex.

$p < .001$. The late-midlife group was also more likely to have been divorced, χ^2 (1, $N = 206$) = 18.67, $p < .001$. Given these observed group differences, we further assess the necessity to control for relationship status and divorce history in our analyses (see the Statistical Analysis section).

Measures

Demographic questionnaire

Participants responded to items assessing a range of demographic information, including age, relationship status, whether they have ever been divorced, sexual orientation, race and ethnicity, highest level of education completed, age at menarche (first menstrual period), and age at sexual debut (first sexual experience of penetration and oral sex).

Nonconsensual sexual experiences

Participants completed the Nonconsensual Sexual Experiences Inventory (Kilimnik et al., 2018), which assesses whether participants have ever experienced nonconsensual oral sex or the insertion of a penis, finger(s), or objects into the vagina or anus. For the current analyses, this measure was only used to ensure balanced sampling selection for equal rates of nonconsensual sexual experience history across both age groups.

Sexual function

The Female Sexual Function Index (Rosen et al., 2000) is a 19-item scale that assesses six domains of sexual function, including Arousal, Desire, Lubrication, Orgasm, Pain, and Satisfaction. Participants rate their function over the past four weeks on a five-point Likert scale. Scores are summed such that higher scores indicate greater sexual function for domain and Total scores. Total scores ranged from two to 36. A total of 60 women ($n = 16$ early-midlife and $n = 44$ late-midlife women) had not had penile-vaginal intercourse in the past four weeks, and one sexually active late-midlife participant did not provide data for the Pain subscale. As a result, we could not compute their scores for the subscale(s) nor a Total score, and they were excluded from analyses examining sexual function. As such, our total sample size for the sexual functioning analyses was 145. Internal consistency was strong for the Total score ($\alpha = 0.93$), as well as for the subscales: Desire ($\alpha = 0.94$), Arousal ($\alpha = 0.93$), Lubrication ($\alpha = 0.86$), Orgasm ($\alpha = 0.91$), Pain ($\alpha = 0.94$), and Satisfaction ($\alpha = 0.89$).

Sexual schemas

To measure sexual schemas, participants were provided with an expressive writing prompt asking women to reflect on their sexuality and sexual self. This writing prompt has been used and validated in previous work (e.g., Meston et al., 2013; Stanton et al., 2015). The writing prompt read as follows:

> For the next 20 minutes, I would like you to write about your personal thoughts and feelings associated with sex and sexuality. In your writing, I'd like you to link your thoughts about sex to past, current, or future sexual experiences or relationships. You might also address more broadly how you view yourself as a sexual person. Please try to be as detailed as possible in your description. I'd like you to really let go and explore your very deepest emotions and thoughts.

In addition, participants were not permitted to proceed in the survey until 20 minutes had elapsed and were required to write at least three sentences to receive compensation. Expressive writing tasks for computerized text analyses generally range from 10 to 45 minutes (Pennebaker & Chung, 2012). We chose a 20-minute writing task to ensure sufficient content for analyses, while minimizing participant burden.

Procedure

Participants were invited to participate in an online survey through Amazon's Mechanical Turk (MTurk) that assessed their sexual behavior, beliefs, previous sexual violence, and sexual schemas. Eligibility requirements included being able to read and write in English, residing in Canada or the United States, and being over the age of 18. For the current analyses, participants had to be self-identified women. Participants were provided with $1.50 to their MTurk accounts, in line with MTurk's payment recommendations at the time of data collection (2016). To receive compensation, participants needed to have passed at least four of eight attention check questions and demonstrated thoughtful and attentive responding to the open-ended writing prompt instructing participants to write about their sexual schemas. All participants provided written informed consent prior to beginning the study and were assured that their responses were confidential. The current study was approved in full by the author's institutional review board for research involving human subjects at the University of Texas at Austin (Study Number: 2015-11-0083).

Data preparation

Selecting comparison groups

Following data collection, responses were reviewed to ensure data integrity, resulting in the exclusion of 29.1% of responses that were ineligible, had failed attention checks, or otherwise did not provide adequate data. A total of 816 women between the ages of 18 and 78 remained after these exclusions. To create two conceptually distinct midlife comparison groups, we then selected women over the age of 50 (late-midlife; $n = 103$) and women aged 30–45 (early-midlife; $n = 359$). Given that all 103 late-midlife women were retained in the final sample, we randomly selected 103 early-midlife women from the pool of 359 eligible participants. To confirm that the groups did not differ in the incidence of nonconsensual sexual experiences which are known to impact sexual schemas (Kilimnik et al., 2018; Stanton et al., 2015), we conducted a Chi-Square analysis examining lifetime experiences of nonconsensual oral, anal, or vaginal sex, which revealed no significant differences, χ^2 (1, $N = 206$) = 2.39, p = .12.

Given that the aim of this study was to examine differences in schemas across midlife while considering the potential role of menopause, we chose to compare two groups of women aged of 30–45 and aged 51–78, being the early-midlife group and late-midlife group, respectively. We excluded those under 30 ($n = 310$) as they are often still forming sexual schemas, navigating early sexual experiences, or facing different sociocultural pressures that influence sexual schemas, but are less pertinent in midlife (Wood et al., 2018). Thus, those under 30 are a less stable comparison group for understanding schema shifts specific to later-midlife. In contrast, women aged 30–45 are beyond adolescence and early adulthood and more likely to be in long-term relationships and parenting roles, all of which are factors that influence sexual schemas and may still be relevant for later-midlife women's schemas (Astle et al., 2025). A secondary comparison group aged 51–78 was selected based on the median age of menopause (Gold, 2011; InterLACE Study Team, 2019). Women between the ages of 46 and 50 were excluded ($n = 44$) to ensure we represented conceptually distinct stages of midlife in analyses, and to reduce the likelihood that women are in the perimenopausal transition, which is marked by significant hormonal variability and in turn, significant symptom burden and distress (Burger et al., 2007; Hale et al., 2014).

Preparing essays for analyses

Participants' open-ended essay responses were analyzed using a computerized text analysis approach to identify key themes from participants' schema writing. Specifically, we used the Meaning Extraction Method (MEM; Chung & Pennebaker, 2008) which is a language modeling approach grounded in the linguistic assumption that words with similar underlying meanings tend to co-occur in natural language and therefore reflect shared conceptual themes. The MEM

process involves identifying and grouping words that are often used together in an essay, and these groups of words become the themes (for an in-depth overview, see Markowitz, 2021).

This process uses word presence scores (i.e., whether a word was used within a given text or not, based on the "dictionary" of all words used across texts). A factor analysis is then applied to analyze word presence scores in individuals' texts to determine which words tend to co-occur. Words that co-occur together result in word clusters that are interpreted as meaningful thematic components. For example, participants with weight-related concerns may have essays that contain the words "fat," "weight," "gain," and "unattractive." If enough participants use these words in a similar pattern, the factor analysis will output a factor comprising these words, which we can then interpret as a *weight concerns* theme. Notably, the use of self-focused expressive writing to derive psychologically meaningful representations of the self and identity has been well established (e.g., Chung & Pennebaker, 2008; Ramírez-Esparza et al., 2012; Stanton et al., 2015).

Essay word counts ranged from 19 to 989 ($M = 347.34$, $SD = 199.67$, $Mdn = 324.50$), though word counts did not differ significantly by age group ($W = 4695$, $p = .15$). We used the Meaning Extraction Helper software to prepare essays (Boyd, 2023), which aids in extracting words from text by removing function words (e.g., "for," and "the") and reducing words to their common stem (e.g., "loved," "loving," and "loves" are changed to "love"). The software also removes words that are in less than 10% of all essays because these words are infrequent and do not garner representative meaning across the full sample of responses. The remaining unique words then form a "dictionary" that indicates all the words used across all participants' texts. Each participant is then given a word presence score for each of these words to indicate whether their writing used this word or not (i.e., this yields binary-coded word variables: *present* [1] or *absent* [0]). These word presence scores were then used for theme identification.

Theme identification

We conducted a Principal Component Analysis (PCA) with varimax rotation using the word presence scores to identify themes from the patterns in which these unique words were commonly co-used across texts. Sampling adequacy was first assessed to ensure a PCA could be applied to the data. The Kaiser-Meyer-Olkin test (KMO = 0.37) was within acceptable limits for exploratory MEM analyses and comparable to other studies using the MEM (Stanton et al., 2015). The Bartlett's test of sphericity was significant, $\chi^2(9591) = 12842$, $p < .001$, indicating that the correlation matrix was significantly different from an identity matrix, and therefore appropriate for factor analysis. Factors were included if they had eigenvalues greater than 2.95 and meaningfully increased the variance explained by the model. Factor solution was selected based on parallel analysis, factor interpretability, and cumulative variance explained. Thus, the PCA with varimax rotation revealed a seven-factor solution. Altogether, the seven factors explained 21.03% of the cumulative variance—which, although low for traditional factor analyses, is typical of factor analyses of the highly variable responses in natural language (Chung & Pennebaker, 2008).

To identify words comprising each theme, we retained words with absolute factor loadings of 0.25 or greater. This cutoff was chosen to ensure stability and interpretability of themes, particularly given our goal of comparing age groups. In a PCA of language data, cross-loadings are common and expected (e.g., "intimacy" can be used both to refer to sexual activity and emotional connection and therefore may load onto different factors). When a word loaded onto multiple factors, we assigned the word to the factor where it had the highest loading to reflect the strongest and most meaningful association. This approach aligns with MEM best practices and avoids thematic overlap in analyses (Markowitz, 2021).

Table 2 contains an overview of the words comprising each theme, and the final theme titles are as follows: Relationship Progressions (theme one); Sexual Pleasure (theme two); Trauma and Abuse (theme three); Sexual Debuts (theme four); Intimacy and Self-Perception (theme five); Emotional Connection (theme six); and Evolving Sexual Self (theme seven).

Table 2. Overview of each theme, including the words with the highest factor loadings and quotes with high and low theme prevalence.

Theme	Words from theme	High prevalence quote	Low prevalence quote
Relationship Progressions (1)	Marry, Husband, Year, First, Divorce, Marriage, Age, Kid, Friend, Together, Better, Grow, Man, Met, Work, Child, Future, Young, Wait, Life	"I lived with a man for about 7 years in my early 20's. We grew apart and then I left him for the man I married for 27 years afterwards. When the kids were grown up and graduated high school, I felt that we didn't really belong together anymore although our sex life never wavered in all those years. And then came along my ex-boyfriend who stirred up all kinds of memories. I divorced my husband to go back to him and we have been together for 6 years now." (age 59; heterosexual; committed relationship).	"I tend to want it more often than my partner. I have a high drive and always have. I am a lesbian, so I don't do penetration. I will give it, but not get it. It took a while for me to come out to people close to me, but I have always accepted myself for who I am. Currently my fiancée and I will argue over how often to be intimate. I would like it more." (age 33; lesbian; living with partner).
Sexual Pleasure (2)	Orgasm, Pleasure, Partner, Woman, Arouse, Touch, Enjoy, Time, Start, Drive, Physical, Masturbate, Emotion, Current, Oral	"I enjoy sex quite a bit and have always been a very sexual person. I masturbate a few times a week as well as have intercourse with my partner. I become aroused very easily and enjoy any and all sexual activities. I am pretty open with my partner and we are very into trying new things, introducing toys, etc." (age 34; heterosexual; committed relationship).	"All I can tell you is sex has not been a positive experience for me and I doubt it ever will. I have hang ups from decades ago that I doubt I can overcome. I feel like I am unable to function sexually in a positive way as I feel way too inhibited and fearful." (age 60; heterosexual; single and not dating).
Trauma & Abuse (3)	Leave, Abuse, Left, Move, Reason, Rape, Hurt, Finally, Told, Sure, Male, Long, Day, Family, Month, Live	"When I was 18, I moved in with a man, was with him for 11 years. We had 2 children. We had sex frequently - it was more for him - I was hardly ever satisfied…[Then] he started beating me, once he shot me, I had to leave him for fear that he would start hurting the children. I left him and hid from him for one year…I was scared to death of him. It took more counseling to get over that than when my father molested me as a young teenager." (age 59; bisexual; single and casually dating).	"I haven't really had that many sexual experiences with anyone other than my husband. That's not to say that I haven't been attracted to anyone else. There have been a few guys that I probably would have had sex with if they had been seriously interested. Maybe they were, but I've never been that good at reading that sort of thing…The older I get the more I do [sexually]. I guess I trust my husband more now that I used to." (age 37; heterosexual; married).
Sexual Debuts (4)	Guy, Said, End, Hand, Highschool, Wrong, Remember, Talk, Girl, Right, Night, Nothing, Stop, Turn, Boyfriend, Stay, Change, Give, Week (-)[a]	"As an early teenager, I wanted to go out with guys that I liked, but they didn't like me, so I felt ill-equipped as a girl, or that something was wrong with me when they did not ask me out but in high school lots of girls hung out with guys and dated. I only went out on one date, BUT, he was the cutest most handsome guy in the entire school." (age 54; heterosexual; single and not dating).	"After going into menopause, I did notice a decline in the need for the urgent type of sexual activity. It seemed to settle into a mode of two or three times of week and was less of an immediate desire, but a slow process of taking the time to really enjoy it. As it is now, I sometimes go for weeks before having the need for masturbating, but is satisfying when it occurs." (age 78; heterosexual; single and not dating).

(*Continued*)

Table 2. Continued.

Theme	Words from theme	High prevalence quote	Low prevalence quote
Intimacy & Self-Perception (5)	Find, Attractive, Past, Happen, Stand, People, Look, Care, Want, Big, Fact, Person, Excite	"I don't look nice, my breasts are not standard and it's kind of embarrassing because they are saggy. I am married and my sex life with my husband has evaporated. I think I could be a passionate sexual partner but it never comes together…I feel that it's very hard for people to love me because I have a lot of issues and I don't have a lot to offer other people right now…In the past I experimented but for some different reasons it never worked, I couldn't get it together sexually, I did not have a good experience very often." (age 58; heterosexual; married).	"I have an excellent sex life. Even after being married for 28 years my husband and I have sex multiple times a week. My husband has opened me up sexually and is the only man to have given me an orgasm. He has helped me to try new things and I believe that I fulfill his desires which makes me feel desirable and loved even at 55 years old. Sex is an important part of a relationship and is necessary for intimacy. Before my husband and I met, I did not know how wonderful sex could be. I am a sexual being who enjoys sex with my husband very much." (age 55; heterosexual; married).
Emotional Connection (6)	Trust, Consider, Open, Comfortable, Couple, Fun, Great, Commit, Share, Relationship, See, Love, Body, Experience, Date, Best, Easy, Real, Problem	"I think sex is great when shared and experienced with someone that you love. You have to be open with your sex partner. You both need to respect each other bodies. If there are things that you would like to do but your partner don't [sic.], these issues need to be discussed. Sex is an amazing experience and it does feel good to release all of your emotions and share this experience with the one that you love. I do not believe in having sex with more than one person." (age 54; heterosexual; single and not dating).	"I have lost an interest in sex since having children in my 30's. I was not aware of it at first, but it is now very obvious to me and to my husband. I just do not feel that way anymore. In the past, I had a healthy sexual drive, though I was very passive. That all changed with the birth of my last child. I still hope for a change in my feelings as I get a little older, but I am losing hope. It seems like that time in my life is over. And I worry about losing my husband as a result." (age 52; heterosexual; married).
Evolving Sexual Self (7)	Begin, Complete, Feeling, Longer, Early, Realize, Important, Point, Strong, Thought, Bit, Continue, Sex, Activity	"In my early 20's I felt that having actual intercourse was extremely important, and something to be engaged in as often as possible, but only with long-term partners. Masturbation was something only done infrequently, and accompanied by embarrassment and a small smattering of shame. As I've gotten older I've become much more accepting of sexual activity and stimulation without having a sexual partner…I've learned over the last couple years that while I'm a very sexual person, I'm not that interested in penetrative sex or sexual activities with a partner. My sex drive isn't necessarily unusual or wrong, it's just non-traditional." (age 41; heterosexual; single and casually dating).	"I went to college and ended up dating, but did not want to be physical until I was married. I ended up waiting until I was engaged. My beliefs are that this decision was right for me, and ended up working out. I was able to get a college education (that I paid for myself) and to have the husband and family I wanted…I had the self control to wait and I've never really felt like I had to give in to peer pressure…I think I'm set up for my future in a better way for having waited. Now I'm married with a three year old and a six month old…I think abstinence is a way to have to it all and I honestly don't understand why more people don't do it." (age 31; heterosexual; married).

Note: [a]"Week" item loaded negatively onto Theme 4 and therefore was subtracted from participants' theme 4 score.

Theme scoring

In line with the MEM approach, each factor is then used to represent distinct thematic domains in participants' sexual schema essays based on the language they use. Essays are then scored to quantify the extent to which each theme is represented in their response. To score an essay for theme prominence, we used the frequency scores for each word in that theme, summing positively loaded words and subtracting negatively loaded words for each participant's response. This total frequency score of theme words is then divided by their own total essay word count and multiplied by 100. Thus, theme scores reflect the percentage of a participant's essay consisting of theme-related words.

Words that load negatively onto a theme indicate that as theme prominence increases in a response, the use of that specific word tends to decrease. Thus, negatively loaded words are inversely associated with the theme and are subtracted when computing total scores (Chung & Pennebaker, 2008). In our analyses, only Sexual Debuts (theme four) included a negatively loaded word ("week"), making it the only theme that could theoretically have negative scores. Theme scores can range from -100 to 100, with greater scores indicating greater theme prominence. For each theme, we then examined both the high-loading words and the content of the essays with the highest and lowest corresponding scores to generate a descriptive label that best captured the underlying meaning of the theme (Table 2).

Statistical analyses

We conducted all analyses using R version 4.3.1 (R Core Team, 2023). All seven theme scores (our dependent variables) were examined for violations of statistical assumptions. Outliers exceeding three standard deviations were winsorized (2–4 scores per theme), replacing them with the nearest in-range value. Winsorization mitigates the influence of outliers while preserving data structure (Riffenburgh, 2012). Although winsorization reduced extreme values, some theme scores could still be considered outliers. However, these scores were reviewed in the context of participants' open-ended schema responses and were retained in final analyses as we deemed them to be plausible reflections of individual differences in sexual schemas.

We assessed normality using histograms, Q-Q plots, and Shapiro-Wilk tests. All seven themes deviated significantly from normality (all Shapiro-Wilk tests were $p < .001$). Levene's tests revealed heterogeneity of variance for Sexual Pleasure (theme two), Emotional Connection (theme six), and Evolving Sexual Self (theme seven). Given these violations, we used non-parametric Mann-Whitney U tests to assess group differences in theme scores between our early- and late-midlife groups. Effect sizes were interpreted using Cohen's (1988) conventions, with r = .10, .30, and .50 indicating small, medium, and large effects, respectively. To examine the influence of sexual function and age group, we conducted robust linear regressions using the "robustbase" R package (Maechler et al., 2024) with each sexual function domain score and the age group as our independent variables and each theme as our dependent variables. In addition, we conducted robust linear regressions to assess for moderation of the relationship between sexual functioning and theme prominence by age group. Robust regressions are less sensitive to non-normality, heteroscedasticity, and outliers. For the robust regression models, effect size is reported as adjusted R^2, reflecting the proportion of variance in each outcome explained by the model.

A-priori power analyses using G*Power Version 3.1 (Faul et al., 2009) were conducted to determine adequate sample sizes. For a two-tailed Wilcoxon-Mann-Whitney test to detect a medium effect ($d = 0.50$) at α = .05 with 80% power, the required sample size was 148 (74 per group). Using the "min ARE" option for the parent distribution, which is conservative under non-normal conditions and a good default when the true distribution is unknown, we confirmed sufficient power for our analyses. We also calculated that 103 participants were required to detect a medium effect (f^2 = 0.15) in a regression with seven predictors, α = .05, 80% power.

Thus, our total sample ($N = 206$) was adequately powered for group comparisons, and our sexually active subsample ($n = 145$) was powered for regression analyses of sexual function.

Given that late-midlife women were more likely to report being in uncommitted relationships and experiencing a divorce, we examined whether relationship and divorce status influenced theme scores to determine if we needed to account for them in analyses as covariates. First, we collapsed relationship status into a binary variable of *uncommitted* (i.e., single not dating or casually dating) and *committed* (i.e., in a committed relationship, living with a partner, or married) categories, then conducted a series of Mann-Whitney U tests to examine whether theme prominence differed by relationship status. Theme prominence did not differ between uncommitted and committed participants for any of the seven themes (all $p > .07$). Next, we examined whether experiencing divorce influenced theme scores. Only Relationship Progressions (theme one) differed by divorce status, with divorced participants ($Mdn = 3.64$) scoring higher than non-divorced participants ($Mdn = 2.59$), $W = 4083.50$, $p = .033$, although this effect was negligible ($r = .006$). When the impact of divorce on Relationship Progressions was stratified by age group, this effect did not reach significance for the early-midlife ($p = .72$) nor the late-midlife group ($p = .14$). These analyses together suggest that the practical impact of divorce status on Relationship Progressions is minimal. No other themes significantly differed between divorced and non-divorced participants (all $p > .12$). Therefore, we did not control for relationship or divorce status in our analyses.

Results

Sexual schema themes

MEM analyses revealed seven key themes (see Table 2 for illustrative quotes and words comprising each theme). Theme one was titled *Relationship Progressions* and participants scoring high on this theme typically described how their relationships and sexual experiences evolved over time, particularly in the context of marriage and divorce. *Sexual Pleasure* (theme 2) included words such as orgasm, touch, and pleasure, with those scoring high tending to discuss specific sexual behaviors and the pleasure they experience during sex. High scores on *Trauma and Abuse* (theme 3) involved descriptions of past or current abuse and how it has changed their desire to engage in sex, reduced their sexual satisfaction, or caused them to avoid sex altogether. Those scoring high on *Trauma and Abuse* also tended to report fearing intimacy and difficulties trusting others. *Sexual Debuts* (theme 4) involved participants describing their first sexual experience, positive or negative, and how it shaped their sexual schema. Participants scoring high on *Intimacy and Self-Perception* (theme 5) described how they perceived themselves in the context of sex and relationships, including their self-perceived attractiveness, and for some, a desire to be more attractive, and their ability to find a romantic partner (past or present). Responses scoring high on *Emotional Connection* (theme 6) tended to emphasize the importance of intimacy, trust, love, and shared bonds in their sexual schema. Participants with high prominence of *Evolving Sexual Self* (theme 7) tended to describe how their schemas have changed over time, often reporting modifications to their definitions of sexual behavior and what constitutes attractiveness.

The resulting seven themes were identified through a PCA with varimax rotation and therefore each theme represents statistically distinct patterns of language. Themes that appear conceptually related can be distinguished by their word clusters and thematic focus. Though both dyadic in nature, Relationship Progressions captures the temporal trajectory of one's relationship(s) (how they began, changed, or ended), while Emotional Connection captures their perceived importance of emotional bonding and closeness with a partner. Intimacy and Self-Perception captures one's current self-evaluative stance and its impact on their sexuality and relationships—whether they feel desirable, attractive, and capable of forming relationships. Evolving Sexual Self involves a reflection of their change over time, including shifts in sexual beliefs, values, and self-understanding, rather than changes in one's relationship circumstances or one's current sense of worth as a partner.

Differences in sexual function

Prior to examining differences in theme prominence between group, we first assessed differences in sexual function between our sexually active early- and late-midlife women using Mann-Whitney U tests (see Table 3). Early-midlife compared to late-midlife women reported significantly higher levels of Arousal, representing a small effect ($W = 3173$, $p = .02$, $r = 0.20$). However, there were no other significant group differences on the remaining FSFI domains nor the Total score (all $p > .05$).

Differences in sexual self-schemas

Next, we conducted Mann-Whitney U tests to examine whether there were differences in the prominence of themes in sexual schemas between groups (Table 4). Late-midlife, compared to early-midlife women's sexual schemas were more likely to contain words comprising the theme of *Relationship Progressions,* indicating a medium effect size ($W = 3479.50$, $p < .001$, $r = .30$). Regarding the theme *Trauma and Abuse*, late-midlife women scored higher than early-midlife women, exhibiting a small-to-medium effect ($W = 3589$, $p < .001$, $r = .28$). The remaining statistically significant group differences exhibited small effects: Late-midlife women scored lower than early-midlife women on *Sexual Pleasure,* $W = 6185.50$, $p = .04$, $r = .14$. Late-midlife women

Table 3. FSFI scores stratified by midlife status.

	Age group	M	SD	Median	IQR	W
Desire	Early	3.64	1.24	3.60	2.10	2772.50
	Late	3.44	1.44	3.60	2.10	
Arousal	Early	4.58	1.37	4.80	2.10	3173*
	Late	3.98	1.49	4.20	2.25	
Lubrication	Early	4.98	1.08	5.40	1.80	3044
	Late	4.48	1.47	4.80	2.10	
Orgasm	Early	4.48	1.53	4.80	2.80	2517
	Late	4.49	1.62	4.80	2.40	
Satisfaction	Early	4.80	1.21	5.20	1.60	2930.50
	Late	4.33	1.61	4.80	2.20	
Pain	Early	5.08	1.50	6.00	1.20	2581.50
	Late	4.88	1.74	6.00	1.60	
FSFI Total	Early	27.56	5.31	28.40	8.30	2876
	Late	25.51	7.37	25.85	12.80	

Note. Early = early-midlife women and Late = late-midlife women. FSFI subscales and Total scores were computed only for participants who reported engaging in sexual activity in the past four weeks ($n = 87$ early-midlife and $n = 58$ late-midlife women).
*$p = .02$.

Table 4. Theme scores stratified by midlife status.

Theme name (number)	Age group	*M*	*SD*	*Median*	*IQR*	*W*
Relationship Progressions (1)	Early	2.71	1.90	2.38	2.37	3479.50**
	Late	3.85	2.01	3.70	2.66	
Sexual Pleasure (2)	Early	2.29	1.68	1.66	2.17	6185.50*
	Late	1.71	1.21	1.59	1.70	
Trauma & Abuse (3)	Early	0.65	0.72	0.47	1.07	3589**
	Late	1.10	0.87	0.96	1.22	
Sexual Debuts (4)	Early	1.08	0.97	0.94	1.19	5324
	Late	1.08	0.92	0.91	0.88	
Intimacy & Self-Perception (5)	Early	1.85	1.37	1.62	1.69	6210.50*
	Late	1.50	1.26	1.15	1.42	
Emotional Connection (6)	Early	2.32	1.73	2.17	2.12	5693
	Late	2.05	1.35	1.84	1.55	
Evolving	Early	3.83	2.10	3.54	2.57	6325.50*
Sexual Self (7)	Late	3.13	1.59	2.97	1.83	

Note. $N = 206$. *$p < .05$; **$p < .001$.
Early = early-midlife women and Late = late-midlife women.

scored lower than early-midlife women on *Intimacy and Self-Perception*, $W = 6210.50$, $p = .03$, $r = .15$. Finally, late-midlife women scored lower than early-midlife women on *Evolving Sexual Self,* $W = 6325.50$, $p = .02$, $r = .17$. There were no significant differences between age groups for *Sexual Debut*s, or for *Emotional Connection* (both $p > .34$). In summation, late-midlife women had higher prominence of the *Relationship Progression* and *Trauma and Abuse* themes and lower prominence of the *Sexual Pleasure, Intimacy and Self-Perception*, and *Evolving Sexual Self* themes in their sexual schema writing than did early-midlife women.

Sexual function and sexual self-schemas

Next, we used a series of robust linear regression analyses to examine the influence of each of the six FSFI domains, while accounting for the variance in age group on each of the seven sexual schema themes (Table 5).

The robust regression model including sexual function and age group to predict *Relationship Progressions* was statistically significant, explaining 17% of the variance (adjusted $R^2 = 0.17$, robust residual standard error (*RSE*) = 1.79). Those who reported lower levels of Desire (b = -0.43) and who were in the late-midlife group ($b = 1.73$) tended to use more words from the *Relationship Progressions* theme.

The robust regression analysis predicting *Trauma and Abuse* was also significant, explaining 9% of the variance (adjusted $R^2 = 0.086$; $RSE = 0.67$). Being late-midlife tended to predict more prominence of *Trauma and Abuse* words, $b = 0.46$. That said, no FSFI domains significantly predicted the prominence of *Trauma and Abuse* words.

A robust regression was conducted to examine predictors of *Emotional Connection,* though explained only about 5% of the variance (adjusted $R^2 = 0.046$; $RSE = 1.40$). Results indicated that higher scores indicative of better Orgasm function significantly predicted greater use of *Emotional Connection* words, $b = 0.26$. More difficulties with Lubrication was associated with a higher prominence of *Emotional Connection* words, b = -0.31. Of note, Desire showed a marginal but non-significant positive association, while other predictors, including Arousal, Satisfaction, Pain, and age group, were not significant.

Considering the robust regression for *Evolving Sexual Self*, the overall model was statistically significant, explaining 3% of the variance (adjusted $R^2 = 0.025$; $RSE = 1.60$). Greater Orgasm function predicted greater prominence of words comprising *Evolving Sexual Self*, $b = 0.22$. Age group showed a marginal but non-significant positive association; all other predictors were not statistically significant.

The remaining robust linear regression analyses were not statistically significant. That is, sexual function and age group did not reveal statistically significant associations in the prediction of *Sexual Pleasure* ($RSE = 1.44$), *Sexual Debuts* (RSE = .73), nor *Intimacy and Self-Perception* ($RSE = 1.17$).

Moderation effects

To assess for potential moderation effects, we conducted robust linear regressions examining the interaction between FSFI Total scores and age group, predicting each of the seven themes. The interaction between FSFI Total scores and age group, $b = 0.095$, $p = .02$, revealed a statistically significant moderation between the theme *Evolving Sexual Self*, accounting for 3% of the variance (adjusted $R^2 = 0.031$; $RSE = 1.64$). To clarify the interaction between sexual function and age group on theme seven, we conducted separate robust linear regressions for early and late-midlife participants. FSFI Total scores were not a significant predictor of *Evolving Sexual Self* scores among early-midlife women, b = -0.051, $p = .13$ (adjusted $R^2 = 0.011$; $RSE = 1.75$). In contrast, FSFI Total scores significantly and positively predicted *Evolving Sexual Self* scores among late-midlife women, $b = 0.042$, $p = .048$, though accounted for about 3% of the variance (adjusted

Table 5. The influence of sexual function on each of the seven sexual schema themes.

Model	*B*	*SE*	*95% CI*	*t*	*p*
Relationship Progressions (1)					
(Intercept)	1.16	0.67	−0.16, 2.48	1.74	.08
Desire	−0.43	0.14	−0.70, −0.16	−3.16	.002**
Arousal	0.13	0.22	−0.30, 0.56	0.59	.55
Lubrication	0.23	0.19	−0.14, 0.60	1.22	.22
Orgasm	0.07	0.14	−0.22, 0.35	0.48	.63
Satisfaction	0.14	0.13	−0.12, 0.39	1.07	.29
Pain	0.05	0.11	−0.16, 0.26	0.46	.64
Midlife status	1.73	0.35	1.04, 2.41	4.95	<.001***
Sexual Pleasure (2)					
(Intercept)	2.32	0.64	1.06, 3.59	3.62	<.001***
Desire	−0.07	0.13	−0.32, 0.18	−0.56	.58
Arousal	0.28	0.16	−0.04, 0.60	1.73	.09
Lubrication	−0.15	0.14	−0.43, 0.13	−1.05	.29
Orgasm	−0.04	0.12	−0.27, 0.20	−0.32	.75
Satisfaction	−0.04	0.11	−0.25, 0.17	−0.40	.69
Pain	−0.02	0.10	−0.21, 0.17	−0.20	.84
Midlife status	−0.34	0.25	−0.84, 0.16	−1.36	.18
Trauma & Abuse (3)					
(Intercept)	0.90	0.43	0.05, 1.75	2.10	.04*
Desire	0.02	0.07	−0.12, 0.15	0.24	.81
Arousal	0.09	0.08	−0.07, 0.25	1.15	.25
Lubrication	−0.14	0.10	−0.33, 0.05	−1.50	.14
Orgasm	0.01	0.06	−0.11, 0.12	0.09	.93
Satisfaction	−0.04	0.07	−0.19, 0.10	−0.57	.57
Pain	0.01	0.03	−0.06, 0.08	0.29	.78
Midlife status	0.46	0.15	0.16, 0.77	3.00	.003*
Sexual Debuts (4)					
(Intercept)	1.27	0.30	0.69, 1.86	4.28	<.001***
Desire	0.05	0.07	−0.08, 0.18	0.75	.46
Arousal	0.06	0.10	−0.13, 0.25	0.62	.53
Lubrication	−0.07	0.07	−0.21, 0.07	−0.98	.33
Orgasm	0.02	0.07	−0.10, 0.15	0.37	.71
Satisfaction	−0.10	0.05	−0.21, 0.01	−1.88	.06
Pain	−0.01	0.05	−0.10, 0.08	−0.14	.89
Midlife status	−0.07	0.16	−0.39, 0.25	−0.44	.66
Intimacy & Self-Perception (5)					
(Intercept)	1.49	0.46	0.59, 2.40	3.26	.001**
Desire	0.15	0.11	−0.06, 0.36	1.41	.16
Arousal	−0.20	0.19	−0.58, 0.18	−1.06	.29
Lubrication	−0.001	0.10	−0.20, 0.20	−0.01	1.00
Orgasm	0.001	0.11	−0.21, 0.21	0.01	.99
Satisfaction	0.12	0.10	−0.07, 0.31	1.25	.21
Pain	−0.005	0.07	−0.15, 0.14	−0.07	.95
Midlife status	−0.41	0.23	−0.87, 0.05	−1.76	.08
Emotional Connection (6)					
(Intercept)	1.66	0.63	0.42, 2.91	2.64	.01**
Desire	0.21	0.11	−0.004, 0.43	1.95	.054
Arousal	−0.15	0.16	−0.47, 0.18	−0.89	.38
Lubrication	−0.31	0.14	−0.59, −0.04	−2.26	.03*
Orgasm	0.26	0.11	0.05, 0.47	2.41	.02*
Satisfaction	0.12	0.09	−0.07, 0.30	1.26	.21
Pain	0.05	0.07	−0.08, 0.18	0.81	.42
Midlife status	−0.43	0.27	−0.96, 0.10	−1.61	.11
Evolving Sexual Self (7)					
(Intercept)	3.19	0.58	2.04, 4.34	5.46	<.001***
Desire	−0.16	0.12	−0.41, 0.08	−1.32	.19
Arousal	−0.25	0.15	−0.54, 0.04	−1.69	.09
Lubrication	0.12	0.14	−0.16, 0.40	0.82	.41
Orgasm	0.22	0.11	0.0001, 0.44	1.98	.05*
Satisfaction	0.09	0.11	−0.12, 0.30	0.84	.40
Pain	0.02	0.14	−0.25, 0.30	0.15	.88
Midlife status	−0.60	0.30	−1.20, 0.002	−1.97	.051

Note: $N = 145$. Midlife status was dummy-coded: late-midlife = 1, early-midlife = 0.
*$p < .05$; ** $p < .01$; ***$p < .001$.

R^2 = 0.027; *RSE* = 1.46). These findings suggest that better sexual functioning is associated with more prominence of *Evolving Sexual Self* scores among late-midlife women, but not among early-midlife women, supporting the presence of a moderation effect by age group. There were no significant moderation effects for any of the other themes (all $p > .52$), though the moderation effect of *Sexual Pleasure* neared significance ($p < .09$).

Discussion

The purpose of this study was to explore how sexual self-schemas—one's understanding of themself as a sexual being—change across midlife, taking into account the influence of sexual function. Results showed several differences in the sexual schemas of early- and late-midlife women, as well as a meaningful impact of sexual function on these women's sexual schemas.

Differences in sexual self-schemas

Two themes, Relationship Progressions (theme one) and Trauma and Abuse (theme three), showed robust age-related differences that remained even after accounting for the impact of sexual function. Late-midlife women's schemas had a higher prominence of *Relationship Progressions* (theme one), and this effect was not driven by differences in relationship status. Changes in one's relationship may be less central to the schemas of younger midlife women as they typically are in earlier stages of romantic relationships or simply had less time to experience relational changes compared to older women. For example, early-midlife is more likely to involve competing life demands such as child rearing and career establishment, occupying significant attention. Transitioning out of these stages, retiring, or becoming grandparents, may result in greater reflection on their relational trajectories over the past years. In addition, some women transitioning into menopause experience increased relational disruption and reduced dyadic adjustment (Beyazit & Sahin, 2018; Gümüşsoy et al., 2023), making their relationships more salient to their sexual schemas.

Moreover, lower sexual desire predicted greater prominence of the Relationship Progressions theme, despite no group-level differences in sexual desire scores. Prior research suggests that lower desire is associated with fewer sexual cues such as emotional intimacy, sexual attraction, and romantic moments, that trigger sexual interest and activity (McCall & Meston, 2006, 2007). In a systematic review of 64 studies examining sexual desire in long term relationships, Mark and Lasslo (2018) identified interpersonal factors such as sexual monotony, changes in partner responsiveness, emotional intimacy, and sexual and relationship satisfaction as reasons why women's desire tends to wane over time. These factors may prompt reflection on how their relationship and their sexual experiences within that relationship have evolved. Likewise, effective strategies for managing declines in sexual desire within long-term relationships include emphasizing the importance of one's relationship and focusing on positive memories (Mark & Lasslo, 2018). In the current study, it may be that women with low desire hold schemas that focus less on explicitly sexual cues and more on the broader trajectory of their relationships, reflecting on how their relationships have changed over time—perhaps along with changes in their sexual desire.

Novel to our study is that late-midlife women were more likely than early-midlife women to write about *Trauma and Abuse* (theme three) in their schemas, despite no significant group differences in the rates of nonconsensual sexual experiences. Many late-midlife women with abuse histories reflected on the long-term impact of these experiences, including difficulties with trust and sexual pleasure, or avoiding relationships altogether. Prior research suggests that the more time has passed since a nonconsensual sexual experience, the more likely one is to label their experience as a form of sexual violence (e.g., rape, sexual assault) (Canan et al., 2023; Edwards et al., 2025; Levy & Eckhaus, 2020). This suggests that abuse has a lasting impact on

one's schema, with more time allowing for greater perspective and reflection on nonconsensual experiences—a factor that cannot be ignored when understanding older women's sexuality. In addition, sexual function did not predict this theme, further supporting the idea that greater prominence of the Trauma and Abuse theme in late midlife reflects a cumulative psychological impact of sexual abuse over time that overshadows current sexual well-being. Of note, Stanton et al. (2015) also used the MEM to analyze schemas, though found that older women were less likely to have abuse-related themes. Differences in findings likely reflect sample characteristics, as Stanton and colleagues' sample was younger on average with a smaller age range of participants and only included those with childhood abuse histories. Future research should examine how the timing of abuse and time since abuse shapes sexual schemas in late-midlife women and if it differs from early-midlife women.

It is also important to note that the observed differences in sexual schemas between the early- and late-midlife women may partly reflect sociocultural factors such as cohort effects or attitudes about sexuality, rather than age-related sexual function changes alone. Our late midlife group was born between 1938 and 1965, when marriage was more normative and occurred at earlier ages (Payne, 2021), and premarital/casual sex was less accepted (Twenge et al., 2015). In contrast, the early-midlife group came of age sexually in a period marked by greater openness towards female sexuality and premarital sex (Twenge et al., 2015). While limited work has examined the impact of such cohort effects on sexual schemas, research does suggest that adherence to traditional gender roles predicts lower sexual desire (Smets et al., 2025). Those who endorse ageist sexual stereotypes (e.g., that older individuals should cease sex or that sex is no longer necessary for intimacy) tend to report more difficulties with sexual pain and lower importance of sex (Gocieková et al., 2025). Though this study cannot directly discern the influence of sociocultural factors on one's schema, existing research suggests the social circumstances in which one comes of age, alongside current beliefs and attitudes towards sexuality, meaningfully shape one's schema and sexual function, highlighting an area for future research.

Sexual function and sexual schemas

Though early midlife women's schemas tended to have higher theme prominence of *Sexual Pleasure* (theme 2) and *Intimacy and Self-Perception* (theme 5), these differences disappeared when accounting for variance in sexual function. This suggests that sexual function may be more related to how women perceive themselves as intimate, sexual beings, than age itself. Our findings are consistent with other literature suggesting that women with higher self-esteem report better markers of sexual function, including greater sexual satisfaction in a sample of midlife women (Mernone et al., 2019), and more erotic thoughts, greater arousal, and increased frequency of achieving orgasms among menopausal women (Borissova et al., 2001). Thus, better sexual function may support a more positive sense of attractiveness, desirability, or relational confidence, that is relevant for one's self-perception and sexual pleasure. However, because sexual function was assessed only for sexually active women, these findings may specifically reflect experiences of late-midlife women who remain sexually active; among these women, age may not diminish the prominence of Sexual Pleasure in their schemas. Indeed, prior research indicates that women aged 50–60 years who engaged in sex more than five times per month, compared to once or less, reported greater sexual satisfaction and more positive sexual attitudes (Nappi & Nijland, 2008), which may result in greater emphasis on pleasure in their schemas.

Early-midlife women's schemas were more likely to include the theme *Evolving Sexual Self* (theme 7), though this effect was no longer significant when accounting for sexual function; instead, orgasm function predicted greater theme prominence. This finding makes sense when considering that satisfying orgasms likely contribute to the experiences this theme emphasizes—namely, the importance of sex historically and currently, future expectations, the desire to continue sexual activity, and realizing how to have stronger, more complete sexual experiences. Moreover, a significant moderation effect emerged, such that for late-midlife women only, greater

sexual function was associated with greater prominence of the Evolving Sexual Self theme. It is possible that women who maintain a positive sexual schema that evolves over time in relation to their sexual experiences are more likely to integrate new practices and experiences that protect against sexual dysfunction. Indeed, seminal work on sexual schemas revealed that more positive sexual schemas served as a protective factor against sexual morbidity and sexual dysfunction, possibly because these women were more willing to prioritize sex, maintain optimistic attitudes, and try new strategies to overcome sexual difficulties (Andersen et al., 1997; Cyranowski et al., 1999). Alternatively, negative or conflicted self-schemas are associated with increased sexual dysfunction due to negative affect and beliefs that impair the sexual experience, in turn creating a negative feedback loop (Cyranowski et al., 1999; Rellini & Meston, 2011). Thus, older women with sexual dysfunction may benefit from cognitive restructuring to think about their sexuality differently and more positively.

Similarities in sexual self-schemas

Two themes, Sexual Debuts (theme four) and Emotional Connection (theme six), did not differ between early- and late-midlife women. Considering the theme of *Sexual Debuts*, it appears that early sexual experiences remain an important component of sexual schemas across the lifespan, which makes sense, given that retrospective evaluations of one's first sexual experience predict current sexual self-efficacy and sexual function (Reissing et al., 2012).

Trust, comfort, commitment, and love—concepts comprising the *Emotional Connection* theme—appear to contribute to women's view of themselves as a sexual being across the lifespan. This finding is consistent with qualitative studies revealing that postmenopausal women emphasize the importance of seeking out other ways to develop intimacy beyond sex (Ling et al., 2008) and the frequency with which women have sex to express love and commitment does not differ across the lifespan (Wyverkens et al., 2018).

While age is not related to the prominence of Emotional Connection, Sexual function is relevant, such that higher orgasm function predicted more theme prominence. Having a romantic partner and having better communication with that partner predicts greater sexual function and satisfaction (Thomas & Thurston, 2016; Wongsomboon et al., 2020). Thus, women in satisfying relationships may have more satisfying orgasms, in turn reinforcing their schematic association between sex and intimacy. In contrast to orgasm function, the association with lubrication was negative, such that more difficulties predicted higher theme prominence of Emotional Connection. Vaginal dryness becomes increasingly common with age and is a hallmark symptom of menopause (NAMS, 2020) that can necessitate the use of lubricants and alternative approaches to sex. Such strategies may be easier to implement with a trusted partner and when one feels a strong sense of emotional connection (Harper et al., 2022; Nappi & Nijland, 2008; Wong et al., 2018). Together, our results suggest that enhancing emotional intimacy may improve one's sexual schema and consequently, one's sexual function and relationship satisfaction.

Limitations

This study has several limitations that warrant discussion. Although we were adequately powered to detect a medium effect size, there may be small effects we did not detect due to our sample size. In addition, more participants would increase the richness and diversity of our writing samples, potentially altering the themes that emerge. Though participants were instructed to write for 20 minutes and required to write a minimum of three sentences, we were unable to ensure participants engaged authentically and with significant effort. Additionally, while we reviewed essays that scored both high and low in our themes to establish face validity of the extracted thematic content (as validated in previous work; Markowitz, 2021), quantitatively-derived themes such as those captured from the MEM may miss participants' intended meanings and nuances in responding.

To best capture differences in sexual schemas between early- and late-midlife women, we excluded women between the ages of 46 and 50 as this transitional age range may have reduced our ability to detect differences in sexual schemas (e.g., the schemas of a 50- and a 51-year-old may be more similar than those of a 45- and a 51-year-old). However, this decision resulted in those ages 46–50 not captured in this work, which warrants future research. We also did not assess menopause status by date of menses specifically, though based on the median age of menopause (Gold, 2011; InterLACE Study Team, 2019), it is likely that most, if not all late-midlife participants were at least perimenopausal. Supporting this reasoning, 59% of sexual schemas from women in our late-midlife group directly mentioned the impact of menopause or aging on their sexual function or sexual behavior. Future work should consider menopausal status to disentangle the specific contribution of menopause from broader age-related changes.

We assessed sexual functioning among sexually active women (defined as penile-vaginal intercourse), and therefore our findings are biased towards women who both can and do engage in this type of sexual activity. Our findings are also likely to be biased towards heterosexual women, given that sexually minoritized women may not engage in penile-vaginal sex. Additionally, we did not assess for other indicators of sexual well-being that may contribute to one's schema such as relationship satisfaction, solo sexual activity, comfort with sexuality, or sexual self-esteem (Mitchell et al., 2021). Nor did we measure whether participants were distressed about their sexual function—a requirement when diagnosing female sexual dysfunction—therefore cannot draw conclusions about diagnosed sexual dysfunction. Capturing numerous indicators of sexual well-being and a range of sexual behaviors among both midlife women will help parse out the effects of sexual well-being on sexual schemas.

Finally, it is unclear the direction of causality between sexual function and sexual schemas. For instance, does decreasing desire precede changes in sexual schemas, or does aging result in viewing oneself as less sexual, in turn impacting their desire? The association is likely bidirectional, although research does indicate that altering psychological processes can impact physiological experiences. For example, randomized clinical trials reveal that altering sexual schemas through writing interventions improves sexual function in women who experienced childhood sexual abuse (Kilimnik & Meston, 2025; Meston et al., 2013), and a meta-analysis reveals that psychoeducational interventions improve all FSFI domains of sexual dysfunction (Santos Silva et al., 2022). Future work should investigate the impact of intervening on midlife women's sexual schemas, that if prove to be effective at reducing sexual dysfunction, would both help clarify the direction of causality and provide a new treatment option.

Conclusion

Do sexual schemas change across midlife? Our results suggest they do, revealing meaningful differences across the lifespan. Sexual function also appears to play an important role in sexual schemas, particularly when sexual schemas emphasize emotional connection. The sexual schemas of late-midlife women are diverse and often include themes relating to their relationship(s), past trauma and abuse, sexual pleasure, and whether they view themselves positively or negatively as a sexual being. Taken together, women over 50 can and do maintain satisfying and fulfilling sex lives, and their sexual schemas seem to play an important role in how they experience intimacy and adapt to potential age-related changes in sexual function.

Acknowledgments

All three authors (K.B.M, C.D.K, and C.M.M) have provided final approval of the manuscript prior to submission and agree to be accountable for all aspects of the work. In addition, K.B.M. was responsible for conception and design of the work, analysis and interpretation of the data, drafting the paper, and revising it critically for intellectual content. C.D.K. was responsible for conception and design, acquisition, analysis, and interpretation of the data, and revising the manuscript critically for intellectual content. C.M.M. was responsible for conception and design of the work and revising the manuscript for intellectual content.

Authors' contributions

CRediT: **Kate B. Metcalfe**: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing; **Chelsea D. Kilimnik**: Conceptualization, Data curation, Investigation, Methodology, Project administration, Resources, Software; **Cindy M. Meston**: Conceptualization, Methodology, Resources, Supervision, Validation.

Disclosure statement

We have no known conflicts of interest to disclose.

Funding

This work was supported by the International Society for the Study of Women's Sexual Health; Kate Metcalfe's work was supported in part by the Social Sciences and Humanities Research Council of Canada.

ORCID

Kate B. Metcalfe http://orcid.org/0000-0002-9787-3638
Chelsea D. Kilimnik http://orcid.org/0000-0002-9346-7544
Cindy M. Meston http://orcid.org/0000-0002-8771-3956

Data availability statement

The data that support the findings of this study are freely available upon request to the corresponding author, C.M.M.

References

Allen, A., & Tully-Wilson, C. (2023). Early adaptive schemas and sexual wellbeing in women: Exploring differences in menopausal status. *International Journal of Applied Positive Psychology*, *8*(3), 501–529. https://doi.org/10.1007/s41042-023-00100-x

American Association of Retired Persons. (2005). *Sexuality at midlife and beyond: 2004 update of attitudes and behaviors*. AARP. https://www.aarp.org/pri/topics/social-leisure/relationships/2004_sexuality/

Amore, M., Di Donato, P., Berti, A., Palareti, A., Chirico, C., Papalini, A., & Zucchini, S. (2007). Sexual and psychological symptoms in the climacteric years. *Maturitas*, *56*(3), 303–311. https://doi.org/10.1016/j.maturitas.2006.09.006

Andersen, B. L., & Cyranowski, J. M. (1994). Women's sexual self-schema. *Journal of Personality and Social Psychology*, *67*(6), 1079–1100. https://doi.org/10.1037/0022-3514.67.6.1079

Andersen, B. L., Woods, X. A., & Copeland, L. J. (1997). Sexual self-schema and sexual morbidity among gynecologic cancer survivors. *Journal of Consulting and Clinical Psychology*, *65*(2), 221–229. https://doi.org/10.1037/0022-006X.65.2.221

Astle, S., Anders, K. M., McAllister, P., Hanna-Walker, V., & Yelland, E. (2025). The conceptualization and measurement of sexual self-concept and sexual self-schema: A systematic literature review. *The Journal of Sex Research*, *62*(1), 95–106. https://doi.org/10.1080/00224499.2023.2244937

Avis, N. E., Brockwell, S., Randolph, J. F., Shen, S., Cain, V. S., Ory, M., & Greendale, G. A. (2009). Longitudinal changes in sexual functioning as women transition through menopause: Results from the study of women's health across the nation (SWAN). *Menopause*, *16*(3), 442–452. https://doi.org/10.1097/gme.0b013e3181948dd0

Ayers, B., Forshaw, M., & Hunter, M. S. (2010). The impact of attitudes towards the menopause on women's symptom experience: A systematic review. *Maturitas*, *65*(1), 28–36. https://doi.org/10.1016/j.maturitas.2009.10.016

Ballard, K. D., Kuh, D. J., & Wadsworth, M. E. J. (2001). The role of the menopause in women's experiences of the 'change of life.' *Sociology of Health & Illness*, *23*(4), 397–424. https://doi.org/10.1111/1467-9566.00258

Beyazit, F., & Sahin, B. (2018). Determining the factors influencing the intimate relationship between sexual satisfaction and dyadic adjustment in postmenopausal women. *Menopause Review*, *17*(2), 57–62. https://doi.org/10.5114/pm.2018.77302

Borissova, A.-M., Kovatcheva, R., Shinkov, A., & Vukov, M. (2001). A study of the psychological status and sexuality in middle-aged Bulgarian women: Significance of the hormone replacement therapy (HRT). *Maturitas*, *39*(2), 177–183. https://doi.org/10.1016/S0378-5122(01)00191-8

Boyd, R. L. (2023). *MEH: Meaning Extraction Helper (Version 2.3.02)* [Computer software]. https://www.ryanboyd.io/software/meh

Bradford, A., & Meston, C. M. (2007). Senior sexual health: The effects of aging on sexuality. In L. VandeCreek, F. L. Peterson, & J. W. Bley (Eds.), *Innovations in clinical practice: Focus on sexual health* (pp. 35–45). Professional Resource Press/Professional Resource Exchange.

Bühler, J. L., Krauss, S., & Orth, U. (2021). Development of relationship satisfaction across the life span: A systematic review and meta-analysis. *Psychological Bulletin*, *147*(10), 1012–1053. https://doi.org/10.1037/bul0000342

Burger, H., Woods, N. F., Dennerstein, L., Alexander, J. L., Kotz, K., & Richardson, G. (2007). Nomenclature and endocrinology of menopause and perimenopause. *Expert Review of Neurotherapeutics*, *7*(sup 1), S35–S43. https://doi.org/10.1586/14737175.7.11s.S35

Canan, S. N., Kaplan, A. M., & Jozkowski, K. N. (2023). A national US study of 906 women's qualitative accounts of their reactions during sexual assault. *Sexuality Research and Social Policy*, *20*(3), 977–992. https://doi.org/10.1007/s13178-022-00772-1

Carpenter, K. M., Andersen, B. L., Fowler, J. M., & Maxwell, G. L. (2009). Sexual self schema as a moderator of sexual and psychological outcomes for gynecologic cancer survivors. *Archives of Sexual Behavior*, *38*(5), 828–841. https://doi.org/10.1007/s10508-008-9349-6

Chrisler, J. C. (2013). Teaching taboo topics: Menstruation, menopause, and the psychology of women. *Psychology of Women Quarterly*, *37*(1), 128–132. https://doi.org/10.1177/0361684312471326

Chung, C. K., & Pennebaker, J. W. (2008). Revealing dimensions of thinking in open-ended self-descriptions: An automated meaning extraction method for natural language. *Journal of Research in Personality*, *42*(1), 96–132. https://doi.org/10.1016/j.jrp.2007.04.006

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates, Publishers.

Cyranowski, J. M., Aarestad, S. L., & Andersen, B. L. (1999). The role of sexual self-schema in a diathesis-stress model of sexual dysfunction. *Applied and Preventive Psychology*, *8*(3). 217–228. https://doi.org/10.1016/S0962-1849(05)80078-2

Davidson, K. (2002). Gender differences in new partnership choices and constraints for older widows and widowers. *Ageing International*, *27*(4), 43–60. https://doi.org/10.1007/s12126-002-1014-0

Dworkin, E. R., Krahé, B., & Zinzow, H. (2021). The global prevalence of sexual assault: A systematic review of international research since 2010. *Psychology of Violence*, *11*(5), 497–508. https://doi.org/10.1037/vio0000374

Edwards, M. E., Howard Valdivia, R. L., Blayney, J. A., & Jaffe, A. E. (2025). Sexual assault labeling over time among gender and sexual identity groups: How and why survivors' perceptions changed. *Sex Roles*, *91*(4), 28. https://doi.org/10.1007/s11199-025-01576-4

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Fisher, W. A., Donahue, K. L., Long, J. S., Heiman, J. R., Rosen, R. C., & Sand, M. S. (2015). Individual and partner correlates of sexual satisfaction and relationship happiness in midlife couples: Dyadic analysis of the international survey of relationships. *Archives of Sexual Behavior*, *44*(6), 1609–1620. https://doi.org/10.1007/s10508-014-0426-8

Gibson, C. J., Huang, A. J., McCaw, B., Subak, L. L., Thom, D. H., & Van Den Eeden, S. K. (2019). Associations of intimate partner violence, sexual assault, and posttraumatic stress disorder with menopause symptoms among midlife and older women. *JAMA Internal Medicine*, *179*(1), 80–87. https://doi.org/10.1001/jamainternmed.2018.5233

Giraldi, A., Nappi, R. E., Palacios, S., Reisman, Y., & Jannini, E. A. (2024). From couplepause to doublepause: The impact of midlife physical, psychological, and social changes on the sexual life of aging couples. *Sexual Medicine Reviews*, *12*(3), 346–354. https://doi.org/10.1093/sxmrev/qeae016

Gocieková, V., Stašek, A., Ševčíková, A., & Gore-Gorszewska, G. (2025). The role of ageist sexual stereotypes in the network of sexual difficulties, sex and relationship satisfaction among adults aged 50+. *The Journal of Sex Research*, *62*(8), 1427–1441. https://doi.org/10.1080/00224499.2024.2307441

Gold, E. B. (2011). The timing of the age at which natural menopause occurs. *Obstetrics and Gynecology Clinics of North America*, *38*(3), 425–440. https://doi.org/10.1016/j.ogc.2011.05.002

Gottschalk, M. S., Eskild, A., Hofvind, S., Gran, J. M., & Bjelland, E. K. (2020). Temporal trends in age at menarche and age at menopause: A population study of 312 656 women in Norway. *Human Reproduction*, *35*(2), 464–471. https://doi.org/10.1093/humrep/dez288

Gümüşsoy, S., Öztürk, R., Keskin, G., & Özlem Yıldırım, G. (2023). Effects of surgical and natural menopause on body image, self-esteem, and dyadic adjustment: A descriptive and comparative study. *Clinical Nursing Research*, *32*(4), 712–722. https://doi.org/10.1177/10547738221114588

Hale, G. E., Robertson, D. M., & Burger, H. G. (2014). The perimenopausal woman: Endocrinology and management. *Journal of Steroid Biochemistry and Molecular Biology*, *142*, 121–131. https://doi.org/10.1016/j.jsbmb.2013.08.015

Hall, L., Callister, L. C., Berry, J. A., & Matsumura, G. (2007). Meanings of menopause: Cultural influences on perception and management of menopause. *Journal of Holistic Nursing*, *25*(2), 106–118. https://doi.org/10.1177/0898010107299432

Harper, J. C., Phillips, S., Biswakarma, R., Yasmin, E., Saridogan, E., Radhakrishnan, S., Davies, M. C, & Talaulikar, V. (2022). An online survey of perimenopausal women to determine their attitudes and knowledge of the menopause. *Women's Health*, *18*, 1–18. https://doi.org/10.1177/17455057221106890

Hickey, M., Hunter, M. S., Santoro, N., & Ussher, J. (2022). Normalising menopause. *BMJ*, *377*, e069369. https://doi.org/10.1136/bmj-2021-069369

Hoga, L., Rodolpho, J., Gonçalves, B., & Quirino, B. (2015). Women's experience of menopause: A systematic review of qualitative evidence. *JBI Evidence Synthesis*, *13*(8), 250–337. https://doi.org/10.11124/jbisrir-2015-1948

Huberman, J. S., Bouchard, K. N., Wang, G. A., & Rosen, N. O. (2021). Conceptualizing sexual self-schemas: A review of different approaches and their implications for understanding women's sexual function. *Current Sexual Health Reports*, *13*(3), 68–75. https://doi.org/10.1007/s11930-021-00310-x

InterLACE Study Team. (2019). Variations in reproductive events across life: A pooled analysis of data from 505 147 women across 10 countries. *Human Reproduction*, *34*(5), 881–893. https://doi.org/10.1093/humrep/dez015

Kilimnik, C. D., & Meston, C. M. (2025). Online expressive writing intervention for the psychosexual well-being of women with a history of childhood sexual abuse: A randomized clinical trial. *The Journal of Sexual Medicine*, *22*(5), 839–850. https://doi.org/10.1093/jsxmed/qdaf035

Kilimnik, C. D., Boyd, R. L., Stanton, A. M., & Meston, C. M. (2018). Identification of nonconsensual sexual experiences and the sexual self-schemas of women: Implications for sexual functioning. *Archives of Sexual Behavior*, *47*(6), 1633–1647. https://doi.org/10.1007/s10508-018-1229-0

Køster, A., & Garde, K. (1993). Sexual desire and menopausal development. A prospective study of Danish women born in 1936. *Maturitas*, *16*(1), 49–60. https://doi.org/10.1016/0378-5122(93)90133-3

Lachman, M. E., Teshale, S., & Agrigoroaei, S. (2015). Midlife as a pivotal period in the life course: Balancing growth and decline at the crossroads of youth and old age. *International Journal of Behavioral Development*, *39*(1), 20–31. https://doi.org/10.1177/0165025414533223

Levy, I., & Eckhaus, E. (2020). Rape narratives analysis through natural language processing: Survivor self-label, narrative time span, faith, and rape terminology. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(6), 635–642. https://doi.org/10.1037/tra0000587

Lindau, S. T., Schumm, L. P., Laumann, E. O., Levinson, W., O'Muircheartaigh, C. A., & Waite, L. J. (2007). A study of sexuality and health among older adults in the United States. *New England Journal of Medicine*, *357*(8), 762–774. https://doi.org/10.1056/NEJMoa067423

Ling, D. C. Y., Wong, W. C. W., & Ho, S. C. (2008). Are post-menopausal women "half-a-man"? Sexual beliefs, attitudes and concerns among midlife Chinese women. *Journal of Sex & Marital Therapy*, *34*(1), 15–29. https://doi.org/10.1080/00926230701620522

Maechler, M., Rousseeuw, P., Croux, C., Todorov, V., Ruckstuhl, A., Salibian-Barrera, M., Verbeke, T., Koller, M., Conceicao, E. L., & Anna di Palma, M. (2024). *robustbase: Basic Robust Statistics* (Version R package version 0.99-4-1) [Computer software]. http://robustbase.r-forge.r-project.org/

Mark, K. P., & Lasslo, J. A. (2018). Maintaining sexual desire in long-term relationships: A systematic review and conceptual model. *Journal of Sex Research*, *55*(4–5), 563–581. https://doi.org/10.1080/00224499.2018.1437592

Markowitz, D. M. (2021). The meaning extraction method: An approach to evaluate content patterns from large-scale language data. *Frontiers in Communication*, *6*, 588823. https://doi.org/10.3389/fcomm.2021.588823

McCall, K., & Meston, C. (2006). Cues resulting in desire for sexual activity in women. *Journal of Sexual Medicine*, *3*(5), 838–852. https://doi.org/10.1111/j.1743-6109.2006.00301.x

McCall, K., & Meston, C. (2007). Differences between pre- and postmenopausal women in cues for sexual desire. *The Journal of Sexual Medicine*, *4*(2), 364–371. https://doi.org/10.1111/j.1743-6109.2006.00421.x

Mernone, L., Fiacco, S., & Ehlert, U. (2019). Psychobiological factors of sexual functioning in aging women: Findings from the women 40+ aging study. *Frontiers in Psychology*, *10*, 546. https://doi.org/10.3389/fpsyg.2019.00546

Meston, C. M., Lorenz, T. A., & Stephenson, K. R. (2013). Effects of expressive writing on sexual dysfunction, depression, and PTSD in women with a history of childhood sexual abuse: Results from a randomized clinical trial. *The Journal of Sexual Medicine*, *10*(9), 2177–2189. https://doi.org/10.1111/jsm.12247

Meston, C. M., Rellini, A. H., & Heiman, J. R. (2006). Women's history of sexual abuse, their sexuality, and sexual self-schemas. *Journal of Consulting and Clinical Psychology*, *74*(2), 229–236. https://doi.org/10.1037/0022-006X.74.2.229

Metcalfe, K. B., & Meston, C. M. (2026). A scoping review of the biopsychosocial factors influencing sexual desire in menopause. *Sexual Medicine Reviews*, *14*(1), qeag009. https://doi.org/10.1093/sxmrev/qeag009

Metcalfe, K. B., Kilimnik, C. D., & Meston, C. M. (2024). Predictors of duty sex frequency in women. *The Journal of Sexual Medicine*, *21*(12), 1120–1130. https://doi.org/10.1093/jsxmed/qdae137

Miller, L. R. (2021). Single women's sexualities across the life course: The role of major events, transitions, and turning points. *Sexualities*, *24*(1–2), 226–251. https://doi.org/10.1177/1363460720922754

Mitchell, K. R., Lewis, R., O'Sullivan, L. F., & Fortenberry, J. D. (2021). What is sexual wellbeing and why does it matter for public health? *The Lancet Public Health*, *6*(8), e608–e613. https://doi.org/10.1016/S2468-2667(21)00099-2

NAMS. (2020). The 2020 genitourinary syndrome of menopause position statement of The North American Menopause Society. *Menopause*, *27*(9), 976–992. https://doi.org/10.1097/GME.0000000000001609

Nappi, R. E., & Lachowsky, M. (2009). Menopause and sexuality: Prevalence of symptoms and impact on quality of life. *Maturitas*, *63*(2), 138–141. https://doi.org/10.1016/j.maturitas.2009.03.021

Nappi, R. E., & Nijland, E. A. (2008). Women's perception of sexuality around the menopause: Outcomes of a European telephone survey. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *137*(1), 10–16. https://doi.org/10.1016/j.ejogrb.2006.10.036

Niehaus, A. F., Jackson, J., & Davies, S. (2010). Sexual self-schemas of female child sexual abuse survivors: Relationships with risky sexual behavior and sexual assault in adolescence. *Archives of Sexual Behavior*, *39*(6), 1359–1374. https://doi.org/10.1007/s10508-010-9600-9

Nosek, M., Kennedy, H. P., & Gudmundsdottir, M. (2010). Silence, stigma, and shame: A postmodern analysis of distress during menopause. *Advances in Nursing Science*, *33*(3), E24–E36. https://doi.org/10.1097/ANS.0b013e3181eb41e8

Nosek, M., Kennedy, H. P., & Gudmundsdottir, M. (2012). Distress during the menopause transition: A rich contextual analysis of midlife women's narratives. *SAGE Open*, *2*(3). https://doi.org/10.1177/2158244012455178

Payne, K. K. (2021). Median age at first marriage, 2020. *Family Profiles, FP-21-12.* National Center for Family & Marriage Research. https://doi.org/10.25035/ncfmr/fp-21-12

Pennebaker, J. W., & Chung, C. K. (2012). Expressive writing: Connections to physical and mental health. In H. S. Friedman (Ed.), *The Oxford handbook of health psychology* (pp. 417–437). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195342819.013.0018

Pio, J., Valadares, A. L., & Costa Paiva, L. (2024). Female and male factors that impact on frequency of sexual intercourse in aging couples: A cross-sectional study. *Menopause*, *31*(10), 871–878. https://doi.org/10.1097/GME.0000000000002409

R Core Team. (2023). *R: A language and environment for statistical computing* [Computer software]. R Foundation for Statistical Computing. https://www.r-project.org/

Ramírez-Esparza, N., Chung, C. K., Sierra-Otero, G., & Pennebaker, J. W. (2012). Cross-cultural constructions of self-schemas: Americans and Mexicans. *Journal of Cross-Cultural Psychology*, *43*(2), 233–250. https://doi.org/10.1177/0022022110385231

Reissing, E. D., Andruff, H. L., & Wentland, J. J. (2012). Looking back: The experience of first sexual intercourse and current sexual adjustment in young heterosexual adults. *The Journal of Sex Research*, *49*(1), 27–35. https://doi.org/10.1080/00224499.2010.538951

Rellini, A. H., & Meston, C. M. (2011). Sexual self-schemas, sexual dysfunction, and the sexual responses of women with a history of childhood sexual abuse. *Archives of Sexual Behavior*, *40*, 351–362. https://doi.org/10.1007/s10508-010-9694-0

Riffenburgh, R. H. (2012). Methods you might meet, but not every day. In R. H. Riffenburgh (Ed.), *Statistics in medicine* (3rd ed., pp. 581–591). Academic Press. https://doi.org/10.1016/B978-0-12-384864-2.00028-7

Ringa, V., Diter, K., Laborde, C., & Bajos, N. (2013). Women's sexuality: From aging to social representations. *The Journal of Sexual Medicine*, *10*(10), 2399–2408. https://doi.org/10.1111/jsm.12267

Rosen, R., Brown, C., Heiman, J., Leiblum, S., Meston, C., Shabsigh, R., Ferguson, D., & D'Agostino, R. (2000). The female sexual function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, *26*(2), 191–208. https://doi.org/10.1080/009262300278597

Santos Silva, I. M., Paula Pinto, M., & Gonçalves, D. (2022). Educational programs and sexual counselling for postmenopausal sexual dysfunction: A systematic review and meta-analysis. *The Journal of Sexual Medicine*, *19*(1), 54–63. https://doi.org/10.1016/j.jsxm.2021.09.017

Simpson, P., Horne, M., Brown, L. J. E., Wilson, C. B., Dickinson, T., & Torkington, K. (2017). Old(er) care home residents and sexual/intimate citizenship. *Ageing & Society*, *37*(2), 243–265. https://doi.org/10.1017/S0144686X15001105

Smets, J. W., Miller, S., & Leys, C. (2025). The impact of heterosexual scripts on women's sexual desire in relationships. *Archives of Sexual Behavior*, *54*(3), 1023–1041. https://doi.org/10.1007/s10508-025-03096-4

Spector, A., Li, Z., He, L., Badawy, Y., & Desai, R. (2024). The effectiveness of psychosocial interventions on non-physiological symptoms of menopause: A systematic review and meta-analysis. *Journal of Affective Disorders*, *352*, 460–472. https://doi.org/10.1016/j.jad.2024.02.048

Stanton, A. M., Boyd, R. L., Pulverman, C. S., & Meston, C. M. (2015). Determining women's sexual self-schemas through advanced computerized text analysis. *Child Abuse & Neglect*, *46*, 78–88. https://doi.org/10.1016/j.chiabu.2015.06.003

Steinke, E. E., Wright, D. W., Chung, M. L., & Moser, D. K. (2008). Sexual self-concept, anxiety, and self-efficacy predict sexual activity in heart failure and healthy elders. *Heart & Lung*, *37*(5), 323–333. https://doi.org/10.1016/j.hrtlng.2007.09.004

Syme, M. L. (2014). The evolving concept of older adult sexual behavior and its benefits. *Generations: Journal of the American Society on Aging*, *38*(1), 35–41. https://www.jstor.org/stable/26556024

Thomas, H. N., & Thurston, R. C. (2016). A biopsychosocial approach to women's sexual function and dysfunction at midlife: A narrative review. *Maturitas*, *87*, 49–60. https://doi.org/10.1016/j.maturitas.2016.02.009

Thomas, H. N., Chang, C.-C. H., Dillon, S., & Hess, R. (2014). Sexual activity in midlife women: Importance of sex matters. *JAMA Internal Medicine*, *174*(4), 631–633. https://doi.org/10.1001/jamainternmed.2013.14402

Thomas, H. N., Hess, R., & Thurston, R. C. (2015). Correlates of sexual activity and satisfaction in midlife and older women. *Annals of Family Medicine*, *13*(4), 336–342. https://doi.org/10.1370/afm.1820

Twenge, J. M., Sherman, R. A., & Wells, B. E. (2015). Changes in American adults' sexual behavior and attitudes, 1972–2012. *Archives of Sexual Behavior*, *44*(8), 2273–2285. https://doi.org/10.1007/s10508-015-0540-2

Ussher, J. M., Perz, J., & Parton, C. (2015). Sex and the menopausal woman: A critical review and analysis. *Feminism & Psychology*, *25*(4), 449–468. https://doi.org/10.1177/0959353515579735

Vincent, C., Bodnaruc, A. M., Prud'homme, D., Olson, V., & Giroux, I. (2023). Associations between menopause and body image: A systematic review. *Women's Health*, *19*. https://doi.org/10.1177/17455057231209536

Watson, W. K., & Stelle, C. (2011). Dating for older women: Experiences and meanings of dating in later life. *Journal of Women & Aging*, *23*(3), 263–275. https://doi.org/10.1080/08952841.2011.587732

Wellings, K., Gibson, L., Lewis, R., Datta, J., Macdowall, W., & Mitchell, K. (2023). "We're just tired": Influences on sexual activity among male-partnered women in midlife; A mixed method study. *The Journal of Sex Research*, *60*(9), 1304–1317. https://doi.org/10.1080/00224499.2023.2165613

Wong, E. L. Y., Huang, F., Cheung, A. W. L., & Wong, C. K. M. (2018). The impact of menopause on the sexual health of Chinese Cantonese women: A mixed methods study. *Journal of Advanced Nursing*, *74*(7), 1672–1684. https://doi.org/10.1111/jan.13568

Wongsomboon, V., Burleson, M. H., & Webster, G. D. (2020). Women's orgasm and sexual satisfaction in committed sex and casual sex: Relationship between sociosexuality and sexual outcomes in different sexual contexts. *Journal of Sex Research*, *57*(3), 285–295. https://doi.org/10.1080/00224499.2019.1672036

Wood, D., Crapnell, T., Lau, L., Bennett, A., Lotstein, D., Ferris, M., & Kuo, A. (2018). Emerging adulthood as a critical stage in the life course. In N. Halfon, C. B. Forrest, R. M. Lerner, & E. M. Faustman (Eds.), *Handbook of life course health development*. Springer. http://www.ncbi.nlm.nih.gov/books/NBK543712/

Woods, N. F., & Mitchell, E. S. (2011). Symptom interference with work and relationships during the menopausal transition and early postmenopause: Observations from the Seattle Midlife Women's Health Study. *Menopause*, *18*(6), 654–661. https://doi.org/10.1097/gme.0b013e318205bd76

Wyverkens, E., Dewitte, M., Deschepper, E., Corneillie, J., Van der Bracht, L., Van Regenmortel, D., Van Cleempoel, K., De Boose, N., Prinssen, P., & T'Sjoen, G. (2018). YSEX? A replication study in different age groups. *The Journal of Sexual Medicine*, *15*(4), 492–501. https://doi.org/10.1016/j.jsxm.2018.02.012

Zhang, F., Yang, Z., Li, X., & Wang, A. (2023). Factors influencing the quality of sexual life in the older adults: A scoping review. *International Journal of Nursing Sciences*, *10*(2), 167–173. https://doi.org/10.1016/j.ijnss.2023.03.006