

Sexual shame: a narrative review

Anna Grace C. Coates, MSc*  and Cindy M. Meston, PhD 

Department of Psychology, The University of Texas at Austin, Austin, TX 78712-1043, United States

*Corresponding author: Department of Psychology, The University of Texas at Austin, Austin, TX 78712-1043, United States. Email annagracecc@utexas.edu.

Abstract

Introduction: Sexual shame, a nuanced subset of general shame, is relatively nascent in the sexual wellbeing literature. Resulting from negative self-evaluation, sexual shame may be activated by sexual experiences, thoughts, desires, and behavior and involves feeling inherently flawed and abnormal as a sexual being. Sexual shame's impact on sexual wellbeing can be intuited from related research. Trauma-related shame, for example, is a critical target for clinical treatment, and sex guilt is known to impact sexual wellbeing. Sexual shame, while related to these concepts, is distinct and deserves a deeper understanding of its unique role in sexual wellbeing.

Objectives: This narrative review provides an overview of the sexual wellbeing research that intentionally measures sexual shame.

Methods: A literature search was conducted through PsychInfo, PsycARTICLES, and PubMed using the search term *sexual shame*. Articles were included if they were empirical studies published in English that presented original findings and explicitly measured sexual shame as a key variable.

Results: Sexual shame is linked to numerous facets of sexual wellbeing. It is a significant consequence after nonconsensual sexual experiences and acts as a mechanism for sexual dysfunction. Sexual shame plays a key role in the cycle of hypersexuality, either perpetuating it or promoting help-seeking behavior. Sexual shame may be an important contributor to general sexual dysfunction, especially in women, but the results are mixed. When individuals believe they are transgressing religious sexual norms, sexual shame is higher, especially regarding pornography use and masturbation.

Conclusion: A clearer understanding of sexual shame's role in sexual wellbeing is vital as it holds significant relationships to numerous components of sexual wellbeing. The current research has methodological limitations regarding measurement (eg, unvalidated measures, conflation with related concepts). Future research must prioritize justified, validated measures of sexual shame to better understand this key factor in sexual wellbeing.

Keywords: sexual shame; sexual wellbeing; sexual violence; sexual dysfunction; sexual health.

Introduction

Sex and shame are notoriously intertwined. Shame frequently appears in research on sexual wellbeing—as a catalyst or consequence of sexual dysfunction, or in the aftermath of sexual violence.^{1,2} However, most studies treat shame as a general negative affective state, rather than examining sexual shame specifically. Yet sexual shame—a distinct and nuanced subtype of shame—may offer unique insights into sexual wellbeing. Despite significant clinical attention and a growing research focus, sexual shame lacks a widely accepted, empirically supported definition. Studies of sexual shame often define it as general shame within a sexual context and operationalize it using loosely adapted shame measures.^{3–6} While these measures possess face validity, they often lack reliability metrics or a guiding theory of sexual shame. The most clearly articulated definition of sexual shame grounded in a phenomenological framework comes from Clark's³ dissertation.

Using grounded theory, Clark³ developed her definition of sexual shame through interviews with women experiencing sexual shame and with therapists who treat it. The resulting definition described sexual shame as “a visceral feeling of humiliation and disgust toward one's own body and identity as a sexual being and a belief of being abnormal and inferior”³ (p. 87). Crucially, sexual shame is the product of a negative self-evaluative process that can be activated by

multiple factors. Sexual shame may be triggered by specific behaviors, thoughts, desires, or experiences but not others, or it may be a more pervasive emotion that encompasses all aspects of an individual's sexuality. Additionally, Clark's³ conceptualization includes shame related to one's body as it pertains to sexuality, distinguishing sexual shame from more general body image concerns. While the triggers of sexual shame may vary in content or intensity, the self-condemning evaluation remains central.

Clark³ hypothesized that this negative self-evaluation develops from a confluence of systems, beginning with silence within one's family around sex-related topics. This silence is compounded by continued silence in peer relationships to avoid further shame while simultaneously hearing inaccurate or idealized information about sex from peers. Because sex is perceived as taboo or inappropriate to discuss within families or peer groups, individuals often turn to broader sources of information that may further contribute to sexual shame by promoting unrealistic ideals (eg, pornography, religion) or communicating contradictory messages (eg, the Madonna/whore complex).

Although this definition of sexual shame is theoretically grounded and derived from qualitative research, it is still limited by the homogeneity of the sample: participants were

Received: August 5, 2025. Revised: January 7, 2026. Accepted: January 9, 2026

© The Author(s) 2026. Published by Oxford University Press on behalf of The International Society for Sexual Medicine. All rights reserved. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

female and raised in Christian American homes.³ Given the significant role of culture in shaping sexual shame, its expression may differ across individuals with varying sociodemographic and cultural backgrounds. Despite these limitations, Clark's³ conceptualization remains the most clearly defined and grounded framework and therefore serves as the guiding model for this review.

As emphasized in Clark's definition, sexual shame is not experienced in isolation. It is often accompanied by related yet distinct emotions, such as sex guilt and sexual disgust. Sex guilt arises from violating perceived sexual norms or failing to behave in a particular way.⁷ Sexual shame, in contrast, stems from feelings of failure about *being* a particular way. For example, an individual who has extra-relational intercourse may experience guilt over their behavior (sex guilt) without necessarily feeling shame about their sexual self (sexual shame). Similarly, while sexual disgust may occur alongside sexual shame, sexual shame represents a global evaluation of the self. This differs from sexual disgust, which reflects an aversive response to specific situations or individuals.^{3,8} Someone may experience initial sexual disgust following an inebriated sexual encounter with a less desirable partner, which may—or may not—develop into shame over their sexual self. Notably, these emotional experiences are multifactorial and can co-occur, further complicating definitional clarity.³ Although overlapping, shame, disgust, and guilt—and their sexual subdimensions—serve distinct functions and offer different conceptual insights.

Sexual shame may have unique relationships to sex and sexual wellbeing. While still an evolving construct, related research underscores the harmful effects of shame on sexual and psychological health. Trauma-related shame, for example, is a well-known therapeutic target among survivors of sexual violence,^{2,9} and sex guilt has been tied to reduce sexual activity, arousal, and increased negative emotions.⁷ More directly, one study found that sexual shame fully mediated the link between childhood sexual abuse (CSA) and later sexual dysfunction.¹⁰ Research on sexual shame as a distinct construct remains limited. While affective shame and shame-proneness are common in sexual health research, studies that explicitly measure sexual shame are rare, even when related to sexual constructs like identity or sexually transmitted infections (STIs),¹¹ and are often conflated with sex guilt or general shame.^{12,13} Yet shame rooted in one's sexual self may pose unique clinical challenges not explained by related constructs. Researchers and clinicians alike stress the importance of distinguishing guilt from shame and further delineating general shame from trauma-related shame, as these constructs hold different implications for peoples lived experiences.^{14,15} Sexual shame deserves that same level of specificity.

To our knowledge, no comprehensive review has focused specifically on sexual shame. This narrative review aims to address that gap by summarizing the literature, organized by sex, that explicitly defines and measures sexual shame, and examines its relationship to sex and sexuality. We focused on studies that intentionally measured sexual shame to provide a clear characterization of the existing research and to avoid conflating related but distinct constructs or emotional experiences. A breakdown of the reviewed studies is found in Appendix.

Methods

We conducted a literature search through EBSCOHost's PsychInfo and PsycARTICLES alongside PubMed using

the search term *sexual shame*. Articles were not limited to a specific timeframe. The search yielded 359 articles. After reviewing titles and abstracts, articles were removed if they did not describe empirical studies ($n = 112$) or did not account for sexual shame in their analyses ($n = 155$). The remaining 92 articles were reviewed and evaluated by the first author; articles were removed if they did not intentionally define and operationalize sexual shame through their measures ($n = 68$). A manual search was also conducted based on reference lists, and an additional study was included on this basis. Articles were included in this review if they were empirical studies published in English, presented original findings, and accounted for sexual shame explicitly in their methodology and analyses as a predictor or outcome variable. In total, 29 articles were included in this overview (10 studies on sexual and psychological wellbeing, five studies on sexual violence, five studies on hypersexuality, five studies on religion, and four studies on pornography use).

Results

Sexual wellbeing

Sexual wellbeing extends beyond biological functioning and genital health to encompass sexual satisfaction, safety, emotional fulfillment, and agency.¹⁶ For the purposes of this review, sexual wellbeing includes sexual function (eg, erectile function, lubrication), sexual desire (eg, spontaneous and responsive), arousal, sexual self-esteem, and sexual satisfaction. It spans both individualized components—like masturbatory behavior or orgasm frequency—and societal influences, such as sexual scripts or sexual cultures. While broad, this scope reflects the intricate and interwoven nature of sexuality.

Women

Yahag et al.¹⁷ examined the relationship between sexual shame and sexual function in 400 Iranian women. Using a measure of global sexual shame, the Sexual Shame Inventory,⁶ they found that relational sexual shame—shame over sharing intimacy with a partner—was most prevalent. This may reflect conservative sexual norms in conservative Iranian society.¹⁸ All subdomains of sexual shame negatively correlated with sexual function. In combination with dysfunctional sexual beliefs, sexual shame predicted 63% of the variance in female sexual functioning—highlighting its potent and multifaceted influence.

Lentz and Zaikman¹⁹ explored how sexual shame related to women's sexual satisfaction and orgasm frequency. Sexual shame, while not a significant predictor of sexual satisfaction, was significantly higher in participants who were younger and/or unmarried, aligning with broader research.²⁰ Sexual shame was negatively correlated with sexual pride and assertiveness, and positively related to religiosity, conservative sexual attitudes, sexism, and endorsement of traditional gender roles. Interestingly, sexual shame was not associated with orgasm frequency during partnered sex but was linked to a lower likelihood of orgasm during masturbation. Individuals who are high in sexual shame may be less likely to masturbate in general, as it is laden with social and religious taboo.²¹ Paradoxically, women high in sexual shame were more likely to report multiple orgasms. The authors speculate that such women may avoid sexual encounters generally, but when they do engage, they may aim to “maximize” the experience—either physically or psychologically.

In another study on masturbation, Bowman²¹ studied 765 women and found that sexual shame was the strongest predictor of emotional responses during masturbation, accounting for over a third of the variance. Despite this, sexual shame levels were relatively low in the sample. The women reported high genital self-image and sexual efficacy—key components of sexual self-esteem and potential buffers against shame.^{22,23} Similarly, Soares et al.²⁴ found generally low sexual shame levels while masturbating in 110 female undergraduates, but among the small subgroup with high shame ($n = 7$), there were marked reductions in sexual function (desire, arousal, orgasm, and satisfaction) and genital self-image.

In a study examining influences on sexual desire within a predominantly female sample (ie, 69%), sexual shame was an insignificant predictor of sexual desire.²⁵ In contrast to earlier findings, however, sexual shame was correlated with solitary sexual desire, implying that some may find engaging in sexual behavior alone less vulnerable than seeking out sexual partners.^{19,25} Notably, this sample of 218 Norwegian participants reported low sexual shame overall with no gender difference between levels, potentially due to Norway's sexually liberal and egalitarian social climate.²⁶

Cultural scripts and early sexual environments also impact women's shame and wellbeing. Pearson²⁷ used a nationally representative longitudinal dataset to assess how sexual cultures in American high schools influenced adolescent sexual attitudes, sexual shame, and adult sexual experiences. In schools with more restrictive sexual cultures—marked by limited birth control access, higher religiosity, and greater sexual shame and guilt—young women reported higher anticipatory sexual shame in adolescence. Yet surprisingly, adolescent sexual shame was positively associated with adulthood orgasm frequency. This may reflect later efforts to counteract internalized sexual shame. Examining television use, another vessel for sexual cultures, Seabrook et al.²⁸ found that sexually active undergraduate women who watched more television—and believed it reflected real life—endorsed more traditional gendered sexual scripts which, in turn, predicted greater sexual shame about their level of sexual experience. However, overall sexual shame levels were low, and the study focused narrowly on sexual shame over level of sexual experience. Broader measurement approaches may uncover additional variance.

Analyzing relationships between losing social face (ie, *mianzi*) and sexual shame in Chinese adults, Peng et al.²⁰ found significant relationships between sexual shame and increased body shame, body dissatisfaction, and desires to be seen in a socially positive way in a predominantly female (54.8%) sample. There were no sex differences in sexual shame between men and women.

Men

Findings on sexual shame in men are fewer and often more variable. Carvalho and Nobre²⁹ explored predictors of sexual desire in 205 Portuguese men, with sexual shame over automatic sexual thoughts emerging as one of the strongest predictors of desire in preliminary models. However, in the final model, only lack of erotic thoughts remained significant. This suggests that while sexual shame may co-occur with low desire, its influence may be overshadowed by more proximal cognitive or emotional factors.

In a Norwegian adolescent sample with coital experience, Træen and Kvaalem³⁰ examined self-efficacy around contraceptive discussions and stopping intercourse. Boys were more

likely than girls to report anticipatory sexual shame about stopping intercourse—possibly due to gendered expectations that boys should always want and initiate sex.³¹ Sexual shame was the most influential emotion related to anticipate contraception discussions, though it was weakly linked to actual contraceptive use. Importantly, past contraceptive experience was associated with lower sexual shame and better self-esteem in both sexes. While sexual shame was not a significant predictor of communicative self-efficacy overall, these patterns suggest that reduced sexual shame may be an important protective factor in adolescents, particularly in boys who may be more sexual shame prone.

Summary

Measurement of sexual shame varied significantly within sexual wellbeing literature, highlighting how sexual shame can be activated at situational, behavioral, and global levels. Participants were asked to assign emotions, including sexual shame, to specific experiences: masturbation,^{21,24} thoughts during intercourse,²⁹ finishing sexual intercourse,¹⁹ level of sexual experience,²⁸ and anticipatory emotions over sexual scenarios.^{27,30} Even with this methodological variability, a consistent picture emerged: sexual shame negatively affects sexual function, especially in women, is tied to lower sexual assertiveness and confidence, and may interfere with healthy sexual communication and satisfaction. Cultural messages about sex can impact sexual empowerment and, in turn, sexual shame.²⁸ When the messages are relatively sex positive, the receivers appear to be more sexually empowered and thus less prone to sexual shame.^{21,24} Gendered expectations often intensify sexual shame: women may internalize shame related to masturbation or sexual agency, while men may experience shame for not adhering to a “sex-driven” masculine ideal.

In sum, sexual shame is a powerful, complex force within the realm of sexual wellbeing. Its role varies across context, gender, and developmental stage, but its impact—when present—tends to be adverse. As the research continues to evolve, clearer definitions and validated measures that do not conflate sexual shame with other emotions will be crucial to deepening our understanding of how shame disrupts, distorts, or diminishes sexual wellbeing.

Sexual violence

Nonconsensual sexual experiences (NSEs) refer to any sexual acts in which consent is not freely and fully given throughout the encounter.³² Shame is an inherent component of NSEs, often arising when individuals struggle to integrate the NSE into their sense of self due to conflicts with prior beliefs about sexual violence.^{2,33,34} The presence of shame following NSEs has significant implications: it can increase psychological distress, inhibit sexual responding, elevate risk for revictimization, and decrease disclosure of the assault to authorities.^{34–36} While general and trauma-related shame are prevalent within the literature, studies specifically examining sexual shame following NSEs are fewer. The available evidence is reviewed below.

Women

Sexual violence is a known contributor to future sexual dysfunction.^{33,37} Amanelahi et al.³⁸ explored the predictive role of abuse history (physical, emotional, sexual) and sexual shame in a sample of 402 Iranian women. Both abuse and sexual shame were strongly associated with sexual dysfunction. Critically, sexual shame emerged as an independent predictor,

suggesting it contributes uniquely to dysfunction beyond the effects of trauma itself. Pulverman and Meston¹⁰ further demonstrated this in their study of 120 women, 63 of whom were survivors of CSA. They examined potential mediators between CSA and sexual dysfunction, including dissociation, attachment insecurity, and genital self-image. Only sexual shame emerged as a significant mediator—fully accounting for the relationship between CSA and adult dysfunction. These findings underscore sexual shame's distinct role in the psychological and physiological sequelae of sexual trauma.

Sexual shame also appears to mediate relational consequences. While not broken down by sex, Barker et al.³⁹ examined pathways between CSA and adult relationship satisfaction in 732 predominantly female adults, 14% of whom had CSA histories. Among survivors, sexual shame was weakly but significantly correlated with attachment anxiety and avoidance. In the full sample, increases in sexual shame were positively associated with anxious and avoidant attachment patterns—especially toward romantic partners—and negatively associated with relationship satisfaction. Sexual shame mediated the link between CSA and relationship dissatisfaction directly, through attachment anxiety, and through attachment avoidance. These findings align with broader literature on insecure attachment in CSA survivors and point to sexual shame as a potential underlying mechanism.⁴⁰

Men

Using the Dual Control Model, Kilimnik and Meston³⁵ examined the impact of sexual shame and NSE identification on sexual excitation and inhibition in men. Comparing three groups of NSE identifiers ($n = 255$), non-identifiers ($n = 239$), and no NSEs ($n = 282$), the authors found that experiencing an NSE—regardless of label—was related to significant increases in sexual shame. Sexual shame significantly predicted sexual inhibition across all subdomains: inhibitory cognitions, relational inhibition, and dyadic concerns. Sexual excitation findings were more nuanced. The relationship between sexual shame and arousability was moderated by group identity—men who labeled their experience as an NSE or had no such history showed a stronger negative relationship between shame and arousal compared to non-identifiers. This supports the broader literature documenting both hypersexuality and hyposexuality following sexual trauma.^{40–42} Kilimnik and Meston's³⁵ results suggest that sexual shame may contribute to either inhibition or excitation depending on how the experience is labeled, integrated, or dissociated.

While not broken down by sex, Parker⁴³ explored CSA, religiosity, and attachment to God as predictors of sexual shame in a sample of 356 predominantly male adults (64.3%). Fourteen percent reported CSA histories, and, while CSA was weakly related to sexual shame, religious variables played a stronger role. Both childhood and current religiosity, along with an insecure attachment to God, were significantly associated with increased sexual shame, accounting for over half the variance in sexual shame levels. These results echo previous findings and suggest that how individuals interpret and make meaning of abuse—especially in religious contexts—may either reinforce or relieve shame.^{35,39}

Summary

Together, the literature presents a cohesive narrative: sexual shame is a frequent and consequential response to sexual violence—especially CSA. It plays a central role in the development of sexual dysfunction,^{10,38} relationship and attachment difficulties,³⁹ and religious instability⁴³ in both sexes.

Notably, these studies used the Kyle Inventory of Sexual Shame (KISS),⁵ a measure of global sexual shame. The studies' results indicate that sexual shame after an NSE expands beyond the specific event to one's whole sexual self. However, the KISS does not have published reliability or validity metrics, limiting the confidence of these findings.^{3,5}

Overall, the research illustrates that sexual shame is not merely a byproduct of sexual trauma, but a mechanism through which trauma exerts enduring influence on sexual and relational health. While the majority of studies focus on CSA survivors—particularly women—future research should expand to include adult sexual assault, male and non-binary populations, and diverse cultural or spiritual frameworks for understanding sexual shame.

Hypersexuality

Also referred to as compulsive sexual behavior or sexual addiction, hypersexuality is typically defined as persistent, intense, and uncontrollable sexual desires, thoughts, or behaviors that lead to significant distress and functional impairment.^{44,45} Sexual shame is consistently linked to hypersexuality, potentially due to its cyclical nature.^{46–51} Individuals ashamed of their sexual urges may withdraw, increasing risk for problematic sexual behaviors.^{52,53} While relief is short-lived after these sexual behaviors, sexual shame often resurfaces and may further reinforce the cycle of hypersexuality or motivate the person to seek help. The complex relationship between sexual shame and hypersexuality—as cause, consequence, or both—is reviewed below.

Men

Cienfuegos-Szalay et al.⁴⁷ explored how sexual shame and emotion dysregulation influence the relationship between internalized homonegativity and hypersexuality in sexual minority men ($n = 982$), a group shown to exhibit higher hypersexuality rates. Sexual shame was strongly associated with internalized homonegativity, emotion dysregulation, and hypersexuality. Notably, sexual shame fully mediated the link between internalized homonegativity and hypersexuality and further exacerbated hypersexual behavior by weakening emotion regulation—leaving individuals more vulnerable to the very behaviors that generate sexual shame.

Jepsen and Brzank⁴⁹ studied 609 German young adults, 64 of whom were classified as hypersexual, assessing links between hypersexuality, sexual shame, guilt, and masturbation-related emotions. While not broken down by sex, about 22% of the overall sample reported sexual shame over masturbation. However, its correlation with hypersexuality was weak, and it did not predict hypersexual behavior in regression analyses. The narrow focus on sexual shame after masturbation rather than global sexual shame—and the conflation with sex guilt—may explain this. Using the same sample, Jepsen et al.⁵⁰ applied a broader shame measure (“I feel ashamed of my sexual activities”), albeit still focused on sexual shame triggered by specific behavior, and found a strong positive correlation between hypersexuality and sexual shame in the hypersexual sample. Sexual shame was also associated with sexual risk-taking and relational consequences. While the sample in both studies was majority female (58.5%), male participants were nearly three times more likely than female participants to be classified as sexual “shame-prone” and over a third of the hypersexual participants were male (ie, 75%), echoing previous findings on the higher prevalence of hypersexuality among men.^{42,54}

Klontz et al.⁵¹ tracked 38 self-identified “sex addicts” (28 men, 10 women) across three treatment phases: pre-treatment, post-treatment, and 6 months later. Their definition of sexual shame included conflict over sexual urges and regret or embarrassment after acting on them—emotional overlap that complicates interpretation.^{55,56} Although shame levels did not significantly drop immediately after treatment for both sexes, they declined meaningfully by 6 months for both sexes. This aligns with evidence that shame is deeply ingrained and slow to shift, even with intervention.⁵⁷

Women

Efrati⁴⁸ explored sexual shame as activated by hypersexual behavior, thoughts, and desires in predominantly female adolescents (52.19%) and how it moderated help-seeking for hypersexuality. While not broken down by sex, higher levels of hypersexuality were linked to increased sexual shame, and both independently predicted help-seeking. Interestingly, hypersexuality was associated with both seeking help and avoiding it. Sexual shame played a moderating role: adolescents with high sexual shame were more likely to seek help, whereas those with low sexual shame tended to avoid it. This illustrates sexual shame’s paradox—it can fuel either self-improvement or withdrawal. Leach and Cidam⁵⁸ found similar dynamics in a meta-analysis: general shame prompts prosocial behavior when perceived as fixable but leads to withdrawal when deemed irredeemable. Because Efrati’s⁴⁸ participants were asked to respond to hypothetical scenarios focused on negative consequences of their hypersexuality, the study’s theoretical nature may have framed shame as more repairable, encouraging help-seeking.

Although Jepsen et al.⁵⁰ did not explore female-specific predictors or emotional correlates in depth, findings suggest that women categorized as hypersexual may experience relational and emotional fallout tied to sexual shame, albeit at lower prevalence than men. Similarly, Klontz et al.’s⁵¹ small sample of women reported reductions in shame post-treatment, reinforcing that shame is malleable but requires sustained effort to change.

Summary

Although definitions of both hypersexuality and sexual shame vary across studies, the research consistently demonstrates a strong relationship between the two. Sexual shame—mainly over hypersexual behaviors, thoughts, and desires—is clearly prevalent among hypersexual individuals and may be especially pronounced in those with poor emotional regulation or high impulsivity.^{47,49,50} While deeply painful to experience, sexual shame may, in some cases, motivate help-seeking—particularly among adolescents—making it a clinically important treatment target alongside psychological distress.^{48,51} Future research may explore how hypersexuality impacts sexual shame related to one’s overall identity as a sexual being.

These findings highlight the cyclical nature of hypersexuality and sexual shame: individuals may engage in sexual behavior to manage distress, only to experience renewed sexual shame after the fact. Sexual shame can further reinforce hypersexual behavior or, in some cases, initiate a desire for change. While hypersexuality in males receives more research attention, sexual shame plays a key role across gender and developmental stages—as both a cause and a consequence—within the broader cycle of hypersexuality.

Religion

Religions often impose strict ethical boundaries on “acceptable” sexual acts and orientations—typically intercourse occurring between a married, cisgender, and heterosexual couple. Deviating from these boundaries can bring intense social, emotional, and spiritual consequences, including sexual shame.^{59,60} At the same time, religion can bolster sexual satisfaction by idealizing sex as a divinely sanctioned act.⁶¹ While religion, sex, and general shame are well-studied, research on sexual shame specifically is still emerging. In this section, we review current findings on the relationship between religion and sexual shame.

Women

Benton⁶² explored sexual shame, purity culture, and adherence to relational and sexual norms in a sample of 315 cisgender women. Her quantitative data found no significant links between sexual shame and purity culture beliefs, gender roles, or religiosity. In contrast to earlier studies, more religious women reported less sexual shame. However, Benton’s qualitative interviews told a different story. All 27 women interviewed described lasting negative impacts of childhood purity culture messaging on adult sexual shame. Her survey had asked about current purity beliefs—which were low among participants—highlighting the need for future research to focus on childhood exposure, when religious messages may have more developmental weight.

Conversely, Volk et al.⁶³ found that childhood religiosity was not a direct predictor of general sexual shame in a balanced study of men and women, but it led to stronger adult religiosity, which in turn predicted moral disapproval of pornography. That disapproval made pornography use feel more out of control, which was associated with greater sexual shame. Here, it was how adult religious beliefs were interpreted that mattered rather than simply growing up religiously. In similar study with a predominantly female sample (ie, 68%), Marcinechová and Záhorcová⁶⁴ again found that higher levels of sexual shame associated with higher levels of religiosity and lower levels of sexual satisfaction. In a subgroup analysis of participants with NSEs ($n = 40$; 92.5% female), sexual shame was even more strongly related to decrease in sexual satisfaction than in the overall sample. There was no significant difference in sexual shame between men and women.

Men

Sexual shame also shows up sharply among men navigating religious restrictions, particularly when it comes to non-marital sex. In a study of single national-orthodox Jewish men ($n = 165$), Wacks et al.⁶¹ found that sexual shame and sex guilt were associated with lower life satisfaction and greater anxiety and depression. However, religiosity played a buffering role. For men with low to moderate religiosity, sexual shame had stronger links to psychological distress. For those with high religiosity, those links weakened or disappeared—possibly due to a stronger emotional relationship with God, more effective religious coping mechanisms, or social support from religious communities.

Among LGBTQ+ individuals (53.2% female), Gusha⁶⁵ found that higher religiosity correlated with greater sexual shame, internalized homonegativity, and internalized homophobia. Sexual shame was more strongly linked to reduced

sexual satisfaction and excitability than religiosity alone was. While all results held for both sexes, men reported significantly more sexual shame.

Summary

Several studies faced notable methodological limitations. Wacks et al.⁶¹ used a composite sexual shame-and-guilt measure, limiting clarity by conflating guilt and shame. Gusha⁶⁵ used a lengthy but unreferenced 76-item scale with no evidence of validation. Benton⁶² used a sexual shame measure validated only for men in a study of women, which may explain inconsistencies between her quantitative and qualitative findings. Despite these methodological concerns, early research on religion and sexual shame underscores religion's dual role as both a protective and risk factor for sexual shame. How someone interprets their religion's view on sex influences sexual shame more than simply being religious, with childhood messages being potentially more influential than current belief systems.^{61–64} Those who deviate from specific religious sexual boundaries often experience more sexual shame, while those who live within religious boundaries experience religiosity as a buffer against sexual shame.^{61,65}

Pornography

Pornography is both pervasive and profitable. Usage rates range from 86% to 98% in men and 54% to 85% in women, and the industry's estimated worth spans from \$1 to \$97 billion.⁶⁶ Critics argue it harms youth, fuels sexual violence and trafficking, and causes psychosexual distress while others defend it as artistic expression, a tool for empowerment, or simply a normative sexual behavior.^{67,68} Against this backdrop, the connection between pornography and sexual shame is both expected and increasingly studied. None of the reviewed studies examined results by gender; as such, the studies are reviewed together.

Floyd et al.⁶⁹ examined pornography use among participants, predominantly female ($n = 55.4\%$), in committed relationships and found that moral incongruence—using porn despite believing it's wrong—was significantly linked to sexual shame. This was, in turn, negatively associated with sexual and relational satisfaction and self-forgiveness. Pornography use alone was not predictive of sexual shame, but the internal conflict over it was. These findings merged with Peng et al.'s²⁰ results as well: higher levels of moral disapproval were associated with more sexual shame. While generally women report less pornography use, sexual shame may still be present—particularly when porn consumption clashes with social expectations about femininity.⁶⁶

In a balanced sample of men and women, Volk et al.⁷⁰ found that among participants, especially those who were religious, moral incongruence was strongly associated with perceived pornography addiction, which in turn predicted higher levels of sexual shame and depression. Blaming external sources for their behavior helped reduce sexual shame. These results aligned with Volk et al.'s⁶³ earlier work in 2016. In another balanced sample of men and women, Carboneau⁴⁶ similarly found that personal religiosity was only significantly associated with sexual shame through moral incongruence. Additionally, perceived addiction to pornography independently predicted greater sexual shame, reinforcing Volk et al.'s⁷⁰ findings. In a predominantly male sample (ie, 69%), Droubay et al.⁷¹ studied concealment of pornography use and found

that participants who felt sexual shame “somewhat” or “completely” during their first exposure to pornography were more likely to hide their usage from others, reinforcing sexual shame's isolating function. Notably, moral incongruence and sexual shame were among the most robust predictors of problematic pornography use in a study of 74 independent datasets ($N_{\text{participants}} = 112\,397$).⁷²

Summary

Across studies, methodological inconsistency remains a concern. For example, Droubay et al.⁷¹ asked about sexual shame tied to first-time viewing—a moment often marked by curiosity or excitement.^{73,74} Others may feel shame early on but eventually normalize their behavior. Numerous studies used the KISS,⁵ connecting a specific sexual act (ie, viewing pornography) to broader sexual shame but retaining the aforementioned reliability and validity concerns.^{20,46,69,70} Studies also used varied timeframes for defining pornography users (eg, use in the past month vs. past year), making it harder to assess how sexual shame evolves over time. Nonetheless, a consistent theme emerged: when there is a discrepancy between what one thinks they *ought* to do and what they are actually doing, sexual shame is present.^{69–72} This conflict—particularly around pornography—can erode sexual satisfaction and psychological wellbeing. It is most potent for religious users and those in committed relationships who feel compelled to hide their use.

Discussion

Sexual shame is an emerging but significant construct in the sexual wellbeing literature. The budding research on sexual shame demonstrates its multidimensional nature and role in a variety of relationships. Most consistently, it appears as a significant consequence of sexual violence, especially among CSA survivors.^{10,35,38,39,43} In this subpopulation, sexual shame is a considerable factor in the etiology of sexual dysfunction and overall relationship difficulties. This is true for both male and female survivors. Broader literature on sexual shame and sexual wellbeing highlights the value of protective factors, such as sexual self-efficacy or sex positive environments, against sexual shame for both men and women.^{25,30} When sexual shame is present, it's frequently tied to disruptions in communication, body image, arousal, desire, and orgasm, especially among women.^{17,20,24,27}

Research on hypersexuality presents a coherent narrative: sexual shame can be both causal and maintaining factor, though it may occasionally prompt help-seeking.^{47–51} While men are more prominently featured in this research, women present similar results. Similar cycles emerge in pornography use, especially when individuals morally object to their use, resulting in distress and shame—particularly for religious individuals and regardless of sex.^{46,63,69–71}

Religious messages—especially those internalized in childhood—may shape whether religion acts as a buffer or a risk factor for sexual shame.^{61–65} Those who endorse a religious sexual ethic but act outside its boundaries are especially vulnerable.

Across all domains, sexual shame appears as a prominent outcome when assumptions or norms are violated. It may be assumptions of trust and safety for NSE survivors, crossed relationship boundaries for pornography users, or conflict between one's sexual behavior and one's internalized religious sexual ethic. Which norms are crossed may be further influenced by demographic variables. For example, a male NSE

survivor may experience sexual shame due to cultural messaging regarding male sexual assertiveness and dominance. This can be further compounded if the survivor is heterosexual and assaulted by another man. Meanwhile, a female NSE survivor may experience sexual shame due to being “damaged goods” rather than failing to live up to a sexually dominant ideal. Both responses can generate sexual shame but through different mechanisms. This can also be seen within the hypersexuality literature; a hypersexual woman is considered far more taboo than a hypersexual man, yet both may experience sexual shame. These findings must be interpreted within the studies’ limitations—namely, a myriad of definitions and measurements for sexual shame.

Sexual shame measures ranged from author-created questions assessing shame over specific sexual acts to unvalidated measures with minimal detail.^{21,24,38,39,65} Studies alternatively examined shame related to a specific sexual act (eg, masturbation) or more general trait-level shame. Given that sexual shame can be expressed across multiple contexts, measures or studies that focus on a single expression of sexual shame (eg, sexual shame over masturbation) are not inherently conceptually flawed but are instead limited to the specific component of sexual shame being assessed. Rather, it is the absence of validation metrics that restricts interpretability and limits justification.

As previously noted, sexual shame may occur with sex guilt or sexual disgust but remains a distinct emotional construct. Across the reviewed literature, sexual shame was frequently conflated with sex guilt, sexual disgust, and embarrassment, blurring the specificity of sexual shame and merging it with general negative affect.^{24,49,61} Future research that intentionally examines the interaction among sexual shame, sex guilt, and sexual disgust would provide valuable insights into how these emotions overlap and how they meaningfully differ.

Additionally, numerous studies were excluded because they did not specifically operationalize sexual shame despite examining shame in sex-related contexts. For example, research on shame surrounding STI contraction or disclosure represents a substantial and important body of work that is not represented in this review because shame was measured as a general affective state.⁷⁵ This exclusion also applies to studies examining shame over one’s sexual orientation. While internalized sexual stigma and subsequent shame is extensively studied within minority stress theory (see Nguyen et al. [2024] for a recent review),⁷⁶ studies that explicitly prioritize and clearly define *sexual* shame related to one’s sexual identity remain comparatively limited, though they are nonetheless important.

Notably, although Clark’s³ participants varied in sexual orientation, the distinction between sexual orientation and sexual identity was not explicitly addressed in the interviews. Instead, participants described sexual identity in terms of whether their experiences as sexual beings were “normal,” without defining normality in terms of heteronormativity. Further theoretical and empirical work examining sexual shame as it relates to sexual identity and sexual orientation is warranted, given the significant implications for sexual wellbeing.

Within this review, studies producing the most coherent findings were those that employed previously validated measures of sexual shame, underscoring the importance of precise and justified measurement.^{10,35,39,43} Future studies

should similarly prioritize the use of rigorously validated, theoretically grounded measures in order to better isolate sexual shame’s unique contributions—both within the domains reviewed here and those not represented. The relative paucity of research that explicitly measures sexual shame across these and additional domains (eg, kink-related shame, shame over sexual aggression) limits a comprehensive understanding of sexual shame and represents a broader constraint within the existing literature.

The reviewed studies also relied predominantly on WEIRD samples, limiting the generalizability of results. Social and cultural scripts exert a powerful influence on sexual wellbeing and emotional expression. Culture has a foundational role in the etiology of sexual shame.³ Accordingly, sexual shame may be expressed or experienced differently across cultural contexts. Future research should prioritize more diverse samples and explicitly account for sociodemographic factors that shape the experience and expression of sexual shame.

Clinically, sexual shame’s prevalence following sexual violence provides both a better understanding of survivors’ wellbeing and an important treatment target for clinicians, whether targeting sexual shame on its own or its association with sexual dysfunction. Sexual shame’s relationship with sexual dysfunction in the general population offers clinicians another component to consider when encountering patients with sexual difficulties. In hypersexuality and pornography research, sexual shame emerges when values and behavior are misaligned. Supporting clients in reconciling these internal conflicts may disrupt cycles of compulsive sexual behavior.

Conclusion

The evolving literature on sexual shame highlights its importance across numerous sexual domains, including dysfunction, NSEs, hypersexuality, religion, and pornography. Future studies must employ validated measures and distinguish sexual shame from related constructs like sex guilt or disgust in order to improve the field. As the evidence grows, so too does the case for understanding sexual shame as a critical factor in sexual wellbeing.

Author contributions

A.G.C.C.: Conceptualization-Lead, Methodology-Lead, Writing Original Draft-Lead, Writing—Reviewing & Editing-Lead. C.M.M.: Conceptualization-Supporting, Methodology-Supporting, Writing Original Draft-Supporting, Writing—Reviewing & Editing-Supporting.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest

Cindy Meston serves as a scientific advisor for Stripes Beauty, Inc.

Appendix.

Overview of Reviewed Studies.

Study	N	Age	Sex	Measures	Study design	Findings
Amanelahi et al., 2023	402	20-50	Female	FSFI; NorAQ; KISS	Predictive Correlational Study; Data collection via surveys.	Abuse (ie, physical, emotional, sexual) histories, and sexual shame could accurately predict between women with and without sexual dysfunction. Women who experienced sexual dysfunction were more likely to report abuse histories and sexual shame. Sexual shame remained a significant predictor of sexual dysfunction when abuse history was accounted for.
Barker et al., 2022	732	18-76	Male and female	Sexual Behavior Scale; KISS; ECR-RS; CSI	Cross-sectional survey using a serial mediation model analyzed with Hayes' PROCESS Macro.	Sexual shame was a significant mediator between CSA and relationship satisfaction through three pathways. CSA significantly decreased relationship satisfaction by increasing sexual shame. Sexual shame, in turn, heightened both romantic partner attachment anxiety and romantic partner attachment avoidance.
Benton, 2022	315	18-56	Female	SEM; GRSS; PCBS; Adapted version of MSSS; Adapted version of the WHO Multi-Country Study on Women's Health and Domestic Violence	Mixed methods parallel design combining quantitative SEM to analyze purity culture and sexual shame pathways; qualitative interviews.	Endorsement of purity culture beliefs were not significantly related to sexual shame but higher religiosity (ie, cathexis) was significantly related to decreases in sexual shame. However, results from qualitative interviews indicate that childhood exposure to purity culture amplified sexual shame in adulthood, which was related to mental health distress.
Bóthe et al., 2024	112 397	Adolescent-Adulthood	Male and female	PPCS; BPS; CPUI; PPUS	Multi-sample observational study that combined both cross-sectional and longitudinal datasets from 16 countries.	The most significant risk factors that continuously contribute to PPU are characteristics related specifically to pornography use, such as frequency of pornography use, guilt, sexual shame, moral incongruence, and emotional avoidance.
Bowman, 2015	765	18-61+	Female	FSSI; FGSIS; Feelings about masturbating; The experience of masturbation; Reasons for masturbating	National convenience sample of women recruited for survey via online snowball sampling through social media, email, and university listservs.	While sexual shame was the strongest predictor of emotions experienced during masturbation, explaining over a third of its variance, the overall levels of sexual shame levels were relatively low in this sample. High levels of genital self-image, sexual entitlement, and sexual efficacy indicated a generally sex-positive sample.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Carboneau, 2018	554	19-74	Male and female	Perceived Addiction to Pornography Scale; RCI; Moral Disapproval Scale; KISS; TOSCA; CPUI-9	Participants recruited for survey through Amazon MTurk. Data were analyzed through SPSS v2.5 with PROCESS for Pearson correlations, mediation, and moderation via multiple regression.	Moral disapproval of pornography use fully mediated the relationship between religiosity and sexual shame, such that increases in religiosity related to increases in moral disapproval, which accentuated sexual shame. Shame-proneness and compulsivity were direct predictors of sexual shame, but they did not moderate the relationship between moral disapproval and sexual shame.
Carvalho & Nobre, 2011	205	18-72	Male	IIEF; BSI; SDBQ; SMQ; DAS; Medical History Formulation	Convenience sample of men recruited from hospitals and health centers, with data collected via self-administered questionnaires.	Sexual shame over automatic thoughts experienced during sex was a significant predictor of decreased sexual desire in preliminary models. In the final model, however, only lack of erotic thoughts during intercourse was a significant predictor of sexual desire.
Cienfuegos-Szalay et al., 2022	982	18-81	Male	Demographics, Internalized Homophobia Scale, Sexual Compulsivity Scale, subscale of Sexual Shame, and Pride Scale, Difficulties in Emotional Regulation Scale	A subset of the U.S. national longitudinal dataset (<i>One Thousand Strong</i>) was utilized. Data were analyzed via ANOVAs and path analysis in SPSS.	Internalized homonegativity's impact on sexual compulsivity was fully mediated by both sexual shame and emotion dysregulation. Internalized homonegativity was related to increases in sexual shame, which was in turn related to increased sexual compulsivity. Sexual shame also amplified sexual compulsivity through its impact on increased emotion dysregulation. Single men reported more sexual shame.
Droubay et al., 2021	<i>Study 1:</i> 894 <i>Study 2:</i> 376	<i>Study 1:</i> 18-86 <i>Study 2:</i> 18-77	<i>Studies 1 and 2:</i> Male and female	<i>Study 1:</i> Hiding pornography use, rated on a 7-point Likert scale; Moral disapproval of pornography, rated on a 7-point Likert scale; Shame associated with pornography, response options including <i>not at all</i> , <i>somewhat</i> , and <i>completely</i> <i>Study 2:</i> Hiding pornography use, rated on a 5-point Likert scale; Sexual Attitude Scale; Perception that pornography harms, rated on an 8-item scale; moral incongruence associated with pornography viewing, adapted from a 4-item scale by Grubbs et al. (2015); shame-withdraw subscale of Guilt and Shame Proneness Scale	<i>Study 1:</i> Data gathered via Qualtrics' Omnibus service and analyzed via regressions. <i>Study 2:</i> Participants gathered via MTurk and they completed a brief survey for data collection.	<i>Study 1:</i> Moral disapproval of pornography and experiencing sexual shame during first pornography viewing experience were both associated with hiding pornography use from others. <i>Study 2:</i> The link between sexual conservatism and the tendency to hide pornography use from a committed partner was mediated by moral incongruence and the belief that pornography is harmful. Individuals with moral concerns about their viewing were particularly likely to conceal it if they were prone to withdraw when experiencing general shame.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Efrati, 2018	274	14-18	Male and female	Sensation of Shame of I-CSB; Help-seeking Styles; Individual-based Compulsive Sexual Behavior scale; Mental Health Index; RAND SF-36 Quality of Life Scale	Participants recruited by convenience sampling in from online forums and bulletin boards. Data collection were completed via anonymous online survey and analyzed via hierarchical regression.	Adolescents high in sexual shame endorsed significantly more autonomous help-seeking when they had higher levels of compulsive sexual behavior; the same relationship was true for dependent help-seeking. These effects were strongest in secular adolescents. Adolescents who were high in compulsive sexual behaviors but low in sexual shame were more likely to avoid help-seeking, especially if they were religious.
Floyd et al., 2020	493	19-72	Male and female	Pornography Use Frequency, rated on a 5-point Likert scale; Moral disapproval of pornography, rated on a 4-item unidimensional scale; KISS; NSSS; CSI; HFS	Cross-sectional online survey of 493 adults recruited via MTurk. Data analyzed through MANOVA and regression analyses.	Moral disapproval of pornography mediated the relationship between pornography use and sexual shame, such that high levels of moral disapproval related to higher sexual shame. Sexual shame directly related to decreased relationship satisfaction. Sexual shame was negatively correlated with sexual satisfaction while self-forgiveness was negatively correlated with sexual shame.
Gusha, 2021	406	Mean = 31.2; SD = 8.47	Male and female	Social Desirability Scale, Sexual Shame Scale; Index of Sexual Excitability; Index of Sexual Satisfaction; Internalized Homonegativity Inventory; Internalized Homophobia Scale; Religiosity	Correlational study with data collection via self-report questionnaires on MTurk. Statistical analysis was conducted using SPSS to assess associations between variables.	Sexual shame was positively associated with religiosity, internalized homophobia, and homonegativity, and negatively associated with sexual satisfaction and excitability. Women reported lower sexual shame, internalized homophobia, and homonegativity, and higher sexual satisfaction than men.
Jepsen & Brzank, 2022	609	18-27	Male and female	HBI; Masturbation behavior, analyzed based on items of frequency of masturbation and the age of the first masturbation; PPCS; 9-item scale of promiscuity-defining characteristics; NPI; Impulsive Behavior Scale; PHQ; Self-Esteem Scale; BIFA-AL; UCLA Los Angeles Loneliness Scale	Cross-sectional online survey of German young adults. Participants were recruited via addiction and self-care forums, a casual dating website, Facebook groups, and university email distribution. Data were analyzed with binomial logistic regression.	Around 22% of the sample reported sexual shame over masturbation, but this was weakly associated with hypersexuality and not predictive. Roughly 10% of participants were identified as hypersexual. Male sex, problematic pornography use, and impulsivity predicted hypersexual behavior, which was strongly correlated with promiscuity and life impairments.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Jepsen et al., 2024	601	Mean = 23.1 SD = 2.7	Male and female	9 Self-developed items were used to measure subtypes of sexual risk behaviors, including sexual shame, as dependent variables	Cross-sectional online survey of German young adults conducted. Recruitment was through a sexual health forum, a casual dating website, Facebook, and university email distribution. Data analysis was conducted through multinomial logistic regression, latent class analysis, and correlation calculations.	Three sexual risk behavior (SRB) patterns were identified among young adults: unremarkable (67%), sexual shame-ridden (17%), and risky (16%). Higher hypersexuality was linked to both sexual shame-ridden and risky patterns. Males and sexual minorities reported more sexual shame than women or heterosexual participants. Reported impairments in relationships due to sexual compulsivity was related to increased sexual shame.
Kilimnik & Meston, 2021	776	18-78	Male	KISS; SESSI-W/M	Cross-sectional online survey using self-report measures with balanced groups based on NSE history and sexual violence label identification. Data analysis done through multiple regression.	Men with NSEs reported higher sexual shame. Sexual shame predicted sexual inhibition across all participants, regardless of NSE identification. Sexual shame's effect on arousability was moderated by NSE history and identification, such that for participants without NSEs or participants who identified their NSEs, sexual shame was associated with higher ease of arousability.
Klontz et al., 2005	38	22-62	Male and female	BSI; GSBI	Longitudinal study with participants completing questionnaires before and after a brief treatment program, and at a 6-month follow-up. Measures included follow-up assessments mailed to participants ~28 weeks post-treatment. ANOVAs were used to analyze data.	Participants showed significant reductions in psychological distress, depression, obsessive-compulsive symptoms, and sexual preoccupation immediately after treatment, with improvements maintained at 6-month follow-up. Anxiety, intrapsychic sexual conflict, and sexual shame related to acting on sexual desires decreased between post-treatment and the 6-month follow-up.
Lentz & Zaikman, 2021	1043	Mean = 40.51 SD = 12.67	Female	NSSS; BSAS; HISA; SSGS; GATMR; SASSY; ASI; Sexual Orientation; CRS-5	Cross-sectional survey where participants completed nine counterbalanced scales assessing sexual and social attitudes and orgasm frequency. Data analysis conducted through correlation calculations and regressions.	Sexual shame did not predict sexual satisfaction but was significantly higher in younger and/or unmarried participants. Sexual shame was negatively correlated to sexual pride and assertiveness and was positively correlated with religiosity, conservative sexual attitudes, traditional gender roles, and sexism. Sexual shame was not linked to orgasms with new or familiar partners but was associated with a lower chance of orgasm during masturbation. It was positively correlated with reporting multiple orgasms.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Marcinechová & Záhorková, 2020	411	18-44	Male and fe	KISS; SESSI-W/M	Online survey distributed via social media with correlational and regression data analysis.	Sexual shame was positively linked to general shame-proneness and intrinsic religiosity. Sexual shame was negatively related to sexual satisfaction; this was especially strong in the subsample that had experienced an NSE. Sexual shame was the strongest negative predictor of sexual satisfaction, explaining 19% of its variance alongside religiosity and shame proneness.
Parker, 2021	356	22-76	Male and fe	KISS; RCI; SAI	Quantitative approach utilizing correlation analysis to examine relationships between variables. Includes simple mediation models and moderated mediation models.	CSA, instability in one's relationship with God, childhood family religiosity, and current religiosity were positively with sexual shame. Current religiosity mediated the relationship between childhood family religiosity and sexual shame. While CSA did have a significant direct effect on sexual shame, it did not moderate the relationship between childhood family religiosity and sexual shame. The same effect was found when analyzing instability in one's relationship with God as a potential moderator.
Pearson (2018)	1017	18-26 at Wave 3 of data collection	Female	Questions from the National Longitudinal Study of Adolescent to Adult Health	Longitudinal data collected from a nationally representative sample across three waves from 1994 to 2008. Analyses were conducted with multilevel linear regression models.	In schools with more sexually shameful and guilty cultures, young women perceived more obstacles to birth control. Adolescents who attended schools with more religious student bodies or student bodies that generally perceived more obstacles with birth control at Wave 1 endorsed more sexual shame at Wave 2. Adolescents who attended schools with higher expectations of sexual pleasure reported less sexual shame and the opposite relationship was also true. Young women who attended schools that had higher cultures of sexual shame were less likely to be equal initiators of sex in adulthood. Young women's feelings of sexual shame in adolescence reported more orgasms in adulthood.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Peng et al., 2024	1259	18-59	Male and female	KISS; Consciousness of Social Face Scale; Objectified Body Consciousness Scale; Eating Disorder Inventory-II; Nonconsensual sexual experience, rated on a 5-item scale; Moral disapproval of pornography use, rated on a 4-item single-dimension scale	An online questionnaire survey was conducted using Credamo. Results were analyzed with hierarchical linear regressions.	Sexual shame showed slight to moderate positive correlations with moral disapproval of pornography, fear of losing mianzi (social face), desire to gain mianzi, body shame, and body dissatisfaction. Sexual shame was slightly negatively correlated with age. Unmarried participants, those without sexual intercourse experience, and sexual minorities reported significantly higher sexual shame. All of these factors, with the addition of NSEs and the exception of marital status and the desire to gain mianzi, were significant predictors of sexual shame in the regression analyses.
Pulverman & Meston, 2020	120	18-49	Female	FSFI; KISS	Participants completed a vaginal plethysmography session and filled out questionnaires related to sexual health. Data analysis via a structural equation modeling mediation.	Sexual shame and dissociation during sexual activity significantly mediated the relationship between CSA and poorer sexual function in preliminary models. In the full model, sexual shame alone fully mediated the link between CSA and decreased sexual function and models including only sexual shame showed better data fit than those with both variables.
Sævik & Konijnenberg, 2023	218	18-40+	Male and female	SDI-2; ERQ-10; SSI-5	Participants were recruited primarily through social media. Data analyzed with multiple regression analysis.	Cognitive reappraisal significantly predicted sexual desire, while sexual shame and expressive suppression did not. While not predicting sexual desire overall, sexual shame was a significant predictor of increases in solitary sexual desire. There were no gender differences in sexual desire, cognitive reappraisal, or sexual shame.
Seabrook et al., 2017	415	19-21	Female	Weekly TV use; Perceived Realism Scale; Adolescent Masculinity Ideology in Relationships Scale; Attitudes Toward Women Scale for Adolescents; Adversarial Sexual Beliefs Scale; Heterosexual Script Scale; SASS; CUSE; Hurlbert Index of Sexual Assertiveness; Positive Feelings Subscale	Participants completed paper-and-pencil surveys in group sessions of 8–10 people, lasting about 45 minutes. The data analyzed were part of a larger project including other measures not examined here. Data analysis done through structural equation modeling.	Participants with higher levels of reported TV consumption and those who believed that TV reflected reality were more likely to endorse traditional gendered sexual scripts. Endorsement of traditional gendered sexual scripts was associated with higher sexual shame over one's level of sexual experience. However, the overall level of sexual shame was very low in this sample.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Træen & Kvalem, 2007	399	Mean = 14.9; range 14-16	Male and female	Situational contraceptive communication; Stopping intercourse self-efficacy; Perceived emotional response; Self-esteem	This longitudinal study involved intervention and control groups from multiple schools. Half of the schools in each group completed a pre-test. Students completed two post-test questionnaires: the first 6-7 months and the second 1.5 years after the pre-test. Data analyzed with factor analysis and correlations.	Adolescents tend to feel positive when initiating contraception discussions but have mixed emotions about stopping unwanted sex, with many feeling guilty, or experiencing sexual shame—especially boys. Feelings of sexual shame and guilt are linked but distinct in different sexual situations. Boys and girls who used contraception during intercourse (ie, oral contraception; condoms) were less likely to report sexual shame and reported higher communication self-efficacy.
Volk et al., 2019	179	18-49	Male and female	Scale of Moral Disapproval; CPUI-9; KISS; IPIP; TOSCA-3; DASS-21	Simple mediation, serial mediation, and serial mediation with moderation were conducted on data collected through MTurk.	The study found that moral disapproval of pornography directly and indirectly, through perceived addiction, increases sexual shame. The tendency to blame external factors (externalization) weakens the effect of moral disapproval on sexual shame but makes the link between feeling addicted to pornography and sexual shame stronger. Sexual shame and perceived addiction mediated the relationship between moral disapproval and depression.
Volk et al., 2016	358	18-66	Male and female	RCI-H; CPUI-9; Moral Disapproval Scale; Kyle Inventory of Sexual Shame	Self-report survey using the adapted 10-item RCI-H to measure childhood household religiosity, alongside measures of moral disapproval, pornography addiction, and sexual shame. Statistical analysis used simple and serial mediation.	Household religiosity and personal religiosity did not have a direct effect on sexual shame. However, there was an indirect chain of significant relationships: household religiosity influenced personal religiosity, which in turn increased moral disapproval of pornography. Moral disapproval of pornography connected to perceived pornography addiction, resulting in increased sexual shame. Moral disapproval of pornography also had a direct effect on sexual shame.
Wacks et al., 2022	165	18-30	Male	SGS; CES-D; STAI-S; PWI; IFS	Data collection conducted through Qualtrics and hierarchical regression analysis was performed.	Sexual guilt/shame (SGS) was linked to higher anxiety and depression and lower life satisfaction. Religiousness moderated these effects, buffering psychological distress associated with SGS at higher levels but increasing sexual shame's effect on psychological distress at low to moderate levels of religiosity.

(continued)

Continued.

Study	N	Age	Sex	Measures	Study design	Findings
Yahag et al., 2024	400	18-50	Female	FSFI; SDBQ; SSI	The study employed a descriptive-correlational design. Data analysis was performed using SPSS Statistics 25 software.	All of sexual shame's subcomponents (ie, relational sexual shame, internalized sexual shame, sexual inferiority), and ineffective sexual beliefs were negatively and significantly related to women's sexual function, together explaining 63% of its variance. Relational sexual shame was the most prevalent subcomponent in this sample.

References

- Fedorova AI, Vorobevskii AA. The influence of shame and guilt on sexuality in men and women. *Neurol Bull.* 2025;57(1):54–63. <https://doi.org/10.17816/nb640827>
- Hassanpour P, Buchwald S, Mehta AHP, Goldberg SB, Walsh K. Sexual violence and shame: a meta-analysis. *Trauma Violence Abuse* Published online. 2025;27:240–255. <https://doi.org/10.1177/15248380241308828>
- Clark N. *The Etiology and Phenomenology of Sexual Shame: A Grounded Theory Study [Dissertation]*. Seattle, WA:Seattle Pacific University; 2017: Available from: ProQuest Dissertations Publishing. Publication No. 10604174.
- Gordon AM. How men experience sexual shame: the development and validation of the male sexual shame scale. *J Men's Stud.* 2018;26(1):105–123. <https://doi.org/10.1177/106082651778303>
- Kyle SE. *Identification and Treatment of Sexual Shame: Development of a Measurement Tool and Group Therapy Protocol* [doctoral dissertation]. Liberty University; 2013.
- Seebeck J. *Development of the Sexual Shame Inventory* [doctoral dissertation]. Seattle Pacific University; 2021.
- Emmers-Sommer TM, Allen M, Schoenbauer KV, Burrell N. Implications of sex guilt: a meta-analysis. *Marriage Fam Rev.* 2018;54(5):417–437. <https://doi.org/10.1080/01494929.2017.1359815>
- Crosby CL, Durkee PK, Meston CM, Buss DM. Six dimensions of sexual disgust. *Personal Individ Differ.* 2020;156(1):109714. <https://doi.org/10.1016/j.paid.2019.109714>
- Robinson MD, Hassija CM, Wellman JD. Trauma-related shame, characterological self-blame, and psychological outcomes among sexual assault survivors. *J Loss Trauma.* 2024;29(8):924–943. <https://doi.org/10.1080/15325024.2024.2362695>
- Pulverman CS, Meston CM. Sexual dysfunction in women with a history of childhood sexual abuse: the role of sexual shame. *Psychol Trauma.* 2020;12(3):291–299. <https://doi.org/10.1037/tra0000506>
- Bigras N, Vaillancourt-Morel MP, Nolin MC, Bergeron S. Associations between childhood sexual abuse and sexual well-being in adulthood: a systematic literature review. *J Child Sex Abus.* 2020;30(3):332–352. <https://doi.org/10.1080/10538712.2020.1825148>
- Liu F, Ye Z, Chui H, Chong ESK. Effect of perceived public stigma on internalized homophobia, anticipated stigma, shame, and guilt: outness as a moderator. *Asian J Soc Psychol.* 2023;26(2):187–198. <https://doi.org/10.1111/ajsp.12552>
- Pachankis JE, Hatzenbuehler ML, Klein DN, Bränström R. The role of shame in the sexual-orientation disparity in mental health: a prospective population-based study of multimodal emotional reactions to stigma. *Clin Psychol Sci.* 2024;12(3):486–504. <https://doi.org/10.1177/21677026231177714>
- DeCou CR, Lynch SM, Weber S, et al. On the association between trauma-related shame and symptoms of psychopathology: a meta-analysis. *Trauma Violence Abuse.* 2023;24(3):1193–1201. <https://doi.org/10.1177/15248380211053617>
- Miceli M, Castelfranchi C. Reconsidering the differences between shame and guilt. *Eur J Psychol.* 2018;14(3):710–733. <https://doi.org/10.5964/ejop.v14i3.1564>
- Mitchell KR, Lewis R, O'Sullivan LF, Fortenberry JD. What is sexual wellbeing and why does it matter for public health? *Lancet Public Health.* 2021;6(8):e608–e613. [https://doi.org/10.1016/S2468-2667\(21\)00099-2](https://doi.org/10.1016/S2468-2667(21)00099-2)
- Yahag M, Abdolpour G, Lashkari A, Rezai M. Prediction of sexual functioning in women based on sexual shame and sexual dysfunctional beliefs. *J Res Psychopathol.* 2024;5(16):53–59. <https://doi.org/10.22098/jrp.2024.12360.1165>
- Maasoumi R, Taket A, Zarei F. How Iranian women conceptualize the role of cultural norms in their sexual lives. *Sex Cult.* 2018;22(4):1376–1390. <https://doi.org/10.1007/s12119-018-9531-5>
- Lentz AM, Zaikman Y. The big “O”: sociocultural influences on orgasm frequency and sexual satisfaction in women. *Sex Cult.* 2021;25(3):1096–1123. <https://doi.org/10.1007/s12119-020-09811-8>
- Peng H, Su Y, Zheng Y. Sexual shame and associations with social evaluation among Chinese adults: the effect of Mianzi and negative body consciousness. *Sex Res Soc Policy* Published online. 2024;22(2):1008–1021. <https://doi.org/10.1007/s13178-024-01028-w>
- Bowman CP. Women's masturbation: experiences of sexual empowerment in a primarily sex-positive sample. *Psychol Women Q.* 2014;38(3):363–378. <https://doi.org/10.1177/0361684313514855>
- Assarzadeh R, Bostani Khalesi Z, Jafarzadeh-Kenarsari F. Sexual self-efficacy and associated factors: a review. *Shiraz E-Med J.* 2019;20(11):e87537. <https://doi.org/10.5812/semj.87537>
- Mohammed GF, Al-Dhubaibi MS, Abdelneam AI, Bahaj SS, Al-Dhubaibi AM. Exploring female genital self-image: a psychological and sociocultural perspective. *Sex Med Rev.* 2025;13(2):256–266. <https://doi.org/10.1093/sxmrev/qeaf006>
- Soares RF, Leites GT, de Araujo TG, Pedreti GP, Cerentini TM, da Rosa PV. Masturbation, sexual function, and genital self-image of undergraduate women: a cross-sectional study. *J Sex Med.* 2024;21(3):211–216. <https://doi.org/10.1093/jsxmed/qdad173>
- Sævik KW, Konijnbergen C. The effects of sexual shame, emotion regulation and gender on sexual desire. *Sci Rep.* 2023;13(1):4042. <https://doi.org/10.1038/s41598-023-31181-y>
- Træen B, Martinussen M. Attitudes toward sexuality among straight and queer university students from Cuba, Norway and

- South Africa. *Scand J Psychol.* 2008;49(1):39–47. <https://doi.org/10.1111/j.1467-9450.2007.00603.x>
27. Pearson J. High school context, heterosexual scripts, and young women's sexual development. *J Youth Adolesc.* 2018;47(7):1469–1485. <https://doi.org/10.1007/s10964-018-0863-0>
 28. Seabrook RC, Ward LM, Cortina LM, Giaccardi S, Lippman JR. Girl power or powerless girl? Television, sexual scripts, and sexual agency in sexually active young women. *Psychol Women Q.* 2017;41(2):240–253. <https://doi.org/10.1177/0361684316677028>
 29. Carvalho J, Nobre P. Predictors of men's sexual desire: the role of psychological, cognitive-emotional, relational, and medical factors. *J Sex Res.* 2011;48(2-3):254–262. <https://doi.org/10.1080/00224491003605475>
 30. Træen B, Kvaalem IL. Investigating the relationship between past contraceptive behaviour, self-efficacy, and anticipated shame and guilt in sexual contexts among Norwegian adolescents. *J Community Appl Soc Psychol.* 2007;17(1):19–34. <https://doi.org/10.1002/casp.869>
 31. Murray SH. Heterosexual men's sexual desire: supported by, or deviating from, traditional masculinity norms and sexual scripts? *Sex Roles.* 2018;78(1-2):130–141. <https://doi.org/10.1007/s11199-017-0766-7>
 32. Kilimnik CD, Boyd RL, Stanton AM, Meston CM. Identification of nonconsensual sexual experiences and the sexual self-schemas of women: implications for sexual functioning. *Arch Sex Behav.* 2018;47(6):1633–1647. <https://doi.org/10.1007/s10508-018-1229-0>
 33. Figueira JR, Lara LAS, Andrade MC, Rosa-e-Silva ACJDS. Comparison of sexual dysfunction in women who were or were not victims of sexual violence. *J Sex Marital Ther.* 2021;47(6):621–630. <https://doi.org/10.1080/0092623X.2021.1930309>
 34. Kennedy AC, Prock KA. "I still feel like I am not normal": a review of the role of stigma and stigmatization among female survivors of child sexual abuse, sexual assault, and intimate partner violence. *Trauma Violence Abuse.* 2018;19(5):512–527. <https://doi.org/10.1177/1524838016673601>
 35. Kilimnik CD, Meston CM. Sexual shame in the sexual excitation and inhibition propensities of men with and without nonconsensual sexual experiences. *J Sex Res.* 2021;58(2):261–272. <https://doi.org/10.1080/00224499.2020.1718585>
 36. MacGinley M, Breckenridge J, Mowll J. A scoping review of adult survivors' experiences of shame following sexual abuse in childhood. *Health Soc Care Community.* 2019;27(5):1135–1146. <https://doi.org/10.1111/hsc.12771>
 37. Wang SJ, Chang JJ, Cao LL, et al. The relationship between child sexual abuse and sexual dysfunction in adults: a meta-analysis. *Trauma Violence Abuse.* 2024;24(4):2772–2788. <https://doi.org/10.1177/15248380221113780>
 38. Amanelahi A, Khaksar Nasirabadi M, Shiralinia K. Predicting female sexual dysfunction based on the history of child abuse and sexual shame of women in Iran. *J Midwifery Reprod Health.* 2023;12(4):4405–4413. <https://doi.org/10.22038/jmrh.2023.69327.2038>
 39. Barker GG, Volk F, Hazel JS, Reinhardt RA. Past is present: pathways between childhood sexual abuse and relationship satisfaction. *J Marital Fam Ther.* 2021;48(2):604–620. <https://doi.org/10.1111/jmft.12522>
 40. Labadie C, Godbout N, Vaillancourt-Morel MP, Sabourin S. Adult profiles of child sexual abuse survivors: attachment insecurity, sexual compulsivity, and sexual avoidance. *J Sex Marital Ther.* 2018;44(4):354–369. <https://doi.org/10.1080/0092623X.2017.1405302>
 41. Gewirtz-Meydan A. Traumatized sexuality: understanding and predicting profiles of sexual behaviors using childhood abuse and trauma measures. *Child Maltreat.* 2024;29(2):350–363. <https://doi.org/10.1177/10775595221148425>
 42. Slavin MN, Blycker GR, Potenza MN, Bóthe B, Demetrovics Z, Kraus SW. Gender-related differences in associations between sexual abuse and hypersexuality. *J Sex Med.* 2020;17(10):2029–2038. <https://doi.org/10.1016/j.jsxm.2020.07.008>
 43. Parker JD. *The Relationship among Religiosity, Childhood Sexual Abuse, and God Attachment on the Development of Sexual Shame* [doctoral dissertation], Liberty University; 2021.
 44. Griffin KR, Way BM, Kraus SW. Controversies and clinical recommendations for the treatment of compulsive sexual behavior disorder. *Curr Addict Rep.* 2021;8(4):546–555. <https://doi.org/10.1007/s40429-021-00393-5>
 45. Walton MT, Cantor JM, Bhullar N, Lykins AD. Hypersexuality: a critical review and introduction to the "sexhavior cycle". *Arch Sex Behav.* 2017;46(8):2231–2251. <https://doi.org/10.1007/s10508-017-0991-8>
 46. Carboneau R. *Religiosity, Moral Disapproval, Shame, and Pornography Use: Assessing the Relationship between Shame and Sexual Behaviors* [Dissertation]. Lynchburg, VA:Liberty University; 2018: Available from: ProQuest Dissertations Publishing. Publication No. 10822856.
 47. Cienfuegos-Szalay J, Moody RL, Talan A, Grov C, Rendina HJ. Sexual shame and emotion dysregulation: key roles in the association between internalized homonegativity and sexual compulsivity. *J Sex Res.* 2022;59(5):610–620. <https://doi.org/10.1080/00224499.2021.1963649>
 48. Efrati Y. Adolescents with a disposition toward compulsive sexual behavior: the role of shame in willingness to seek help and treatment. *Sex Addict Compuls.* 2018;25(1):28–45. <https://doi.org/10.1080/10720162.2018.1454371>
 49. Jepsen D, Brzank PJ. Hypersexual behaviour among young adults in Germany: characteristics and personality correlates. *BMC Psychiatry.* 2022;22(1):804. <https://doi.org/10.1186/s12888-022-04370-8>
 50. Jepsen D, Healy KV, Bernard M, Markert J, Brzank PJ. Patterns of sexual risk behaviors and sexuality-related risk factors among young adults in Germany: implications for prevention and therapy. *Arch Sex Behav.* 2024;53(7):2671–2688. <https://doi.org/10.1007/s10508-024-02877-7>
 51. Klontz BT, Garos S, Klontz PT. The effectiveness of brief multimodal experiential therapy in the treatment of sexual addiction. *Sex Addict Compuls.* 2005;12(4):275–294. <https://doi.org/10.1080/10720160500362488>
 52. Gilliland R, South M, Carpenter BN, Hardy SA. The roles of shame and guilt in hypersexual behavior. *Sex Addict Compuls.* 2011;18(1):12–29. <https://doi.org/10.1080/10720162.2011.551182>
 53. Sassover E, Abrahamovitch Z, Amsel Y, et al. A study on the relationship between shame, guilt, self-criticism and compulsive sexual behaviour disorder. *Curr Psychol.* 42:8347–8355. <https://doi.org/10.1007/s12144-021-02188-3>
 54. Kürbitz LI, Briken P. Is compulsive sexual behavior different in women compared to men? *J Clin Med.* 2021;10(15) Article 3205. <https://doi.org/10.3390/jcm10153205>
 55. Sabini J, Garvey B, Hall AL. Shame and embarrassment revisited. *Personal Soc Psychol Bull.* 2001;27(1):104–117. <https://doi.org/10.1177/0146167201271009>
 56. Saffrey C, Summerville A, Roese NJ. Praise for regret: people value regret above other negative emotions. *Motiv Emot.* 2008;32(1):46–54. <https://doi.org/10.1007/s11031-008-9082-4>
 57. Thompson S, Girz L. Overcoming shame and aloneness: emotion-focused group therapy for self-criticism. *Pers-Cent Exp Psychother.* 2020;19(1):1–11. <https://doi.org/10.1080/14779757.2019.1618370>
 58. Leach CW, Cidam A. When is shame linked to constructive approach orientation? A meta-analysis. *J Pers Soc Psychol.* 2015;109(6):983–1002. <https://doi.org/10.1037/pspa0000037>
 59. Lefevor GT, Sorrell SA, Skidmore SJ. How and why religiousness influences sexual health: a review. *Curr Sex Health Rep.* 2024;16(3):185–194. <https://doi.org/10.1007/s11930-024-00390-5>

60. Ortiz AM. *Developing a Measure of Purity Culture: Sexual Messages in Evangelical Christian Culture* [doctoral dissertation]. Biola University; 2018.
61. Wacks Y, Lazar A, Sommerfeld E. The moderating effect of religiousness on the relation between sexual guilt and shame and well-being among Jewish religious single men. *Arch Sex Behav*. 2022;52(4):1549–1559. <https://doi.org/10.1007/s10508-022-02494-2>
62. Benton E. *A Mixed Methods Evaluation of the Relationship between Purity Culture and Sexual Shame [Dissertation]*. Austin, TX: The University of Texas at Austin; 2022.
63. Volk F, Thomas J, Sosin L, Jacob V, Moen C. Religiosity, developmental context, and sexual shame in pornography users: a serial mediation model. *Sex Addict Compuls*. 2016;23(2-3):244–259. <https://doi.org/10.1080/10720162.2016.1151391>
64. Marcinechová D, Záhorcová L. Sexual satisfaction, sexual attitudes, and shame in relation to religiosity. *Sex Cult*. 2020;24(6):1913–1928. <https://doi.org/10.1007/s12119-020-09727-3>
65. Gusha H. *Religiosity and Sexual Shame among LGBTQ+ Folks: Sexuality and Mental Health Outcomes* [master's thesis]. California State University; 2021.
66. Binnie J, Reavey P. Development and implications of pornography use: a narrative review. *Sex Relatsh Ther*. 2019;35(2):178–194. <https://doi.org/10.1080/14681994.2019.1635250>
67. Burke K. *The Pornography Wars: The Past, Present, and Future of America's Obscene Obsession*. Bloomsbury Publishing; 2023.
68. Grubbs JB, Kraus SW. Pornography use and psychological science: a call for consideration. *Curr Dir Psychol Sci*. 2021;30(1):68–75. <https://doi.org/10.1177/0963721420979594c>
69. Floyd CG, Landa S, Saunders MA, Volk F. The moderating influence of moral disapproval of pornography on couples' sexual and relationship satisfaction. *J Sex Marital Ther*. 2020;46(7):660–682. <https://doi.org/10.1080/0092623X.2020.1783409>
70. Volk F, Floyd CG, Bohannon KE, et al. The moderating role of the tendency to blame others in the development of perceived addiction, shame, and depression in pornography users. *Sex Addict Compuls*. 2019;26(3-4):239–261. <https://doi.org/10.1080/10720162.2019.1670301>
71. Droubay BA, Shafer K, Miles RJ, Butters RP, Grubbs JB. Secrecy and deception: values, shame, and endorsement of hiding one's pornography viewing. *Sex Relatsh Ther*. 2024;39(1):174–201. <https://doi.org/10.1080/14681994.2021.1976403>
72. Bőthe B, Vaillancourt-Morel MP, Bergeron S, et al. Uncovering the most robust predictors of problematic pornography use: a large-scale machine learning study across 16 countries. *J Psychopathol Clin Sci*. 2024;133(6):489–502. <https://doi.org/10.1037/abn0000913>
73. Paasonen S, Kyrölä K, Nikunen K, Saarenmaa L. 'We hid porn magazines in the nearby woods': memory-work and pornography consumption in Finland. *Sexualities*. 2015;18(4):394–412. <https://doi.org/10.1177/1363460714550911>
74. Taylor K. 'Accessing something that's meant to be inaccessible': pornography viewers' reconciliation between early pornographic memories and pornography's perceived risk. *Porn Stud*. 2021;8(1):39–57. <https://doi.org/10.1080/23268743.2020.1736609>
75. Christensen JL, Miller LC, Appleby PR, et al. Reducing shame in a game that predicts HIV risk reduction for young adult MSM: a randomized trial delivered nationally over the web. *J Int AIDS Soc*. 2013;16(3 Suppl 2):18716. <https://doi.org/10.7448/IA.S.16.3.18716>
76. Nguyen J, Anderson J, Pepping CA. A systematic review and research agenda of internalized sexual stigma in sexual minority individuals: evidence from longitudinal and intervention studies. *Clin Psychol Rev*. 2024;108:102376. <https://doi.org/10.1016/j.cpr.2023.102376>