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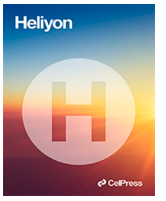

Research article

Genital self-image and sexual distress in married women with and without sexual intimate partner violence experience in Iran

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ABSTRACT

Objectives: The impact of sexual intimate partner violence (SIPV) on female genital self-image and sexual distress is not well understood. We aimed to assess whether women with and without SIPV experiences differed in terms ofgenital self-image and sexual distress.
Methods: An online survey was conducted among married, reproductive-age women registered at healthcare centers in Amol, northern Iran. A total of 722 eligible women completed the survey between March and June 2022. Genital self-image and sexual distress were measured using the Female Genital Self-Image Scale (FGSIS) and the Female Sexual Distress Scale-Revised (FSDS-R), respectively.
Results: Overall, 28.7 % of the women reported experiencing SIPV. Independent t-tests revealed significant differences between the SIPV and non-SIPV groups in mean FGSIS and FSDS-R scores (21.18 ± 3.92 vs. 21.91 ± 3.76, $p = 0.002$ and 13.18 ± 11.45 vs. 7.54 ± 9.75, $p < 0.001$, respectively). In multivariate regression analysis, income satisfaction remained independently associated with both FGSIS and FSDS-R scores. Age and having a child were associated with FGSIS, while SIPV experience was only associated with FSDS-R.
Conclusion: Women with SIPV experiences had lower mean FGSIS scores and higher mean FSDS-R scores than those without such experiences. However, in multivariate analysis, only the FSDS-R score remained significantly associated with SIPV experience.

1. Introduction

Violence against women is a widespread public health issue, manifesting in various forms such as physical, sexual, or emotional abuse [1]. The most common type of violence experienced by women is intimate partner violence (IPV), which includes acts by a current or former partner that result in physical, sexual, or psychological harm. These actions can range from physical aggression to

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sexual coercion, psychological abuse, and controlling behaviors [2]. IPV has both immediate and long-term impacts on women's health, making it a global public health concern [3].

Sexual violence, a subset of IPV, involves any sexual act, attempted sexual act, or other behavior directed at a person's sexuality through coercion. This can occur in any setting and by any perpetrator, regardless of their relationship to the victim [2]. A systematic review and meta-analysis found that the prevalence of sexual violence among female refugees in humanitarian crises was 21.4 % [4]. A recent survey in six regions of Iran reported prevalence rates of emotional, physical, and sexual violence among women at 64 %, 28 %, and 18 %, respectively [5].

Sexual violence can result in various health outcomes, including physical, reproductive, and psychological effects [6]. One population-based study of women aged 16–44 found that exposure to IPV significantly contributes to risky sexual behaviors and negative sexual health consequences in reproductive-age women [7]. Another study showed that sexual violence experiences are linked to greater body image dissatisfaction, higher levels of depression, anxiety, and post-traumatic stress disorder (PTSD), and more frequent engagement in risky sexual behaviors [8]. While the effects of SIPV on sexual and reproductive health are becoming more recognized, less is known about its impact on female genital self-image and sexual distress.

Genital self-image and sexual distress are important aspects of sexual health and psychosexual well-being [9,10]. Genital self-image refers to a person's perceptions and attitudes about their genitalia, shaped by direct and indirect experiences [11,12]. Sexual distress is characterized by negative emotions such as anxiety, frustration, or inadequacy related to sexual experiences [13]. Recent research indicates that a negative genital self-image may increase sexual distress in women [9], potentially leading to unnecessary demand for genital cosmetic surgery [14].

Understanding whether SIPV experience can predict female genital self-image and sexual distress is essential for sexual health counselors, and further research on these outcomes is needed. This study investigates disparities in genital self-image and sexual distress between women with and without SIPV experiences.

2. Materials and methods

2.1. Participants and procedures

In this cross-sectional research, 722 women aged between 15 and 49 years were recruited as participants.After obtaining the total number of reproductive-age women registered in all health centers of Amol city, a list of their phone numbers was prepared, and women who met the inclusion criteria were selected using a random sampling method.These centers are public and offer a variety of sexual and reproductive health services, including psychosexual counseling, contraceptive counseling and supplies, screening and treatment for sexually transmitted infections, cervical cancer screening, as well as prenatal and postnatal care. Women were excluded from the study if they had a history of genital surgeries, such as hysterectomy or oophorectomy, genital cancer (e.g., vaginal or cervical cancer), psychiatric disorders (e.g., depression, anxiety, or obsession), pelvic organ prolapse, or anatomical genital problems like Mayer-Rokitansky-Küster-Hauser (MRKH). In addition, pregnant women, women in the breastfeeding period, and women with premature menopause were also excluded from the study (all of these criteria were considered based on self-report).

It is worth noting that the sample size for each center was determined according to the total sample size and the number of women of reproductive age covered by each center. The researcher explained the study's objectives, the subjects' right to refuse to participate, and reassured them about the confidentiality of their data during a phone call. Subsequently, eligible women were sent a link via SMS to complete the questionnaire.Voluntary participation in the study and the full authority of the participants to continue or withdraw from the study were emphasized. Moreover, participants had to select the consent confirmation option before they could proceed with completing the questionnaires. Without granting consent, they were not allowed to take part in the study. Finally, it is important to note that this study is presented according to Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guidelines.

2.2. Outcome measurements

Data were collected on demographics including age, having children, education, occupation, and satisfaction with income, as well as SIPV status. SIPV status was assessed by asking the question, "Have you experienced sexual violence (any sexual act against your sexuality using coercion) from an intimate partner?" with response options of "yes" or "no." To assess female genital self-image and sexual distress, the Female Genital Self-Image Scale (FGSIS) and the Female Sexual Distress Scale-Revised (FSDS-R) questionnaires were used in the Persian language.

The FGSIS scale is a validated tool designed to assess attitudes towards an individual's genitals [15]. It is comprised of seven items, each rated on a 4-point Likert scale ranging from strongly disagree to strongly agree. The total score is the sum of the seven items, with scores ranging from 7 (representing a very negative genital self-image) to 28 (representing a very positive genital self-image) [16]. The FGSIS has been validated in multiple countries with different cultural backgrounds and is widely considered to be a reliable measure [11,17,18]. In Iran, the Persian version of the FGSIS was also found to be a highly valid and reliable tool, with a Cronbach's alpha coefficient of 0.70 or higher [19]. The estimated Cronbach's alpha of 0.84 in the current study also revealed a satisfactory level of internal correlation.

The FSDS-R scale is a reliable and validated tool that specifically measures participants' psychological distress related to sexuality [20]. It consists of seven items, each rated on a scale from 0 (never) to 4 (always), with a possible total score range of 0–52. Scores of 11 or higher indicate greater sexual distress [21,22]. The FSDS-R has been widely accepted and translated into multiple languages and

validated across various cultures and populations [20,23]. The Persian version of the FSDS-R has also been found to be a valid and reliable instrument for assessing Iranian women's sexual distress, with a Cronbach's alpha coefficient of 0.70 or higher [24]. Moreover, internal consistency for the FSDS-R scale was estimated to be 0.94 using Cronbach's alpha for the total sample in our study.

2.3. Statistical methods

The sample size was calculated using a formula that factored in a 95 % confidence interval, a margin of error of 3 % (d = 0.03), an expected frequency of self-reported sexual violence (p = 18 %) based on a survey conducted in six areas of Iran [5], and a non-response rate of 20 %. As a result, the sample size was set at 756.

The researchers utilized the Statistical Package for the Social Sciences (SPSS version 22.0) to conduct data analysis. The mean ± SD was reported for continuous variables, and frequency (percentage) was reported for count data. Independent t-tests and one-way analysis of variance (ANOVA) were used to compare FGSIS and FSDS-R scores between the groups of women. Pearson's correlation (two-tailed) was employed to examine the relationships between age and FGSIS and FSDS-R scores, as well as between FGSIS and FSDS-R scores. Multivariate linear regression analysis was applied to determine if SIPV experience was an independent predictor of the FGSIS and FSDS-R scores while controlling for covariates such as age, having children, level of education, occupation status, and level of income satisfaction. The significance level for all tests was set at $P < 0.05$.

3. Results

Of the 756 women invited to participate, 722 (95 %) consented to complete the online survey. In brief, 28.7 % of the women experienced SIPV. The mean age of women with SIPV experience was 32.20 ± 5.42 years. The mean scores for FGSIS and FSDS-R of all women were 21.70 ± 3.82 and 9.16 ± 10.57, respectively. The majority of the women (86.4 %) had a university education. Almost half of the women had no children, while half of them had one child or more. The data regarding the other sociodemographic variables are shown in Table 1.

Table 2 presents an univariate analysis of the relationship between genital self-image, sexual distress and sociodemographic variables. Based on the results of bivariate tests, there was a statistically significant correlation between FGSIS scores and women with and without SIPV experience, such that women who reported experiencing SIPV had a lower mean score on the FGSIS compared to those who did not experience SIPV (P = 0.02). Moreover, the independent *t*-test showed significant differences in the mean score of FGSIS among the women with different statuses regarding having children, such that the mean score of FGSIS was lower in women who had children (P = 0.01). Furthermore, one-way ANOVA showed that there was a statistically significant difference in FGSIS scores between different levels of satisfaction with income. As the levels of satisfaction with income increased,the mean score of FGSIS also rose (indicating a better genital self-image) (p < 0.001). However, there was no statistically significant correlation between FGSIS scores and women's age (Pearson correlation coefficient r = 0.059, P = 0.114), education level (P = 0.50), and occupation (P = 0.38).

As seen in Table 3, in the multivariate linear regression analysis, women's age, level of satisfaction with income, and having children remained independently associated with the FGSIS score (P < 0.005), such that a higher (better) FGSIS score was seen in women with more advanced age (β = 0.079, p = 0.004, i.e., 0.079 points higher for each unit increase in women's age) and among women with a higher level of satisfaction with income (β = 0.645, p = 0.003). In contrast, lower (worse) FGSIS scores were observed among women with children (β = −0.931, p = 0.004).

Regarding sexual distress, the independent t-testshowed significant differences in the mean score of FSDS-R among women with and without SIPV experience. Women who experienced SIPV had a higher mean score on the FSDS-R (indicating higher sexual distress) compared to women who did not experience SIPV (P < 0.001). Furthermore, based on one-way ANOVA,the mean score of FSDS-R had

Table 1
Sociodemographic characteristics of the study participants, categorized by SIPV experience and in total.

	Women with SIPV experience = 207	Women with no SIPV experience = 515	Total sample = 722	Test for difference
Age, y (average, SD)	32.20 ± 5.42	30.97 ± 5.62	31.33 ± 5.59	P = 0.007[a]
Child (n)				p < 0.001
None	74(35.7)	285(55.3)	359(49.7)	
One or more	133(64.3)	230(44.7)	363(50.3)	
Education				
No university education	30(14.5)	68(13.2)	98(13.6)	P = 0.647
University education	117(85.5)	447(86.8)	624(86.4)	
Occupation				P = 0.43
Housewife	112(54.1)	262(50.9)	374(51.8)	
Working	95(45.9)	253(49.1)	348(48.2)	
Satisfaction with income				
Low	39(18.8)	79(15.3)	118(16.3)	P = 0.33
Moderate	120(58.0)	294(57.1)	414(57.3)	
High	48(23.2)	142(27.6)	190(26.3)	

SIPV experience = Sexual Intimate Partner Violence experience.

[a] P < 0.01, Statistically significant differences were found between women with and without SIPV experience in terms of age and parental status (having a child or not).

Table 2
The relationship between genital self-image, sexual distress and sociodemographic variables.

Variable	Genital self-image (assessed by FGSIS)			Sexual distress (assessed by FSDS-R)		
	Mean ± SD	Correlation coefficient	P value	Mean ± SD	Correlation coefficient	P value
SIPV experience			p = 0.02[a]			p < 0.001[a]
Yes	21.18 ± 3.92	–		13.18 ± 11.45	–	
No	21.91 ± 3.76	–		7.54 ± 9.75	–	
Child (n)			P = 0.01[a]			P = 0.56[a]
None	22.05 ± 3.9	–		8.93 ± 10.64	–	
One or more	21.35 ± 3.6	–		9.38 ± 10.51	–	
Education			P = 0.50[a]			
No university education	21.46 ± 4.33	–		9.34 ± 10.74	–	P = 0.85[a]
University education	21.74 ± 3.73	–		9.13 ± 10.55	–	
Occupation			P = 0.38[a]			P = 0.94[a]
Housewife	21.58 ± 3.7	–		9.13 ± 10.69	–	
Working	21.83 ± 3.9	–		9.19 ± 10.46	–	
Satisfaction with income			p < 0.001[b]			P = 0.003[b]
Low	20.45 ± 3.6	–		12.09 ± 11.12	–	
Moderate	21.91 ± 3.7	–		8.85 ± 10.51	–	
High	22.02 ± 3.9	–		8.01 ± 10.07	–	
Age	–	0.059	P = 0.114[c]	–	0.003	P = 0.93[c]

[a] Independent *t*-test.
[b] One-way ANOVA.
[c] Pearson Correlation test.

Table 3
Multivariate linear regression on genital self-image (assessed by FGSIS).

Variables	β	B	Std.Error	95 % CI	t	P-value
SIPV experience	−0.596	−0.071	0.315	−1.215 to 0.023	−1.890	0.059
Age, y	0.079	0.115	0.028	0.025 to 0.133	2.859	0.004[a]
Child (n)	−0.931	−0.122	0.324	−1.566 to −0.295	−2.875	0.004[a]
Education	0.022	0.002	0.424	−0.811 to 0.855	0.053	0.953
Occupation	−0.076	−0.011	0.299	−0.704 to 0.470	−0.674	0.502
Satisfaction with income	0.645	0.109	0.219	0.215 to 1.075	2.945	0.003[a]

[a] P < 0.005, CI = Confidence Interval; SIPV experience = Sexual Intimate Partner Violence experience; FGSIS = Female Genital Self-Image Scale.

a significant negative association with the degree of satisfaction with income. In other words, a decreased level of satisfaction with income was associated with an increased mean score on the FSDS-R (higher sexual distress) (P = 0.003). Nevertheless, there was no statistically significant correlation between FSDS-R scores and women's age (Pearson correlation r = 0.003, P = 0.93), education (P = 0.85), occupation (P = 0.94), and the status of having children (P = 0.56).

As seen in Table 4, in the multivariate regression analysis, SIPV experience (P < 0.001) and the level of satisfaction with income (P = 0.005) remained independently associated with the FSDS-R score, such that higher (worse) FSDS-R scores were found among women with SIPV experience (β = 5.617, P < 0.001), and lower (better) FSDS-R scores were obtained by women with a higher level of satisfaction with income (β = −1.691, P = 0.005).

It should be noted that a negative correlation was found between the mean FGSIS and FSDS-R scores. As the FGSIS score decreased, the mean score of FSDS-R increased (Pearson correlation = −0.281, P < 0.001).

4. Discussion

The results of this study demonstrated that 28.7 % of married, reproductive-age women experienced SIPV. This estimate is

Table 4
Multivariate linear regression onsexual distress (assessed by FSDS-R).

Variables	β	B	Std.Error	95 % CI	t	P-value
SIPV experience	5.617	0.240	0.858	3.932 to 7.302	6.544	<0.001
Age	−0.029	−0.015	0.075	−0.176 to 0.118	−0.388	0.698
Child (n)	−0.342	−0.016	0.881	−2.071 to 1.387	−0.388	0.698
Education	0.076	0.002	1.155	−2.190 to 2.342	0.066	0.947
Occupation	0.268	0.013	0.815	−1.331 to 1.868	0.329	0.742
Satisfaction with income	−1.691	−0.103	0.596	−2.861 to −0.521	−2.837	0.005[a]

[a] P < 0.01, CI = Confidence Interval; SIPV experience = Sexual Intimate Partner Violence experience; FSDS-R = Female Sexual Distress Scale-Revised.

somewhat higher than an earlier study conducted in Iran. For instance, in a cross-sectional study of 813 women in Iran, only 10.2 % of participants reported experiencing sexual violence from an intimate partner [25]. However, the prevalence of SIPV in our study is similar to reports by the World Health Organization (WHO). According to existing evidence, 35 % of women worldwide have experienced either partner or non-partner sexual violence in their lifetime [2]. The differences in prevalence rates of violence can be attributed to variations in the definition of violence, the timing and conditions under which women were questioned, and the populations studied. In many communities, including Iran, women often do not report or underreport this violence due to fear of personal and social consequences [26]. However, our survey was anonymous and conducted online, which may have encouraged more truthful responses.

In this study, we found a statistically significant negative correlation between the mean FGSIS and FSDS-R scores, consistent with the results of other studies. Similarly, Berman et al. reported that a positive genital self-image correlated negatively with sexual distress [27]. A study of premenopausal women also showed that genital self-image was strongly correlated with sexual distress [28]. Another study found that for each 1-unit increase in the FGSIS score, the FSDS-R score decreased by 1.24 units [9]. These findings reinforce the importance of promoting a positive genital self-image as a means of reducing sexual distress among women, and vice versa.This suggests that interventions aimed at enhancing either aspect may have beneficial effects on the other. Therefore, the correlation between these two factors should not be overlooked in psychosexual health counseling sessions.

We also found that women who experienced SIPV had lower (worse) genital self-image scores compared to women without SIPV experience in univariate analyses. However, this difference was not statistically significant in multivariate analysis after adjusting for confounding variables. In terms of sexual distress, women with SIPV experience had higher (worse) sexual distress scores than those without SIPV experience in both univariate and multivariate analyses. Specifically, after adjusting for the effects of confounding variables in the multivariate regression analysis, the FSDS-R score increased by 5.61 units for women who were victims of sexual violence.

To our knowledge, no study has assessed the relationship between SIPV experience and genital self-image or sexual distress. However, the correlation between sexual violence and body image (not genital image) as well as psychological distress (not sexual distress) has been confirmed. Previous reports have indicated that women with experiences of sexual violence tend to have higher levels of body image dissatisfaction [8]. Additionally, it has been shown that sexual violence has a long-term relationship with psychological distress [29].

Furthermore, the correlation between sexual violence and sexual function has been established in several studies. For example, in a study by Mohammed et al. [30]in Egypt, it was shown that as the severity of sexual violence increased, desire, arousal, lubrication, orgasm, and satisfaction significantly decreased, while pain increased. Another study revealed that women who suffered domestic violence had four times the risk of sexual dysfunction compared to women without domestic violence [31]. Moreover, a systematic review of the literature reported that physical IPV was consistently associated with sexual dysfunction in 17 of 18 studies [32]. On the other hand, several studies have documented the relationship between genital self-image and sexual function [33,34]. For instance, a study by Lordelo et al. indicated the influence of genital self-image on sexual function and vice versa [35]. Additionally, in a U.S. study, women who reported a more positive genital self-image obtained higher scores on different sexual function domains, except for pain [12]. Regarding sexual distress, it was shown that women with sexual dysfunctions may concurrently report sexual distress [36]. Therefore, it appears that SIPV experience indirectly affects genital self-image and sexual distress by impacting sexual function. However, further research is needed to assess this possible link and explore the long-term impact of SIPV on psychosexual health, particularly in diverse cultural contexts. Thus, the prevention of SIPV should be considered a crucial strategy for promoting sexual health. Additionally, screening for SIPV experiences should be integrated into assessments of genital self-image and sexual distress during sexual counseling sessions.

This study also demonstrated that among the sociodemographic variables, satisfaction with income was significantly associated with both genital self-image andsexual distress in multivariate regression analyses. Specifically, greater satisfaction with income correlated with a better genital self-image and reduced sexual distress (with a stronger β coefficient for sexual distress).In other words, the findings suggest that higher satisfaction with income has a protective impact on both genital self-image and sexual distress. While Rouzi et al. [37] supported the association between income level and genital self-image—reporting that women with higher incomes had a greater mean FGSIS score than those with lower incomes—the relationship between income level and sexual distress has not beenconclusively established in prior studies. Nevertheless, evidence suggests this association is plausible, as mediating factors may explain the relationship.For instance, research has shown that socioeconomic status is linked to marital quality, with higher levels predicting better marital quality [38]. Specifically, higher income is associated with higher and more stable marital quality [36].

Various studies have highlighted the relationship between sexual distress and marital quality [39,40]. Blumenstocket al. [41] pointed out a bidirectional association between sexual distress and marital quality, where changes in sexual distress predicted changes in marital quality and vice versa. Their research indicated that improvements in marital quality were linked to decreases in sexual distress over a four-year period. Conversely, research indicates that daily stressors related to financial strain are associated with lower levels of sexual function [42].

Furthermore, epidemiological studies have shown that impairments in sexual function are concurrently associated with sexual distress in some women [43,44]. This sexual distress is a crucial criterion in the diagnostic process of sexual dysfunction and should always be considered when assessing sexual function [45].Thus, income level appears to play a significant role in sexual distress, mediated by other factors such as marital quality and sexual function. However, further studies are needed to establish causal relationships among these variables. Assuming causal relationships are established, healthcare providers should adopt a holistic approach when evaluating women with poor genital self-image and heightened sexual distress. This approach should encompass an exploration of the individual's financial situation, marital dynamics, and overall emotional and sexual well-being. By recognizing and

understanding these interconnected factors, healthcare providers can more effectively tailor their interventions.

Our results strengthen previous research concerning genital self-image and advancing age, as we found a direct association between the FGSIS score and advancing age, with FGSIS scores increasing as women aged. In previous research, female genital self-image satisfaction has been reported to correlate with increasing age, with younger women being more likely to be dissatisfied with their genitals [10,34,46]. This may be due to younger women being more affected by social and media influences, while older women have come to accept themselves as they are. However, some previous research has shown no significant differences in genital self-image across different age group [47]. This discrepancy could be due to differences in sample culture and the use of different age categories in assessments. Consequently, our results not only reinforce the notion that age could play a crucial role in shaping self-perceptions but also underscore the necessity for future studies to consider cultural influences and standardized age groupings when examining genital self-image. This can lead to a deeper understanding of the factors that contribute to genital image satisfaction across the lifespan in diverse populations.

Our other findings support the significant role of having a child in the development of poor genital self-image. Specifically, having a child was associated with a decreased FGSIS score. Consistent with this finding, Ålgars et al. [33]noted that women who had a child were less satisfied with their genitals than women who had not. This is understandable because pregnancy causes changes in body size and shape, and the genital area is one of the most important areas that undergoes changes during pregnancy [21,33]. These findings highlight the need for a deeper understanding of how the physical transformations accompanying motherhood can influence women's self-perception.

Although this study was novel and utilized a robust design and validated outcome measures, it had some limitations. Given the exploratory cross-sectional nature of the study, causality could not be definitively determined, and longitudinal research designs are preferable for assessing changes in variables over time. Furthermore, we did not explore sexual function and psychological factors that may affect genital self-image andsexual distress. Future research should examine the wide variety of factors that may be related to genital self-image andsexualdistress among women at different stages of life. Self-reported data for inclusionand exclusion criteria may be affected by biases such as social desirability, recall bias, and underreporting, particularly on sensitive topics like IPV. Therefore, our findings should be interpreted with caution. However, we employed standardized tools for data collection, such as the FGSIS and FSDS-R, to assess participants' genital self-image and sexual distress. This use of validated measures enhances the reliability and validity of our results, representing a strength of this study. The assessment of SIPV may be reduced to a simple yes/no question, which presents a significant limitation in our study. This binary approach fails to capture the nuances and complexities of SIPV, which can vary greatly in severity, frequency, and context. We suggest that future research utilize qualitative data or validated multiple-item scales to assess various dimensions of SIPV, which could provide deeper insights into the severity and context of these experiences.

5. Conclusion

Women with SIPV experience had lower (worse) mean FGSIS scores and higher (worse) mean FSDS-R scores than women without SIPV experience, although the statistical difference for the FGSIS score did not remain significant in multivariate analysis. Among sociodemographic factors, age and having a child were associated with the FGSIS score, while satisfaction with income was associated with both FGSIS and FSDS-R scores. Ongoing training for healthcare providers regarding the effects of SIPV and the importance of sociodemographic factors in shaping psychosexual health outcomes is recommended. Enhanced awareness can lead to more effective screenings, interventions, and referrals for women affected by SIPV.

CRediT authorship contribution statement

Maryam Farjamfar: Writing – review & editing, Writing – original draft, Supervision, Investigation, Funding acquisition, Conceptualization. **Zeinab Hamzehgardeshi:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Data curation, Conceptualization. **Afsaneh Keramat:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Conceptualization. **Masoud Yunesian:** Writing – review & editing, Writing – original draft, Supervision, Software, Methodology, Formal analysis, Conceptualization. **Mina Malary:** Writing – review & editing, Writing – original draft, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Ethics statement

The study was approved by the Ethics Committee of Shahroud University of Medical Sciences (Code of ethics: IR.SHMU.REC.1398.097). It was extracted from a reproductive health PhD thesis funded by the Shahroud University of Medical Sciences, Shahroud, Iran (Grant number: 98103). All methods were carried out in accordance with relevant guidelines and regulations. When conducting the research, the necessary permits were obtained to attend comprehensive health centers.

Data availability statement

The raw data produced in this study will not be shared publicly due to ethical issues and confidential data protection. The datasets for current study are available from the corresponding author on reasonable request.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2024.e40798.

References

[1] K.M. Devries, J.Y. Mak, C. Garcia-Moreno, M. Petzold, J.C. Child, G. Falder, et al., The global prevalence of intimate partner violence against women, Science 340 (6140) (2013) 1527–1528, https://doi.org/10.1126/science.1240937.
[2] W.H. Organization, Violence against Women: Intimate Partner and Sexual Violence against Women: Intimate Partner and Sexual Violence Have Serious Short-And Long-Term Physical, Mental and Sexual and Reproductive Health Problems for Survivors: Fact Sheet, World Health Organization, 2014.
[3] L. Sardinha, M. Maheu-Giroux, H. Stöckl, S.R. Meyer, C. García-Moreno, Global, regional, and national prevalence estimates of physical or sexual, or both, intimate partner violence against women in 2018, Lancet 399 (10327) (2022) 803–813, https://doi.org/10.1016/S0140-6736(21)02664-7.
[4] A. Vu, A. Adam, A. Wirtz, K. Pham, L. Rubenstein, N. Glass, et al., The prevalence of sexual violence among female refugees in complex humanitarian emergencies: a systematic review and meta-analysis, PLoS Curr 6 (2014), https://doi.org/10.1371/currents.dis.835f10778fd80ae031aac12d3b533ca7.
[5] M. Saffari, S.A. Arslan, M.S. Yekaninejad, A.H. Pakpour, F.A. Zaben, H.G. Koenig, Factors associated with domestic violence against women in Iran: an exploratory multicenter community-based study, J. Interpers Violence (2017) 0886260517713224, https://doi.org/10.1177/0886260517713224.
[6] R. Jina, L.S. Thomas, Health consequences of sexual violence against women, Best Pract. Res. Clin. Obstet. Gynaecol. 27 (1) (2013) 15–26, https://doi.org/10.1016/j.bpobgyn.2012.08.012.
[7] M. Laanpere, I. Ringmets, K. Part, H. Karro, Intimate partner violence and sexual health outcomes: a population-based study among 16–44-year-old women in Estonia, Eur. J. Publ. Health 23 (4) (2013) 688–693, https://doi.org/10.1093/eurpub/cks144.
[8] M. Jaconis, S.J. Boyd, M.J. Gray, History of sexual violence and associated negative consequences: the mediating role of body image dissatisfaction, J. Loss Trauma 25 (2) (2020) 107–123, https://doi.org/10.1080/15325024.2019.1660500.
[9] E. Benabe, Y. Fuentes, G. Roldan, M. Ramos, M. Pastrana, J. Romaguera, The perceptions of female genital self-image and its associations with female sexual distress, Int. J. Gynaecol. Obstet. 157 (1) (2022) 90–95, https://doi.org/10.1002/ijgo.13827.
[10] T.S. Rowen, T.W. Gaither, A.W. Shindel, B.N. Breyer, Characteristics of genital dissatisfaction among a nationally representative sample of US women, J. Sex. Med. 15 (5) (2018) 698–704, https://doi.org/10.1016/j.jsxm.2018.03.004.
[11] GFAE-k Mohammed, H. Hassan, Validity and reliability of the Arabic version of the female genital self-image scale, J. Sex. Med. 11 (5) (2014) 1193–1200, https://doi.org/10.1111/jsm.12494.
[12] D. Herbenick, V. Schick, M. Reece, S. Sanders, B. Dodge, J.D. Fortenberry, The female genital self-image scale (FGSIS): results from a nationally representative probability sample of women in the United States, J. Sex. Med. 8 (1) (2011) 158–166, https://doi.org/10.1111/j.1743-6109.2010.02071.x.
[13] S. Michael, G. Skaczkowski, C. Wilson, Sexual satisfaction and sexual distress after cancer: the role of body image disruption, self-compassion, sexual pain and relationship satisfaction, Psycho Oncol. 30 (11) (2021) 1902–1909, https://doi.org/10.1002/pon.5755.
[14] N.K. Smith, S. Butler, B. Wagner, E. Collazo, L. Caltabiano, D. Herbenick, Genital self-image and considerations of elective genital surgery, J. Sex Marital Ther. 43 (2) (2017) 169–184, https://doi.org/10.1080/0092623X.2016.1141820.
[15] A.L. DeMaria, A.V. Hollub, D. Herbenick, Using genital self-image, body image, and sexual behaviors to predict gynecological exam behaviors of college women, J. Sex. Med. 8 (9) (2011) 2484–2492, https://doi.org/10.1111/j.1743-6109.2011.02379.x.
[16] E. Laan, D.K. Martoredjo, S. Hesselink, N. Snijders, R.H. van Lunsen, Young women's genital self-image and effects of exposure to pictures of natural vulvas, J. Psychosom. Obstet. Gynaecol. 38 (4) (2017) 249–255, https://doi.org/10.1080/0167482X.2016.1233172.
[17] A.L. DeMaria, A.V. Hollub, D. Herbenick, The Female Genital Self-Image Scale (FGSIS): validation among a sample of female college students, J. Sex. Med. 9 (3) (2012) 708–718, https://doi.org/10.1111/j.1743-6109.2011.02379.x.
[18] D. Herbenick, M. Reece, Development and validation of the female genital self-image scale, J. Sex. Med. 7 (5) (2010) 1822–1830, https://doi.org/10.1111/j.1743-6109.2010.01728.x.
[19] A.H. Pakpour, I.M. Zeidi, M. Ziaeiha, A. Burri, Cross-cultural adaptation of the female genital self-image scale (FGSIS) in Iranian female college students, J. Sex. Res. 51 (6) (2014) 646–653, https://doi.org/10.1080/00224499.2013.821441.
[20] L. DeRogatis, A. Clayton, D. Lewis-D'Agostino, G. Wunderlich, Y. Fu, Validation of the female sexual distress scale-revised for assessing distress in women with hypoactive sexual desire disorder, J. Sex. Med. 5 (2) (2008) 357–364, https://doi.org/10.1111/j.1743-6109.2007.00672.x.
[21] A. Keramat, M. Malary, M. Moosazadeh, N. Bagherian, M.-R. Rajabi-Shakib, Factors influencing stress, anxiety, and depression among Iranian pregnant women: the role of sexual distress and genital self-image, BMC Pregnancy Childbirth 21 (1) (2021) 1–12, https://doi.org/10.1186/s12884-021-03575-1.
[22] Z. Hamzehgardeshi, M. Malary, M. Moosazadeh, S. Khani, M. Pourasghar, N. Alianmoghaddam, Socio-demographic determinants of low sexual desire and hypoactive sexual desire disorder: a population-based study in Iran, BMC Wom. Health 20 (2020) 1–9, https://doi.org/10.1186/s12905-020-01097-0.
[23] K. Nowosielski, B. Wróbel, U. Sioma-Markowska, R. Poręba, Sexual dysfunction and distress—development of a Polish version of the female sexual distress scale-revised, J. Sex. Med. 10 (5) (2013) 1304–1312, https://doi.org/10.1111/jsm.12112.
[24] E. Azimi Nekoo, A. Burri, F. Ashrafti, B. Fridlund, H.G. Koenig, L.R. Derogatis, et al., Psychometric properties of the Iranian version of the female sexual distress scale-revised in women, J. Sex. Med. 11 (4) (2014) 995–1004, https://doi.org/10.1111/jsm.12449.

[25] S. Jamali, S. Javadpour, The impact of intimate male partner violence on women's sexual function: a study in Iran, J. Clin. Diagn. Res. 10 (12) (2016) QC29, https://doi.org/10.7860/JCDR/2016/20455.9119.
[26] J. Usta, J.A.M. Farver, N. Pashayan, Domestic violence: the Lebanese experience, Public health 121 (3) (2007) 208–219, https://doi.org/10.1016/j.puhe.2006.09.014.
[27] L.A. Berman, J. Berman, M. Miles, D. Pollets, J.A. Powell, Genital self-image as a component of sexual health: relationship between genital self-image, female sexual function, and quality of life measures, J. Sex Marital Ther. 29 (sup1) (2003) 11–21, https://doi.org/10.1080/713847124.
[28] E. Pazmany, S. Bergeron, L. Van Oudenhove, J. Verhaeghe, P. Enzlin, Body image and genital self-image in pre-menopausal women with dyspareunia, Arch. Sex. Behav. 42 (6) (2013) 999–1010, https://doi.org/10.1007/s10508-013-0102-4.
[29] J. Schnittker, What makes sexual violence different? Comparing the effects of sexual and non-sexual violence on psychological distress, SSM Ment Health 2 (2022) 100115, https://doi.org/10.1016/j.ssmmh.2022.100115.
[30] G.F. Mohammed, R.K. Hashish, Sexual violence against females and its impact on their sexual function, Egypt J Forensic Sci 5 (3) (2015) 96–102, https://doi.org/10.1016/j.ejfs.2014.08.004.
[31] L. Hastuti, K.T. Suriadi, T. Ligita, The relationship between domestic violence and women's sexual function in the city of Puntianak, IJPHR 2011 (Special Issue) (2011) 139–145.
[32] A.L. Coker, Does physical intimate partner violence affect sexual health? A systematic review, Trauma Violence Abuse 8 (2) (2007) 149–177, https://doi.org/10.1177/1524838007301162.
[33] M. Ålgars, P. Santtila, P. Jern, A. Johansson, M. Westerlund, N.K. Sandnabba, Sexual body image and its correlates: a population-based study of Finnish women and men, Int. J. Sex. Health 23 (1) (2011) 26–34, https://doi.org/10.1080/19317611.2010.509692.
[34] L. Berman, M.A. Windecker, The relationship between women's genital self-image and female sexual function: a national survey, Curr. Sex Health Rep. 5 (4) (2008) 199–207, https://doi.org/10.1007/s11930-008-0035-4.
[35] P. Lordelo, C. Brasil, J. Lerche, T. Gomes, P. Martins, M. Castro, Relationship between female genital self-image and sexual function: cross-sectional study, Obstet Gynecol Int J 7 (4) (2017) 00253, https://doi.org/10.15406/ogij.2017.07.00253.
[36] K.S. Birditt, S. Hope, E. Brown, T. Orbuch, Developmental trajectories of marital happiness over 16 years, Res. Hum. Dev. 9 (2) (2012) 126–144, https://doi.org/10.1080/15427609.2012.680844.
[37] A.A. Rouzi, R.C. Berg, R. Alamoudi, F. Alzaban, M. Sehlo, Female genital self-image in women with and without female genital mutilation/cutting in Jeddah, Saudi Arabia, Sex. Med. 8 (4) (2020) 752–756, https://doi.org/10.1016/j.esxm.2020.06.010.
[38] J. Dakin, R. Wampler, Money doesn't buy happiness, but it helps: marital satisfaction, psychological distress, and demographic differences between low-and middle-income clinic couples, Am. J. Fam. Ther. 36 (4) (2008) 300–311, https://doi.org/10.1080/01926180701647512.
[39] J.K. McNulty, C.A. Wenner, T.D. Fisher, Longitudinal associations among relationship satisfaction, sexual satisfaction, and frequency of sex in early marriage, Arch. Sex. Behav. 45 (2016) 85–97, https://doi.org/10.1007/s10508-014-0444-6.
[40] Z. Hamzehgardeshi, S. Sabetghadam, M. Pourasghar, S. Khani, M. Moosazadeh, M. Malary, Prevalence and predictors of sexual distress in married reproductive-age women: a cross-sectional study from Iran, Health Science Reports 6 (9) (2023) e1513, https://doi.org/10.1002/hsr2.1513.
[41] S.M. Blumenstock, L.M. Papp, Sexual distress and marital quality of newlyweds: an investigation of sociodemographic moderators, Fam. Relat. 66 (5) (2017) 794–808, https://doi.org/10.1111/fare.12285.
[42] L.D. Hamilton, A.M. Julian, The relationship between daily hassles and sexual function in men and women, J. Sex Marital Ther. 40 (5) (2014) 379–395, https://doi.org/10.1080/0092623X.2013.864364.
[43] M. Malary, M. Moosazadeh, A. Keramat, S. Sabetghadam, Factors influencing low sexual desire and sexual distress in pregnancy: a cross-sectional study, Int J Reprod Biomed 19 (10) (2021) 909–920, https://doi.org/10.18502/ijrm.v19i10.9823.
[44] L. Hendrickx, L. Gijs, E. Janssen, P. Enzlin, Predictors of sexual distress in women with desire and arousal difficulties: distinguishing between personal, partner, and interpersonal distress, J. Sex. Med. 13 (11) (2016) 1662–1675, https://doi.org/10.1016/j.jsxm.2016.09.016.
[45] G. Gava, M. Visconti, F. Salvi, I. Bartolomei, R. Seracchioli, M.C. Meriggiola, Prevalence and psychopathological determinants of sexual dysfunction and related distress in women with and without multiple sclerosis, J. Sex. Med. 16 (6) (2019) 833–842, https://doi.org/10.1016/j.jsxm.2019.03.011.
[46] R. Bramwell, C. Morland, Genital appearance satisfaction in women: the development of a questionnaire and exploration of correlates, J. Reprod. Infant Psychol. 27 (1) (2009) 15–27, https://doi.org/10.1080/02646830701759793.
[47] M.C. Fudge, E.S. Byers, An exploration of the prevalence of global, categorical, and specific female genital dissatisfaction, Can. J. Hum. Sex. 26 (2) (2017) 112–121, https://doi.org/10.3138/cjhs.262-a3.