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Casual association between social determinants of health and sexual health literacy in reproductive-aged women: a WHO model analysis

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Abstract

Introduction Sexual health literacy is an important factor affecting sexual health, and social determinants of health significantly increasing health literacy. This study aimed to investigate the relationship between social determinants of health and sexual health literacy.

Method The present cross-sectional study was conducted on 600 married women of reproductive age referred to health centers in Tehran, Iran (2024). Questionnaires included demographic and obstetric details, Perceived Social Support, Socioeconomic Status, and Intimate Partner Violence. The statistical analysis was performed in SPSS-27, and the relationship model was examined using the path analysis method in LISREL-8.8.

Results According to the path analysis, sexual health literacy was directly affected by domestic violence (B = -0.12) and perceived social support (B = 0.39). It was also indirectly affected by socioeconomic status (B = 0.44) and spouse education (B = 0.48).

Conclusion The results showed that some factors influence sexual health literacy in women both directly and indirectly. Given the factors identified in the suggested model, it is advisable to utilize this model as a suitable framework for research, design, and execution of initiatives concerning sexual health literacy.

Keywords Sexual health literacy, Social determinants of health, Education, Socioeconomic status, Perceived social support, Intimate partner violence

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Introduction

According to the World Health Organization, sexual health is crucial for attaining physical and emotional health, ensuring the well-being of individuals, couples, and families, and contributing to the social and economic progress of communities and nations [1]. In this regard, sexual health literacy (SHL) is among the factors related to sexual health [2, 3]. Sexual health literacy refers to a person's awareness, beliefs, attitudes, motivations, and abilities in seeking out, understanding, assessing, and utilizing information related to sexual health to navigate, evaluate, and make decisions concerning sexual health [4]. Recent research indicates alarming figures: in the UK, 41.6% of men and 51.2% of women claim to have faced at least one kind of sexual issue [5]. Similarly, a quarter of Iranian women have low levels of sexual health literacy [6].

Enhanced sexual health literacy fosters a greater capacity to recognize and evaluate the risks linked to sexual health, postpones the initiation of sexual activity, encourages the selection of low-risk sexual partners, promotes the pursuit of safe sexual practices, decreases the occurrence of unintended pregnancies and sexually transmitted infections, and ultimately enhances both family and community health [6–8]. Past studies have associated low sexual health literacy with unsatisfactory sexual performance, challenges in seeking timely treatment, diminished sense of sexual entitlement, lower quality of sexual life, reduced awareness, attitudes, and confidence regarding condom usage, and a rise in high-risk sexual behaviors [8–11].

In 2010, the Commission for Social Determinants of Health (CSDH) of the World Health Organization introduced a framework for understanding social influences on health. This framework categorizes social determinants of health into two groups: 1- Structural social determinants and 2- Intermediate social determinants. These factors interact with one another and ultimately impact health outcomes. Structural social determinants that shape social class encompass education, income, gender, and ethnicity (race). In this framework, the context, structural mechanisms, and the resulting socioeconomic conditions of individuals are referred to as "structural determinants." These structural social determinants of health influence health outcomes through intermediate health determinants. The phrases "structural determinants" and "intermediate determinants" underscore the leading role of structural factors. Intermediate social determinants can be categorized into several areas: material conditions like employment and access to food; behavioral and/or biological aspects such as nutrition, exercise, and genetic influences; psychosocial elements like domestic violence and social support; as well as the healthcare system [12]. In this regard, SHL can be considered a health outcome affected by structural and intermediate social factors.

Women of childbearing age are critical to the population's reproductive foundation. Additionally, women are crucial in ensuring, maintaining, and enhancing the family's health due to their roles as mothers and wives within the family unit [13]. Women are the foundation of family wellness, and neglecting their health can result in lasting issues affecting the lifestyle and health of future generations [14]. In addition, more than 22 million people of the country's entire population are women of reproductive age [15].

Moreover, the sexual and reproductive health of women in Iran is influenced by a variety of environmental, cultural, social, and economic factors [16, 17]. Iranian society is characterized by a deeply rooted traditional culture [18]. The prevailing cultural norms often lead women to refrain from openly discussing various facets of their sexual lives [19]. Therefore, given the notable occurrence of sexual dysfunction among Iranian women, as well as the significance of sexual health literacy in enhancing personal sexual well-being [20] finding factors affecting SHL through anonymous questionnaires seems necessary for Iran. Although some studies have examined factors affecting sexual health literacy, no study has examined the factors related to SHL using the World Health Organization model. So, the present study was conducted to investigate the relationship between SDH and SHL based on the WHO Social Determinants of Health 2010 model.

Methods

A descriptive cross-sectional study was conducted in 2024 in Iran. The population of this study was 600 reproductive-aged women in community health Centers. All centers were sorted by district in terms of socioeconomic status, and six centers were randomly selected. Then, the participants were selected by convenience sampling from these centers based on inclusion criteria.

Inclusion criteria

The inclusion criteria were Iranian nationality, reading and writing Literacy, not being pregnant, being married, having no chronic diseases, having a health record in the health center, having no history of mental illness, and having a desire to participate in the study.

Exclusion criteria

The exclusion criterion was the inappropriate completion of questionnaires. So, whenever the participant declined to complete the questionnaire, she was excluded from

the study. The study objectives were explained to eligible women, and they were invited to participate in the study.

Sample size

The sample size (600 subjects) was determined, given that in path analysis, each independent variable is usually considered 5–20 observations [21]. For this purpose, all of the items of the independent variables were 52. Then, the minimum sample size was almost 520, considering 10 samples per item of questionnaires of independent variables. Ultimately, the sample size included 600 people, considering the possibility of a 15 percent attrition rate.

Data collection

Data were collected using a demographic and obstetric questionnaire, the Socioeconomic Status Questionnaire by Ghodratnama et al., the Multidimensional Scale of Perceived Social Support (MSPSS) by Zimet et al., and Intimate Partner Violence by WHO to examine the variables related to the social determinants of health. The Sexual Health Literacy for Iranian Adults (SHELIA) scale was used to measure sexual health literacy among women.

Demographic and obstetric questionnaire

This questionnaire included age, husband's age, ethnicity, gravidity, parity, number of children, and spouse (or partner) education.

Socioeconomic status questionnaire

The socioeconomic status questionnaire included 12 questions, five of which focused on demographics and seven on factors such as economic class, individual income, educational level of both the individual and their parents, and housing situation. Elevated scores indicated a higher socioeconomic status [22]. According to one study, Cronbach's alpha for this questionnaire was 0.82 [23].

Multidimensional scale of perceived social support (MSPSS)

The MSPSS consists of 12 items that assess perceived social support from various sources, including spouse, friends, and family, and is rated on a 5-point Likert scale ranging from "strongly disagree' to "strongly agree". In this scale, 'strongly disagree' signifies that the individual has never experienced the support mentioned in the statement. In contrast 'strongly agree' indicates that the individual has fully experienced that support. Bagherian et al. found that Cronbach's alpha coefficients for the three dimensions of social support—support from friends, significant others, and family were 0.90, 0.93, and 0.85, respectively [24].

World Health Organization Violence Against Women (WHO-VAW) instrument

The screening tool developed by the World Health Organization is effective for identifying domestic violence across three domains: physical, psychological, and sexual. It evaluates physical violence through 9 questions, sexual violence through 8 questions, and emotional violence through 15 questions. A positive response to any question related to physical, emotional, or sexual violence indicates the presence of violence. The number of cases of domestic violence is measured based on the five-point Likert scale. The internal reliability of this tool using Cronbach's alpha in three domains was 92%, 89%, and 88% for physical, psychological, and sexual violence, respectively [25]. Its validity has been assessed in various Iranian studies and has been appropriate [26].

Sexual Health Literacy for Iranian Adults" (SHELIA) scale

This scale, designed and validated in Iran, includes 40 questions and is mainly aimed at assessing the sexual health literacy of adults in the country. It covers four areas: access skills (8 items), reading and comprehension skills (17 items), analysis and evaluation skills (5 items), and application skills (10 items), which together represent 68.1% of the variance. Participants evaluated their answers using a 5-point Likert scale, where scores ranged from one for "strongly disagree" to five for "strongly agree." The SHELIA questionnaire demonstrated strong internal consistency reliability, with Cronbach's alpha ranging from 0.84 to 0.94 and intra-class correlation coefficients ranging from 0.90 to 0.97 [27].

Data analysis

The data collected were analyzed utilizing LISREL-8.8 and SPSS-27. The Pearson correlation test examines the relationship between the studied variables. Path analysis the relationships between the variables were expanded, and the overall impact of one variable on another was assessed by summing up its "direct effect" and "total indirect effect." The model fit is acceptable with a cutoff value of 0.9 for the comparative fit index (CFI), Goodness of fit index (GFI), and Bentler-Bonett Normed fit index (NFI), as well as a cutoff value of < 0.05 for the root, mean squared error of approximation (RMSEA) [28]. The conceptual model of the social determinants that affect sexual health literacy was designed based on the WHO conceptual framework of SDH [29] And a review of the literature (Fig. 1).

Ethical considerations

The implementation protocol for this study received approval from the Medical Ethics Committee at Shahid

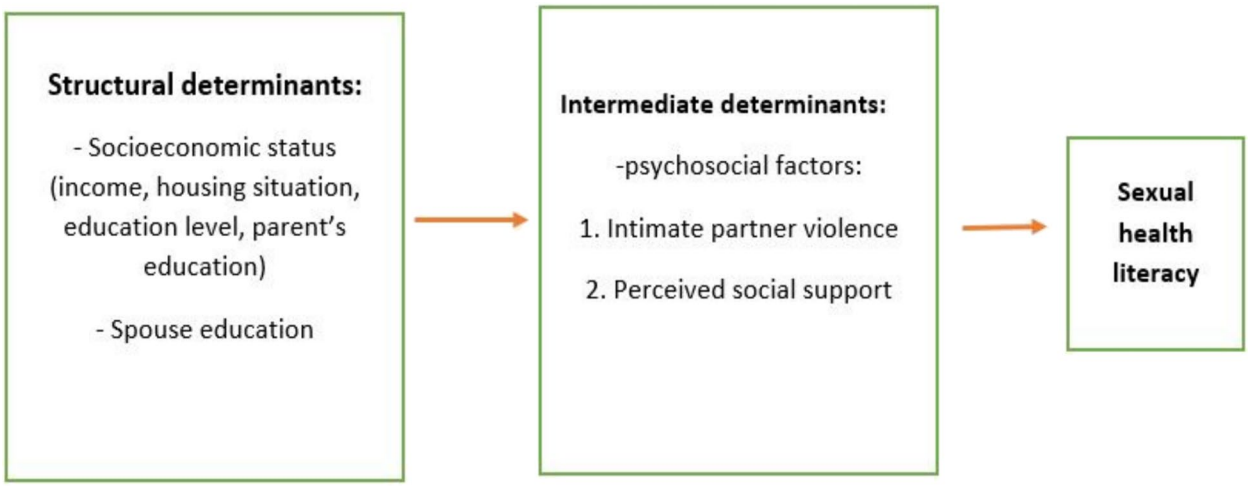

Fig. 1 Conceptual framework of the relationship between social determinants of health and sexual health literacy

Beheshti University of Medical Sciences (ethics code: IR.SBMU.REC.1403.179) and was carried out in alignment with the principles outlined in the Helsinki Declaration. Informed consent was obtained from all participants, and explaining the study objectives, the researcher collected the required data by completing the questionnaires through interviews.

Results

Demographic and midwifery characteristics

Table 1 shows data from 600 reproductive-aged women visiting health centers of Shahid Beheshti University of Medical Sciences who remained in the study until the end. The mean age of the women participating in the study and their husbands was 29.20 ± 5.99 and 33.90 ± 5.47 years, respectively.

Table 1 Demographic and obstetric characteristics of women

Quantitative variables	Mean and standard deviation
Women' age	29.20 ± 5.99
Husbands' (or partners') age	33.90 ± 5.47
Gravidity	1.71 ± 0.83
Socioeconomic status	13.63 ± 4.22
Perceived social support	30.46 ± 13.03
Intimate partner violence	51.83 ± 20.58
Sexual health literacy	83.84 ± 29.78
Women's education level	
Diploma and lower	264 (%44)
Associate Degree	55 (%9.2)
Bachelor degree	202 (%3.7)
Master and above	79(%13.2)
Husbands (or partners') education level	
Diploma and lower	246 (%41)
Associate Degree	78 (%13)
Bachelor degree	195 (%32.5)
Master and above	81 (%13.5)
Women's job	
Housewives	258 (%43)
Employed	342 (%57)

Correlation between variables

Table 2 presents the correlation matrix for the study variables. The findings from the Pearson correlation analysis indicate that perceived social support exhibits a significant positive correlation with sexual health literacy, and intimate partner violence exhibits a significant negative correlation.

Path analysis

The final model in the present study is shown in Fig. 2. All paths were statistically significant (Table 3). According to the path analysis results, among the variables with a causal relationship with sexual health literacy through only one path, perceived social support had the highest positive relationship (B1 = 0.39). In contrast, intimate partner violence had the highest negative relationship in the direct path (B = −0.12). Also, socioeconomic status was positively related to sexual health literacy through two indirect paths (B = 0.44), and spouse education was positively SHL through one indirect path (B = 0.48). In other words, with an increase of one unit in the IPV score, the SHL score decreases by 0.12. In addition, with an increase of one unit in the score of SES, PSS, and spouse education,

Table 2 Correlation of social determinants of health with sexual health literacy participating in the study

Variables	Sexual health literacy	Socioeconomic status	Social support	Spouse Education	Intimate partner violence
Sexual health literacy	1				
Socioeconomic status	0.011	1			
Social support	0.185*	0.209*	1		
Spouse Education	0.048	0.202*	0.043	1	
Intimate partner violence	−0.114*	−0.507*	−0.162*	−0.265*	1

* Sign of significance

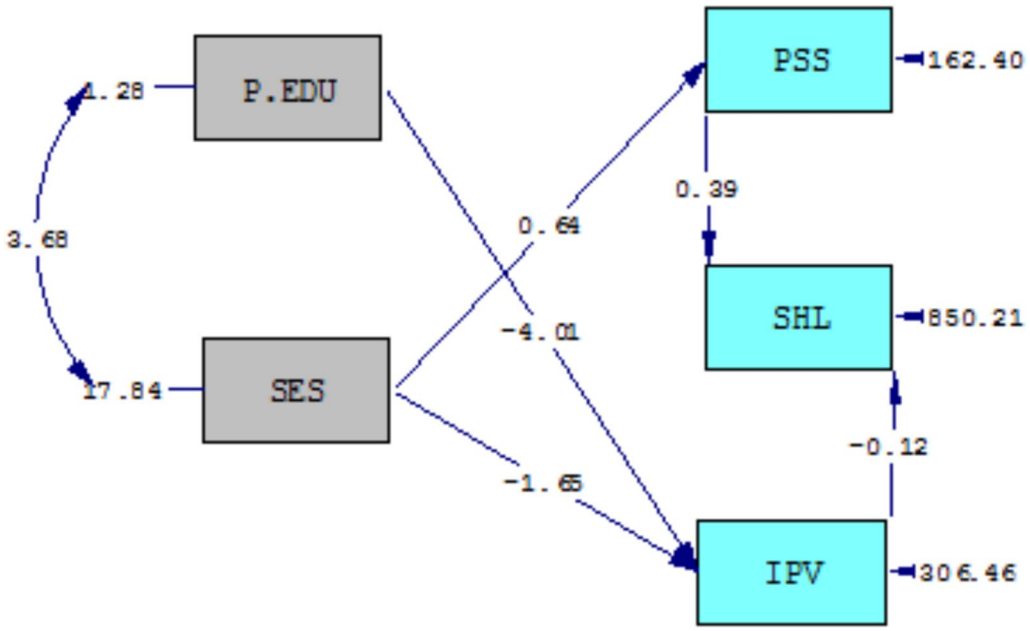

Fig. 2 Complete path model of the effects of social determinants of health on SHL (numbers on the lines show the path coefficients)

Table 3 Path coefficients of social determinants affecting the sexual health literacy participating in the study

Variable	Effect			*P*-value
	Direct	Indirect	Total	
Socioeconomic status	0	0.44*	0.44*	< 0.001*
Spouse Education	0	0.48*	0.48*	0.046*
Intimate partner violence	−0.12*	0	−0.12*	0.036*
Social support	0.39*	0	0.39	< 0.001*

*sign of significance

the score of SHL increases by 0.44, 0.39, and 0.48, respectively.

Table 4 presents the indices assessing model fit. Given that the relative chi-square (chi-square/ degrees of freedom) is below 3, the Root Mean Square Error of Approximation (RMSEA) is under 0.08. Both the Goodness of Fit Index (GFI) and the Comparative Fit Index (CFI) exceed 0.90, indicating that the model demonstrates a satisfactory and suitable fit.

Table 4 Goodness of fit indices for the model

Index	CFI	GFI	AGFI	NFI	NNFI	IFI	RFI	RMSEA	X2/df
	0.99	0.99	0.97	0.99	0.98	0.99	0.96	0.053	2.67

Discussion

This study aimed to determine the effect of social determinants of health on sexual health literacy in women referring to healthcare centers in Tehran, Iran. Overall, the study reveals that the SHL level is notably adequate in married women, which is in line with the results of previous studies in Iran [30–32].

Furthermore, the study identified factors influencing SHL among married reproductive-aged women. One of the influencing factors was socioeconomic status. The level of SHL in women in lower socioeconomic classes was lower than that of women in higher socioeconomic classes, which is in line with the results of previous studies in Iran and other nations [4, 31]. Also, a study conducted in recent years by researchers in China showed that low socioeconomic status is associated with adverse consequences for sexual and reproductive health [33]. Economic hardship, lack of job opportunities, and restricted educational access can hinder women's capacity to obtain reliable information regarding sexual health and reproductive rights. Financial uncertainty may compel women to focus on urgent necessities rather than preventive healthcare, resulting in the neglect of their sexual health requirements [34].

Another finding of this study was a positive and casual relationship between spouse's education and SHL of women, which is congruent with the results of a survey by Jamali et al. in Iran [6]. The results highlighted the impact of literacy on self-care and health literacy, a conclusion supported by numerous other studies [35–39]. In addition, The results of an Australian study showed that a partner's educational attainment has a significant impact on people's health behavior choices [40]. UNESCO underscores the significance of education for leading a healthy and productive life. Considering the influence of husbands' educational attainment on family dynamics, particularly among women concerning healthcare matters, it can be concluded that when both husbands and wives are highly educated, it enhances women's knowledge of sexual health [30].

According to the results of this study, there is a positive and casual association between perceived social support and sexual health literacy in women, which is consistent with the findings of previous studies [4, 32]. Also, a study conducted in recent years in Iran showed that there is a positive and significant relationship between perceived social support and women's sexual function [41]. In addition, the results of a study conducted in Malawi indicated that higher social support was associated with more information about sexual issues and better management of sexual relationships [42]. Thus, sexual health literacy is higher among participants with higher social support. One potential reason for this connection is that social support fosters positive emotions and joy, aids individuals in managing stress, offers essential information and help, and instills a sense of value in people, enhancing their self-esteem and self-reliance [43]. Social support can influence individuals' health literacy by determining their availability of resources and information, facilitating the sharing of information, impacting how family and friends serve as sources for acquiring knowledge, pursuing treatment, and adhering to medical care, as well as shaping how emotional support from family affects health literacy [44].

According to the results of this study, there is a negative and casual relationship between intimate partner violence and sexual health literacy, which is in line with the results of previous studies [45, 46]. Moreover, a systematic review study found that domestic violence in various populations is associated with adverse sexual health outcomes such as increased sexually transmitted diseases, unintended pregnancies, sexual dysfunction, and decreased sexual satisfaction [47]. Additionally, the results of a study in the United States showed that physical intimate partner violence affects the use of contraceptive methods and can reduce the use of an effective contraceptive method [48]. According to WHO (2013), women in violent relationships are frequently intimidated by fear, which can hinder their ability to freely make decisions regarding sexual intercourse or take precautions against unwanted pregnancies by utilizing contraception [49]. Another possible explanation for this relationship is that Aggressive men can dictate their partners' reproductive choices, hindering their access to essential reproductive health services [50].

Our study had some limitations, mainly that all questionnaires employed in this study were completed based on self-assessment. Consequently, the presence of self-report bias stemming from individual attitudes was unavoidable. Another limitation was the discomfort associated with discussing sexual issues owing to cultural and social factors. Initially, some eligible women were reluctant to provide information about their sexual issues. This problem was addressed by explaining the objectives of the study and stating that all questionnaires would be anonymous and that the information would remain completely confidential to the researcher, many women were encouraged to participate in the study.

Conclusion

The proposed model for the relationship between SDH and sexual health literacy was designed based on the WHO model. The results showed that SHL is directly affected by IPV and PSS and indirectly by SES and the spouse's education level. According to the results, the proposed model can be recommended for planning to

improve the sexual health literacy of reproductive-aged women and to provide a strategy to eliminate factors that negatively affect SHL levels.

Abbreviations

IPV	Intimate partner violence
P. EDU	Partners' Education
SES	Socioeconomic Status
SHL	Sexual Health Literacy
PPS	Perceived Social Support
RMSEA	Root Mean Square Error of Approximation
NFI	Normed Fit Index
GFI	Goodness of Fit Index
AGFI	Adjusted Goodness of Fit Index
IFI	Incremental Fit Index
NNFI	Non-Normed Fit Index
RFI	Relative Fit Index

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Authors' contributions
Alamolhoda.SH supervised the study. Mahmoodi. Z prepared the proposal. Vakili. F conducted sampling. Nasiri. M and Jahanfar. Sh analyzed the data. Hamzehgardeshi. Z prepared the figures and tables. Vakili. F and Hamzehgardeshi. Z prepared the article text. All authors read and approved the final manuscript.

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Data availability
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
All methods were carried out following relevant guidelines and regulations or declaration of Helsinki.
Informed consent was obtained from all subjects and/or their legal guardian(s).
This research was approved by the Ethics Committee of the Faculty of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences with ethics code IR.SBMU.REC.1403.179.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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