



# The Effect of Educational Interventions on Sexual Behavior and Reproductive Health of Women: A Systematic Review

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**Abstract**

**Introduction:** Reproductive and sexual health and its dimensions are important aspects of health in human life and the World Health Organization emphasizes to promote these section health indexes. Since a review study has not been conducted to identify an appropriate approach for intervention in this field. Therefore, this study was conducted with the aim of systematically reviewing the impact of educational and counseling interventions on sexual function of women.

**Methods:** A comprehensive electronic search was carried out with no time limit until 6 August 2022. All published studies with inclusion criteria by 2021 were searched in Embase, Cochrane library, Web of Sciences, Google Scholar, Pubmed, Scopus, SID, and Magiran. The literature search was performed using PRISMA instructions. Cochrane Quality Assessment Scale [adapted for evaluating RCT, interventional studies] was used to evaluate the quality of the articles.

**Results:** From a total of 93 articles obtained from the search in databases, by removing duplicate titles and checking the titles and summaries of the articles, 40 articles were obtained, and finally, after the final review of the full text of the articles, 21 articles were included in the present review. Due to the variety of interventional types in the studies, it was not possible to categorize counseling approaches. Studies showed that interventions based on sexual education and counseling were effective on the outcomes including marital satisfaction, sexual knowledge, sexual satisfaction, marital relationship quality and sexual performance.

**Conclusions:** Designing a comprehensive educational program with an appropriate approach focusing on various aspects of reproductive and sexual health can be an important role in promoting sexual and reproductive health. Therefore, interventional studies are necessary to identify an appropriate intervention approach to enhance reproductive and sexual literacy of couples.

## INTRODUCTION

According to the emphasis of the World Health Organization [WHO], sexual and reproductive health can play an important role in achieving some goals of

sustainable development and improving sexual health literacy and quality of sexual life of couples, marital

satisfaction, as well as reducing gender gaps in society, etc [1].

One of the important subdomains of sexual health and fertility is sexual function, which is considered an important and necessary part of life [2, 3]. Sexual performance is defined as sexual desire, sexual satisfaction, stimulation and orgasm [4]. Satisfaction of sexual relationship is important part in the development of human personality and individual-social health and achieving peace and comfort [2]. Sexual health requires a positive and respectful approach to sexual issues and relationships, as well as a pleasurable sexual experience [5, 6]. Enjoying sexuality, having a healthy baby, becoming a mother and having a relationship full of emotional satisfaction with a spouse are important goals of reproductive and sexual health [2].

Even though giving birth and giving birth to a child is important event in married life, it should be noted that this event can affect the physical, emotional, and social dimensions of women and cause changes in the sexual performance of women and affect the quality of the sexual life of couples [7]. and turn the reproductive years into a vulnerable stage in terms of sexual performance [8]. Most couples experience a significant decrease in sexual activity and intimacy from the beginning of pregnancy to the time of delivery [6]. Also, in a study in this field in Australia, nearly two-thirds of women participating in the study reported sexual dysfunction during the first year after childbirth, and three-fourths reported sexual dissatisfaction during the postpartum period [9]. According to the findings of studies that investigated the reasons of sexual dysfunction in couples of reproductive age, reported that it can be caused due to the lack of sexual health literacy in these fields [10-12].

Several studies have investigated the effect of various counseling approaches to improve reproductive and sexual performance of women of reproductive age [13-18]. But so far no study has been conducted to identify a more effective approach in this field. It is obvious that it is necessary to identify appropriate educational interventions and timely counseling interventions in order to improve health in various areas of fertility and sexuality of women of reproductive age, in order to lead to the improvement of sexual performance and marital satisfaction, reproductive and sexual health, and the quality of life of women. increase during this period. Therefore, this systematic review was conducted with the aim of investigating the interventional studies conducted to determine the effect of educational and counseling interventions on reproductive and sexual health, especially with a focus on sexual performance in order to identify effective intervention methods.

## METHODS

### Data Source and Identification of Studies

The present review study was performed based on the preferred reporting items for systematic reviews and meta-analyses [PRISMA] guidelines. A comprehensive electronic search of English [PubMed, Cochrane Library, Embase, ProQuest, Scopus, Web of science] and Persian [SID, Magiran, IranMedex] databases and the Google search engine with equivalent keywords [Women [Mesh], sexual health [Mesh], Reproductive [Mesh], sexual function] and a combination of words [Non-Mesh] with AND and OR functions were carried out with no time limit until August 2022.

### Inclusion and Exclusion Criteria

All clinical trials, experimental, semi-experimental and all interventional trial articles from 1990 to 2022 related to investigating the impact of educational/psychological and counseling interventions on sexual function and satisfaction and self-efficacy and in accordance with the inclusion criteria including the availability of the full text, and the exclusion criteria including articles presented in conferences and seminars and letters to the editor were included in the study. Following the PICO criteria, which includes the populations of women or couples, intervention includes psychological/educational and counseling interventions, and the outcomes sexual function and satisfaction and sexual self-efficacy were searched. As an example, the strategic search for the PubMed database was as follows: ("Sexual function"[MeSH Terms] OR "Sexual satisfaction"[Text Word] OR "Marital satisfaction"[Text Word] OR "Sexual self-efficacy"[Text Word]) AND ("counseling"[MeSH Terms] OR "training"[Text Word] OR "Psychological intervention"[Text Word] OR "psycho-therapy"[Text Word]) AND ("women"[MeSH Terms] OR "couple"[MeSH Terms]).

### Data Extraction

Two authors independently reviewed the titles and abstracts of the extracted articles to exclude irrelevant ones. If the abstract of an article did not have sufficient information for decision-making, the full text of the article was checked. The disagreements between the two authors about the eligibility of the articles were resolved through discussion, and a third person was consulted if they disagreed. Both authors independently collected the following information from each study: study design, the number of participants, research setting, inclusion and exclusion criteria and data collection tool (Table 1).

**Table 1.** Characteristics of the included studies.

Number	Author [s]/ Country/Year	Study Design	Type of Intervention [Consultation]	Participants Numbers	Outcomes
1	Markman et al [19] denver, Colorado 1993	a 4-and 5- year follow- up.	communication and conflict management consultation	114	Intervention couples had lower level of marital violence.
2	Lee JT, Yen HW [20] Taiwan 2007	RCT	The theory of sexual health	166	This method increase sexual self-efficacy in women.
3	Hoyer et al. [21] Germany 2009	RCT	cognitive-behavioral therapy	119	This approach decreased sexual dysfunction
4	Lee JT, Tsai JL [22] Taiwan 2012	RCT	Sexual health education	250	The results showed that the intervention group had higher sexual self-efficacy
5	Karimi et al. [2] Iran, Birjand 2013	randomized clinical trial	Sexual Health Education	34 couples	Sexual health education effects on the quality of sexual relationship and increase couples' sexual satisfaction.
6	Ebrahimipour et al. [7] Iran, Mashhad 2013	Semi experimental study	sex education, based on Theory of Planned Behavior	80	The effect of education in promoting women's sexual function.
7	Khamse, Mohsenzade [23] Iran, Tehran 2015	semi- experimental	Practical Application of Intimate Relationship Skills [PAIRS] training	22	marital happiness and sexual satisfaction were enhanced by the training of intimate relationship skills, in married wives
8	Aliei et al. [8] Iran, Tehran 2016	randomized trial	sex education program	100	Four sessions of the educational program can improve the sexual function of postmenopausal women
9	Navidian et al. [24] Iran, Zahedan 2016	quasi- experimental	sex education	100	The effectiveness of sex education in the improvement of marital relationship quality in pregnant women
10	Akkol.S [25] Turkey 2017	RCT	early maladaptive schemas	124 couples	The schema-based intervention was effective in improving the marital satisfaction of couples
11	Rashid, Hosseini [16] Iran, Urmia 2017	quasi- experimental	sex education	30 couples	sex education can increase parents' sense of competence.
12	Nadzadeh et al. [26] Iran, Qom 2018	quasi- experimental	sexual function education	40	sexual function education is effective in increasing sexual satisfaction during pregnancy.
13	Alimohammadi et al. [27] Iran,Zanjan 2018	RCT	Bandura's self-efficacy theory [group therapy]	96	The sexual self-efficacy significantly increased
14	Haji Adineh, Kalthornia [28] Iran, Isfahan 2019	semi- experimental	Group training based on choice theory	40 [20 couples]	improve marital adjustment and sexual satisfaction after intervention but no significant difference between the average scores of marital compatibility and sexual satisfaction of male and female
15	Nezamnia et al. [29] Iran, Ahvaz 2020	RCT	Cognitive-behavioral therapy	36	CBT improves the sexual performance and self-efficacy of pregnant women.
16	Pahlavani Sheikhi et al. [30] Zahedan, Iran 2020	RCT	Sexual health education	94	Sexual health education improves sexual function after childbirth.
17	Mansouri et al. [31] Iran, zabol 2020	quasi- experimental study	Sexual Health Education Based on Health Belief and Pender Health Promotion Models	80	This method have significant effects on the sexual function of women with type 2 diabetes.
18	Akbarinejad et al. [32] Iran, Rafsanjan 2020	educational trial	Group counseling with a psychoeducational approach	70	Group counseling has a positive effect on the sexual intimacy of lactating women
19	Najafi et al. [5] Iran, Tehran 2020	quasi- experimental study	Emotional regulation training	98	This approach can improved sexual function and sexual satisfaction of women with multiple sclerosis [MS]
20	Kolivand et al. [33] Iran, Sanandaj 2021	RCT	Cognitive behavioral intervention	80	CBT was effective on improving the level of sexual compatibility between new married couples' partners..
21	Jing Xu MSN et al. [34] Wuhan, China 2022	A systematic review and meta-analysis	Psychological interventions	15 studies	Psychological interventions, especially psychoeducational therapy and cognitive behavioral therapy, are effective for improving the sexual health of women with breast cancer.

### Assessment of Risk of Bias in Included Studies

The quality of studies was assessed in terms of various risks, including the selection bias (random sequence generation and allocation concealment), performance bias (blinding of participants and personnel), detection bias (blinding of outcome assessor), attrition bias (dropouts and exclusion

addressing and conducting of intention to treat analysis), and reporting bias (selective or non-selective reporting) and other biases (registration of protocol, ethical approve, conflict of interest criteria, funding source, inclusion and exclusion criteria and sample size calculating) by two independent researchers according to the Cochrane handbook. Each study was rated as either low risk, unclear or

high risk according to the reports, and disagreements were resolved by consulting a third person. Finally, a study in which all five areas were at low risk was regarded with an overall low risk for bias. A study in which at least one area was with some risk concerns was regarded with some risk concerns for bias. A study in which at least one area was at high risk or more than one area were with some concerns was regarded with high risk for bias.

**RESULT**

**Description of Studies**

From a total of 291 articles obtained from initial search in databases, by removing duplicate titles and checking the titles and summaries of the articles, 40 articles were obtained, and finally, after the final review of the full text of the articles, 21 articles were included in the present review (Figure 1).

**Risk of Bias in Included Studies**

Eighteen of the twenty two studies had a high risk for bias and four study, had unclear risk in this regard. The randomization process was at low risk in all studies. The second domain, i.e. deviation from the intended intervention, was at high risk in seven studies. The missing outcome data were at unclear risk in thirteen studies. The outcomes assessment was at low risk in four studies, unclear risk in ten studies, and at high risk in nine. Finally, the selection of reported results was at low risk in three studies and with some concerns in sixteen and low risk in three (Figures 2, 3).

**Overall Quality of Evidence**

The overall quality of evidence was rated as low for all the outcomes evaluated. The majority of studies were at high risk of bias as well as at high risk due to high inconsistency and small sample size (i.e. small number of participants).

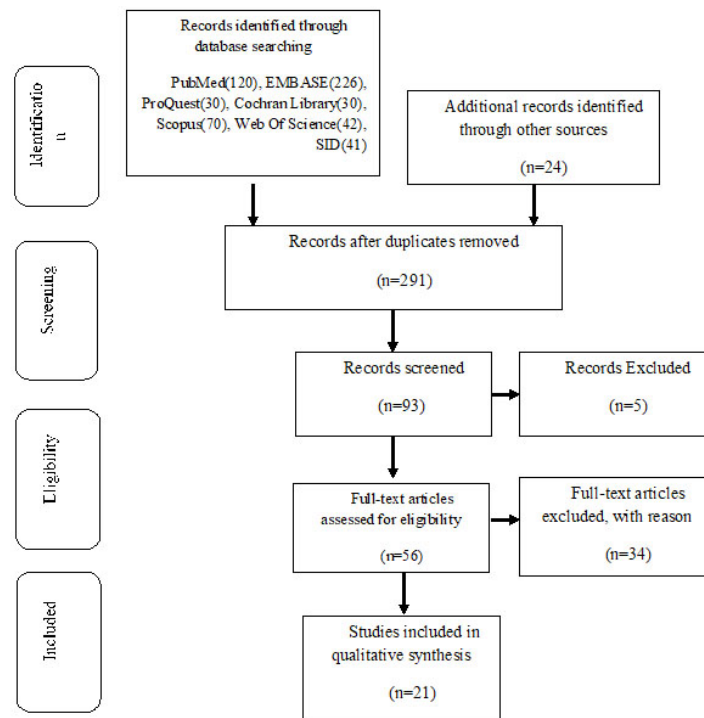


Figure 1. PRISMA flow chart summarizing the study screening and selection process

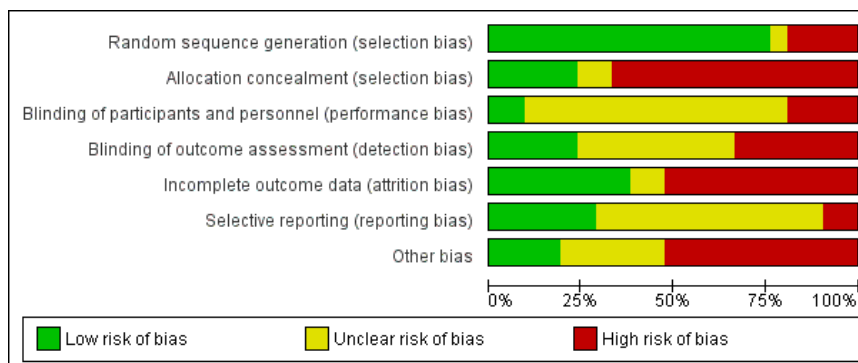


Figure 2. Risk of bias graph (review of the authors’ judgments about each risk of bias item presented as percentages across all included studies)

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Akbarinejad et al. 2020	+	+	?	+	+	?	+
Akkol.S 2017	+	+	?	+	+	+	+
Aliei et al. 2016	+	+	?	+	+	+	+
Alimohammadi et al. 2018	+	+	?	+	+	+	+
Ebrahimipour et al. 2013	+	+	?	+	+	+	+
Haji Adineh, Kalthornia 2019	+	+	?	+	+	+	+
Hoyer et al. 2009	+	+	?	+	+	+	+
Jing Xu MSN et al. 2020	+	+	?	+	+	+	+
Karimi et al. 2013	+	+	?	+	+	+	+
Khamse, Mohsenzade 2015	+	+	?	+	+	+	+
Kolivand et al 2021	+	+	?	+	+	+	+
Lee, Tsai .2012	+	+	?	+	+	+	+
Lee, Yen. 2007	+	+	?	+	+	+	+
Mansouri et al. 2020	+	+	?	+	+	+	+
Markman et al. 2004	+	+	?	+	+	+	+
Nadizadeh et al. 2018	+	+	?	+	+	+	+
Najafi et al. 2020	+	+	?	+	+	+	+
Navidian et al. 2016	+	+	?	+	+	+	+
Nezamnia et al. 2020	+	+	?	+	+	+	+
Rashid, Hosseini 2017	+	+	?	+	+	+	+
Sheikhi et al. 2022	+	+	?	+	+	+	+

Figure 3. Risk of bias summary [review of the authors’ judgments about each risk of bias item for each included study]

Due to the variety of interventional types in the studies, it was not possible to categorize counseling approaches. Studies showed that interventions based on sexual education and counseling were effective on the outcomes including marital satisfaction [31], sexual knowledge [16], sexual satisfaction [26], marital relationship quality [18], and sexual performance [7, 8].

**DISCUSSION**

The conducted studies showed that educational and counseling interventions lead to the improvement of sexual function by increasing the level of women's awareness and improving couples' relationships. In this context, the findings of Rashid et al.'s study [16] showed that sexual education can increase sexual knowledge. Also, a comparison of the effectiveness of sex education based on the trans-theoretical model and traditional education on sexual efficiency after childbirth was conducted in a clinical trial conducted by Yucal and Gasnov [35] with the presence of 200 women. The analysis of the obtained data indicated a significant increase in the sexual self-efficacy score after the

intervention in both groups with a greater effect in the training group based on the meta-theoretical model.

- In a research [28] with the aim of investigating the effectiveness of group training based on choice theory on marital and sexual satisfaction of couples, despite the lack of difference between the average scores of marital and sexual satisfaction of male and female participants, the average scores of marital and sexual satisfaction in two group of intervention and control were different. There was a significant difference between the control and intervention groups.

- Khamse et al. [23] reported in a study titled the effect of teaching the practical application of intimate relationship skills on the level of sexual satisfaction and marital happiness of married women, a 44% improvement in sexual satisfaction and a 37% improvement in marital happiness of the intervention group was established in the post-test. Also, the three-month follow-up results indicated a 42% improvement of sexual satisfaction and a 36% increase in marital happiness. Therefore, it can be concluded that empowering women by teaching and learning the skills of intimate relationships with their spouses can increase



the sexual satisfaction and marital happiness of married women in the long term.

- The effectiveness of sexual health education on couples' sexual satisfaction [2], sexual function after childbirth [30] was also reported in similar studies. A randomized clinical trial was conducted by Sheikhi et al. [30] on 94 primiparous women in two intervention and control groups. The intervention group underwent three training sessions 3-5, 10-14 and 30-45 days after delivery [first session 20 minutes and other sessions 60 minutes. The mean scores of the female sexual performance index (FSFI) in the intervention group increased from  $12.70 \pm 6.166$  before the intervention to  $17.36 \pm 5.407$  after 8 weeks ( $P = 0.01$ ). There was no significant difference between the two groups in the mean time of resuming sexual intercourse. As a result, Sexual health education for women in the postpartum period could improve their sexual function after childbirth.

In investigating the effect of CBT on the sexual function and sexual self-efficacy of pregnant women by Nezamnia et al. [Nezamnia, 2020 #29] showed That, mean of sexual function and self-efficacy scores of pregnant women in the case groups was statistically significant increase two and four weeks after the intervention. In this randomized clinical trial, 36 pregnant women referred to five healthcare centers in Ahvaz, Iran, from December 2016 to January 2017 were enrolled in two groups. The case group received counseling based on cognitive behavioral therapy for eight consecutive weeks Also, in a study [22] that was conducted with the aim of evaluating the effectiveness of an interactive educational program based on the theory of sexual health in the postpartum period by Tsai and Lee et al. (2012), people were randomly divided into 3 groups and the first group was Interactive training based on the theory of sexual health, the second group received only interactive training pamphlets and the third group only received routine trainings and pamphlets. The results showed that the sexual self-efficacy score in the first group was higher than the other groups. In addition, a clinical trial [20] similarly showed that sexual health education can increase sexual self-efficacy in postpartum women by increasing awareness and changing sexual attitudes.

- In examining the effectiveness of educational intervention based on schemas in improving marital satisfaction [6], it was reported that schema-based intervention is effective in improving marital satisfaction of couples and can be used as one of the educational methods in the field of solving interpersonal problems of couples, especially marital dissatisfaction be used.

- Markman et al. [19] conducted a study with the aim of investigating the effect of counseling on the sexual function of women after childbirth. In this study, 4 sessions of sexual counseling were conducted for the intervention group, each session lasting 60 minutes and with an interval of one week. The result of the study

indicated a significant increase in the average score of women's sexual function in the postpartum period after receiving sexual counseling.

- Hoyer et al. [21] in their study reached the conclusion that the application of integrated behavioral-communicative and cognitive techniques increases the level of emotional and sexual intimacy of couples. Alimohammadi et al. [27] reported in a randomized clinical trial titled "The effectiveness of group counseling based on Bandura's self-efficacy theory on sexual function and sexual satisfaction in Iranian newlywed women" that the sexual function score was significantly higher in the intervention group than in the control group; however, there were no statistically significant differences between the two groups in terms of sexual satisfaction. In this study the intervention group received six 90-minute sessions of sexual counseling based on Bandura's self-efficacy theory held once every week over six weeks.

Also Xu, Jing et al. [34], reported that, showed psychological interventions made statistically significant improvements in sexual function, sexual satisfaction, sexual relationships and sexual distress of women with breast cancer. A subgroup analysis regarding the types of psychological interventions indicated that cognitive behavioral therapy and psychoeducational therapy were beneficial to sexual function and satisfaction, and psychosexual counselling could also improve sexual function. In this study, 15 articles including 1307 participants conducted from inception to 9 May 2021 were examined. In another study, it was reported that teaching communication skills to couples can help them to behave by increasing sense of security and support, responding to the needs of the spouse and creating safe behaviors, increasing intimacy and communication, and creating a desirable sexual relationship and increase their verbal and non-verbal interactions. Therefore, teaching communication skills to newly married couples is recommended in premarital counseling and couples therapy in order to improve the quality of their relationships.

## CONCLUSION

The findings of the present study showed that educational and counseling interventions can lead to the improvement of sexual performance, sexual and marital satisfaction. Nevertheless, it should be noted that the studies were not homogeneous in terms of the age of the study population and included pregnant women, postpartum women, and postmenopausal women, and on the other hand, the results of the study were measured by different questionnaires. Therefore, it was not possible in this study to identify a comprehensive educational approach that focuses on all dimensions of health literacy and reproductive and sexual self-care needs and can be used as a comprehensive approach in

society to improve sexual health. Therefore, it is recommended that educational and counseling interventions in order to meet reproductive and sexual self-care needs and improve reproductive and sexual health literacy in all stages of life, including adolescence and youth, pregnancy and postpartum and even menopause, should be designed and its consequences investigated to provide integrated care of different health areas in health care centers.

### STRENGTHS AND LIMITATION

The strengths of the present study are: the review of related Persian and English studies, high diversity in the interventions, the presence of a control group in the studies. Limitations of the study include: different participants in different studies (pregnant women, postmenopausal women, couples, etc.) and the use of different questionnaires for the same variables.

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