

Effect of Mindfulness-based Intervention on the Treatment of Women's Sexual Dysfunction: A Literature Scoping Review

FATEMEH ALAHVERDI¹, NAGHMEH SHAHBAZTABARI², REZA DEHGHAN NAYERI³, SHAGHAYEGH DEHGHAN NAYERI⁴

ABSTRACT

Introduction: The significance and role of sexual function in quality of life is an undeniable fact that should be taken into account in the care provided for individuals. The use of modern non pharmacological methods in the treatment of sexual dysfunction, especially in women, is required to be investigated.

Aim: To review the effect of mindfulness-based interventions in the treatment of women's sexual dysfunction in the previous studies.

Materials and Methods: This literature scoping review was conducted on all observational and experimental studies published in Persian and English languages, from 2008 to 2021. The databases that were searched for relevant studies were Google Scholar, Web of Science, PubMed, and Scopus. The keywords used for the search included, mindfulness, mindfulness-based interventions,

sexual dysfunction and women. Data related to the study year of publication, place, type of study, sample population, and the effect of mindfulness-based interventions in the treatment of women's sexual dysfunction were recorded.

Results: A total of 742 studies were found, of which 23 studies were extracted. Among the reviewed articles, 5 (21.74%) articles are published in Persian and 18 (78.26%) articles in English. In total, 22 articles confirmed positive effects and one article found no effects on mindfulness-based interventions in improving sexual function in women suffering from sexual dysfunction.

Conclusion: Mindfulness-based interventions, though it is implemented based on different approaches (stress reduction, cognitive-behavioural and sex therapy), are effective in treating all types of sexual dysfunction in women.

Keywords: Female, Quality of life, Sexual arousal, Sexual desire, Sexual function, Sexual problems

INTRODUCTION

Sexual health is recognised as an important component of human rights in the international community and every human being has the right to achieve the highest level of sexual health [1]. Most of the diseases and disorders around the world are caused by failing to give due attention to sexual health [2]. Sexual health is sometimes disordered for various reasons, such as fertility and childbirth [3], menopause [4], suffering from special diseases [5], sexual function of couples and especially women, which is reported to be 40-45% [6]. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), a person's sexual dysfunction is a feeling of extreme discomfort and individual stress for at least six months [7], which is divided into three categories: sexual activity, sexual boredom, and sexual abnormalities [8]. The prevalence of sexual dysfunction among Iranian women varies in different societies and has been reported between 39-66% [9]. Given the direct effect of sexual satisfaction on the quality of life of individuals, it is very important to give due attention to this issue as the persistence of sexual dysfunction is followed by numerous complications [10].

One of the interventions that has been conducted to help reduce sexual dysfunction is mindfulness-based interventions [11]. Mindfulness is described as awareness by paying attention to the goal in the present moment without having any judgement and prejudice, which is accompanied by accepting the experiences, admitting them, and living the moments [12]. At different mental states, the mindful individual is aware of himself/herself at every moment and focuses his/her attention on various mental states [13]. Mindfulness-based Cognitive Therapy (MBCT) is a therapeutic approach based on a theory that has been developed by Teasdale, Segal and Williams based on the Mindfulness-based Stress Reduction (MBSR) model developed by Kabat-Zinn by adding the principles of cognitive therapy, with the aim of replacing negative emotions with pleasant ones [14]. This treatment includes a combination of

mindfulness meditation training and cognitive therapy interventions. During mindfulness exercises, self-regulatory abilities are taught through exercises focusing on internal attention, such as breathing awareness, or focusing on external objects such as sounds, both of which focus on present experiences [15]. Mindfulness exercises can lead to an immediate shift of attention from unrelated worrying thoughts in the present moment [16]. The MBSR intervention has been used to reduce depression, anxiety, chronic pain, cancer, diabetes, hypertension, and autoimmune disorders [17].

Ashiri S et al., showed that this treatment significantly increases women's marital satisfaction [18]. Despite the effectiveness and importance of mindfulness in some studies, there are researchers who reported contradictory findings [19,20]. It is argued that there are biological, behavioural, and psychosocial mechanisms for sexual dysfunction, and therefore, there is a need to develop integrated therapies that can effectively treat people with mental and physical illnesses [21].

To this end, finding a simple, effective, cheap, and uncomplicated non pharmacological midwifery intervention that can have biological, behavioural, and psychosocial effects is of great importance. Since sexual function has a significant impact on married life and the quality of life and given the lack of evidence about the positive effects of mindfulness on sexual dysfunction, this study aimed to review published articles on mindfulness-based interventions and their impact on sexual dysfunction in women.

MATERIALS AND METHODS

This literature scoping review was conducted in Iran University of Medical Sciences from August 2021 to October 2021.

Inclusion criteria: All observational and experimental studies, published in Persian and English languages, published between 2008 to 2021.

Exclusion criteria: All qualitative studies, systematic review, meta-analysis, full text not available were excluded from the study. Also the articles published before 2008, as interested year of study in the EndNote software were excluded.

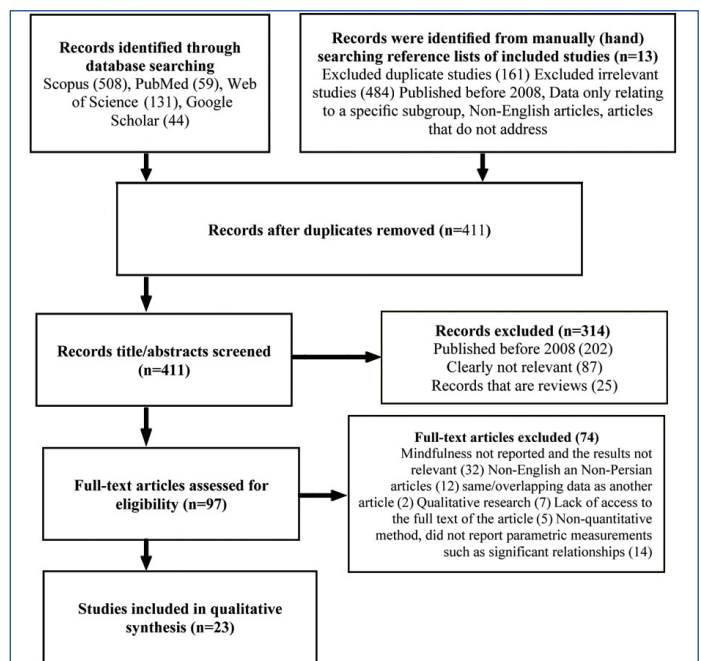
Keywords related to mindfulness and sexual function were combined based on Medical Subject Headings (MeSH) using Boolean operators [Table/Fig-1]. This search strategy for Scopus and Web of Science (WoS) databases was translated to fit the characteristics of each database. To triangulate the data, Google Scholar was also searched using single words or a few multiple words.

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(mindfulness[tw] OR "mindfulness based"[tiab] OR "cognitive therapy"[tiab] OR "behavior therapy"[tiab] AND ("Physiological Sexual Dysfunction"[tiab] OR "Physiological Sexual Dysfunctions"[tiab] OR ("Sexual Dysfunctions"[tiab] AND Physiological[tiab]) OR ("Sexual Disorders"[tiab] AND Physiological[tiab]) OR "Physiological Sexual Disorder"[tiab] OR "Physiological Sexual Disorders"[tiab] OR ("Sexual Disorder"[tiab] AND Physiological[tiab]) OR "Sex Disorders"[tiab] OR (Dysfunction[tiab] AND "Psychological Sexual"[tiab]) OR "Psychological Sexual Dysfunction"[tiab] OR "Psychological Sexual Dysfunctions"[tiab] OR ("Sexual Dysfunction"[tiab] AND Psychological[tiab]) OR "Psychosexual Dysfunctions"[tiab] OR (Dysfunction[tiab] AND Psychosexual[tiab]) OR "Psychosexual Dysfunctions"[tiab] OR "Psychosexual Disorders"[tiab] OR (Disorder[tiab] AND Psychosexual[tiab]) OR "Psychosexual Disorder"[tiab] OR "Hypoactive Sexual Desire Disorder"[tiab] OR "Sexual Aversion Disorder"[tiab] OR ("Aversion Disorders"[tiab] AND Sexual[tiab]) OR (Disorders[tiab] AND "Sexual Aversion"[tiab]) OR "Sexual Aversion Disorders"[tiab] OR "Orgasmic Disorder"[tiab] OR (Disorders[tiab] AND Orgasmic[tiab]) OR "Orgasmic Disorders"[tiab] OR "Sexual Arousal Disorder"[tiab] OR ("Arousal Disorders"[tiab] AND Sexual[tiab]) OR (Disorders[tiab] AND "Sexual Arousal"[tiab]) OR "Sexual Arousal Disorders"[tiab] OR Frigidity[tiab] AND (women[tiab] OR Girl[tiab] OR Woman[tiab] OR "Women's Groups"[tiab] OR "Women Groups"[tiab] OR "Women's Group"[tiab] OR female[tiab])
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[Table/Fig-1]: Search strategy in PubMed database.

Procedure

As many as 742 articles were found in the initial search. After removing duplicates and considering the inclusion criteria for the titles, only 97 studies remained and their abstracts were reviewed. Later 61 articles were excluded. In the next stage, the full text of 36 articles were reviewed and 5 articles were deleted due to lack of access to the full text of the article and 8 articles were deleted as they were irrelevant to the title and purpose; a total of 23 articles remained [Table/Fig-2].



[Table/Fig-2]: PRISMA flowchart showing selection of studies.

RESULTS

Among the reviewed articles, five articles (21.74%) are published in Persian [11,13,22-24] and 18 (78.26%) in English [20,25-41]. Regarding the places of the studies, as for the Iranian studies, five had been conducted in Tehran, two in Isfahan and one study each in Bushehr, Yasuj, Karaj, Qazvin, Ahvaz, and Yazd. As for the remaining studies, three studies were conducted in the United States, three in Colombia, three in Canada and one in Portugal. Twenty-one articles were original interventional studies, while two were descriptive [13,36]. A review of intervention studies extracted indicated that a total of 12 articles were randomised clinical trials and nine articles were quasi-experimental studies. The sample size in the intervention studies varied from 20 patients [37] to 660 individuals [30]. The number of groups was two in 13 studies [11,22-25,27-30,32-35,37,38,40], three in five studies [20,26,28,30,39], and one in three studies [34,35,41]. The number of sessions for mindfulness-based programmes in most studies (12 studies) were eight. The lowest number of sessions was three [33,38,41]. The highest number of sessions was 12 [39].

The duration of each session varied from one hour [41] to two hours [26]. However, in most studies (14 studies), the session lasted for 90 minutes [20,22-24,28,30-35,37,38,40]. The target group was women with cancer in four studies [27,31,38,41], women with Multiple Sclerosis (MS) in two studies [20,25], women with vaginal disorders [26], women with drug abuse in one study [22], women with epilepsy in one study [30], and women with recurrent miscarriage (22). As many as eight studies considered the effectiveness of mindfulness-based interventions on the total sexual dysfunction [11,13,22-24,28,29,41]. Other types of variables that were investigated included sexual satisfaction, sexual self-efficacy, sexual desire, sexual response, and sexual support and arousal. The role of mindfulness-based interventions was investigated in 18 studies [11,13,22,25-28,30-38,40,41]. Different types of mindfulness-based interventions included sex therapy, stress management techniques, and cognitive-behavioural therapy. As many as 22 studies [11,13,22-41] confirmed the effectiveness of this method and only in one study, the results showed that mindfulness-based interventions do not affect sexual function in women with MS [Table/Fig-3] [20].

DISCUSSION

Many people suffer from sexual dysfunction and they do not seek medical advice to solve their problem for many reasons. Sexual disorders are among the important health problems that are in need of effective and new methods of treatment [42]. Many interventions have been used to solve sexual problems including training on sexual skills, couple therapy, desensitisation, and motivational therapies [43]. One of these methods is using mindfulness-based interventions and the purpose of this study was to review and summarise the studies conducted on the effect of mindfulness-based interventions in the treatment of female sexual dysfunction. In this regard, the results have indicated that mindfulness-based interventions, even when they are conducted based on different approaches (stress reduction, cognitive-behavioural and sex therapy), are effective in treating women's sexual dysfunction.

The high number of studies conducted in Iran and outside Iran have shown the significance of the issue, and the high prevalence of sexual dysfunction in women calls for more attention, care, and effective interventions. In a study conducted by Mohammadian S and Dolatshahi B in 2019, the prevalence of female sexual dysfunction

S. No.	Author	Place	Title of the study	Type of study	Sample size	Intervention group	Number of sessions and intervention type	Outcome or conclusion
1	Ahani L et al., 2021 [25]	Iran, Isfahan	The effect of mindfulness psych-educational group intervention on improving sexual function of women with multiple sclerosis	Clinical trial	47 MS patients with sexual dysfunction	Two groups	Five sessions of mindfulness-based psychological training	Sexual function of women with MS in the intervention group increased significantly

2	Omidvar Z et al., 2021 [26]	Iran, Mashhad	Comparing the effectiveness of mindfulness-based cognitive therapy training and cognitive-behavioural therapy on sexual satisfaction of women with vaginismus disorder	Clinical trial	45 patients	Three groups	Total eight; two-hour sessions for each group (except the control group)	Mindfulness-based cognitive therapy training has a higher effectiveness on sexual satisfaction of women with vaginal disorders than cognitive-behavioural therapy
3	Bagherzadeh R et al., 2021 [27]	Iran, Bushehr	Effect of mindfulness-based stress reduction training on revealing sexual function in Iranian women with breast cancer	Clinical trial	52 patients with breast cancer	Two groups	Eight sessions of mindfulness-based cognitive therapy training, one session a week	Mindfulness-based stress reduction training is effective on the psychological aspects of sexual function in women with breast cancer
4	Halvaeipour Z et al., 2021 [28]	Iran, Isfahan	Developing cognitive bias modification scenarios for women with sexual interest arousal disorder and comparing effectiveness with mindfulness therapy	Quasi-experimental study	45 patients	Three groups	Four sessions of cognitive bias modification training and four sessions of psychological training based on mindfulness	Both methods were confirmed to be effective in promoting sexual function in women, but the mindfulness-based method was more effective
5	Fatehi N et al., 2021 [13]	Iran, Tehran	The mediating role of marital forgiveness and mental well-being in the relationship between mindfulness and sexual satisfaction in married women and men of Tehran city: a descriptive study	Descriptive study	300 married men and women	-	Larson's sexual satisfaction questionnaire, Walach et al's Mindfulness questionnaire	The results of the analysis showed the effect of mindfulness on sexual satisfaction was significant
6	Nowroozi Dashtaki M et al., 2021 [22]	Iran, Tehran	The effectiveness of mindfulness-based cognitive therapy on sexual desire and sexual arousal of women with drug abuse	Quasi-experimental study	28 women	Two groups	Eight 90-minute sessions of mindfulness-based cognitive therapy training, two sessions a week	Along with other interventions mindfulness can be effective on sexual desire and sexual arousal in women with drug abuse
7	Shabani J and Abdi H, 2020 [11]	Iran, Tehran	The effectiveness of mindfulness-based cognitive therapy on sexual disorders and sexual satisfaction in women with spouses' extra-marital relationships	Quasi-experimental study	29 patients	Two groups	Eight sessions of MBCT training, one session a week	Mindfulness can affect many psychological variables, including sexual disorders and sexual satisfaction of women with spouses having extramarital relationships
8	Farajkhoda T et al., 2019 [29]	Iran, Yazd	The effectiveness of mindfulness-based cognitive therapy consultation on improving sexual satisfaction of women in reproductive age: A clinical trial study in Iran	Randomised clinical trial	40 women	Two groups	Eight sessions of MBCT training	MBCT is effective in promoting women's sexual satisfaction
9	Lin CY et al., 2019 [30]	Iran, Qazvin	Mindfulness-Based Cognitive Therapy for Sexuality (MBCT-S) improves sexual functioning and intimacy among older women with epilepsy: A multicentre randomised controlled trial	Randomised clinical trial	660 women and their husbands	Three groups	Eight sessions of 90-minute MBCT for intervention groups with and without caregivers	MBCT is effective on female sexual function in both intervention and non-caregiver groups
10	Mosalanejad F et al., 2018 [20]	Iran, Yasuj	Investigating the combined effect of pelvic floor muscle exercise and mindfulness on sexual function in women with multiple sclerosis: A randomised controlled trial	Clinical trial	70 MS patients with sexual dysfunction	Three groups	Exercise group: eight weeks twice a day Mindfulness group: eight 90-minute sessions, one session a week	None of the pelvic floor muscle exercises and mindfulness were effective on the sexual function of women with MS
11	Falsafi and Dasht Bozorgi, 2019 [23]	Iran, Ahvaz	The effect of mindfulness training on rumination, body image and sexual satisfaction in women with recurrent pregnancy loss	Quasi-experimental study	40 people	Two groups	Eight 90-minute sessions of mindfulness training	Given the effectiveness of this intervention, counselors and therapists can use mindfulness training method to intervene in sexual satisfaction
12	Soqanloo R et al., 2015 [24]	Iran, Tehran	Effectiveness of sex mindfulness training on sexual satisfaction of married women	Quasi-experimental study	25 people	Two groups	Eight 90-minute sessions of mindfulness training	Mindfulness-based sexual information training promotes sexual satisfaction in married women
13	Mohammadzade S et al., 2014 [31]	Iran, Tehran	The effectiveness of mindfulness training on sexual self-efficacy in women with breast cancer	Quasi-experimental study	30 women	Two groups	Eight 90-minute sessions of mindfulness training	The results of analysis of covariance showed that mindfulness training was effective in increasing the sexual self-efficacy of patients undergoing training, and this effect was consistent in the follow-up test
14	Brotto LA et al., 2021 [32]	Colombia	A randomised trial comparing group MBCT with group supportive sex education and therapy for the treatment of female sexual interest/arousal disorder	Randomised clinical trial	148 women	Two groups	Eight 90-minute sessions of mindfulness-based therapy and group supportive sex education	Both mindfulness-based therapies help women with sexual arousal

15	Velten J et al., 2018 [33]	Canada	Effects of a mindfulness task on women's sexual response	Randomised clinical trial	41 women	Two groups	Three 90-minute sessions of mindfulness training sexual problems	The use of mindfulness intervention is effective on women's sexual response
16	Paterson LQ et al., 2017 [34]	Canada	A pilot study of eight-session MBCT on women's sexual interest/arousal disorder	Single-group intervention	26 women	One group	Eight 90-minute sessions of mindfulness-based therapy	Eight sessions of mindfulness-based cognitive intervention are effective in promoting women's sexual function
17	Brotto LA et al., 2016 [35]	United States	A mindfulness-based group psychoeducational intervention targeting sexual arousal disorder in women	Single-intervention study	79 women	One group	Four 90-minute sessions of mindfulness-based sex therapy once every two weeks	Mindfulness-based sex therapy is effective on women's sexual arousal
18	Martins VR, 2016 [36]	Portugal	Mindfulness, sexual functioning and subjective sexual well-being	Descriptive study	1416 men	-	The Freiburg Mindfulness Inventory-reduced version (IMF)- mindfulness tool and CSFQ-14 sexual function	People with higher mindfulness experienced higher sexual pleasure and function
19	Brotto LA et al., 2012 [37]	United States	Pilot study of a brief cognitive behavioural versus mindfulness-based intervention for women with sexual distress and a history of childhood sexual abuse	Randomised clinical trial	20 women	Two groups	Three 90-minute sessions for each group	Both cognitive-behavioural and mindfulness-based intervention had an effective role on women's sexual dysfunction
20	Brotto LA et al., 2012 [38]	Canada	A brief mindfulness-based cognitive behavioural intervention improves sexual functioning versus wait-list control in women treated for gynaecologic cancer	Randomised clinical trial	31 women	Two groups	Three 90-minute sessions for each intervention group	Mindfulness-based cognitive-behavioural interventions improve sexual function in women with gynaecologic cancer
21	Silverstein RG et al., 2011 [39]	United States	Effects of mindfulness training on body awareness to sexual stimuli: Implications for female sexual dysfunction	Randomised clinical trial	44 women	Three groups	12 sessions	Mindfulness education based on body awareness can be considered as a treatment for female sexual dysfunction
22	Brotto LA et al., 2008 [40]	Colombia	A mindfulness-based group psychoeducational intervention targeting sexual arousal disorder in women	Randomised clinical trial	26 women	Two groups	Three 90-minute sessions for each group	Mindfulness-based psychoeducational interventions have an effect on sexual arousal disorder in women, especially those with a history of sexual abuse
23	Brotto LA et al., 2008 [41]	Colombia	Psychoeducational intervention for sexual dysfunction in women with gynaecologic cancer	Single-group study	22 women	One group	Three 60-minute sessions for each groups	Psychoeducational interventions have a positive effect on arousal, orgasm, sexual satisfaction and help to solve sexual dysfunction in women with gynaecologic cancer

[Table/Fig-3]: The summary of the results of the investigated studies [11,13,20,22-41].

in Tehran (77.6%) was higher than that of the global rate (40%) [44]. However, this study considered the general population.

This study focused on the general population and chronic diseases, such as breast cancer, which affects sexual satisfaction and function. Therefore, in addition to conducting detailed and numerous studies on patients, some measures should be taken to reduce sexual dysfunction and improve sexual satisfaction. Accordingly, cognitive programmes and mindfulness-based interventions are effective therapies to reduce sexual problems.

The sample size in the intervention studies varied from 20 patients [37] to 660 individuals [30]. In some studies, the group training method had been used [32,40]. This case is worth considering in Islamic countries, especially Iran, with their special conditions. On the one hand, group therapy has numerous benefits, such as expressing people's feelings; they find out they are not alone and that there are many people with their problems. On the other hand, it is not easy to raise sexual issues and problems, and people are so ashamed and embarrassed in this regard that they sometimes hide their problems from their confidants and even doctors, and it is even more serious in women [45].

The number of sessions for mindfulness-based programmes was three to 12 sessions, yet in most studies, the number of sessions was eight. The duration of each session varied from one to two hours,

but the sessions were mostly 90 minutes. A review of the number and duration of intervention sessions conducted in previous studies indicated that even studies conducted with a smaller number of sessions and shorter interventions have been effective in reducing sexual problems [25,28,33,35,37,38,40,41]. Thus, given that clients are normally too busy to attend intention sessions, therapists can conduct fewer sessions in a shorter time. However, it should be possible to cover all the content and ensure the proper delivery of content and the proper implementation of the programmes within the prefixed number of sessions. In addition, training and implementation of programmes during the Coronavirus Disease 2019 (COVID-19) pandemic should be towards virtualisation and using online technology; the advantages of this method are lower cost, flexibility, ease of access, inclusiveness and the possibility of self-direction in learning and adaptation to individual learning goals [46].

In line with the objectives of the present study, most studies have examined the effectiveness of mindfulness-based interventions on the whole sexual dysfunction. However, since sexual dysfunction as a whole is divided into different categories, researchers are recommended to examine these disorders separately. This enables them to design more specific interventions. Sexual satisfaction and sexual arousal in women have also been considered by researchers, indicating the importance of these domains. Other

variables considered were sexual satisfaction, sexual self-efficacy, sexual desire, sexual response, sexual support, and arousal. Thus, it seems that the promotion of each of these factors can promote the overall sexual function.

A variety of mindfulness-based interventions including sex therapy, stress management techniques, and cognitive-behavioural therapy have been conducted for the patients. The role of stress and anxiety in predicting and reducing the quality of women's marital relationship is obvious [47]. Thus, using stress management and control methods can be implemented in the form of mindfulness-based programmes.

Limitation(s)

As one of the limitations of this study, only articles addressing sexual dysfunction in women were reviewed. Thus, its findings cannot be generalised to men. Furthermore, this study focused on articles that were published in English and Persian. Accordingly, the present review findings have less generalisability. Hence, a more comprehensive review of all articles published in this field is essential.

CONCLUSION(S)

Since sexual health and good marital relationship have known effects on physical, mental and social health, and sexual health and good marital relationship provide the basis for strengthened emotions between couples by creating a sense of satisfaction, peace and increased self-confidence, and as sexual health prevents the onset of mental disorders and family disintegration and social problems, it is required to be taken into serious account by caregivers and physicians, nurses and psychologists and midwives. Moreover, since the studies support the effectiveness of mindfulness-based interventions, it can be stated that this method is effective in improving women's sexual function and it is recommended to be used.

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PARTICULARS OF CONTRIBUTORS:

1. Masters, Department of Midwifery, Iran University of Medical Sciences, Tehran, Iran.
2. Masters, Department of Midwifery, Iran University of Medical Sciences, Tehran, Iran.
3. Masters, Department of General Psychology, Karaj Branch, Islamic Azad University, Karaj, Alborz, Iran.
4. Masters, Department of Midwifery, Iran University of Medical Sciences, Tehran, Iran.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Shaghayegh Dehghan Nayeri,
Masters, Department of Midwifery, Iran University of Medical Sciences, Tehran, Iran.
E-mail: Shaghayeghdehghannayeri@gmail.com

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