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# Improving sexual dysfunction through guided imagery music (GIM): A clinical trial study

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## Abstract:

**BACKGROUND:** Women with perfect health are strong foundations of a healthy and prosperous family life and suppressing the natural needs of women will have adverse effects on the intimacy and vitality of family members, especially in the field of sexual function. This study aimed to determine the effect of GIM on the level of sexual function in women with sexual dysfunction.

**MATERIALS AND METHODS:** In this cluster randomized trial, which was conducted from 2018 to 2019 in the randomly selected comprehensive health centers of Isfahan, Iran, 72 women of reproductive age (two groups of 36 people) with sexual dysfunction were selected by convenience sampling method, and then, music-guided imagination was performed on the intervention group. No special intervention was performed in the control group. Data collection tools were demographic characteristics questionnaire and a standard questionnaire of the female sexual function index.

**RESULTS:** There was no statistically significant difference in sexual function and demographic characteristics before the intervention between the two groups ( $P = 0/301$ ). The results demonstrated that the overall score of sexual function in the intervention subjects was better than the control group ( $P = 0/003$ ). Improvement of sexual function dimensions (desire, arousal, orgasm) was also significant in the intervention group compared to the control group ( $P < 0.05$ ).

**CONCLUSION:** GIM can be effective in improving women's sexual function. Providing this technique as a low-cost and affordable method is recommended to health experts in private and government clinics. This method can improve the mental health of the family and society.

## Keywords:

Guided imagery, music, reproductive age, sexual dysfunction

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This disorder in men and women will cause many individual and social problems in life, including a threat to physical and mental health, increased psychological and social stress, and decreased calmness and thinking power.<sup>[2,4,5]</sup> Feeling of failure, frustration, and insecurity caused by the lack of sexual satisfaction can endanger the psychological health of spouses,<sup>[6]</sup> and consequently, the strength of marital relationships is endangered.<sup>[6]</sup> Since psychological factors are very important in creating and especially sustaining sexual dysfunction, psychological interventions are promising therapies for sexual dysfunction.<sup>[7,8]</sup> Psychological

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treatment techniques focus on the neurological and psychological effects of music.<sup>[9]</sup> Studies have shown that music affects the opioid system of the brain by creating pleasure. This neurochemical path increases the level of endorphins and the activity of sensory receptors of serotonergic and dopaminergic paths in the cerebral cortex. The activity of this neurochemical path is related to the pleasures of nutrition and activities such as sexual intercourse.<sup>[7]</sup> Guided imagery is another method of psychological intervention and a meditation technique with physical and psychological effects.<sup>[10]</sup> During this technique, relaxation of the mind and body occurs with a decrease in heart rate, blood pressure, and a change in brain waves. Mental imaging can reduce pain, help the effect of drugs, and improve the patient's feeling.<sup>[9,11]</sup> Numerous studies indicated the improvement of the physical and mental performance of individuals following the use of imaging methods.<sup>[12-14]</sup>

Guided imagery and music (GIM) was introduced by musician and psychotherapist: Dr. Bonny, in the 1970s. This technique is a music-based self-exploration, psychotherapy, and spiritual growth using a collection of classical music to create and develop each individual's inner experiences.<sup>[7]</sup> In GIM, music acts as a catalyst, allowing people to explore and look deeper into their experiences. This process is based on transpersonal and interpersonal theories; music plays the role of a strong therapist and active partner<sup>[13]</sup> and leads to the development of self-esteem by emphasizing individuals' attention to themselves.<sup>[14]</sup>

However, studies indicate that guided imagery and music, unlike music alone, is not widely used to aid in sexual enhancement processes, although this behavioral technique can be very useful for mental promotion based on its specific nature.<sup>[15]</sup> Jerling and Heyns<sup>[16]</sup> in a study examined guided imagery and music as a health intervention: a "review of the systematic literature." This review of the systematic literature seeks evidence that guided imagery and music affects the client's general well-being and health.

Sexual dysfunctions are the cause and sometimes the effect of mental disorders and the problem of all societies in the world, and according to the studies conducted, its prevalence is high.<sup>[17]</sup> Accordingly, therapeutic methods have not been able to solve it. Iranian society is not exempt from this issue, especially because Iranian women are not very willing to go to sexual dysfunction clinics due to cultural taboos, while in recent years they have not shown much interest in medical and pharmaceutical methods in this regard. Based on studies, guided imagery and music is effective on people's mental and behavioral disorders, which can be effective in strengthening the cycle of sexual response. Of course, specific studies on

the use of this method on sexual function are rare. And in Iran, no study has been done on the subject of sexual response. The present study aims to determine the effect of guided imagery and music (GIM) on the level of sexual function in women with sexual dysfunction in order to identify the application of this technique and its effectiveness in Iranian culture.

## Materials and Methods

### Study design and setting

This research was a cluster clinical trial study, which was conducted from 20/11/2018 to 15/08/2019 in the randomly selected comprehensive health centers of Isfahan, Iran.

### Study participants and sampling

From all health centers of Isfahan (58 centers), four health centers with high population coverage were selected and then two health centers were randomly selected for a sampling of the intervention group and two centers for sampling of a control group. After that, the electronic files of women of reproductive age covered by the centers were reviewed and selected by convenience sampling method according to the inclusion criteria (72 women of reproductive age in two groups of 36 people). Written consent was obtained from the samples to enter the study. Inclusion criteria included women with sexual dysfunction (score less than 28 from the female sexual function index questionnaire) and no known diseases affecting sexual function in these women or their husbands. Exclusion criteria also included the occurrence of psychological and physical problems for women during the study, unwillingness to continue cooperation during the study, and exercise less than half of the number of sessions in the study (less than 6 sessions). Of 42 individuals in the intervention group and 40 individuals in the control group, 36 individuals in each group participated in the study. Participants' age range was from 19 to 49 years [Figure 1].

As said, women with sexual dysfunction were included in the study (control group and case). For the intervention group, the audio file of guided imagery and music was considered for 6 weeks (twice a week). The control group did not receive any intervention.

After the end of the intervention and one month later, the female sexual function index (FSFI) questionnaire was completed again by the samples in both groups and the findings of the three stages were statistically analyzed. It should be noted that in order to answer the possible questions of women in the two groups and use the recommendations of the sessions and emphasize re-referral to complete the sexual function questionnaire, telephone follow-up was done once a week.

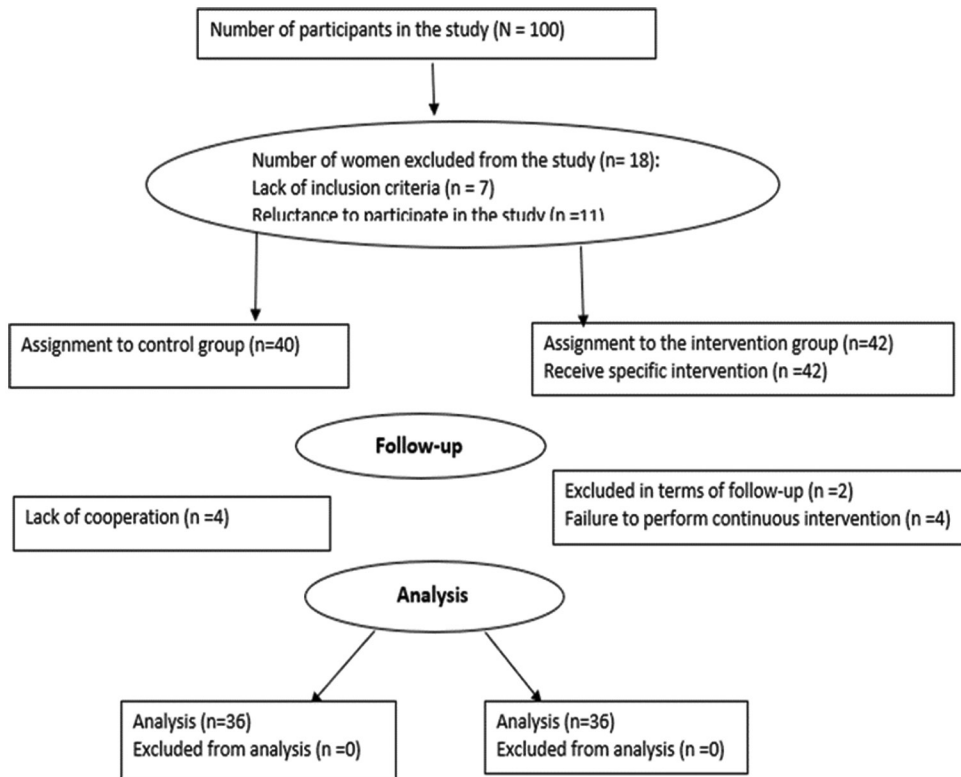


Figure 1: Consort diagram

The intervention in this study was based on the technique of guided imagery and music (GIM) in which the text and music (Spring Waltz—waltz opus 333—Blue Danube Waltz) was prepared in an audio file in the studio by the researcher through the library study, scientific resources, and consultation with experts. The intervention (audio file) was recommended to the participants in 12 thirty-minute sessions twice a week for 6 weeks at home. Prior to that, a briefing session was held in person. The step-by-step steps of this intervention (audio file) taken from the BONNY method<sup>[18]</sup> are as follows:

#### 1-Prelude

First, the guiding person (recorded voice) talks to the research subjects to pay attention to their physical, mental, and spiritual condition, and at the beginning of the session, he asks them to focus on their mind, feelings, and energy levels.

#### 2-Induction and Relaxation

At this stage, as the samples are sitting in a comfortable position, the guide (researcher) talks with them and they slowly reach a moment when they accept to close their eyes, then they release the muscles by one of the two methods of contraction, muscle release along with inhaling and exhaling or verbal suggestion, which aims to reduce the processing motion and positional

information of the body samples so that they can achieve a deeper level of awareness.

#### 3-Music and Imagery

Now the selected music starts playing and at the same time a mental image is presented to the samples by the guide (researcher) as a starting point for imagination, and then, the person can choose visual situations based on the effect the music has on his mind and based on the guidance he receives and move on.

#### 4-Postlude

By returning to the normal state of consciousness, the samples draw a report in the form of drawing and writing.

#### Data collection tool and technique

Questionnaires include demographic characteristics and a standard questionnaire of female sexual function index (with 19 questions in 6 areas of sexual desire (2 items), sexual arousal (arousal) (4 items), vaginal moisture (4 items), orgasm (3 items)), satisfaction (3 items), and sexual pain (3 items) which was completed through a self-report. According to the cutoff point based on the study conducted by Mohammadi *et al.*,<sup>[19]</sup> score less than 28 was considered as sexual dysfunction.

**Ethical consideration**

This research was approved by the Ethics committee of Isfahan University of Medical Sciences ((IR.MUI.RESEARCH.REC.1398.505) and registered in the Iranian Clinical Trial Registration database (IRCT20190806044460N1). The purpose and method of the study were explained to all samples, and then, informed written consent was obtained from them to participate in the study. They were also assured that all their information would be kept confidential and would only be used for research purposes.

**Statistical analysis**

Data were analyzed using SPSS software version 20 and independent *t* test, Chi-square, Mann–Whitney, and analysis of variance with repeated measures. The significance level in all stages of data analysis was considered less than 0.05. Before applying the tests, the Kolmogorov–Smirnov test was used to determine the normality of the data.

**Results**

The results of the analysis of *t* test, Mann–Whitney, and Chi-square tests showed that in relation to the personal characteristics of the study units (age of spouse, age difference with spouse, duration of marriage, number of pregnancies, number of children, employment status of spouse, and education level of spouse), there is no statistically significant difference between the two groups of intervention and the control group ( $P > 0.05$ ). There was no statistically significant difference in sexual function score between the intervention and control groups before the intervention. Independent *t* test and analysis of variance with repeated measures showed that the overall score of sexual function in the intervention subjects was better than the control group ( $P < 0.05$ ) [Table 1, Figure 2].

Improvement in sexual function and dimensions scores in the intervention group by analysis of variance with repeated measures [Table 2] was remarkable. Also, the comparison of sexual function scores in women in the intervention group between the studied times was performed by Tukey’s test, whose changes were statistically significant [Table 3].

And finally, the effect of the intervention on the score of sexual function and its dimensions in women between the investigated times based on the test results repeated measures ANOVA determined that no change in sexual function and dimensions scores in the control group while the overall score of sexual function and dimensions in the intervention subjects was better than the control group ( $P < 0.05$ ) [Table 4].

**Discussion**

The main purpose of this study was to determine the effect of guided imagery and music (GIM) on sexual function in women with sexual dysfunction. Before the intervention, the mean score of sexual function of women with sexual dysfunction and its dimensions (sexual desire, sexual arousal, sexual moisture, orgasm, pain, and sexual satisfaction) were measured in the intervention and control groups, the results explained that there was not a statistically significant difference between the two groups.

Regarding “determining and comparing the average score of sexual function and its dimensions (sexual desire, sexual arousal, vaginal moisture, orgasm, pain, sexual satisfaction) in women with sexual dysfunction in the intervention and control groups, immediately and one month after the intervention,” the results showed that the average score of sexual function and its dimensions in the control group and at different times remained were unchanged, this rate improved in the intervention group.

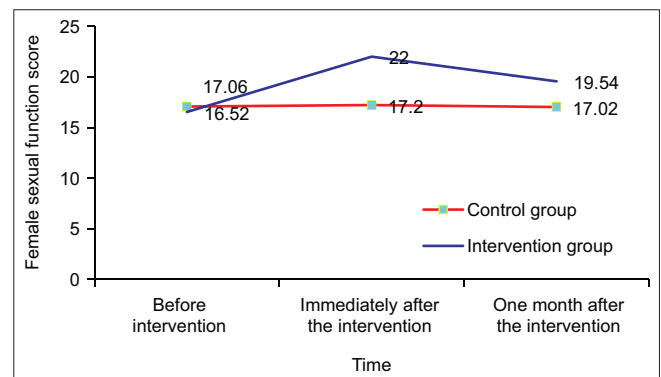


Figure 2: Changes in women's sexual function score in the studied times by intervention and control groups

**Table 1: Comparison of the mean score of female sexual function in the studied times between the intervention and control groups**

Sexual function		Before the intervention M (SD)	Immediately after the intervention M (SD)	One month after the intervention M (SD)
Control group		17.06±1.55	17.20±1.24	17.02±1.33
Intervention group		16.52±2.12	22.00±2.03	19.54±1.66
Test result	Test statistic	1.253	-11.899	-7.114
	<i>P</i>	0.301	0.003	0.01

**Table 2: Changes in sexual function score and its dimensions in women in the intervention group**

Dimensions	Before the intervention	Immediately after the intervention	One month after the intervention	Test result	
	M (SD)	M (SD)	M (SD)	Test statistic	P
Desire	3.45±0.61	4.53±0.62	3.97±0.54	30.167	0.0001
Arousal	3.06±0.72	4.04±0.5	3.54±0.5	24.907	0.0001
Moisture	2.60±0.43	3.35±0.60	3.06±0.53	18.307	0.0001
Orgasm	2.91±0.69	4.00±0.54	3.58±0.46	33.102	0.0001
Satisfaction	3.53±0.79	4.58±0.48	4.12±0.56	25.154	0.0001
Sexual pain	2.69±0.75	2.62±0.74	2.22±0.86	3.716	0.028
Sexual function	16.52±2.12	22.00±2.03	19.54±1.66	69.374	0.0001

**Table 3: Comparison of sexual function score in women in the intervention group between the studied times**

Sexual function	Before the intervention	Immediately after the intervention	One month after the intervention
before the intervention	–	0.0001	0.0001
Immediately after the intervention	–	–	0.0001
One month after the intervention	–	–	–

**Table 4: Investigating the effect of the intervention on the sexual satisfaction score, sexual function, and its dimensions in women between the investigated times**

Dimensions	Groups	Before the intervention	Immediately after the intervention	One month after the intervention	Inter group changes P
		M (SD)	M (SD)	M (SD)	
Desire	Control group	3.8±0.9	3.82±0.8	3.82±0.89	P<0.001
	Intervention group	3.45±0.61	4.53±0.62	3.97±0.54	
Arousal	Control group	3.37±0.67	3.3±0.67	3.22±0.62	P<0.001
	Intervention group	3.06±0.72	4.04±0.5	3.54±0.5	
Moisture	Control group	2.62±0.44	2.65±0.32	2.6±0.34	P<0.001
	Intervention group	2.6±0.43	3.35±0.6	3.6±0.53	
Orgasm	Control group	2.73±0.7	2.76±0.74	2.71±0.7	P<0.001
	Intervention group	2.91±0.69	4±0.54	3.58±0.46	
Satisfaction	Control group	3.62±0.57	3.74±0.4	3.73±0.51	P<0.001
	Intervention group	3.53±0.79	4.58±0.48	4.12±0.56	
Sexual pain	Control group	2.37±0.77	2.13±0.68	1.84±0.88	P=0.034
	Intervention group	2.69±0.75	2.62±0.74	2.22±0.86	
Sexual function	Control group	17.06±1.55	17.20±1.24	17.02±1.33	P=0.0001
	Intervention group	16.52±2.12	22.00±2.03	19.54±1.66	
	Intervention group	91.1±9.1	112±4.46	102±9.24	

According to the results, guided imagery with music (GIM) has been able to increase the score of sexual function in women with sexual dysfunction. This technique may have been used to treat sexual dysfunction by reducing the severity of pain during sexual intercourse, reducing perceived stress in daily activities, as well as improving the quality of life and social interactions of individuals.<sup>[20,21]</sup> Of course, endorphins, cortisol, serotonin, and oxytocin have a significant role. The secretion of the hormone’s cortisol, serotonin, and oxytocin during sexual intercourse reduces stress and pain during sexual intercourse and therefore improves communication during sexual activity, and endorphin causes vitality and relaxation, and relieves functional anxiety.<sup>[16]</sup>

Catecholamines, or adrenaline and noradrenaline, are secreted from the adrenal glands when there is fear, restlessness, and anxiety, which causes hypertension and

heart rate.<sup>[22]</sup> Surprisingly, music reduces the release of this anxiolytic substance, and as a result, its function in the body decreases blood pressure and heart rate, and therefore, it causes muscle relaxation and ultimately functional satisfaction.<sup>[23]</sup> Rouchi *et al.* (2017) in their study entitled “The effectiveness of music therapy on improving sexual self-esteem, marital satisfaction, and reducing marital conflict in young married women” concluded that music intervention can be a good way to improve sexual self-esteem, marital satisfaction, and reducing the conflicts in the lives of these women. Researchers proposed that this issue is due to the increase in the effectiveness of factors such as endorphins and the balance of serotonin, melatonin, and dopamine.<sup>[24]</sup>

It is necessary to mention that only the improvement of sexual function occurred and the study units were not independent of sexual dysfunction in the present study (the score increased from 16.5 to 22). Considering



that the cutoff point of the FSFI questionnaire is about 28, so the mean score obtained in the present study (score 22) has a distance of up to 28. This could be due to severe sexual dysfunction in the samples of this study and of course, the cutoff point for the Iranian community was probably inappropriate, despite that the psychometrics of this questionnaire by Iranian researchers (Mohammadi *et al.* 2008) is also considered by the researchers in this study.<sup>[19]</sup> Immediate improvement of sexual function and satisfaction after the intervention in the present study is due to rapid and timely stimulation of myelin, neurotransmitters, and appropriate hormonal stimuli and therefore, optimal brain responses. The reduction in this improvement during 1 month after the intervention is due to the absence of these hormones and neurotransmitters from these stimuli over time.

In general, various studies have explained the effect of any music and guided imagery and music on improving sexual function and dimensions of this function, as well as improving mood disorders, which are as follows:

Regarding the effect of guided imagery and music on mental and physical satisfaction, Calbins (1991) believes that guided image not only includes the sense of sight but also it is much broader than that. This technique also covers the whole body, senses, and emotions. Imaging has the capability to mobilize unconscious and semi-conscious processes to achieve and guide conscious goals. He focused on creating a sense of satisfaction following the use of this technique in mental and functional disorders.<sup>[25,26]</sup>

A study conducted by Marin *et al.*<sup>[27]</sup> (2017) indicated that music may influence human flirting behavior through induced arousal. Purdad (2021) stated in his study that music therapy improves the symptoms of mental illness and increases the quality of life and happiness, and reduces anxiety, so its effect on sexual function is inevitable.<sup>[28]</sup> Rossman *et al.* (2010) introduced guided imagery as a means of helping women with mental disorders. He stated that this technique causes women with these disorders to connect with cognitive, emotional, and physical resources within themselves and increase their creativity and imagination; consequently, their physiological processes will improve in this way.<sup>[29]</sup>

Purdad's study has said about the direct effect of music on sexual dysfunctions, and other studies have found music and guided imagery and music to be effective in eliminating mental and mood disorders, as well as improving people's quality of life. Since mental disorders are one of the important factors in causing sexual dysfunctions, the improvement of mental disorders can lead to the improvement of sexual function.

Other studies have also suggested the effect of music and harmonious rhythms on sexual arousal, which include: Garga *et al.*<sup>[30]</sup> (2021) in their study entitled "motivations, dating relationships, sexual behaviors and changes related to this type of behavior" stated that music has a positive effect on sexual arousal. He introduced this factor as an arousal technique and a factor for initiating sexual and mental desires. Alusandro (2016) in his study entitled "sexual arousal and rhythmic synchronization: a possible effect of vasopressin" said that neuropeptide vasopressin of sexual dimorphism involves its receptors in a part of the brain for performing music (basal ganglia) and its concentration increases during sexual arousal in men. This researcher supported the effect of music on increasing vasopressin.<sup>[31]</sup>

Sexual arousal is the cause of orgasm, and the presence of these two sexual responses (arousal and orgasm), based on the Bassoon cycle, has a strong effect on increasing sexual desire.<sup>[2]</sup> The present study is in line with the two mentioned studies.

### Limitation and recommendation

The use of a pre-existing and approved model such as the model of Bani *et al.* to conduct the intervention of the present study (guided imagery and music) was the strength of the research. One of the limitations of the present study is the implementation of the research in Isfahan city. In order to be more generalizable, it is suggested to conduct this study in Isfahan province.

### Conclusion

Based on the results, guided imagery and music as an effective, easy, affordable, and usable method in Iranian culture can be effective in improving the sexual function of reproductive-age women. Accordingly, this method is suggested to all reproductive and sexual health specialists as well as to all service providers for the purpose of family and community health.

Elimination of family disorders following the improvement of sexual function in the users of the behavioral technique of guided imagery and music can also be desired by health policymakers, because during this process, the approach of promoting childbearing is also strengthened.

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## Conflicts of interest

There are no conflicts of interest.

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