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Original Article

# The effect of different genres of music and silence on relaxation and anxiety: A randomized controlled trial

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ABSTRACT

High stress and anxiety in healthy individuals may lead to use different pharmacological and non-pharmacological therapies. The study aimed to investigate the effect of different genres of music on anxiety and relaxation in healthy participants. This study was a randomized controlled trial with a cross-over design. Forty-six healthy undergraduates participated in the study and randomly received different genres of music (Pop, Rock, Western Classical, and Persian Traditional) and silence for five consecutive days between February and June 2018. Each participant was her/his own control. Relaxation and the State Anxiety were checked with Smith Relaxation States Inventory 3 and The State Anxiety Inventory before and after listening to 15 min of music or laying down in silence. None of the five procedures were preferred for a more relaxing effect ($P > 0.05$). Also, none of the interventions were preferred for reduction of the state anxiety ($P > 0.05$). Although different genres of music, i.e., Pop, Rock, Western Classical, Persian Traditional, could reduce state anxiety and improve relaxation, they had no extra effect compared to Silence.



## Introduction

Everyone will face new challenges, social relationships, different stressful situations, anxiety, and adaptive and behavioral problems through living and development in different stages of life.[1] High stress and anxiety may have unpleasant consequences on health, decision-making power and quality of life of the individual.[2–4]

Individuals use different methods, such as chemical drugs, exercise, yoga, meditation, and music to reduce their stress and anxiety.[4,5] Many individuals are increasingly using non-pharmacological therapies due to the adverse effects of synthetic drugs and the need for a long duration of treatment. Since music intervention is an easier and more accessible way to reduce stress, it is the most commonly preferred method among non-pharmacological therapies.[6] Listening to music is very inexpensive and seems to have a useful role in improving physical and mental problems, and draws one's attention away from stimuli that cause stress and excitement. Listening to music, also, affects the pituitary gland and releases endorphins, which themselves cause calmness, reduce pain, and improve sleep quality.[7] Moreover, listening to music will lead to one's relaxation by creating a positive and pleasant feeling.[8,9]

Several studies have examined the effects of music on relaxation and anxiety.[8,10] Some systematic reviews reported that listening to music might have a reducing effect on anxiety in healthy individuals.[3,11] Some other studies on clinical samples indicated that music decreased anxiety in patients.[12,13] Similarly, some researchers reported that listening to music increased relaxation in hospitalized patients.[12–14] Literature review showed that most studies only used a single genre of music and their focus was only on the music intervention rather than exploring the different effects of different genres.[10,15] In a study, Pop music reduced students' anxiety more than classical music.[16] In some other studies, classical music, Turkish classical music, the sound of nature, and western music reduced patients' anxiety compared to the control group, and Karakul and Bolışık's study showed that the Turkish classical music was the most effective genre.[10,17] Although the literature review confirmed the positive effect of a different kind of music on healthy individuals and patients, some recent studies did not confirm the positive impact of listening to music. Uğraş et al. in their study reported that Classic Rock music

*Abbreviations:* SRSI, Smith Relaxation States Inventory; SRSI3, Smith Relaxation States Inventory 3; STAI, State-Trait Anxiety Inventory

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did not reduce anxiety in patients under prostate biopsy compared with the control group.[18]

According to the literature review, the results of various studies on the usefulness of music and its different styles on the level of relaxation and anxiety of healthy individual are still controversial. However, the use of behavioral methods is superior to invasive methods because of cheapness, simplicity, and non-invasiveness.[2,10,19] Therefore, it is necessary to evaluate the impact of music and its different genres on healthy individuals and patients. The study aimed to investigate the effect of different genres of music on anxiety and relaxation in healthy students.

## Methods

### *Study design and setting*

This study had a randomized controlled trial with cross-over design that was conducted on healthy undergraduates of Nursing School of Kerman University of Medical Sciences, Kerman, Iran.

### *Sample size and sampling*

Since the focus of the study was to determine the various effects of different genres of music and to limit the conflicting factors, only healthy people were chosen. A total of 79 eligible healthy undergraduates were screened through filling a questionnaire based on inclusion and exclusion criteria. All 79 individuals had inclusion criteria but only 53 (67.09%) undergraduates agreed to participate in the study. The main reason for their unwillingness was the long period of study procedure. Seven participants withdrew in the middle of the study. Their reasons included being bored and not having enough time to continue the study. Finally, 46 participants including 25 males and 21 females finished the study (Fig. 1).

Participants were recruited between February and June 2018 by convenience sampling and randomly were provided with different genres of music, i.e., Pop, Rock, Western Classical, Persian Traditional, and Silence for five consecutive days.

### *Instruments*

#### *Smith relaxation states inventory 3 (SRSI3)*

Smith designed self-administrating inventories in 2001 to measure various aspects of stress, relaxation, meditation, and alertness.[20] The Smith Relaxation States Inventory (SRSI) measures the immediate level of relaxation and stress and is proper for examining immediate relaxation changes during an activity. The SRSI consists of 30 self-report items that measure relaxation, and stress mode and rates each item according to how one feels “right now.” Each item was rated by a Likert scale from 1 (not at all) to 4 (very much). Cronbach's alpha values for the SRSI scale ranged from 0.60 to 0.80.[20] Smith Relaxation States Inventory 3 (SRSI3) was used in the present study. The inventory was published in 2005 and had several modifications compared to previous versions. The number of items has been increased to 38 items and, the 4-point Likert scale has been expanded to a 6-point one (1=not at all, 6= maximum) to increase the sensitivity of the scale. Verbal and visual (like cell-phone battery indicators) anchors are presented on top of the Likert scales for better access. Each mode has a minimum score of 1, and a maximum of 6, and the total score ranges from 1 (minimum) to 6 (maximum).[21]

There was no Persian version of this inventory. We e-mailed Dr. Jonathan C. Smith to gain permission for SRSI3 translation into Persian. First, the original form of the inventory was translated into Persian. Then a second translator, who was not aware of the original text, translated the inventory from Farsi into English. The second translation was sent to Dr. Smith, who confirmed the translation after correcting some of the items. The Farsi version of the inventory was provided for 10 faculty members of Kerman University of Medical Sciences, and the content validity index was calculated to be 0.98. Also, the inventory was given to 30 students, and the internal consistency coefficient (Cronbach's alpha) was calculated to be 0.89 meaning that the questionnaire was reliable.

#### *The state-trait anxiety inventory (STAI)*

The State-Trait Anxiety Inventory (STAI) is a commonly used tool for measuring trait-state anxiety. STAI has 20 items which measure state anxiety in one's present moment . All items were based on a 4-point scale from “Not at All” to “Very Much.” The higher the scores, thegreater the anxiety. Internal consistency coefficients for the scale ranged from 0.86 to 0.95; test-retest reliability coefficients ranged from 0.65 to 0.75 over a 2-month interval.[22]

### *Intervention protocols & data collection*

In this study, participants were treated as their control, and all were exposed to four genres (Pop, Rock, Western Classical, and Persian Traditional) and silence intervention. Therefore, they were equivalent regarding demographic characteristics. For all participants, the sequence of interventions was randomly assigned via a lottery method. Therefore, each one participated in the study for five consecutive days, and received one of the randomly selected interventions. This washout period was applied to make sure that genres could not have any confounding effects on each other (Fig. 1).

Before starting each intervention session, the researcher made sure that participants did not use hot liquids and caffeine up to 30 min before the measurements, and did not do heavy physical activity on the day.[23] At the beginning of the first intervention, the researcher explained the procedure to participants and gave them 5 min to get acquainted with the tools and environment so that the underlying stressors would not interfere with the measurements. Each participant laid down on the bed, with the bed head at 45 to 60°[23] in a relaxed condition, and remained in that position for five minutes.[23]

At first, participants completed the SRSI3 and STAI questionnaires. Then they had one of the randomly selected interventions (any of four genres of music or silence). All participants listened to music interventions via Creative EP-630 earphones and adjusted the volume level to the desired level. However, the volume range was within the normal range and less than 85 dB.[24] After receiving the intervention for 15 min, they laid down on the bed for additional 30 min. For Silence, participants used the earphones for the whole 15 min. In the end, the participants recompleted the SRSI3 and STAI questionnaires. Each session took an hour for each participant.

#### *Music interventions*

In choosing the genres, we tried to consider the diversity and contrast on the one hand, and the background and the popularity of each genre on the other hand. Also, because Persian Traditional music (Iranian Classical) has not been studied much in international academia, but it is a popular genre in Iran, thus we studied this genre as well to see its effect. Therefore, we wanted to compare the effect of different genres of music based on their various musical forms, excluded the impact of lyrics and its meaning, and selected instrumental samples for each genre.

All music samples had a normal range in parameters such as tempo, composition, harmony, tone, or pitches. Music tracks were in WAV 44.1, 16 bits, and stereo. Each music track was repeated to reach a 15-min length. The duration of music was chosen as a mean duration in some previous studies in this field which selected a shorter and longer length for their music tracks.[25–28]

*Pop*

*Three of a Kind* was the representative of the Pop genre.
Artist: Kenny G, Album: Duotones, Released:1986,

*Rock*

*Orion* was the representative of Rock genre.

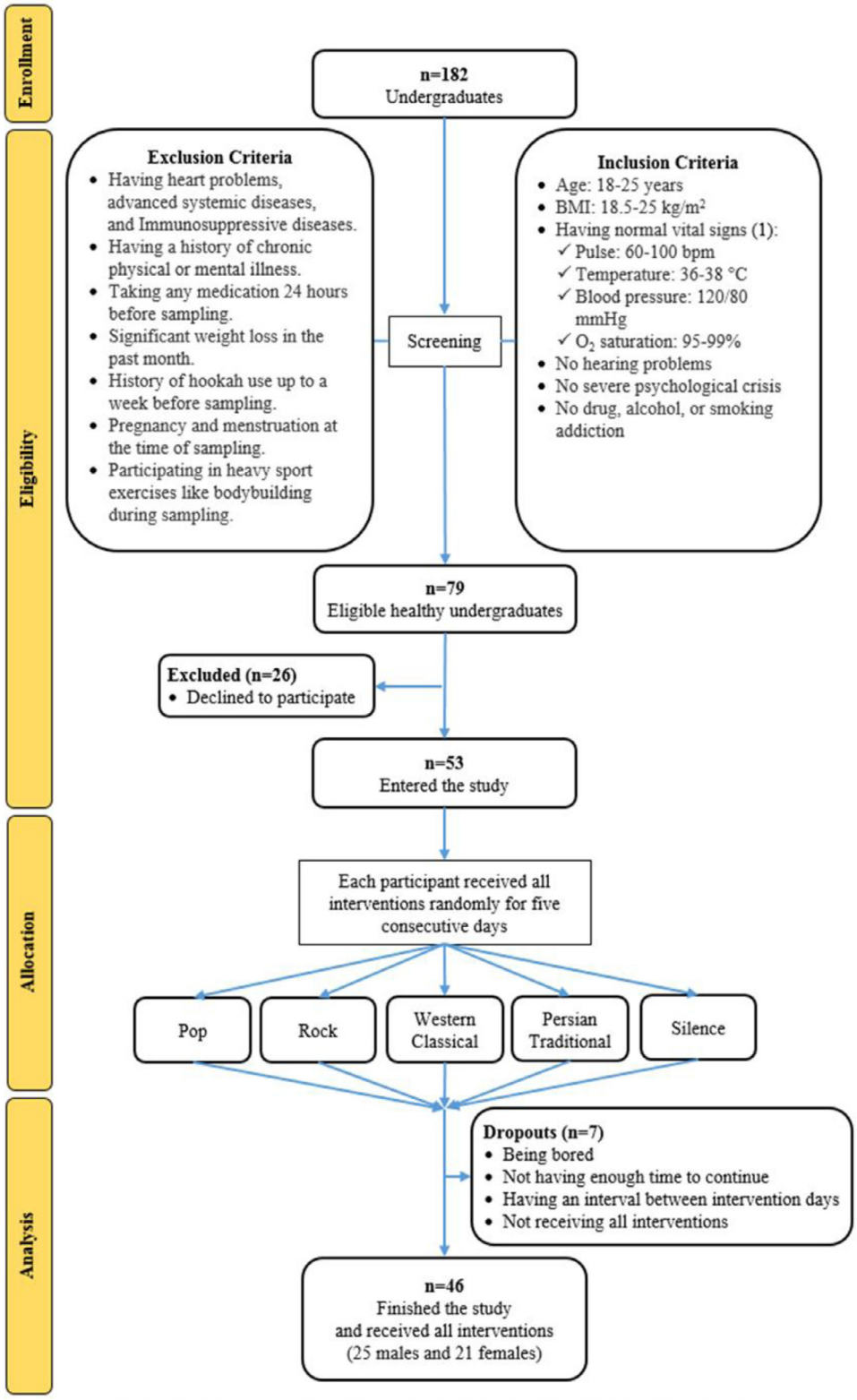


**Fig. 1.** Study flow diagram: recruitment and allocation to study groups.

Artist: Metallica, Album: Master of Puppets, Released:1986.

*Western classical*

*Symphony No. 35 Haffner Symphony* was the representative of the Western Classical genre.

Artist: Mozart, Composed: 1782.

*Persian traditional*

*Vanooshe* was the representative of Persian Traditional (Iranian classical) genre.

Artist: Hamid Motebassem, Album: Bamdad, Released: 1990.

*Data analysis*

The SPSS version 18 was used for data analysis. Frequency, percentage, mean, and standard deviation were used to describe the characteristics of the participants. The paired *t*-test was used to compare the mean score of anxiety and relaxation before and after each intervention. The repeated measures ANOVA test was used to compare the changes in the mean score of anxiety and relaxation before and after different interventions.

## Results

*Participant characteristics*

Forty-six participants finished all five interventions (25 males and 21 females; mean age 20.22 years, SD = 1.03). Their BMI was normal ranging from 18.5 to 25 kg/m$^2$ (mean 22.04, SD = 1.87). Forty-two (91.30%) undergraduates were nursing students, and just 4 (8.70%) were midwifery students (Table 1).

On average, they could listen to music for 116.09 min (min = 0, max = 500) on a day. Except for 2 participants (4.30%), no one else had any special training in music ($n$ = 44, 95.70%). Pop ($n$ = 34, 73.90%) and Persian Traditional ($n$ = 9, 19.60%) were the most favorite personal genres among the participants.

*Relaxation*

According to the results, there were statistically significant positive differences in the mean scores of the relaxation level before and after the intervention in four interventions of Pop ($P$ = 0.005), Western Classical ($P$ = 0.001), Persian Traditional ($P$ = 0.036), and Silence ($P$ = 0.004) while the difference in Rock intervention was not statistically significant ($P$ = 0.08). While Rock did not achieve statistical significance, it did show a positive trend. Therefore, Pop, Western Classical, Persian Traditional Genres, and Silence interventions could significantly make the participant more relaxed than the Rock intervention. However, none of the five interventions were preferred for a more relaxing effect ($P$ = 0.51) (Table 2).

**Table 1**
. Participant characteristics ($n$ = 46).

| Variable | Mean | Standard Deviation | Maximum and Minimum |
|---|---|---|---|
| Age (yr.) | 20.22 | 1.03 | 18–22 |
| Height (cm) | 171.13 | 8.24 | 157–189 |
| Weight (kg) | 64.59 | 7.49 | 49–82 |
| BMI (kg/m$^2$) | 22.04 | 1.87 | 18.80–24.91 |
| Variable | Frequency | Percent | |
| Gender | | | |
| Female | 21 | 45.70 | |
| Male | 25 | 54.30 | |
| Marital Status | | | |
| Single | 45 | 97.80 | |
| Married | 1 | 2.20 | |
| Major | | | |
| Nursing | 42 | 91.30 | |
| Midwifery | 4 | 8.70 | |
| Special Training in Music | | | |
| Yes | 2 | 4.30 | |
| No | 44 | 95.70 | |

*Anxiety*

There were statistically significant positive differences before and after state anxiety scores of the participants in each intervention. All four genres of Pop ($P$ = 0.009), Rock ($P$ = 0.005), Western Classical ($P$ = 0.010), Persian Traditional ($P$ = 0.014), and even Silence ($P$ = 0.008) could significantly reduce the state anxiety scores. Whereas, none of the five interventions were preferred to effect reducing the state anxiety ($P$ = 0.88) (Table 3).

## Discussion

The main aim of the present study was to explore whether different genres of music compared with each other and with silence have a more relaxing effect or not. The results showed that the relaxation level increased significantly after listening to Pop, Western Classical, Persian Traditional, and silence while its level after listening to Rock was not significant. However, none of the five interventions were preferred for a more relaxing effect. Also, all four genres of Pop, Rock, Western Classical, Persian Traditional, and even silence could reduce the state anxiety scores. None of the interventions were preferred for reduction of the state anxiety. Therefore, the main finding of this study was that none of the genres had more relaxing effect or could decrease anxiety versus silence.

Listening to music as a cost-effective and non-invasive method has become one of the most frequent models of care delivery for reducing psychological responses to the stressors in healthy and unhealthy individuals.[27] However, different studies are still controversial about the effectiveness of music and its different kinds on relaxation in different situations. As our results showed, although listening to Pop, Western Classical, Persian Traditional genres, increased relaxation, they had no extra effect on relaxation compared with each other and even with Silence. In line with our results, Burns et al. reported that all music interventions of Hard Rock, Classical, Self-selected music, and even silence had a positive effect on relaxation and there was no difference among these interventions.[29] Also, Labbe et al.'s study results showed that Classical, Self-selected music and Silence increased relaxation while heavy metal did not change of the relaxation.[30] In comparison with the previous studies, in the present study, we considered silence as an intervention to compare its effect versus music genres, and silence was applied just like other music interventions with laying down and having earphones on. In addition, in Burns et al. and Labbe et al. studies, each participant was assigned to interventions or control groups, while in the present study all participant received all interventions during five consecutive days. Therefore, in the present study each participant was his/her own control. In contrast with our results, some studies reported that listening to music had more relaxing effect compared to routine care, wait-list control conditions, or listening to a verbal relaxation exercise in hospitalized patients.[12–14,31] Note, none of the mentioned studies assessed the effect of silence on their patients. As the literature review showed, different genres of music have a relaxing effect, but it is still debatable whether different genres of music compared with each other or with silence and other relaxation methods has a more relaxing effect or not.

According to our results, although listening to Pop, Western Classical, Persian Traditional and Rock tracks decreased state anxiety, they had no extra effect on state anxiety compared with each other and with silence. In line with our results, Harada et al. reported that compared with prerecorded verbal relaxation exercise group, receiving live music had no greater effect on the physical and cognitive tensions of healthy adults.[27]

In contrast with our results, in some studies, music has reduced patients' anxiety compared with the control group (not listening to music).[10,17] In addition, in Khan and Ajmal study, listening to Classical Turkish Music was more effective than listening to Western Music or natural sounds in decreasing anxiety.[17] Also, Gabel et al. in their study

**Table 2**
Relaxation score according to different music Genres, and Silence.

| Relaxation | Genre/Dimensions | Pop Mean ± SD | Rock Mean ± SD | Western Classical Mean ± SD | Persian Traditional Mean ± SD | Silence Mean ± SD | Repeated Measures ANOVA | P Value |
|---|---|---|---|---|---|---|---|---|
| | Before | 3.56 ± 0.71 | 3.56 ± 0.76 | 3.43 ± 0.80 | 3.53 ± 0.71 | 3.41 ± 0.75 | $F = 0.83$ | 0.51 |
| | After | 3.77 ± 0.73 | 3.67 ± 0.75 | 3.64 ± 0.79 | 3.65 ± 0.75 | 3.58 ± 0.85 | | |
| | Mean Difference | 0.20 ± 0.46 | 0.11 ± 0.40 | 0.21 ± 0.40 | 0.12 ± 0.38 | 0.16 ± 0.36 | | |
| | Paired *t*-test | −2.96 | −1.80 | −3.57 | −2.17 | −3.03 | | |
| | P Value | 0.005 | 0.08 | 0.001 | 0.036 | 0.004 | | |

**Table 3**
Comparison of state anxiety score between different music Genres and Silence.

| Genera/Dimensions | | Pop Mean ± SD | Rock Mean ± SD | Western Classical Mean ± SD | Persian Traditional Mean ± SD | Silence Mean ± SD | Repeated measure ANOVA Mean ± SD | P Value |
|---|---|---|---|---|---|---|---|---|
| State Anxiety | Before | 37.63 ± 11.54 | 38.98 ± 10.72 | 40.70 ± 12.18 | 39.04 ± 11.44 | 40.50 ± 12.46 | $F = 0.30$ | 0.88 |
| | After | 35.39 ± 10.23 | 36.00 ± 10.43 | 37.54 ± 11.05 | 36.80 ± 10.35 | 37.15 ± 10.79 | | |
| | Within-subject difference | −2.24 ± 5.60 | −2.98 ± 6.83 | −3.15 ± 7.97 | −2.24 ± 5.96 | −3.35 ± 8.24 | | |
| | Paired *t*-test | 2.71 | 2.96 | 2.68 | 2.55 | 2.76 | | |
| | *P* value | 0.009 | 0.005 | 0.01 | 0.01 | 0.008 | | |

on patients with dyspnea, reported that music was a more effective intervention in reducing state anxiety than silence.[28] In a study, Pop music reduced students' anxiety more than Classical music[16]. Uğraş et al. in their study reported that Classic Rock music did not reduce sate anxiety in patients under prostate biopsy compared with the control group.[18] As the literature review showed, it is still debatable whether different genres of music compared with each other or with silence can more decrease the state anxiety or not. According to our knowledge, there are limited studies which have compared the effect of silence as an intervention with different genres of music in healthy and unhealthy individuals. In addition, limited study assessed the effect of Persian Traditional music on relaxation and anxiety.

Our study had some strengths and limitations. The most important strength of our study was that each participant was her/his own control, so the individuals' characteristics had less influence on the results. The second important strength was to receive different kinds of music genres randomly, so the individuals were not aware of the type of music they were going to listen in the next session except for the last session. The main important limitation of our study was that we did not use participants' favorite music track to see that personal interest could have an effect or not. Another limitation was that it was difficult for participants to attend for five consecutive days. Therefore, we provided free transportation for them to cover the difficulty of commuting.

## Conclusion

According to our results, listening to Pop, Western Classical, Persian Traditional music, and silent moments increased relaxation in healthy individuals, but listening to Rock music did not have statistically significant effect on relaxation. Also, all four genres and silence decreased state anxiety. All four genres of music had no extra effect on relaxation and state anxiety compared with each other and with silence. The results of this research could be a step towards increasing research data in complementary and alternative medicine (music therapy) and it could be of a help in deciding the correct intervention for health-care teams as a way to relax the patient and decrease her/his anxiety. Further studies with repeated measurement design are needed to assess the lasting effect of the different genres and the silence on relaxation and anxiety. Further studies are suggested to assess the effect of silence on relaxation and anxiety in particular environments such as intensive and critical care units.

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## Ethics approval and consent to participate

The Ethics Committee of Kerman University of Medical Sciences approved the study protocol (IR.KMU.REC.1396.1949). Also, the study was registered in the Iranian Registry of Clinical Trials (IRCT20180101038177N1). The researchers explained research goals and protocol to the participants before their inclusion in the study, and if they had been willing to participate in the study, written informed consent would have been obtained from all eligible participants.

## Consent for publication

Not applicable

## Availability of data and material

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

## Authors' contributions

AM, MD, and AH expanded the conception. AM and MD designed the work and analyzed the data. AG and PP drafted the work and were major contributors in writing the manuscript. All authors read and approved the final manuscript.

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## References

1. Lee HP, Liu YC, Lin MF. Effects of different genres of music on the psycho-physiological responses of undergraduates. *J Nurs*. 2016;63(6):77–88.
2. Jayakar JP, Alter DA. Complementary therapies in clinical practice music for anxiety reduction in patients undergoing cardiac catheterization : a systematic review and meta-analysis of randomized controlled trials. *Complement Ther Clin Pract*. 2017;28:122–130.

3. Panteleeva Y, Ceschi G, Glowinski D, Courvoisier DS, Grandjean D. Music for anxiety? Meta-analysis of anxiety reduction in non-clinical samples. *Psychol Music*. 2018;46(4):473–487.
4. Matney B. The effect of specific music instrumentation on anxiety reduction in university music studentsA feasibility study. *Arts Psychother*. 2017;54:47–55.
5. Corbijn van Willenswaard K, Lynn F, McNeill J, McQueen K, Dennis CL, Lobel M, et al. Music interventions to reduce stress and anxiety in pregnancy: a systematic review and meta-analysis. *BMC Psychiatry*. 2017;17(1):1–9.
6. Marzuki NIC, Mahmood NH, Safri NM. Type of music associated with relaxation based on EEG signal analysis. *J Teknol Sci Eng*. 2013;61(2 SUPPL):65–70.
7. Lee C, Lee C, Hsu M, Lai C, Sung Y, Lin C, et al. Effects of music intervention on state anxiety and physiological indices in patients undergoing mechanical ventilation in the intensive care unit : a randomized controlled trial. 2017;19(110):137–44.
8. Costa F, Ockelford A, Hargreaves DJ. The effect of regular listening to preferred music on pain, depression and anxiety in older care home residents. *Psychol Music*. 2018;46(2):174–191.
9. Song M, Li N, Zhang X, Shang Y, Yan L, Chu J, et al. Music for reducing the anxiety and pain of patients undergoing a biopsy: a meta-analysis. *J Adv Nurs*. 2018;74:1016–1029.
10. Karakul A, Bolışık ZB. The effect of music listened to during the recovery period after day surgery on the anxiety state and vital signs of children and adolescents. *J Pediatr Res*. 2018;5(2):82–87.
11. Bradt J, Dileo C, Shim M, Bradt J, Dileo C, Shim M. Music interventions for preoperative anxiety (review) music interventions for preoperative anxiety. *Cochrane Database Syst Rev*. 2013;6(6):1–83. https://doi.org/10.1002/14651858.CD006908.pub2.
12. Belland L, Rivera-reyes L, Hwang U. Using music to reduce anxiety among older adults in the emergency department : a randomized pilot study. *J Integr Med*. 2017;15(6):450–455.
13. Najafi Ghezeljeh T, Mohades Ardebili F, Rafii F. The effects of massage and music on pain, anxiety and relaxation in burn patients: randomized controlled clinical trial. *Burns*. 2017;43(5):1034–1043.
14. Warth M, Keßler J, Hillecke TK, Bardenheuer HJ. Music therapy in palliative care: a randomized controlled trial to evaluate effects on relaxation. *Dtsch Arztebl Int*. 2015;112(46):788–794.
15. A randomized controlled trial to evaluate effects on relaxation. *Dtsch Arztebl Int*. 2015;112(46):788–794.
16. Kühlmann AYR, de Rooij A, Kroese LF, van Dijk M, Hunink MGM, Jeekel J. Meta-analysis evaluating music interventions for anxiety and pain in surgery. *Br J Surg*. 2018;105:773–783.
17. Khan M, Ajmal A. Effect of classical and pop music on mood and performance. *Int J Sci Res Publ*. 2017;7(12):905–911.
18. Uğraş GA, Yıldırım G, Yüksel S, Öztürkçü Y, Kuzdere M, Öztekin SD. The effect of different types of music on patients' preoperative anxiety: a randomized controlled trial. *Complement Ther Clin Pract*. 2018;31:158–163.
19. Packiam VT, Nottingham CU, Cohen AJ, Eggener SE, Gerber GS. No effect of music on anxiety and pain during transrectal prostate biopsies: a randomized trial. *Urology*. 2018;117:31–35.
20. Ergin E, Sagkal Midilli T, Baysal E. The effect of music on dyspnea severity, anxiety, and hemodynamic parameters in patients with dyspnea. *J Hosp Palliat Nurs*. 2018:81–87.
21. Smith JC. *Advances in ABC relaxation: applications and Inventories*. New York: Springer Publishing Company; 2001. Springer Publishing Company.
22. Smith JC. *Smith relaxation states inventory 3 (SRSI3)*. Raleigh, NC: Lulupress; 2010.
23. Spielberger CD, Gorsuch RL, Lushene RE, Vagg PR, Jacobs GA. *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consult Psychol Press; 1983.
24. Berman A, Snyder S, Frandsen G. *Kozier & Erb's fundamentals of nursing: concepts, process, and practice*. Tenth edition Boston: Pearson; 2016.
25. Johnson DL, Papadopoulos P, Watfa N, Takala J, Goelzer B, Hansen C, et al. Exposure criteria, occupational exposure levels. In: Goelzer B, Hansen CH, Sehrndt GA, eds. *Occupational exposure to noise: evaluation, prevention and Control*. Dortmund/Berlin: World Health Organization; 2001:79–102.
26. Najafi Ghezeljeh T, Mohades Ardebili F, Rafii F. The effects of massage and music on pain, anxiety and relaxation in burn patients: randomized controlled clinical trial. *Burns*. 2017. https://doi.org/10.1016/j.burns.2017.01.011%0D. Available from.
27. Harada T, Ishizaki F, Ito S, Aoi S, Miyaguchi M, Ikeda H, et al. Study of objective evaluation of effect of psychological relaxation using classic music. *Int Med J*. 2017;24(1):31–33.
28. Gäbel C, Natalia G, Koenig J, Thomas KH, Warth M. Effects of monochord music on heart rate variability and self-reports of relaxation in healthy adults. *Complement Med Res*. 2017;24:1–7.
29. Ergin E, Sagkal Midilli T, Baysal E. The effect of music on dyspnea severity, anxiety, and hemodynamic parameters in patients with dyspnea. *J Hosp Palliat Nurs*. 2018;20(1):81–87.
30. Burns JL, Labbé E, Arke B, Capeless K, Cooksey B, Steadman A, et al. The effects of different types of music on perceived and physiological measures of stress. *J Music Ther*. 2002:101–116.
31. Labbe E, Schmidt N, Babin J, Pharr M. Coping with stress: the effectiveness of different types of music. *Appl Psychophysiol Biofeedback*. 2007;32:163–168.