


The Effectiveness of Music Interventions in Exam Anxiety Reduction among University Students -Systematic Review



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Specific Boolean Strings for each Database

[MeSh]

Exam Anxiety

(Anxiety, Test) OR (Exam Anxiety) OR (Anxiety, Exam) OR (Exam Stress) OR (Stress, Exam) OR (Pre-Exam Anxiety) OR (Anxiety, Pre-Exam) OR (Pre Exam Anxiety)

University Students

(Student) OR (School Enrollment) OR (Enrollment, School) OR (Enrollments, School) OR (School Enrollments)

Music Therapy

(Therapy, Music)

PubMed

("Music Therapy"[Mesh] OR "Music"[tiab] OR "Music Therapy"[tiab] OR "music intervention"[tiab]) AND ("Test Anxiety"[Mesh] OR "Exam Anxiety"[tiab] OR "Examination Anxiety"[tiab] OR "test anxiety"[tiab] OR "exam anxiety"[tiab] OR "examination anxiety"[tiab]) AND ("Students"

[Mesh] OR "Students, College"[Mesh] OR "Students, Undergraduate"[Mesh] OR "university students"[tiab] OR "college students"[tiab] OR "undergraduate students"[tiab] OR "students"[tiab])

Cochrane Library

(mh "Music Therapy") AND (mh "Anxiety" OR mh "Stress, Psychological") AND (mh "Students, College" OR mh "Students, Undergraduate" OR "university students" OR "college students")

Wiley Online Library

"Music therapy" AND ("music intervention" OR "Music") AND ("exam anxiety" OR "test anxiety" OR "examination anxiety") AND ("university students" OR "college students" OR "undergraduate students")

ScienceDirect

("Music therapy" OR "music intervention" OR "Music") AND ("exam anxiety" OR "test anxiety" OR "examination anxiety") AND ("university students" OR "college students" OR "undergraduate students")

PRISMA 2009 Checklist

| Section/topic | # | Checklist Item | Reported on Page # |
|---------------------------|---|---|--------------------|
| TITLE | | | - |
| Title | 1 | The Effectiveness of Music Therapy Interventions in Exam Anxiety Reduction among University Students -Systematic Review | 1 |
| ABSTRACT | | | - |
| Structured summary | 2 | <p>Abstract</p> <p>Background Exam anxiety represents a widespread concern among university students worldwide, frequently resulting in impaired academic achievement and decreased self-confidence. This review evaluates the impact of music interventions on reducing exam anxiety among university students.</p> <p>Objective The objective of this review is to synthesize evidence regarding the effectiveness of music interventions in reducing exam anxiety among university students.</p> <p>Methods Following the PRISMA guidelines, this review incorporated experimental studies published in English between January 2019 and January 2024, identified through systematic searches of four databases: PubMed, Cochrane Library, ScienceDirect, and Wiley Online Library. Studies meeting the predetermined inclusion criteria underwent methodological quality assessment using the Joanna Briggs Institute (JBI) checklists for randomized controlled trials and quasi-experimental studies.</p> <p>Results Ten studies that directly examined the use of music interventions, either alone or in combination with other treatments, to reduce test anxiety were included in this review out of the initial pool of 453 retrieved articles. Statistically significant mean decreases ($p < 0.05$ in pre- and post-tests) in various anxiety assessment tools, such as the STAI, IEF, VSAF, and EAS scales, as well as physiological vital signs, showed that music interventions significantly reduced exam anxiety in nine of these ten studies.</p> <p>Conclusion In summary, our results suggest that a 15-minute exposure to instrumental classical music before an exam can significantly reduce self-reported anxiety levels, indicating that universities could explore pre-exam music listening stations as a low-cost, accessible intervention. It advises instructors to incorporate short "calm-down" music portions before tasks, advocate for anxiety-reducing playlists, and instruct on self-regulation techniques. School counselors can use these findings to develop anxiety workshops, and policymakers may allocate resources for music-based mental health initiatives.</p> | 1 |
| INTRODUCTION | | | - |
| Rationale | 3 | <p>Despite the known prevalence and impact of test anxiety on university students, a clear and current understanding of music therapy's effectiveness in this specific context is lacking. Existing research on music therapy for anxiety often covers broad populations or anxiety types, making it difficult to pinpoint its specific benefits for test anxiety in higher education.</p> <p>This systematic review aims to fill this gap by rigorously synthesizing recent evidence (January 2019 - January 2024). By doing so, it will provide a definitive overview of music therapy's role, identify effective approaches, highlight future research needs, and offer evidence-based guidance for managing test anxiety in university settings.</p> | 2 |
| Objectives | 4 | <p>Given the limited systematic evidence available on the effects of music interventions for exam anxiety, particularly regarding doses and types. This review aimed to evaluate the impact of music interventions on reducing exam anxiety among university students. Specifically, to answer the question, how effective is music intervention in reducing exam anxiety in university students? This question was formulated using the PICO framework to address the identified gap in the existing literature.</p> <p>The PICO framework for the systematic review investigating the effectiveness of music interventions, both alone and in combination with other therapies, for reducing exam anxiety in university students. The population of interest is clearly defined as university students experiencing anxiety specifically related to their examinations. Music can be used alone or in combination with other therapeutic modalities as part of the intervention. Ultimately, the outcome of interest is the reduction in anxiety levels associated with exams, as measured by relevant scales or physiological indicators. This structured approach facilitates a targeted and thorough analysis of the existing research.</p> | 3 |
| METHODS | | | - |
| Protocol and registration | 5 | A review protocol was not formally registered for this systematic review. | - |
| Eligibility criteria | 6 | <p>Selection Criteria The search process focused on interventional studies in university students that reduced exam anxiety through music interventions. To focus on recent research, the search included English-language publications from January 2019 to January 2024. Additionally, observational studies, articles published in a non-English language, and postgraduate university students as well as school students were excluded.</p> | 5 |
| Information sources | 7 | A systematic literature search was conducted using the following keywords to find articles published from January 2019 to January 2024 in the following databases. PubMed, ScienceDirect, Cochrane Library, and Wiley Online Library. | 4 |
| Search | 8 | The KEY ("test anxiety" OR "exam anxiety") AND ("university students" OR "college students") AND ("music therapy" OR "music intervention"). In addition to Medical Subject Headings [MeSH] terms. Two reviewers independently reviewed the titles and abstracts of the articles as well as the full-text studies | - |

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| Study selection | 9 | The initial search across the four databases yielded 453 studies. Of these, 335 were excluded: 105 due to being duplicate records and 230 for other reasons, such as incomplete full-text articles, publication before 2019, or being in a language other than English. Following the screening of 118 studies, a further 108 were excluded for reasons including being systematic reviews, publication in unrelated fields, not employing RCT or quasi-experimental designs, not focusing on test anxiety, and lacking music interventions. The management of downloaded citations from the databases was facilitated by Zotero, which enabled the identification and removal of duplicate records. Ultimately, ten studies met the inclusion criteria and were included in this review | 12 |
| Data collection process | 10 | Data were extracted by two independent reviewers using a pre-piloted, standardized form. The form captured study, participant, intervention, comparison, and outcome details. Any discrepancies between reviewers were resolved through discussion or by consulting a third reviewer. Corresponding authors were contacted via email for clarification or missing data when necessary. | 7 |
| Data items | 11 | the data items extracted from each study (The key information retrieved encompassed the authors, study design, participants' major, age, sample size, instruments used, types of interventions implemented, and the outcome of each study, the publication years and countries) | 5 |
| Risk of bias in individual studies | 12 | Studies meeting the inclusion criteria underwent methodological quality assessment using the Joanna Briggs Institute (JBI) checklists for randomized controlled trials and quasi-experimental studies [26]. To ensure a thorough evaluation, two independent reviewers, IA and NM, appraised the studies, with any discrepancies resolved through consensus or the involvement of a third reviewer. | 6 |
| Summary measures | 13 | The principal summary measures selected based on the type of data available from the included studies, with a primary focus on pre- and post-test designs: For continuous outcomes (e.g., scores on test anxiety scales like TAI or STAI-S, physiological measures), the Mean Difference (MD) or Standardized Mean Difference (SMD) / Hedges' g of change scores (post-test minus pre-test) will be used to quantify the effect of the intervention. | 7 |
| Synthesis of results | 14 | Given that a meta-analysis was not performed, the results of the included studies were combined through a narrative synthesis approach. This method involves a descriptive and thematic summary of findings, providing a comprehensive overview of the evidence base. | 7 |
| Risk of bias across studies | 15 | Any observed biases were discussed narratively, highlighting their potential impact on the overall confidence in the review's findings and informing conclusions regarding the completeness and trustworthiness of the evidence base. | 10 |
| Additional analyses | 16 | Since no meta-analysis was done, the "additional analyses" will involve planned qualitative investigations within the narrative synthesis, instead of statistical tests like meta-regression or quantitative subgroup/sensitivity analyses that depend on combined data. | 11 |
| RESULTS | | | - |
| Study selection | 17 | The initial search across the four databases yielded 453 studies. Of these, 335 were excluded: 105 due to being duplicate records and 230 for other reasons, such as incomplete full-text articles, publication before 2019, or being in a language other than English. Following the screening of 118 studies, a further 108 were excluded for reasons including being systematic reviews, publication in unrelated fields, not employing RCT or quasi-experimental designs, not focusing on test anxiety, and lacking music interventions. The management of downloaded citations from the databases was facilitated by Zotero, which enabled the identification and removal of duplicate records. Ultimately, ten studies met the inclusion criteria and were included in this review. | 12 |
| Study characteristics | 18 | Table (4) Summary of the included papers. Figure 2: A demographic distribution graph showing the publication years and countries of origin for the included studies. | 12 |
| Risk of bias within studies | 19 | Studies meeting the inclusion criteria underwent methodological quality assessment using the Joanna Briggs Institute (JBI) checklists for randomized controlled trials and quasi-experimental studies [26]. To ensure a thorough evaluation, two independent reviewers, IA and NM, appraised the studies, with any discrepancies resolved through consensus or the involvement of a third reviewer. | 13 |
| Results of individual studies | 20 | Outcomes were presented for each study individually, as no meta-analysis was performed. This includes simple summary data, effect estimates, and confidence intervals for quantitative benefits, and a narrative summary for qualitative benefit and any reported harms. | 13 |
| Synthesis of results | 21 | No meta-analyses was conducted. | 13 |
| Risk of bias across studies | 22 | Any observed biases were discussed narratively, highlighting their potential impact on the overall confidence in the review's findings and informing conclusions regarding the completeness and trustworthiness of the evidence base. | 14 |
| Additional analysis | 23 | Since no meta-analysis was done, the "additional analyses" will involve planned qualitative investigations within the narrative synthesis, instead of statistical tests like meta-regression or quantitative subgroup/sensitivity analyses that depend on combined data. | - |
| DISCUSSION | | | - |
| Summary of evidence | 24 | In summary, our results suggest that a 15-minute exposure to instrumental classical music before an exam can significantly reduce self-reported anxiety levels, indicating that universities could explore pre-exam music listening stations as a low-cost, accessible intervention. It advises instructors to incorporate short "calm-down" music portions before tasks, advocate for anxiety-reducing playlists, and instruct on self-regulation techniques. School counselors can use these findings to develop anxiety workshops, and policymakers may allocate resources for music-based mental health initiatives. | 8 |
| Limitations | 25 | This review examines the impact of music interventions on exam anxiety in university students, offering potential strategies for administrators, students, mental health professionals, and parents. However, limitations include limited English-published studies, heterogeneity in outcome assessment tools, and potential bias in double-blind methodology. | 18 |

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| Conclusions | 26 | Future research on music interventions should consider diverse student populations, cultural backgrounds, academic disciplines, and initial anxiety. Longitudinal studies with follow-up assessments are crucial for long-term sustainability. Large-scale randomized controlled trials and follow-up evaluations will provide a more robust evidence base. | 18 |
| FUNDING | | | - |
| Funding | 27 | None | 18 |

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