The Impact of Music on Students' Perceived Academic Stress

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ABSTRACT

This study aims to explore the impact of music on the perception of academic stress among students at Ho Chi Minh City University of Education. A mixed-methods approach using a one-group pretest-posttest design was conducted with 20 psychology students selected via convenience sampling. In the quantitative phase, participants engaged in two primary activities: music listening and music performance; after each activity, students self-assessed their level of academic stress using the Subjective Units of Distress Scale - SUDs (TheraHive, 2024). Data were analyzed using paired-samples t-tests to determine changes in stress levels before and after the interventions. Concurrently, qualitative data were collected through semi-structured interviews and analyzed using thematic analysis to further elucidate the participants' subjective experiences. Quantitative results indicated that music listening significantly reduced perceived academic stress ($p<0.05$, $d= 0.513$). Qualitative findings indicated that both music listening and performance provided a sense of relaxation; however, the level of impact varied among individuals. Overall, the study suggests that music, particularly music listening, can be an effective method for reducing academic stress among students, and highlights the potential application of music-based interventions to support mental health in higher education contexts.

Keywords: music, academic stress, perceived stress, mental health, university students, Subjective Units of Distress Scale, SUDs.

INTRODUCTION

In the current context of higher education, students constantly face numerous academic demands such as group assignments, individual projects, exams, and pressure over grades. These factors lead to academic stress, a common psychological phenomenon among students. The results of a study conducted at Can Tho University surveying 400 education majors showed that a significant number of students experience high levels of academic stress (Nguyen Thi Bich Phuong et al., 2023). Academic stress is defined as the body's response to academic demands that exceed students' adaptive capabilities (Alsulami et al., 2018). Academic stress not only negatively affects mental health but also causes academic procrastination in students (Nguyen Thi Truong Han et al., 2021). Additionally, it leads to students being unwilling to attend class and performing poorly on tests (Selvi & Rajaprabha, 2020).

A very common method to reduce academic stress is the use of music. Previously, many international studies have shown that music has a positive effect on reducing students' academic stress levels. If listeners have a desire to improve their mood when listening to music, they will perform better academically (Ferguson & Sheldon, 2012); that is, they listen to music intentionally, indicating they choose music as a solution to relieve their mood. When feeling comfortable and positive, students can study more effectively (Tan et al., 2021). However, in Vietnam, there have not been many studies on the impact of music on stress in general and academic stress in particular. Although many studies have pointed out students' difficulties when facing academic stress, the solutions still revolve around time management, study planning, or seeking help from psychologists. To our knowledge, there is a scarcity of research in Vietnam on the impact of music on reducing academic stress levels among students.

This study focuses on initially exploring and assessing the impact of music on students' academic stress levels. Due to the exploratory nature of this research aimed at investigating feasibility and shaping an intervention model, the study was conducted on a small, preliminary experimental sample (N=20, 5 males and 15 females). The research applied a convenience sampling method with participants being students from the Department of Psychology. Selecting this group not only ensured feasibility in access but also took advantage of psychology students' sensitivity and deep cognitive ability regarding their own emotional states and behavioral responses.

METHODOLOGY

Research design

This study employed a one-group pretest–posttest design, combining quantitative and qualitative methods to evaluate changes in students' academic stress levels following participation in a music-based intervention. In the quantitative approach, participants were required to listen to music and perform music, after which they self-assessed their level of academic stress following each experimental session using the Subjective Units of Distress Scale - SUDs (TheraHive, 2024). The collected data were processed and analyzed using SPSS software to determine the level of change in stress before and after the intervention.

After the experiment, the study employed a qualitative method through individual interviews to further explore the subjective experiences and perceptions of participants during the process of listening to and performing music.

Participants

The participants in this study were students from the Faculty of Psychology at Ho Chi Minh City University of Education. A total of 20 students (5 males and 15 females) were selected to participate in the study through a convenience sampling method.

The convenience sampling method enabled the research team to quickly access suitable participants. All participants were full-time students of the Faculty of Psychology at the time of the study.

Instrument

This study used the Subjective Units of Distress Scale (SUDs) to measure participants' stress levels during the experimental process. This scale was developed by Joseph Wolpe (1969) to assess the intensity of stress or anxiety at a specific moment through individuals' self-report.

In this study, the SUDs (TheraHive, 2024) was used as a single-item measure, requiring participants to self-assess their level of academic stress on a scale from 0 to 10, where 0 indicates a completely calm state and 10 indicates extreme stress, feeling as if it is unbearable. Participants were asked to focus on their current feelings after each music listening session to provide an appropriate rating.

The reliability of the scale in this study was examined using Cronbach's alpha SPSS software. The results showed that Cronbach's alpha reached 0.940. Therefore, the scale demonstrated very high reliability and was suitable for use in data analysis.

One-group pretest-posttest design

Pilot Experiment

The pilot experiment was conducted in three phases. In Phase 1, participants were informed about the purpose, content, and procedures of the study. At the same time, the Perceived Stress Scale-10 (PSS-10) was administered to assess participants' stress levels over the past month (Cohen & Williamson, 1988; Roberti et al., 2006).

In Phase 2, the experimental procedure was implemented. In the first session, each participant (n = 4) listened to a different instrumental music excerpt prepared by the research team, with a duration of 10 minutes per participant. These musical excerpts were characterized by clear rhythmic structures, including 2/4 and 4/4 time

signatures, with tempos ranging from moderate to fast, providing variation in musical experience. This was followed by a 15-minute rest period. In the second session, participants engaged in music performance activities (such as singing, swaying, tapping hands and feet, or dancing) based on the previously presented music.

After conducting the pilot experiment, several limitations in the implementation plan were identified. Based on these observations, adjustments and refinements were made to ensure the suitability and effectiveness of the main experiment.

Main Experiment

The music intervention consisted of two main phases and utilized three instrumental music excerpts with varying rhythmic and acoustic characteristics. The total duration of the intervention was 11 minutes and 18 seconds.

In terms of type, all music pieces were instrumental, including (1) a soft piano melody with a slow tempo, (2) a piano piece combined with light percussion elements in a moderate jazz-like rhythm, and (3) a more dynamic composition featuring percussion and electronic sounds with a faster tempo. The tempo of the music progressed from slow to moderate and then to fast, creating a gradual increase in arousal. The volume was maintained at a consistent, moderate level throughout the intervention to ensure comfort and avoid auditory overstimulation.

The procedure included two phases. In Phase 1 (music listening), participants were instructed to remain physically still and attentively listen to the music. In Phase 2 (music performance), participants engaged in activities synchronized with the same musical excerpts, incorporating body movements that corresponded to the rhythm and tempo of the music. This progression was designed to transition participants from passive listening to active engagement with the music.

Interview Method

A total of 20 participants who took part in the experiment were interviewed. The interviews were conducted after participants had completed the experimental process and were carried out using a semi-structured format.

Data analysis

SPSS software was used to determine the significant differences in stress levels before and after music listening and performance activities. Qualitative data from the interviews were analyzed to further clarify the effects of music on participants' stress levels.

Qualitative data obtained from the semi-structured interviews were transcribed verbatim and subjected to thematic analysis. To ensure methodological integrity, the analytic process involved familiarization with the data, generating initial codes line-by-line, and subsequently grouping these codes into broader, overarching themes. This systematic procedure allowed for a rigorous exploration of the participants' experiences with music interventions.

RESULTS

Results on changes in students' academic stress levels before and after the experiment based on the subjective units of distress scale (SUDs)

Table 1 *Descriptive Statistics and t-Test Results for Academic Stress Levels Before and After Intervention (N = 20)*

Activity	Before Intervention	After Intervention	*t*(df)	*p*	Cohen's *d*
	M (*SD*)	*M* (*SD*)			
Music Listening	5.65 (1.755)	5.00 (1.919)	2.292(19)	.033*	0.513
Music Performance	4.65 (1.755)	4.00 (2.340)	2.041(19)	.055	0.456

(Note): M = Mean, SD = Standard Deviation. $p < .05$.

Table 1 shows the differences in students' perceived academic stress levels before and after the intervention.

The findings revealed a reduction in perceived academic stress following music listening, with the mean score decreasing from 5.65 (SD = 1.755) to 5.00 (SD = 1.919). A paired-samples *t*-test indicated that this reduction was statistically significant, $t(19) = 2.292$, $p = .033$, $d = 0.513$, suggesting a moderate effect of music listening on reducing students' perceived academic stress.

In the music performance condition, the mean stress score also decreased, from 4.65 (SD = 1.755) to 4.00 (SD = 2.340). However, the difference did not reach statistical significance, $t(19) = 2.041$, $p = .055$, $d = 0.456$. Therefore, no statistically significant evidence was found to support the effectiveness of music performance in reducing perceived academic stress among students, although the effect size suggested a small-to-moderate practical impact.

Results of interview data analysis from 20 participants

Main Themes	**Sub-Themes**		***n***	**Illustrative Quotes / Descriptions**
1. Manifestations of Academic Stress	Psychological symptoms	-Emotional instability	10	- My emotions often fluctuate unpredictably. - Near exams, I get more stressed, very hot-tempered, and easily irritated.
		- Avoidance of academic problems	1	- I don't want to go to school, I don't want to do assignments, or interact with anyone in the academic environment.
		- Rumination	4	- I have symptoms like overthinking, anxiety, loss of appetite, and insomnia.
	Physiological symptoms	- Physical fatigue	3	- When stressed, I feel headaches, chest tightness, and fatigue.
		-Rapid heartbeat	2	- When stressed, I feel my heart beats fast and flutters.
		- Rapid speech	1	- I get anxious and stressed easily. I speak fast, and my heart races when I have too much homework.
		- Other physiological changes	1	- I have more acne, and my hair has developed more new wiry, which I didn't have before.
2. Experiences during Music Listening	Listening behavior	- Sitting quietly	20	
	Perceived indicators of effect	- Feeling at ease	18	- I just relax and accept it. - Once I recognized the first song, I felt more comfortable and engaged. The second didn't impress me, but the third was more lively and made me feel slightly happier.
		- Distraction from stress	8	- At first, the music felt nice and suitable. Then it got stronger and more intense. Toward the end, it didn't feel quite right and I was a bit surprised. - The first songs were too soft, so I didn't focus much. The last one was more upbeat, so I paid

				more attention.
3. Experiences during Music Performance	Performance behavior	- Leg movements	13	- I just tap my feet and sing 'la la'.
		- Hand motions	11	- I sang, tapped my hands, moved my arms, and walked around. In general, I combined hand movements, foot movements, and humming. - I usually tap my hands. When it's piano, I tap along like playing notes. For the drum parts, I gesture like I'm drumming and sway my hands.
		- Whole-body swaying	6	- I sway to the music.
		- Head swaying	4	- I tap my feet more, and my head sways to the beat.
		- Verbal performance (Singing)	3	- I tap the table to the beat, like I'm accompanying the music—with words and vocal sounds.
	Perceived indicators of effect	- Feeling at ease	17	- During the performance, I feel very comfortable. - After performing, I felt better than after just listening. It relieved more stress, and I felt much more comfortable.
		- Distraction from stress	3	- I don't see much difference when listening because gestures don't really matter.
4. Preferred Modality for Stress Reduction	Music Performance only		9	- I prefer performing—it releases my energy and makes my body feel more comfortable than sitting still. - Performing makes me feel more comfortable, not just sitting and listening. Moving releases hormones that make me feel much better than just listening.
	Music Listening only		7	- Singing helps me escape. Just listening makes me overthink. Singing makes me focus on lyrics, which distracts me and reduces stress. - I prefer listening to music because when it comes to performing, I sometimes don't know what to do since I don't really like performing.
	Both Listening & Performance		4	- I like both listening and performing, but I think combining them is more effective than using just one.

n = participants who reported this

Table 2. Coding table of interview results from 20 participants on the impact of music on perceived academic stress

Table 2 shows the participants' perception of their academic stress and how they recognize their own academic stress through physiological and psychological manifestations. Most participants perceived their own academic

stress. Some participants exhibited academic stress through either psychological or physiological characteristics, while others showed it through both. Regarding psychological manifestations, academic stress caused participants to gradually avoid academic problems, expressed through reluctance to go to school or do assignments. In addition, some participants showed signs of negative rumination, while another group recognized their academic stress through emotional instability: fluctuating emotions, anxiety, irritability, and confusion. This indicates that most participants experienced rather negative effects from academic stress, impacting their daily lives and studies. Regarding the physiological aspect, it was clearly observed through participants' reports of manifestations such as rapid speech, rapid heartbeat, physical fatigue, and bodily changes. This shows that the impact of stress is not limited to emotions or cognition but also directly affects students' physical state.

Although the music listening process of the participants during the experiment was similar, their perceived academic stress at that time showed certain differences. Throughout the experiment, all participants chose to sit quietly and listen to music. Interview results showed that the effect of music listening on academic stress varied between individuals. The change in stress levels was recognized by participants through changes in their psychological state and ability to concentrate. Two main indicators were feeling comfortable and distraction. Notably, some participants felt comfortable while listening to music, but after that feeling subsided, stress returned or even increased, which explains the apparent contradiction between psychological state and perceived stress.

Compared to the music listening process, the music performance process showed inter-individual differences because each participant chose different forms of performance. Some chose verbal performance, citing personal preference as the reason. Participants who performed through physical expression also chose different forms: hand movements such as tapping, gesturing as if playing an instrument, pen-spinning; foot movements such as tapping feet or walking around the room; head swaying or even full-body swaying during the performance. In one case, a participant had to listen to the same piece of music again, felt drowsy, leaned back in the chair, closed their eyes, and did not perform. Similar to the results of listening, music performance also recorded two main indicators through which participants recognized changes in stress levels: feeling comfortable and distraction.

Regarding the choice between listening and performing, participants who chose music listening found it effective in reducing academic stress because they believed listening brings more comfort, as performing is sometimes quite difficult for those who do not know how to perform; they felt confused when asked to "perform" while listening to music. As for the group of participants who chose music performance as effective in reducing academic stress, they believed that performing helps release hormones in their body, helping them relieve stress and feel more comfortable than simply listening to music alone. Finally, participants who chose both music listening and performance as effective in reducing academic stress felt that both forms made them feel comfortable and reduced stress, although one of the two forms would be slightly more effective for them.

Overall, the results after both listening and performing indicate that following participation in musical activities, most participants reported improvements in their psychological state, expressed through feelings of comfort, relaxation, and reduced stress compared to before the activities. At the same time, quantitative findings also showed a decrease in participants' academic stress levels after listening to music. These results suggest that musical activities had positive effects on students' academic stress, contributing to stress reduction after the process of listening and performing. This result can be explained by the psychophysiological stress regulation mechanism of music proposed by Thoma et al. (2013), according to which music can influence the autonomic nervous system, contributing to the reduction of physiological stress responses and promoting a state of relaxation. This may lead to improvements in the subjective perception of stress levels after exposure to music.

DISCUSSION

The findings indicate that both music-based interventions, namely music listening and music performance, contributed to reducing students’ perceived academic stress. However, the effectiveness of these two approaches was not entirely equivalent. Quantitative results showed that the mean stress score in the music-listening group decreased from 5.65 to 5.00, and this difference was statistically significant ($p = 0.033 < 0.05$). In contrast, the mean stress score in the music-performance group decreased from 4.65 to 4.00, but the difference did not reach

statistical significance ($p = 0.055 > 0.05$). These findings suggest that music listening had a more evident effect on reducing students' perceived academic stress.

The present findings are consistent with previous studies highlighting the role of music in stress reduction. Nurzahirah, Septariani, Febryani, Pratama, and Agustini (2023) reported that music helps individuals regain a sense of calmness and improve their emotional state. Similarly, Bharadwaj (2017) found that music therapy was effective in reducing stress and anxiety among university students. Studies conducted by Fiore (2018) and Awaluddin et al. (2024) also demonstrated that music serves as an effective means of alleviating stress, anxiety, and burnout among students.

Regarding music performance activities, although the music-performance group showed a tendency toward lower stress levels following the intervention, the observed change was not statistically significant. This result suggests that the impact of music performance on perceived academic stress remains inconclusive within the scope of the present study. Nevertheless, qualitative findings revealed that most participants reported positive experiences, including feeling more relaxed and experiencing reduced stress after participating in performance activities. Many participants stated that singing, performing hand movements, and engaging in musical performances helped them release emotions, feel more comfortable, and temporarily distract themselves from academic pressures. These observations suggest that music performance may exert its influence not only through auditory stimulation but also through physical movement, social interaction, and opportunities for emotional expression. This finding is consistent with the study by Nwokenna, Sewagegn, and Ayodeji (2022), which indicated that music-based interventions may enhance students' emotional regulation skills when they engage in music performance activities. However, further studies with larger sample sizes and longer intervention periods are needed to clarify the extent to which music performance influences perceived academic stress.

Another noteworthy finding is that not all students responded to music in the same way. Some participants reported that music had little impact on their perceived stress levels or even caused distraction during study-related activities. This observation is partly consistent with the findings of Moreno and Woodruff (2023), who suggested that musical characteristics, such as tempo, may affect listeners' emotional states and academic performance in different ways.

Taken together, the quantitative and qualitative findings suggest that music is a valuable supportive tool for reducing perceived academic stress among university students. Music listening demonstrated a clearer and more consistent effect, whereas music performance provided numerous positive emotional experiences, although its effectiveness appeared to depend on individual characteristics and participants' willingness to engage in the activity. The findings not only reinforce existing evidence regarding the beneficial role of music in psychological well-being but also contribute additional empirical data from the context of Vietnamese university students. Furthermore, they highlight the potential application of music-based activities as a supportive mental health intervention within higher education settings.

Limitations

This study still has several limitations. First, the sample size was relatively small ($N = 20$), including 5 male and 15 female participants, and the use of convenience sampling does not ensure high representativeness. Therefore, the findings should be interpreted with caution, as they only provide preliminary evidence and cannot be generalized to a broader population. Future studies with larger sample sizes and random sampling methods are needed to validate these results. Second, the use of a self-report measure (SUDs) may be influenced by participants' subjective factors. Third, the short intervention duration and the lack of long-term follow-up mean that the sustained effects of music on stress levels cannot be evaluated. Finally, individual factors such as music preferences and initial emotional states were not strictly controlled, which may have affected the research results.

In the future, studies should increase the sample size and diversify participants to enhance generalizability. At the same time, it is necessary to extend the intervention duration and conduct long-term follow-up to evaluate the sustained effects of music.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the findings indicate that music may serve as an effective supportive strategy for reducing perceived academic stress among university students. Music listening demonstrated a statistically significant reduction in stress levels and was generally associated with positive emotional experiences. Although music performance did not yield statistically significant results, participants nevertheless reported various emotional benefits from the activity. The effectiveness of music appears to vary across individuals, highlighting the importance of considering personal preferences and characteristics when implementing music-based interventions. These findings support the potential use of music as a practical mental health resource for students within higher education settings.

Based on the findings of this study, students are encouraged to view music as a valuable resource for emotional regulation and the reduction of academic stress by actively selecting music genres that align with their personal preferences and incorporating music listening into relaxation activities to enhance its stress-relieving benefits. In addition, participation in music performance or other simple music-related activities may contribute to positive experiences and support mental well-being. Educational institutions should also recognize the potential role of music in promoting students' mental health by organizing diverse music-based activities, fostering a supportive and student-friendly learning environment, and integrating music-related elements into counseling and psychological support programs. Such efforts may contribute to improving students' psychological well-being and strengthening their ability to cope with academic pressures.

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