Full research paper

STUDENTS' ATTITUDES TOWARD THE ANNUAL INSTRUMENTAL EXAM IN CROATIAN ELEMENTARY MUSIC SCHOOLS

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ABSTRACT

At the end of the school year, the music schools organize the annual instrumental exam to evaluate the student's achievements. The study investigates complex patterns of performance anxiety in music school students during annual exams, focusing on how gender, age, instrument type, and family musical tradition interact, revealing inconsistencies with prior research and illustrating the importance of tailored pedagogical interventions. The study was conducted on a sample of 143 third- to sixth-grade students, using a 14-item Likert-scale questionnaire. Results show high levels of pre-exam stress, especially among girls and piano students, while younger students reported more positive emotions before the exam and older students were calmer afterward. Family music tradition had limited influence. These findings underscore the need to rethink evaluation approaches in music education with an emphasis on students' emotional well-being. Teachers and parents must create a supportive and positive environment before and during the exam, particularly for girls. The study also has practical implications: it emphasizes that there must be psychological preparation for exams, emotional intelligence development, and consideration of alternative assessment methods that reduce stress.

KEYWORDS

Annual instrumental exam, efficiency in educational policies, elementary music school, evaluation and assessment, students' attitudes

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Highlights

- *After the annual instrumental exam, the students feel relieved, happy, and calm.*
- *Girls experience headaches, tremors, nausea or stomach discomfort, faster heartbeat, and stress before the annual instrumental exam compared to boys.*
- *Instrumental teachers and parents should ensure a supportive and positive atmosphere before and during the annual instrumental exam.*
- *This research contributes to a more profound understanding of the psychological dimensions of music education and offers a foundation for developing sensitivity and efficiency in educational policies.*

INTRODUCTION

In addition to elementary general education, music schools in Croatia offer music studies (MSES, 2006). These teaching methods include individual and group lessons, where individual lessons focus on teaching a specific instrument, while group lessons focus on teaching group musicianship and music theory subjects. In individual instrument lessons, it is crucial for students to feel comfortable. Sabljar (2019) argues that the unique teacher-student dynamic in these lessons demands significant emotional investment, fostering an exceptionally close relationship between participants. Roden et al. (2021) point out that the lack of positive emotions or the appearance of negative emotions plays an important role in learning to play an instrument, i.e., negative emotions can lead to giving up playing the instrument and practicing music. Osborne et al. (2016) investigated the emotional qualities and social factors important for a student's decision to continue or stop playing an instrument. They discovered that several factors influence this decision: a) the musical repertoire the student practices; b) the presence of an instrument-playing family member or friend; c) the presence of positive support from family, teachers, and peers for practicing and playing the instrument;

d) the student's enjoyment of playing the instrument; and e) various self-regulation strategies that aid in the student's improvement.

Evaluation in Instrumental Teaching

The primary objective of music education in music schools in Croatia extends beyond mere grading to emphasize the learning process. Consequently, effective evaluation requires teachers to assess each student's progress in terms of their capabilities rather than through comparison with peers (MSE, 2017). The examination committee in music schools conducts evaluations at public and internal performances and annual exams, while the professional committees of music schools determine the methods and elements of evaluation (MSE, 2019). Such an arrangement means that teachers independently develop criteria for student evaluation. Matoš (2018), Brđanović (2017; 2012), and Rojko (2006) propose guidelines for refining the current curriculum according to which instrument teaching is carried out in Croatian music schools. Therefore, Matoš (2018) believes that it is necessary to create subject curricula based on learning outcomes and adopt criteria for evaluating students according to the defined outcomes. Brđanović (2017) also points out that evaluation criteria can be a source of errors when evaluating someone's playing and interpretation due to the dilemma of what the criterion is, i.e., due to the subjective experience seen and heard by each examination committee member. Therefore, the criteria for such an evaluation should, at least in the part where it is possible, be elaborated and agreed upon (Brđanović, 2012).

Brđanović (2017) also believes that evaluation criteria and rules should be specified in the curricula to reduce the stress of the evaluation process and that a more comprehensive evaluation method is needed to increase the metric and prognostic value of the evaluation. Namely, Brđanović (2017) points out that the numerical grading does not provide complete information regarding one's playing competences and that it needs to be supplemented with a descriptive grading, which, on a standardized sheet, would give a more detailed and objective insight into the musical peculiarities of the student. He also believes that the numerical evaluation does not lose its importance but that, as an element of grading, it remains an integral part of the evaluation. Matoš (2018) points out that the evaluation of students' achievements in music schools should be based on different evaluation methods, and the final grade should not be based only on the summative assessment by the committee after the exam. In music schools, a committee exam determines the final grade for all subjects, including playing an instrument, at the end of the school year. The committee consists of the subject teacher who worked with the student during the school year and other teachers of the same instrument. The final annual grade is the average of the subject teacher's grade for the student's performance during the year and the performance grade obtained from each member of the committee.

Rojko (2006) criticizes the overemphasis on a limited number of exam compositions, leading students to practice the exam program for several months while neglecting the other compositions. Nevertheless, annual instrumental exams in music schools are a reality for which teachers and students prepare throughout the year, and the exam concludes the one-year monitoring of students' work and progress (Brđanović, 2012). Brđanović (2017) highlights that evaluating not all students of the same instrument by the same committee can lead to insufficient reliability and objectivity. In addition, the exam grade gives very little information regarding the student's playing competence: it does not enable a valid forecast of his further development; it does not say anything regarding the way and speed of learning, precision, independence in work, or understanding of music. Therefore, the research results by Brđanović (2017) are not surprising, which indicated that almost two-thirds of the instrumental teachers surveyed, i.e., 59.41%, believe that the current way of evaluating playing is not sufficiently objective.

Grading depends on many factors, including the teacher, the student, and the testing and grading methods. Lavrnja (1998) points out that a teacher's style (whether easygoing or strict) and various biases, like the halo effect and different types of errors, can affect how they grade students. The student's verbal abilities, ability to observe the teacher's reactions, skillful use of perceived data, and emotional (in)stability impact the grade. The observation above indicates that emotions emerge during evaluation, serving as a supporting element in the learning process and its associated activities. Certain emotions, like fear, can hinder learning. On the other hand, pleasant emotions such as curiosity, enthusiasm, and joy contribute to the learning process and make it more successful (Tan et al., 2021; Bognar and Dubovicki, 2012). Given that the topic of this paper pertains to the annual instrumental exam, we will emphasize the crucial role emotions play in ensuring successful lessons.

Performance Anxiety – Causes, Patterns, and Pedagogical Implications

Emotions are certainly present during student evaluation and assessment, but they are also visible during public performances, i.e., concerts, which are an important part of music education. Public performances also represent a form of evaluation and assessment by the audience. Public performance can lead to positive or negative emotions in performers (Aydın and İşgörür, 2017). Music students experience a complex array of emotions – including hope, joy, anxiety, and excitement – before and during evaluations, with ambivalent states (intertwined positive and negative feelings) particularly prevalent immediately before performances (Kaleńska-Rodzaj, 2018). Given this emotional complexity, Wen (2022) points out the importance of instrumental teachers in fostering students' intrinsic motivation and positive affect. When students develop a genuine interest in their learning, their purpose shifts toward intellectual curiosity, fueling sustained motivation, enthusiasm, and perseverance. Performance self-confidence is vital, as musicians must project assurance and present their best selves to audiences. This aligns with Zdravić-Mihailović's (2021) emphasis on teacher-provided emotional support to mitigate performance anxiety. Students who perceive strong teacher support demonstrate greater onstage confidence, illustrating how positive teacher-student relationships function as a stress buffer during high-pressure evaluations.

The exam, like any public performance, is, to a certain extent, a stressful experience in which nervousness occurs due to the fear of failure (Brđanović, 2012). When students perform in front of a committee during final exams, they may display mental, physical, emotional, and reactive symptoms fueled by anxiety. This anxiety stems from the fear of making mistakes or the committee's disapproval of their performance. Fear can also occur during stage performances, although no real evaluation exists (Umuzdaş et al., 2019). Research specifically reveals that a third of participants experience anxiety during a public performance (Papageorgi, 2021). As a result, we can conclude that fear occurs not only during public performances, i.e., concerts but also during the annual instrumental exam. Research reveals complex, age-related patterns in music performance anxiety (MPA). Umuzdaş et al. (2019) found that first-year instrumental students had higher anxiety levels (45%), while Kılıç (2018) found that final-year students experienced the most anxiety (over 60%), indicating that different stages of education and development can lead to different levels of stress. A study (Patston & Osborne, 2016) shows that musical performance ability becomes stable after age 16 with regular practice while starting music lessons early (before age 7) helps lower stress by 25% (Zarza-Alzugaray et al., 2016). These contrasting findings highlight how institutional, developmental, and experiential factors interact to shape anxiety profiles.

Britsch's (2005) research revealed that up to 75% of adolescent students experience anxiety (trembling hands, dry mouth, and rapid heart rate) during public playing. Shoup (1995) found that anxiety due to public performance is present to a somewhat lesser extent, i.e., in 55% of high school instrument students. According to Fehm and Schmidt (2006), anxiety while playing at public performances is less prevalent, i.e., in a third of adolescents. Dempsey and Comeau (2019) compared the anxiety of children (aged 7 to 12) and adolescents (aged 13 to 17) during a musical performance. They determined that the level of anxiety increases with age, i.e., adolescents experience a significantly higher level of anxiety. Sokoli et al. (2022) found that anxiety increases until middle age and then decreases in late adulthood. Ryan (1998) found that, although public performance anxiety was present in all 12-year-old piano students, perceived nervousness and increased heart rate did not affect playing quality. Zarza-Alzugaray et al. (2016) found that starting music education at seven or earlier can protect music school students from public performance anxiety. Research conducted by Czajkowski et al. (2020) showed that an 8-week mindfulness program reduced anxiety by 35%.

Umuzdaş et al. (2019) conducted research among undergraduate instrument students and found that individuals with higher levels of anxiety in everyday life also experience greater anxiety during exams. Regarding gender, research (Umuzdaş et al., 2019; Baydağ and Alpagut, 2016; Topoğlu, 2014) found that female students have higher anxiety than male students. This gender disparity in performance anxiety aligns with large-scale evidence from Sokoli et al. (2022), whose study of 1.200 professional musicians revealed that 62% of female musicians experience frequent anxiety compared to 38% of male counterparts – a nearly 2:1 ratio that mirrors our findings in student populations. Research has shown that girls and adult women experience higher levels of anxiety during public music performances compared to boys and adult men (Sokoli et al., 2022; Patston and Osborne, 2016; Thomas and Nettelbeck, 2014; Papageorgi et al., 2013; Kenny and Osborne, 2006; Rae and McCambridge, 2004). However, research conducted by Küçük (2010), Kılıç (2018), and Yokuş et al. (2013) determined that there is no difference in anxiety regarding gender.

Umuzdaş et al. (2019) found that students who play string instruments experience higher levels of anxiety, regardless of the instrument they play. Iusca and Dafinoiu's (2012) research demonstrated that students who play string instruments experience higher levels of anxiety compared to those who play piano or wind instruments. However, Sokoli et al. (2022) found that instrumentalists who play wind instruments during public performances have significantly more problems, such as difficulty breathing, dry mouth, and dry throat, while piano players and those who play string instruments have problems with fine motor skills of the fingers. The same study found that violinists (58%) and flutists (55%) had the most symptoms, while pianists (48%) showed more problems with finger motor skills (60%).

Kaleńska-Rodzaj's (2018) study of adolescent violinists (aged 13-21) revealed the paradoxical coexistence of positive and negative pre-performance emotions. While 93% reported dominant sadness (with 80% experiencing associated depression and despondency), 78% simultaneously felt positive affect – including cheerfulness, optimism, and energetic arousal. Notably, over 50% endorsed stress-related emotions, illustrating the complex ambivalence of performance states. These findings prompted Kaleńska-Rodzaj (2020) to conceptualize music performance anxiety as a multidimensional phenomenon requiring (1) emotional intelligence training to navigate mixed states, (2) evidence-based regulation techniques (e.g., mindfulness, visualization), and (3) personalized interventions tailored to musicians' psychological profiles.

The aforementioned research motivated this study. The study investigates complex patterns of performance anxiety in music school students during annual exams, focusing on how gender, age, instrument type, and family musical tradition interact. It reveals inconsistencies with prior research and points out the importance of tailored pedagogical interventions.

Research Goal and Hypothesis

Based on the existing issues in evaluating students in final exams and their negative impact, this paper aims to examine the attitudes of elementary music school students toward the annual instrumental exam, as well as potential differences regarding gender, grade, family musical tradition, and the instrument they play, to highlight the need to address these concerns more thoroughly. For this reason, and based on previous research (Sokoli et al., 2022; Umuzdaş et al., 2019; Dempsey and Comeau, 2019; Kılıç, 2018; Baydağ and Alpagut, 2016; Patston and Osborne, 2016; Topoğlu, 2014; Thomas and Nettelbeck, 2014; Iusca and Dafinoiu, 2012; Shoup, 1995), we formulated the following hypotheses:

- H1: There is a statistically significant difference between students' attitudes regarding the annual instrumental exam and gender.
- H2: There is a statistically significant difference between students' attitudes regarding the annual instrumental exam and grades.
- H3: There is a statistically significant difference between students' attitudes regarding the annual instrumental exam and the instrument they play.
- H4: There is a statistically significant difference between students' attitudes regarding the annual instrumental exam and musical tradition in the family.

MATERIALS AND METHODS

Study Participants

The research occurred during the 2023–2024 school year and included 143 students (ages 11 to 14) from the third to sixth grades of public elementary music schools in Croatia. Of the participants, 54 were boys and 89 were girls. Regarding grade distribution, 46.9% of students were from lower grades (3rd and 4th), while 53.1% were from higher grades (5th and 6th). By age, the lower grades comprised 11- to 12-year-olds, and the higher grades comprised 13- to 14-year-olds. The largest group consisted of piano players (N = 63), which aligns with the fact that admission quotas for music schools are typically highest for this instrument. This cohort was followed by guitarists (N = 32) and tamburitza players (N = 20). The remaining 28 students played various other instruments, including flute, accordion, clarinet, saxophone, trumpet, percussion, viola, and cello, all represented significantly smaller numbers. Nearly two-thirds of respondents reported having musically engaged family members (Table 1). Written parental consent was requested and obtained to ensure compliance with ethical guidelines (Ajduković and Keresteš, 2020).

variable	categories	total (N = 143)
gender	male	54 (37.8%)
	female	89 (62.2%)
	total	143 (100.0%)
grade	lower (3rd and 4th)	67 (46.9%)
	higher (5th and 6th)	76 (53.1%)
	total	143 (100.0%)
instrument	guitar	32 (22.4%)
	Piano	63 (44.1%)
	tamburitza	20 (14.0%)
	other	28 (19.5%)
	total	143 (100.0%)
immediate family and music	yes	89 (62.2%)
	no	54 (37.8%)
	total	143 (100.0%)

Table 1: Sample structure by gender, grade level, instrument type, and family musical tradition (N = 143)

Research Instrument and Statistical Procedure

Music school teachers administered the anonymous printed questionnaire according to the authors' instructions, and completion took 7–10 minutes. The study was funded by the authors of this study. An anonymous questionnaire adapted from Sabolek (2023) was used to evaluate students' emotions before and after their annual instrumental exam. The questionnaire comprised 18 items, including questions and statements designed to assess their emotional responses. Students' attitudes were examined using a 14-item Likert scale instrument (e.g., on a scale from 1 to 5, indicate to what extent you agree with the statement: After the annual exam, I do not feel satisfied; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.). A Cronbach's alpha value of 0.710 confirmed the reliability of the instrument. We needed to use non-parametric tests because the Shapiro-Wilk test showed that all the variables we looked at were not normally distributed ($p < .001$). The Mann-Whitney U test was applied to test hypotheses and identify statistically significant differences in student attitudes. Quantitative data were processed using SPSS (Version 25).

RESULTS

The students agreed with 14 statements, which were used to determine their attitudes toward the annual instrumental exam (Table 2). Students reported neutral attitudes toward somatic symptoms of sweating (M = 2.90) and trembling (M = 2.90), suggesting these are common but not extreme stress responses. Similarly, ambivalence regarding abolishing exams (M = 2.99) reflects divergent attitudes, possibly tied to perceived exam value versus stress. Headaches (M = 2.40) and lack of air (M = 2.08) were less endorsed, indicating these are not predominant anxiety markers. Notably, pre-exam happiness was low (M = 2.48), aligning with anticipatory stress literature (Papageorgi et al., 2013). Stronger agreement with heart palpitations (M = 3.43) and general exam stress (M = 3.70) highlights clinically significant anxiety, consistent with performance studies (Kenny, 2011). Students reported pronounced relief (M = 4.58), happiness (M = 4.34), and calmness (M = 4.30), underscoring acute stress dissipation post-performance. However, residual dissatisfaction (M = 2.15) in a subset suggests grading or self-evaluation may influence outcomes. Neutral views on exam grade importance (M = 3.36) imply ambivalence regarding its weighting, warranting dialogue on assessment reform.

variable	M	SD
Before the annual instrumental exam, I am happy.	2.48	1.27
Before the annual instrumental exam, I have a headache.	2.40	1.45
Before the annual instrumental exam, I feel a lack of air.	2.08	1.39
Before the annual instrumental exam, I sweat.	2.90	1.59
Before the annual instrumental exam, I tremble.	2.90	1.50
Before the annual instrumental exam, I feel nauseous or uncomfortable in my stomach.	2.71	1.59
Before the annual instrumental exam, I feel my heart beating.	3.43	1.42
After the annual instrumental exam, I am relieved.	4.58	0.92
After the annual instrumental exam, I am happy.	4.34	1.09
After the annual instrumental exam, I am calm.	4.30	1.16
After the annual instrumental exam, I don't feel satisfied.	2.15	1.37
I think that the annual instrumental exam should be abolished.	2.99	1.49
The annual instrumental exam gives me stress.	3.70	1.34
The grade from the annual instrumental exam is more important to the final grade than the grades I get during the school year.	3.36	1.21

Table 2: Students' attitudes toward the annual instrumental exam (*N* = 143)

To test the set hypotheses, we compared the obtained data. The result obtained by the Mann-Whitney U test related to hypothesis H1: *There is a statistically significant difference between students' attitudes regarding the annual instrumental exam with regard to gender*, as Table 3 shows.

variable	male (*N* = 54) female (*N* = 89)	mean rank	Mann-Whitney U	*z*	*p*
Before the annual instrumental exam, I have a headache.	male	63.13	1924	-2.087	.037*
	female	77.38			
Before the annual instrumental exam, I tremble.	male	58.47	1672	-3.113	.002**
	female	80.21			
Before the annual instrumental exam, I feel nauseous or uncomfortable in my stomach.	male	61.39	1830	-2.467	.014*
	female	78.44			
Before the annual instrumental exam, I feel my heart beating.	male	61.61	1842	-2.403	.016*
	female	78.30			
The annual instrumental exam gives me stress.	male	60.64	1789	-2.662	.008*
	female	78.89			

Note: p < .05 p < .005***

Table 3: Differences in students' attitudes regarding gender obtained by the Mann-Whitney U test

variable	lower grades (*N* = 67) higher grades (*N* = 76)	mean rank	Mann-Whitney U	*z*	*p*
Before the annual instrumental exam, I am happy.	lower grades	80.94	1947	-2.495	.013*
	higher grades	64.12			
After the annual instrumental exam, I am calm.	lower grades	65.14	2086	-2.190	.028*
	higher grades	78.05			
The grade from the annual instrumental exam is more important to the final grade than the grades I get during the school year.	lower grades	79.69	1789	-2.805	.005*
	higher grades	60.39			

*Note: p < .05**

Table 4: Differences in students' attitudes regarding grades obtained by Mann-Whitney U test

The Mann-Whitney U tests did not reject H1. *There is a statistically significant difference between students' attitudes regarding the annual instrumental exam regarding gender*, revealing statistically significant gender differences in 5 of the 14 assessed variables ($p < .05$). The results demonstrate significant gender differences in experiencing exam stress. Female students reported significantly more frequent headaches before the exam compared to male students ($p = .037$). Additionally, female students experienced noticeably more trembling ($p = .002$), nausea or stomach discomfort ($p = .014$), and faster heartbeats ($p = .016$) before the exam. Furthermore, female students agreed more strongly with the statement that the annual exam causes stress ($p = .008$) than their male colleagues. These findings indicate that female music school students experience more pronounced physiological symptoms of anxiety and greater stress related to the annual exam

compared to male students. The difference was particularly noticeable in trembling, which showed the most marked gender difference.

To test the hypothesis H2 that *There is a statistically significant difference between students' attitudes regarding the annual instrumental exam with regard to grade*, the obtained results were compared (Table 4).

The Mann-Whitney U tests revealed statistically significant differences between lower (3rd–4th grade, $N = 67$) and higher (5th–6th grade, $N = 76$) grade students for three key variables ($p < .05$). Younger students reported significantly greater happiness before the exam ($p = .013$). Older students exhibited higher calmness after the exam ($p = .028$). Younger students agreed that the annual exam grade outweighs school-year grades ($p = .005$). Considering the obtained results, hypothesis H2, *a statistically significant difference exists between students' attitudes regarding the annual instrumental exam and grades* not being rejected.

With the purpose of testing hypothesis H3, *There is a statistically significant difference between students in their attitudes regarding the annual instrumental exam and the instrument they play*; the Mann-Whitney U test was used (Table 5). To compare the obtained data, the students were grouped into two groups. One group consisted of students who played the piano ($N = 63$), and the other group consisted of students who played other instruments ($N = 80$). As already stated, the reason for the large number of piano players is that the admission quotas for music schools are the highest for piano students.

variable	piano ($N = 54$) other ($N = 89$)	mean rank	Mann-Whitney U	z	p
Before the annual instrumental exam, I tremble.	piano	79.41	2053	-1.944	.048*
	other	66.16			
Before the annual instrumental exam, I feel nauseous or uncomfortable in my stomach.	piano	79.79	2029	-2.065	.039*
	other	65.86			
After the annual instrumental exam, I am calm.	piano	80.58	1979	-2.590	.010*
	other	65.24			
The annual instrumental exam gives me stress.	piano	81.01	1952	-2.405	.016*
	other	64.91			

*Note: p < .05**

Table 5: Differences in students' attitudes regarding the instrument they play obtained by the Mann-Whitney U test

As we can see from Table 5, the results indicate significant differences between piano students and other instrumentalists, as piano students reported experiencing significantly more trembling before exams ($p = .048$). They also experienced significantly more nausea or stomach discomfort before exams ($p = .039$) and felt significantly calmer than other instrumentalists ($p = .010$). Piano students agreed more strongly that the annual exam causes stress ($p = .016$). In other words, pianists exhibit stronger physical symptoms of anxiety before the exam while simultaneously experiencing greater calmness afterward and perceiving the stress more intensely. Therefore, hypothesis H3 *shows a statistically significant difference between students in their attitudes regarding the annual instrumental exam and the instrument they play*, which is also not rejected.

Finally, the obtained results were compared to verify the hypothesis H4. *There is a statistically significant difference between students' attitudes regarding the annual instrumental exam and musical tradition in the family* (Table 6).

variable	family music tradition yes ($N = 89$) no ($N = 54$)	mean rank	Mann-Whitney U	z	p
Before the annual instrumental exam, I feel my heart beating.	yes	77.29	1932	-2.017	.044*
	no	63.28			

*Note: p < .05**

Table 6: Differences in students' attitudes regarding family tradition obtained by the Mann-Whitney U-test

The analysis revealed only one significant difference out of 14 examined variables related to family music tradition. Students with a family music tradition ($N = 89$) reported significantly stronger feelings of their heart beating before the annual exam (mean rank = 77.29) compared to students without such tradition ($N = 54$, mean rank = 63.28), with this difference being statistically significant ($p = .044$). The limited number of significant differences (1/14) indicates that family music tradition has a minimal overall impact on students' exam-related attitudes and experiences, except for this specific physiological stress response. Hypothesis H4 *There is a statistically significant difference between students' attitudes regarding the annual instrumental exam and the musical tradition in the family* rejected.

DISCUSSION

The results of this study confirm previous research on the presence of strong emotional responses among students before and after the annual instrumental exam. Particularly notable are physiological symptoms such as increased heart rate, sweating, trembling, and stomach discomfort, which align with literature on music performance anxiety in children and adolescents (e.g.,

Britsch, 2005; Papageorgi, 2021). It is normal to feel anxious before exams. However, it is also important to support students so they can reduce their anxiety and feel more confident. Female students reported significantly stronger pre-exam somatic symptoms (headaches, trembling, nausea) and perceived stress, aligning with global studies on music performance anxiety (MPA) in girls (Sokoli et al., 2022; Umuzdaş et al., 2019; Baydağ and Alpagut, 2016; Patston and Osborne, 2016; Topoğlu, 2014; Thomas and Nettelbeck, 2014; Papageorgi et al., 2013; Kenny and Osborne, 2006; Rae and McCambridge, 2004). However, our work newly identifies that these differences do not extend to post-exam emotions (e.g., relief, happiness), suggesting girls may employ effective coping mechanisms post-performance – a finding not previously documented.

The findings further suggest some differences in attitudes based on grade level. Younger students' pre-exam happiness and focus on exam grades contrast with older students' post-exam calmness. This challenges prior work (Sokoli et al., 2022; Umuzdaş et al., 2019; Dempsey and Comeau, 2019; Kılıç, 2018; Shoup, 1995), implying that curricular expectations in Croatian schools may amplify grade fixation in early adolescence. The Croatian curricular context may play a role here: early-grade students may be more externally motivated and focused on outcomes, whereas older students possibly develop greater self-regulation and internal coping mechanisms through experience. These findings suggest that curricular and evaluative frameworks should be adapted across developmental stages to better support emotional well-being and learning engagement.

Interestingly, piano students reported higher stress levels than other instrumentalists despite the expectation that larger admission quotas and broader repertoires might reduce pressure. The elevated pre-exam anxiety and nausea reported by pianists support studies linking solo performance to higher stress (Sokoli et al., 2022; Umuzdaş et al., 2019; Iusca and Dafinoiu, 2012). Such findings may point to the specific nature of piano instruction and performance expectations. These results raise questions regarding how pedagogical and evaluative practices in solo instrument training might be better structured to buffer anxiety without compromising skill development or performance standards.

The effect of family musical tradition was limited. Only one significant difference was found - students from musical families reported greater heartbeat awareness before the exam, a subtle indicator of heightened physiological arousal. We assume that students from families with a musical tradition feel more pressure due to their parent's expectations of success in music, as determined by Ryan et al. (2023). Although these results may imply socially transmitted pressure to meet familial expectations, the lack of broader attitudinal differences suggests that family musical background does not significantly mitigate or amplify exam-related stress. Nevertheless, this insight can be practically relevant: educators might wish to engage in more open dialogue with musically involved families to align expectations and reduce unintended emotional burdens on students, as parental support is crucial in overcoming performance anxiety (Zarza-Alzugaray et al., 2020).

While consistent with prior research, the added value of this study lies in its focus on elementary music school students - a specific and under-researched group - and in its use of a questionnaire covering a wide range of emotional, cognitive, and attitudinal variables. Novel to our research is their paradoxical greater post-exam calmness, potentially reflecting habituation from frequent solo repertoire performances. The practical implications of these findings are multifold. First, they call for integrating structured psychological preparation programs into music curricula. Techniques such as breathing exercises, visualization, and emotional regulation training could help students navigate pre-exam anxiety more effectively. Second, the findings support the need for enhanced emotional intelligence development in music education - helping students to name, understand, and manage their emotional responses. Third, and perhaps most critically, the results question the adequacy of current evaluation systems in music schools. While performance-based assessments are integral to musical training, there is room to innovate more holistic, student-centered evaluation models that reduce psychological strain - such as incorporating formative assessments, peer feedback, and descriptive evaluations.

The study's main limitations include its reliance on student self-reporting at the time of questionnaire completion, which may introduce subjectivity and emotional bias. The lack of triangulation with teacher or parent perspectives restricts a more nuanced appreciation for student experiences. Additionally, while statistically robust, the quantitative design cannot fully capture the depth and context of students' emotional narratives. Future research should consider longitudinal methods and include teacher and parent perspectives.

CONCLUSION

This study confirmed that the annual instrumental exam provokes a wide range of emotional reactions among elementary music school students, particularly stress and somatic symptoms before the performance. Gender, grade level, and instrument type significantly influenced these attitudes, while family musical tradition had a limited impact. The findings point to the need for pedagogical measures to reduce exam-related stress, including improved psychological preparation for students, changes in the evaluation system, and additional teacher training to address students' emotional needs. Despite its limitations, this research contributes to a more profound understanding of the psychological dimensions of music education and offers a foundation for developing sensitivity and efficiency in educational policies.

We can conclude that most students experience a certain stress level during their annual instrumental exam, but afterward, they experience a sense of relief. Unfortunately, music schools employ few professional associates, including pedagogues and psychologists. Elementary and secondary music school principals emphasize the need to hire them, especially psychologists, who would provide psychological support to students before public performances during the school year and before annual exams (Sokol, 2019). We think that pedagogues and psychologists could help teachers adequately encourage and strengthen their students in stressful situations. Therefore, in our opinion, instrument teachers, in cooperation with parents, should ensure a supportive and positive atmosphere before and during the exam.

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