

# Attitudes of college music students towards noise in youth culture

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## Abstract

The effectiveness of a hearing loss prevention program within a college may be dependent on attitudes among students majoring in music. The purpose of this study was to assess the attitudes of music majors toward noise and to compare them to students not majoring in music. Participants ( $N = 467$ ) filled out a questionnaire designed to assess attitudes toward noise in youth culture and attitudes toward influencing their sound environment. Results showed that students majoring in music have a healthier attitude toward sound compared to students not majoring in music. Findings also showed that music majors are more aware and attentive to noise in general, likely to perceive sound that may be risky to hearing as something negative, and are more likely to carry out behaviors to decrease personal exposure to loud sounds. Due to these differences, music majors may be more likely than other students to respond to and benefit from a hearing loss prevention program.

*Keywords: Music students, noise in youth culture, attitudes to noise*

## Introduction

Approximately 100,000 college students in the U.S. are enrolled as music majors in over 600 music schools accredited by the National Association of Schools of Music (NASM).<sup>[1]</sup> These college students, whether performing or teaching, depend on healthy hearing and are potentially responsible for controlling intensity levels of the music they or their students produce. Because loud music is implicated as an important causal factor for noise-induced hearing loss (NIHL), experts in music education recognize the interdependent links between hearing and music.<sup>[2]</sup>

The Health Promotion in Schools of Music (HPSM) project labels “hearing health” as a priority concern and recommends that all NASM accredited programs adopt a health promotion framework, offer an occupational health course, and teach students about NIHL during ensemble-based instruction.<sup>[3]</sup> Schools of music accredited by NASM are beginning to incorporate these practices through changes in culture, curriculum, and resources. Specific programmatic changes, including descriptions of undergraduate courses and other approaches to health education, are being developed and described.<sup>[4-6]</sup>

Constructing an effective hearing conservation program within a school of music is uniquely challenging. Labeling music as a potentially harmful activity may be seen by

some as a direct challenge to an art form and its potential for human expression. Furthermore, overexposure to sound typically does not produce immediate and noticeable declines in hearing and communicative function. Negative experience (e.g., hearing loss or tinnitus) may be necessary before action to protect hearing is taken.<sup>[7]</sup> To address these challenges, music instructors are being asked to consider personal and collective attitudes as important social determinants when instructing students to get an initial baseline audiogram.<sup>[8]</sup>

Attitudes of music students toward hearing conservation are important determinants in the potential success of music schools to increase awareness, knowledge, and perceptions of responsibility. The *Theory of Planned Behavior* states that a person’s intention to carry out a behavior is dependent upon their attitudes regarding a specific behavior, subjective norms, and perceived behavioral control.<sup>[9]</sup> Recognizing that awareness and beliefs of risk are typically formed through experience and public discourse, attitudes among music students may be similar to nonmusic major college students or somehow different due to their investment and involvement in music. Recent studies of college student’ attitudes toward noise associated with youth culture demonstrate that attitudes can be conceptualized and assessed as being positive or negative.<sup>[10]</sup> For instance, attitudes toward attending a rock concert without hearing protection are conceptualized as negative if this behavior is considered undesirable, risky, or dangerous to hearing. If attending rock concerts without hearing protection is agreeable or desirable, the attitude toward

this behavior would be understood as positive. Because rock concerts can produce very high intensity levels, a positive attitude is considered unhealthy. The *Theory of Planned Behavior* also highlights the importance of subjective norms in the development of attitudes toward an intended behavior. Perceived behavioral control is an indication of personal control and/or manipulation of a behavior or behavioral context and reflects perceptions of obstacles and resources that might facilitate or inhibit behavior. Regarding noise in youth culture, attitudes toward influencing the sound environment may include decisions not to participate or to use hearing protectors. Widen *et al.*<sup>[10]</sup> reported that college students with negative attitudes toward noise are more likely to influence their sound environment in order to protect their hearing.

Attitudes toward noise in youth culture can be assessed and used to identify possible differences between populations.<sup>[10]</sup> To date, no known studies have investigated attitudes among college students majoring in music. It is unclear whether attitudes of music majors are different than nonmusic majors. If success of a hearing conservation strategy within a school of music is dependent on student' attitudes, knowledge of attitudes among music majors should be obtained and used to inform and develop educational strategies. The purpose of this study was to characterize and compare college music and nonmusic major attitudes toward noise associated with youth culture.

## Materials and Methods

### Procedures

Research subjects were recruited from a population of students enrolled in an occupational health course at the University of North Texas. Subjects consented to participate using an approved IRB protocol. Questions administered to assess attitudes toward noise in youth culture and attitudes toward influencing their sound environment were administered online and prior to any discussions or course readings associated with hearing, noise-induced hearing loss, or hearing conservation.

### Assessment

In order to assess student' attitudes toward noise in youth culture and attitudes toward influencing their sound environment, twelve statements from the Youth Attitudes to Noise Scale were selected because of their relevance to this research.<sup>[11]</sup> Seven of these questions assess attitudes toward noise in youth culture and five assess youth attitudes toward influencing their sound environment. The questions are presented as statements in Table 1. Subjects responded on a five-point Likert scale with 5 being "completely agree" and 1 being "completely disagree." Two questions were reversed scored because of the wording of the question. Higher scores reflect healthier/proactive attitudes toward hearing conservation.

## Data analyses

Descriptive data and responses to questions were managed and analyzed using SPSS statistical software. Parametric and nonparametric tests were performed to determine differences between subgroups on demographic measures of age, gender, ethnicity, marital status, and international student status.

Descriptive statistics were used to characterize responses to each of the twelve questions, composite scores for the two categories of questions (attitudes toward noise in youth culture and attitudes toward influencing their sound environment), and a total score representing all 12 questions. Responses to each question, categories of questions, and total scores were analyzed and compared across music major and nonmusic major groups using nonpaired *t*-tests (two tailed;  $P < 0.05$ ).

To consider the *Theory of Planned Behavior*, correlations (Pearson) were calculated between categories of questions (attitudes toward noise in youth culture and attitudes toward influencing their sound environment). Significant positive correlations would support the theoretical link between perceived behavioral control and attitudes regarding a specific behavior.

## Results

The resulting cohort of participants ( $N = 467$ ) reported an average age of 19.85 years ( $SD = 3.63$ ), a gender distribution of 40% females, various ethnic backgrounds (68.3% Caucasian, 11.6% Hispanic, 9% African American, and 3.7% Asian), and international student status (4.5%). Almost half (49.7%) of the subject population identified themselves as music majors. There were no significant differences between music and nonmusic major groups on measures of age ( $t = .240$ ;  $df = 449$ ;  $P = .810$ ), gender distribution ( $X^2 = .774$ ;  $df = 1$ ;  $P = .379$ ), ethnicity ( $X^2 = 3.79$ ;  $df = 4$ ;  $P = .435$ ), or international student status ( $X^2 = .041$ ;  $df = 1$ ;  $P = .839$ ).

Table 1 presents the descriptive statistics for each question by music major and nonmusic major groups. As indicated by the significance levels, the music major group scored significantly higher on all questions, scores for the two categories of questions, and the total score when compared to the nonmusic major group.

Pearson correlation coefficients were calculated to investigate relationships between students' attitudes toward noise in youth culture and attitudes toward influencing their sound environment. As shown in Table 2, the whole group score for attitudes toward noise in youth culture was significantly correlated ( $r = .618$ ;  $P < 0.000$ ) with whole group score for attitudes toward influencing their sound environment. Similarly, the whole group total attitude score was significantly

**Table 1: Means, standard deviations, and significant levels for questions, categories, and total score across music major and nonmusic major groups**

Questions	Music major		Nonmusic major		Difference	
	Mean	SD	Mean	SD	Sig. (2-tailed)	
Attitudes toward noise in youth culture	In general, there is too much noise in society.	3.230	0.967	2.974	1.111	0.017*
	I think it is unnecessary to use earplugs when I am at a club, rock concert, dance, or sporting event.†	3.570	1.199	2.970	1.244	0.000**
	I think that the sound levels at clubs, dances, rock concerts, and sporting events, in general, are too loud.	3.723	1.047	2.931	1.254	0.000**
	There should be more rules and regulations for the sound levels in society.	3.131	1.049	2.723	1.130	0.000**
	The sound level at clubs, dances, rock concerts, raves, or sporting event is not a problem.†	3.497	0.991	2.729	1.212	0.000**
	The sound levels at clubs should not be played so loudly if it can be harmful to people's hearing.	3.568	1.080	3.166	1.181	0.001**
	The sound levels should be lowered at clubs, rock concerts, dances or sporting events.	3.239	1.088	2.608	1.133	0.000**
	Category total	3.541	0.721	2.972	0.787	0.000**
Attitudes toward influencing their sound environment	I am prepared to do something to make the school environment quieter.	3.004	1.081	2.418	1.045	0.000**
	I think it is my own responsibility to lower the sound levels at club.	2.211	0.996	1.772	0.887	0.000**
	It is important for me to make my sound environment more comfortable.	3.757	0.756	3.573	0.901	0.031*
	I would be prepared to give up activities where the sound level is too loud.	2.748	1.104	2.479	1.159	0.020*
	I would consider leaving a club, dance, rock concert, rave, or sporting event if the sound level is too loud.	3.234	1.207	2.648	1.312	0.000**
	Category total	2.991	0.608	2.581	0.706	0.000**
	Total	3.242	0.6131	2.754	0.679	0.000**

\*Significance at the 0.05 level (two-tailed); \*\* Significance at the 0.01 level (two-tailed); †Reversed scoring

**Table 2: Pearson correlation coefficients among attitude measures for whole group**

		Attitudes toward noise in youth culture	Attitudes toward influencing their sound environment	Total attitude
Attitudes toward noise in youth culture	Pearson correlation	1	.618**	.923**
	sig. (two-tailed)		0.000	0.000
	N	381	381	381
Attitudes toward influencing their sound environment	Pearson correlation	.618**	1	.848**
	sig. (two-tailed)	0.000		0.000
	N	381	384	383
Total attitude	Pearson correlation	.923**	.848**	1
	sig. (two-tailed)	0.000	0.000	
	N	381	383	383

\*\* Correlation is significant at the 0.01 level (two-tailed).

correlated with both attitudes toward noise in youth culture ( $r = .923$ ;  $P < 0.000$ ) and attitudes toward influencing their sound environment ( $r = .848$ ;  $P < 0.000$ ). These positive and significant relationships support the *Theory of Planned Behavior*. College students' intention to carry out a behavior seems to be related, and therefore dependent upon, their attitudes regarding a specific behavior.

As shown in Table 3, the music major group score for attitudes toward noise in youth culture was significantly correlated ( $r = .566$ ;  $P < 0.000$ ) with the music major group score for attitudes toward influencing their sound environment.

Similarly, the music major group total attitude score was significantly correlated with both attitudes toward noise in youth culture ( $r = .923$ ;  $P < 0.000$ ) and attitudes toward influencing their sound environment ( $r = .810$ ;  $P < 0.000$ ). For the nonmusic major group, the score for attitudes toward noise in youth culture was also significantly correlated ( $r = .581$ ;  $P < 0.000$ ) with the score for attitudes toward influencing their sound environment. Again, the nonmusic major group total attitude scores were significantly correlated with both attitudes toward noise in youth culture ( $r = .903$ ;  $P < 0.000$ ) and attitudes toward influencing their sound environment ( $r = .849$ ;  $P < 0.000$ ).

**Table 3: Pearson correlation coefficients among attitude measures for music major and nonmusic major groups**

Major			Attitudes toward noise in youth culture	Attitudes toward influencing their sound environment	Total attitude
Music	Attitudes toward noise in youth culture	Pearson correlation	1	.566**	.923**
		sig. (two-tailed)		0.000	0.000
		N	184	184	184
	Attitudes toward influencing their sound environment	Pearson correlation	.566**	1	.810**
		sig. (two-tailed)	0.000		0.000
		N	184	186	185
Total attitude	Pearson correlation	.923**	.810**	1	
	sig. (two-tailed)	0.000	0.000		
	N	184	185	185	
Nonmusic	Attitudes toward noise in youth culture	Pearson correlation	1	.581**	.903**
		sig. (two-tailed)		0.000	0.000
		N	196	196	196
	Attitudes toward influencing their sound environment	Pearson correlation	.581**	1	.849**
		sig. (two-tailed)	0.000		0.000
		N	196	197	197
Total attitude	Pearson correlation	.903**	.849**	1	
	sig. (two-tailed)	0.000	0.000		
	N	196	197	197	

\*\* Correlation is significant at the 0.01 level (two-tailed)

## Discussion

Results showed that music majors have a healthier attitude toward sound compared to nonmusic majors. On each of the 12 questions, music majors scored significantly higher than nonmusic majors, indicating that music majors are more likely to perceive sound that may be risky to hearing as something negative and they are more likely to carry out behaviors to decrease personal exposure. These results imply that music majors are more aware of and attentive to noise in general. The negative attitude toward noise associated with youth culture by music majors may reflect a distinctive appreciation for loud music due to their training in music. Such attitudes may emanate from instruction and discussions with faculty, peers, and parents. Music majors may naturally appreciate highly developed perceptual abilities and feel occupationally threatened if perceptual abilities are jeopardized due to overexposure to loud sounds. These attitudes may reflect real-life experiences (including tinnitus, ear discomfort, or threshold shifts) associated with being overexposed to intense musical sound. A recent study of music majors reported that 50% of them have damaged hearing.<sup>[12]</sup> Another study reported that music majors can be exposed to intensity levels that exceeded 10,000% of allowable sound dose during a routine college rehearsal and event.<sup>[13]</sup> More research is needed to understand when and how students' attitudes about sound exposure developed.

Findings from this study also showed that students' attitudes toward influencing their sound environment are positively correlated with attitudes toward noise in youth culture. This implies that college student' attitudes toward carrying out a risk-reducing behavior are dependent on their attitudes

regarding the specific behavior. Positive correlations were significant for both the music and nonmusic major groups. Students with negative attitudes toward noise associated with youth culture, such as attending a rock concert without hearing protection, were more likely to report that they would avoid such exposures if they were perceived as too loud or unsafe. The *Theory of Planned Behavior* states that a person's intention to carry out a behavior is dependent upon their attitudes regarding a specific behavior, subjective norms, and perceived behavioral control (*i.e.*, self-efficacy).<sup>[9]</sup> Self-efficacy is the personal belief that a behavior can be accomplished effectively and will result in the desired outcome. To establish this conviction, knowledge, attitudes, and subjective norms must be molded in a way that encourage self-efficacy.

Considering that music majors would be more likely than nonmusic majors to practice hearing conservation, schools of music should support healthy attitudes through the establishment of hearing conservation programs similar to those in other areas (*e.g.*, hunting, industry, military, etc.). Knobloch and Broste<sup>[14]</sup> studied the use of a four-year school-based hearing conservation program with teenagers who lived and worked in agricultural settings. Their results showed that 87.5% of the teenagers enrolled in the program reported using hearing protection, while only 40% of the control group reported using hearing protection in noisy situations. Additionally, the implementation of conservation programs with construction workers resulted in improved attitudes toward hearing protection use and knowledge of noise exposure risk.<sup>[15]</sup> Future efforts should apply these models in order to propagate awareness about hearing loss prevention among musician and general populations.

Additional research is needed in this area with larger and more diverse populations. Questions used in this study were derived from previous studies of college students. These questions may be limited because they did not include scenarios pertaining to involvement in production of music or the act of learning how to perform. Within schools of music, an understanding of attitudes toward routine events is both engaging and essential. For instance, if music majors were aware of specific intensity levels generated, how would they respond to specific questions about education-based activities such as marching band or learning under the baton of an ensemble instructor whose tendencies are to produce music that poses a risk to hearing?

Despite these limitations, the findings from this study are encouraging to those interested in developing educational activities within schools of music. At a minimum, schools should inform students, including nonmusic majors, about sound levels associated with youth culture and the related risks for hearing loss.

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