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Original Research Paper

Speech & Hearing

KNOWLEDGE ATTITUDE AND BELIEFS ABOUT NOISE AND HEARING LOSS AMONG MUSICIANS

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ABSTRACT Music has long been a significant part of human culture. Excessive exposure to loud music can harm the auditory system (Sadhra et al., 2002). Recent research has found that musicians are more susceptible to noise exposure (O'Brien et al., 2008). Intense exposure to noise during practice and rehearsals in a musician's life deteriorates their hearing.

AIMS: The aim of this study is to identify the knowledge, attitude, and beliefs of musicians exposed to noise.

METHOD: A total of 60 musicians, 20 participants in each group, namely, musicians using rhythm instruments, string instruments, and vocalists within the age range of 25-65 years were included in the study. The subjects were with at least 5 years of experience in the music field with a noise exposure of a minimum of 4 hours per day. A questionnaire was developed in English with questions selected from various questionnaires available on the internet and was administered and analyzed.

RESULTS & CONCLUSION: The result of the questionnaire shows that there is a difference in perception in terms of knowledge, attitude, and belief about noise and hearing loss across three musician groups. In the current study, three groups were all aware that excessive noise causes hearing loss and that extended work hours may result in an irreversible permanent threshold shift.

KEYWORDS : Musician, Noise, Hearing loss, Knowledge, Attitude, Belief

INTRODUCTION

Noise is characterized as undesirable sound, whereas music is usually the reverse. Music Induced Hearing Loss (MIHL) is a condition caused by excessively loud and extended music exposure. MIHL is a term used for NIHL caused as a result of excessively loud music exposure (Morata, 2007). The auditory system can be harmed by excessive exposure to loud music (Sadhra et al., 2002; Beach, Williams & Gilliver, 2013).

According to research, 61 percent of music concert attendees had TTS and/or tinnitus as a result of recreational music exposure (Chesky, 2008). This is the outcome of prolonged exposure to noises of abnormally high intensity, which is considered hazardous to the auditory system (Chesky, 2008).

Attending live music events, when sound levels have been documented as potentially harmful, is one of them (Bogoch, House & Kudla, 2005). Every instrument has the ability to produce sounds that are louder than the 85 dB safe limit. People who play the Violin and Viola should be especially concerned, as these instruments produce a lot of sounds directly near to their ear (Royster et al., 1991).

Classical musicians constitute a rare population in the area of hearing research. They are skilled listeners of sounds and sometimes their sole occupation is their musical career (Kahari et al., 2001). A growing concern for professional classical orchestral musicians is the sound environment during rehearsals and performances. Today, orchestras are bigger than they were 10-15 years ago, as there are more musicians. The sound intensity levels recorded in rock music venues are always particularly high and relatively constant, so no break is given to the ears. In reality, the performers themselves often spend time attending other rock concerts, and may thus frequently obtain large doses of loud music (Kahari et al., 2001). Chesky, Pair, Lanford, & Yoshimura in 2009 conducted a study to analyze and compare the attitudes of music majors towards noise with students not majoring in music. Results have shown that music majors have a better attitude towards sound relative to students who do not major in music.

Music is the livelihood of musicians. Similarly, their hearing is at risk due to exposure to excessive noise. To protect musicians' hearing, deliberate measures must be used. The most accessible approach, which is difficult to execute, is to follow the rules issued by a hearing conservation program. Musicians must be made aware that they risk harming their hearing on a regular basis. Individual knowledge, awareness, and concern regarding noise-induced hearing loss are required for any change to occur. Awareness studies on Noise and Hearing Loss of musicians are very few in India. As a result, the goal of this research including musicians was to study the knowledge attitude and belief about noise, and hearing loss.

METHOD:

Three groups of participants (n = 60) with twenty participants in each group, namely, Musicians using rhythm instruments, string instruments, and vocalists (age range of 25–65 years) were participated in the study. All the individuals were involved in their respective professions for at least 5 years. The subjects were with at least 5 years of experience in the music field with a noise exposure of a minimum of 4 hours per day. Subjects with any neurological disorder, cognitive impairment, and conductive hearing loss were excluded from the study. Informed consent was taken from all enrolled subjects and confidentiality and privacy of the participants were also be maintained.

Ethical committee clearance was obtained for the study on 05/12/2020. Informed consent was taken from all enrolled subjects and confidentiality and privacy of the participants were also be maintained.

The study was conducted by selecting the subjects who fulfill the mentioned criteria from the various music venues who are professional musicians across the Kannur and Kasaragod districts of Kerala.

A questionnaire was developed in English with questions selected from various questionnaires available on the internet. The final questionnaire prepared was administered to various musician groups to study their knowledge, attitude, and belief. Participants were asked to read the questions carefully and circle the appropriate rating on a 5 point rating scale.

RESULTS:

Several analyses were performed to study the opinions of

musicians of three different groups. The results obtained are explained below. The performances of the participants on the questionnaires are explained in the following sections:

	N	Mean	Std. Dev.	
Knowledge	String Instrument	20	57.2000	10.49110
	Rhythm Instrument	20	55.9000	6.52848
	Vocalist	20	56.8000	5.60639
Attitude	String Instrument	20	54.2000	7.56446
	Rhythm Instrument	20	54.3500	5.80630
	Vocalist	20	57.5000	7.28734
Belief	String Instrument	20	57.2000	6.31289
	Rhythm Instrument	20	56.6500	5.41222
	Vocalist	20	58.6000	4.87097
Total Score	String Instrument	20	168.6000	21.75558
	Rhythm Instrument	20	166.9000	16.32209
	Vocalist	20	172.9000	16.34142

Table-1 indicates the mean performance of participants on the questionnaire.

Table-1 indicates the descriptive statistics of the performance on three domains of three different groups. From the table, it can be observed that the mean score value is higher for the Vocalist group in attitude, and beliefs and, total score.

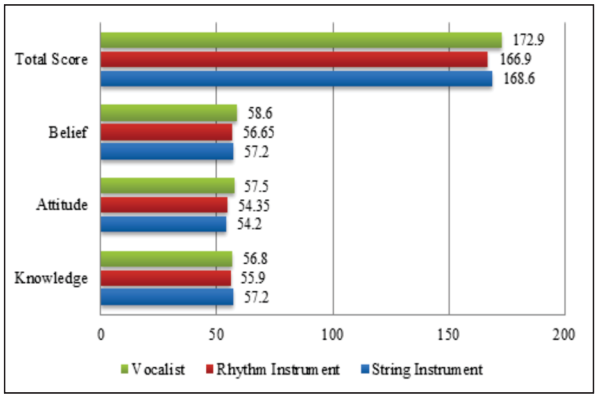

Figure-1 shows the comparison of musicians on different aspects of the questionnaire.

From the figure-1 it can be observed that the vocalist group has better performance than other groups on the questionnaire indicating better awareness towards noise and hearing loss. The one-sample Kolmogorov-Smirnov Z test was performed to check the normality of the data. From the data analyzed since the performance scores of String Instrument, Rhythm Instrument and Vocalist follow normality and ANOVA as a parametric test to compare the group effects.

		Sum of Squares	Df	Mean Square	F	p-value
Knowledge	Between Groups	17.733	2	8.867	.144	.866
	Within Groups	3498.200	57	61.372		
	Total	3515.933	59			
Attitude	Between Groups	138.900	2	69.450	1.446	.244
	Within Groups	2736.750	57	48.013		
	Total	2875.650	59			
Belief	Between Groups	40.433	2	20.217	.653	.524
	Within Groups	1764.550	57	30.957		
	Total	1804.983	59			
Total Score	Between Groups	382.533	2	191.267	.570	.569
	Within Groups	19128.400	57	335.586		
	Total	19510.933	59			

Table-2 indicates the results of ANOVA.

As indicated in table-2: The p-values are greater than 0.05 for all the performance measures. There exist no statistically significant differences between groups as determined by ANOVA (at 5% level of significance). So, there is no difference between musicians for performance scores.

		N	Mean	Std. Dev.	Std. Error	Minimum	Maximum
String Instrument	Knowledge	20	57.2000	10.49110	2.34588	21.00	69.00
	Attitude	20	54.2000	7.56446	1.69146	40.00	72.00
	Belief	20	57.2000	6.31289	1.41161	44.00	71.00
Rhythm Instrument	Knowledge	20	55.9000	6.52848	1.45981	46.00	73.00
	Attitude	20	54.3500	5.80630	1.29833	43.00	64.00
	Belief	20	56.6500	5.41222	1.21021	47.00	65.00
Vocalist	Knowledge	20	56.8000	5.60639	1.25363	48.00	70.00
	Attitude	20	57.5000	7.28734	1.62950	46.00	74.00
	Belief	20	58.6000	4.87097	1.08918	49.00	72.00

Table-3 indicates the mean performance score on different domains.

Table-3 indicates the descriptive statistics of the performance score of different musicians across three domains. From the table, it can be observed that the mean score value is higher for the Vocalist group in attitudes, and beliefs.

		Sum of Squares	Df	Mean Square	F	p-value
String Instrument	Between Groups	120.000	2	60.000	.869	.425
	Within Groups	3935.600	57	69.046		
	Total	4055.600	59			
Rhythm Instrument	Between Groups	55.033	2	27.517	.782	.463
	Within Groups	2006.900	57	35.209		
	Total	2061.933	59			
Vocalist	Between Groups	32.933	2	16.467	.456	.636
	Within Groups	2057.000	57	36.088		
	Total	2089.933	59			

Table-4 indicates the results of ANOVA

From the table, it is evident that the p-values are greater than 0.05 for all the Musicians. There exist no statistically significant differences between groups on the performance scores of different musicians on the questionnaire.

DISCUSSION

Musicians rely entirely on their hearing for a livelihood; alterations in auditory function have a significant impact on their livelihood. Although musicians are at risk for hearing loss, the existing research suggests that musicians are less concerned regarding these issues. According to Hagberg, Thiringer, and Brandström in 2005 a high amount of practice hours of work exposed by the musicians is also a risk factor for the incidence of hearing problems. Hearing loss can make it difficult for musicians to make a living, and there is substantial evidence that musicians are at risk of auditory system damage as a result of noise/music exposure (Thom, McIntyre, Winters et al., 2005).

The result of the present study shows that the knowledge, attitude, and beliefs of musicians towards noise and hearing loss differ in all three groups. In the study, the Vocalist group had a higher score in three domains except for the questions related to knowledge. The total score of all three groups is greater than70%, indicating that they have stronger insight into noise exposure and hearing loss.

The finding of the questionnaire concerning the questions indicates the difference in perception of noise and hearing loss among three musician groups for knowledge, attitude, and belief. The three groups were all aware that excessive noise causes hearing loss and that long working hours might result in a permanent threshold shift that is irreversible. Moreover half of the participants in all three groups are aware

that certain medications used to treat disorders might result in severe hearing loss. Also, they were conscious that losing their hearing would make it difficult for them to continue working in the music industry, as music is their livelihood. About 50% of musicians knew that hearing loss due to noise exposure can be prevented by reducing hours of working in loud noisy sections. Most of the musicians showed a positive attitude in terms of noise exposure like the sound level at music venues, in general, is too loud and there should be more rules or regulations for the sound levels and preventive measures towards hearing loss due to noise in the music industry are important. With respect to beliefs in the questionnaire positive and negative opinions were noticed among musicians. As a musician, they believe that their hearing is at risk working in the music industry and feel it is their responsibility to reduce loud noise because it might affect tuning instruments when continuously exposed and in turn affecting the hearing.

Musicians work in different venues in which their variable acoustical characteristics in concerts and unpredictable hours of working and intense exposure to noise can have an impact on hearing. The initial management option in occupational noise exposure is to decrease the noise level at the source however this is not an option in the music industry. Although hearing loss is a significant aspect in the music industry that may be minimized to some extent, most musicians are unconcerned about their hearing. Musicians need to be more aware of music-induced hearing loss so that they may take preventative actions to safeguard their hearing. As a result, musicians should be given specific attention to maintaining a career in music.

CONCLUSIONS

The result of current research shows that the knowledge, attitude, and beliefs towards noise and hearing loss differ in all three groups and the Vocalist group had a higher score in three domains except for the questions related to knowledge. All three groups have a total score of more than 70%, indicating a better understanding of noise exposure and hearing loss.

According to the findings of this study on the musician group's perceptions about noise and hearing loss, public health campaigns should include noise as a workplace hazard, and workshops and seminars should be held among musicians to increase individual awareness of noise as a workplace hazard to improve the hearing loss prevention program.

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