INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Published Online: 23 December 2022 Vol 12, Issue 12, (2022) EISSN:2222-6990

Hearing Habits and Hearing Knowledge among Music Tertiary Students

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Abstract

With the advancement of modern technology, almost everyone possesses at least one personal listening devices (PLDs) for music listening especially music tertiary students. Music tertiary students listen to music more than the other students due to the nature of their profession. Therefore, the current research aims to describe the hearing habits and hearing knowledge on the safe usage of PLDs among music tertiary students. The participants are comprised of 140 music tertiary students. They were asked to answer online questionnaires regarding the intensity and duration of PLDs used, the environment in which the PLDs were used, and knowledge towards the secure restriction on the PLDs usage. The results indicated that the majority of them listening to the PLDs every day between 15 minutes and 30 minutes at the moderate listening level with a volume control level set at 41%-60%. The overall correlation between hearing habits and hearing knowledge is high. The study also indicated that some music tertiary students lack awareness on the safe use of PLDs. It is important for children to have this awareness as early as possible. Teachers and professionals play important roles in educating children on healthy hearing habits and encouraging parental participation on this matter.

Keywords: Hearing Habits, Hearing Knowledge, Music, Music Tertiary Students, Personal Listening Devices (PLDs)

Introduction

Each person has a different habit when listening to personal listening devices (PLDs). One's listening habit or the extent of using the PLDs may affect one's ear, physically and emotionally. Among the younger generation, listening to music through (PLDs) has become a norm especially due to the high volume and the convenience it comes with these devices as they can be used at any time without any interruption (Jiang et al., 2016). Furthermore, users can easily get the different types of PLDs and models from any electronic store. According to Chanda and Levitin (2013), listening to music is beneficial as it reduces anxiety and stress and boosts the immune system (Chanda and Levitin, 2013) by increasing oxygenation volume in the bloodstream (Longhi and Pickett, 2008). Another research has described that listening to music has the capability to boost a youngster's performance on reading comprehension tasks (Mohan and Thomas, 2019).

Despite these advantages, listening to music using PLDs comes with disadvantages which the majority of the users are unaware of. Many users do not realise that they have overused their PLDs and have thus continued practising their wrong habits unknowingly. Such habits should not be taken lightly as it poses hearing risks.

Musicians are prone to hearing diseases such as hearing loss and tinnitus due to exposure to the noise most of the time (Greasley et al., 2018). This is the nature of their profession. Previous researches indicated that one-third of hearing loss cases caused by noise exposure can be prevented (Le at al., 2017). The cases of hearing loss for occupational noise exposure are decreasing in developed countries due to preventive measures (Lie et al., 2015). However, the risk of potential hearing loss especially among the youngsters is increasing (Ivory et al., 2014). The popularity of leisure noise exposure is increasing among the public such as listening to music through earphones, attending concerts, festivals and clubs (Henderson et al., 2011). 90% of youngsters listen to music via PLDs with smartphones (Vogel et al., 2009; Twardella et al., 2016; Sulaiman et al., 2013; Wandadi et al., 2014) – hence the current study to push for further development and raising awareness in the society.

This issue becomes crucial as a certain volume and duration of noise exposure via PLDs can potentially damage our inner ear and develop hearing risks (Harrison, 2008; WHO, 2015). To find out whether the potential hearing risks is due to heavy usage of PLDs, it is important to do the groundwork and find out the hearing habits and the knowledge of hearing health among the PLDs users.

Moreover, the literature suggested that there has been no study conducted on music tertiary students. Previous studies conducted in regards to PLDs were focused on listening habits and awareness among college students in South Korea (You et al., 2020) and the United States (Marron et al., 2015), health sciences university students in South Africa (Seedat et al., 2020) and among young adults (Gopal et al., 2019; Diviani et al., 2019). The current research aims to describe the hearing habits and hearing knowledge regarding the safe limit of music listening via PLDs among music tertiary students.

Hearing health is crucial for everyone including musicians. To obtain a good hearing health, having hearing knowledge is the first step for maintaining or improving our hearing health. Most hearing loss cases are preventable but are mostly irreversible (WHO, 2022). Therefore, this research is significant in spreading awareness to PLD users as to the risks of using PLDs and ways to cushion the effects, whilst giving the relevant authorities the sense of urgency in providing more means for further development.

Literature Review

There are over 5% (430 million) of worldwide population has hearing loss (WHO, 2022). Majority of them are either from low- or middle-income countries (WHO, 2022). Many of them who has hearing loss are due to prolonged loud sound exposure either in occupational, environment or entertainment venues (WHO, 2022). Almost 50% (1.1 billion) of adolescent have hearing risks as they are exposed to prolonged loud music via smartphones and audio players or at music gigs and clubs (WHO, 2022). Almost 50% of these adolescents who lived in middle- and high-income countries listened music to PLDs with unsafe volume level (WHO, 2022). Hearing loss can occur when exposed to short duration of loud sound or continuously

unsafe noise level based on the research standard given (NIOSH, 1998). Exposure to such noise can damage the cochlear hair cell as well as the surrounding supporting cells which can degenerate the auditory nerve fibers (Alzahrani et al., 2018). The sensory organ damage degree is depending on the volume and duration of noise exposure (Hong et al., 2013). Hearing health program is crucial for creating awareness regarding hearing health knowledge as it can improve in hearing health protection and behaviours (Khan et al., 2018). In this previous research, the researcher found that the university's student who improved their hearing knowledge as well as hearing health beliefs were impressively reduced the health risk behaviours in female students more than male students (Wang et al., 2021). Previous research found that Korean college students have hearing knowledge regarding hearing loss and were open-minded towards hearing limits for hearing protection (You et al., 2020).

Method

Research Design and Sampling

A quantitative method was chosen to conduct the current study. The questionnaires were utilized in the current study for data collection and the data collected were in the form of numbers. This is due to the arrangement of the numeric data in simple analytical methods such as tables and charts. Other than that, correlational design was used to determine the relationship between hearing habits and hearing knowledge of the participants. Hearing habits is the independent variable and hearing knowledge is the dependent variable. The current study is to find out whether hearing habits is correlated with hearing knowledge of the participants.

A total of 140 tertiary music students aged from 18 years old onwards in Universiti Putra Malaysia (UPM), Akademi Seni Budaya dan Warisan Kebangsaan (ASWARA) and Malaysian Institute of Art (MIA) were recruited for this study by using purposive sample technique. The participants must be a PLD users who had been using either a headphone or earphone at least once in a week in the previous six months. Those who did not have a PLD or had listened to their PLDs less than once a week were not considered as PLD users in this current study. In addition, participants must have a minimum of 5 years of experience in playing their major instruments. The participation is on a self-voluntary basis, and participants are allowed to withdraw from the study at any time.

Research Instrument

The maximum volume level of smartphones has a range from 75 to 126 A-weighted decibels (dB)A, taking into account the type of smartphone and headphones (Breinbauer et al., 2012; Kim and Han, 2018). Considering the differences in branded smartphones, the total level in electronic devices is calculated up to a percentage of 100% instead of decibels in this current study and online questionnaires. An online questionnaire (titled 'Evaluating the Hearing Habits and Hearing Knowledge among Music Students in Kuala Lumpur and Selangor, Malaysia') was designed via Google Forms to determine the rate of using listening devices among tertiary music students. A self-administered questionnaire in English version consisted of three sections; demographics (6 items), hearing habits (8 items) and knowledge of hearing to PLDs (8 items). The current study utilizes a Likert Scale in a questionnaire adapted from previous researches (Danhauer et al., 2009; Marron et al., 2015; Neeman et al., 2017; Vogel et al., 2009). The questions that were taken from past surveys included questions on the intensity and duration of PLDs usage, types of PLDs used, the environment in which PLDs were

used and knowledge regarding the safe usage of PLDs. These selected questions are relevant to the current study as it is focused on the relationship between awareness of using PLDs in a safe manner and the participants' habits when using the PLDs in their daily routine. Participants who have positive hearing habits are aware of the knowledge of hearing health is the hypothesis of this current study. After collecting the data, Statistical Package for Social Sciences (SPSS) software version 25.0 was used for analysation based on research objectives and hypotheses. There were two types of statistical analysis used, which were descriptive statistics and inferential statistics. Descriptive statistic was utilized to interpret data in the form of hearing habits and hearing knowledge. Inferential statistics was utilized to test the hypothesis whether the hearing habits is correlated with hearing knowledge. Inferential statistics was used to analyse the collected data, which was Spearman's rho Correlation.

Results

Hearing Habit

The participants in the study are comprised of tertiary music students with the mean age of 21.76 years. Table 1 sums up the responses of the 140 participants who answered the questionnaires on listening habit which include the intensity and duration of PLDs usage, types of PLDs used and the environment in which the PLDs were used. All participants reported that they utilise PLDs regularly. Majority of the participants (55.71%) claimed that they listen to the PLDs every day while a minority (12.14%) claimed that they listen to the PLDs 4 to 6 days per week. The majority of the participants reported listening to the PLDs continuously for less than 30 minutes (42.86%), followed by 30-60 minutes (32.86%), 1-4 hours (17.14%), and more than 4 hours (7.14%) - which formed the minority group. There are 5 different listening levels: very low (1-20%), low (21-40%), moderate (41-60%), high (61-80%), and very high (81-100%). Most of the participants reported listening to the PLDs at moderate volume level (55%), followed by high-volume level (26.43%). The more popular means of using the PLDs like earphones or headphones was smartphones (93.57%), followed by laptop or desktop (41.43%). Only a handful used MP3 (5.71%), I-pod (1.43%) and Walkman (1.43%). Listening to PLDs was mostly found to be accompanied by another activity. 80% of the participants reported that they listen to their PLDs while doing another activity (Always: 23.57%, Sometimes: 56.43%). 45.71% of the participants reported listening to their PLDs while walking; 46.43% listening while travelling; 17.14% listening while doing physical workout; and 28.57% listening while reading. Most of the participants sometimes increase the volume in noisy surroundings (47.14%), and sometimes increase the volume after listening for a certain period of time (48.57%).

Table 1
Participants' Hearing Habits

Hearing Habits	*Participants*	
	n	*Percent*
Regular user of PLDs	140	100%
Listening days in a week		
1-2d	19	13.57%
2-4d	26	18.57%
4-6d	17	12.14%
Every day	78	55.71%
Kind of PLDs		

Smartphone with earphones or headphones	131	93.57%
Laptop/Desktop with earphones or headphones	58	41.43%
MP3	8	5.71%
I-pod	2	1.43%
Walkman	2	1.43%
Duration of continuous listening		
15-30mins	60	42.86%
30-60mins	46	32.86%
1-4hrs	24	17.14%
More than 4hrs	10	7.14%
Listening level		
Very low (1-20%)	0	0%
Low (21-40%)	15	10.71%
Moderate (41-60%)	77	55%
High (61%-80%)	37	26.43%
Very high (81%-100%)	11	7.86%
Listening situations		
At home or hostel	124	88.57%
While walking	64	45.71%
While travelling	65	46.43%
During physical training	24	17.14%
At a library	29	20.71%
In a music practice room	72	51.43%
While reading	40	28.57%
Increase volume in noisy surroundings		
Never	4	2.86%
Rarely	11	7.86%
Sometimes	66	47.14%
Frequently	35	25%
Always	24	17.14%
Increase volume after listening for certain period of time		
Never	10	7.14%
Rarely	36	25.71%
Sometimes	68	48.57%
Frequently	12	8.57%
Always	14	10%
Listening as a separate activity		
Always as a separate activity	28	20%
Always while doing other activities	33	23.57%
Sometimes while doing other activities	79	56.43%

Knowledge of Hearing to PLDs

Table 2 below summarises the participants' hearing knowledge. Most of the participants (52.14%) sometimes reduced the volume after listening for a period of time. Others, rarely

(23.57%), frequently (14.29%), never (7.86%), and always (2.14%) reduced the volume after a period of listening. Majority of the participants sometimes (52.86%) took a break from listening whereas some of the participants frequently (19.29%) and rarely (18.57%) took breaks from listening, and a few always (5%) and never (4.29%) took breaks from listening. 92.15% of the participants had been warned that listening to very high-volume music could be dangerous to their hearing (sometimes, 37.14%; frequently, 24.29%; rarely, 16.43%; always, 14.29%). About half of the participants (50.71%) sometimes heeded warnings against the risks of high-volume music while some frequently (18.57%) and rarely (15%) heeded warnings against the risks of high-volume music. A minority never (10.71%) and always (5%) heeded warnings against the risks of high-volume music. More than one-third of the participants (35%) never been recommended to use protection. Others, rarely (21%), sometimes (34%), frequently (6%), always (4%) ever been recommended to use hearing protection. Majority of the participants strongly agree (53%) that hearing protection is important as a musician whereas some of the participants somewhat agree (26%) and have no opinion (11%) towards the importance of hearing protection, and a few strongly disagree (6%) and somewhat disagree (4%) that hearing protection is important as a musician. 79% of the participants had taken the preventive measure for hearing protection (sometimes, 44%; rarely, 19%; frequently, 9%; always, 7%). Most of the participants (62%) did not know or heard any of the organisation or acts that are responsible of hearing while 17% participants know about Department of Occupational Health Malaysia (DOSH) and 15% participants know about Occupational Safety and Health Administration (US). Only a minority of 4% participants know about ACT 514 Occupational Safety and health ACT 1994 and 2% participants know about (Factories and Machinery Act (Amendment), 2006).

Table 2
Participants' Knowledge of Hearing to PLDs

Hearing Knowledge	*Participants*	
	n	*Percent*
Reduced volume after a period of listening		
Never	11	7.86%
Rarely	33	23.57%
Sometimes	73	52.14%
Frequently	20	14.29%
Always	3	2.14%
Took breaks from listening		
Never	6	4.29%
Rarely	26	18.57%
Sometimes	74	52.86%
Frequently	27	19.29%
Always	7	5%
Someone warned you that listening to very high-volume music can be dangerous to your hearing		
Never	11	7.86%
Rarely	23	16.43%
Sometimes	52	37.14%
Frequently	34	24.29%
Always	20	14.29%

Heeded warnings against the risks of high-volume music		
Never	15	10.71%
Rarely	21	15%
Sometimes	71	50.71%
Frequently	26	18.57%
Always	7	5%
Been recommended to use hearing protection		
Never	49	35%
Rarely	29	21%
Sometimes	47	34%
Frequently	9	6%
Always	6	4%
Agreed that hearing protection is important as a musician		
I strongly disagree	8	6%
I somewhat disagree	5	4%
I have no opinion	16	11%
I somewhat agree	36	26%
I strongly agree	75	53%
How often to take preventive measure for hearing protection		
Never	29	21%
Rarely	27	19%
Sometimes	62	44%
Frequently	13	9%
Always	9	7%
Frequently Organisation or acts/law that you know or heard that are responsible of hearing		
Department of Occupational Health Malaysia (DOSH)	24	17%
ACT 514 Occupational Safety and Health ACT 1994	5	4%
Factories and Machinery Act (Amendment) (2006)	3	2%
Occupational Safety and Health Administration (US)	21	15%
None of above	87	62%

Correlation between Hearing Habits and Hearing Knowledge

Table 3 manifests the correlation between hearing habits and knowledge using Spearman' rho. There was a significant relationship between the total listening days in a week and how often volume reduced after a period of listening ($r = 0.058$, $p < 0.05$). This meant that the total listening days in a week affected how often volume reduced after a period of listening. Besides, there was a significant relationship between the total listening days in a week and how often taking breaks from listening ($r = 0.119$, $p < 0.05$). This meant that the total listening days in a week affected the PLDs users who often took breaks from listening. There was a significant relationship between the total listening days in a week and often received warning that listening to very high-volume music can be dangerous to our hearing ($r = 0.182$, $p < 0.05$). This meant that the total listening days in a week affected how often warning received that listening to very high-volume music can be dangerous to our hearing. There was a significant

relationship between the total listening days in a week and how often received heeded warnings against the risks of high-volume music ($r = 0.178$, $p < 0.05$). This meant that the total listening days in a week affected being often received heeded warnings against the risks of high-volume music. There was no significant relationship between the total listening days in a week and being recommended to use hearing protection ($r = 0.02$, $p > 0.05$). This meant that the total listening days in a week does not affect being often recommended to use hearing protection. There was a significant relationship between the total listening days in a week and aware that hearing protection is important as a musician ($r = 0.052$, $p < 0.05$). This meant that the total listening days in a week affected the awareness that hearing protection is important as a musician. There was no significant relationship between the total listening days in a week and how often to take preventive measure for hearing protection ($r = 0.022$, $p > 0.05$). This meant that the total listening days in a week does not affect on how often to take preventive measure for hearing protection.

There was a significant relationship between the duration of continuous listening and how often volume reduced after a period of listening ($r = 0.108$, $p < 0.05$). This meant that the duration of continuous listening affected how often volume reduced after a period of listening. Besides, there was no significant relationship between the duration of continuous listening and how often taking breaks from listening ($r = -0.1$, $p > 0.05$). This meant that the duration of continuous listening does not affect on the PLDs users who often took breaks from listening. There was no significant relationship between the duration of continuous listening and often received warning that listening to very high-volume music can be dangerous to our hearing ($r = 0.018$, $p > 0.05$). This meant that the duration of continuous listening does not affect on how often warning received that listening to very high-volume music can be dangerous to our hearing. There was a significant relationship between the duration of continuous listening and how often received heeded warnings against the risks of high-volume music ($r = 0.127$, $p < 0.05$). This meant that the duration of continuous listening affected being often received heeded warnings against the risks of high-volume music. There was no significant relationship between the duration of continuous listening and being recommended to use hearing protection ($r = -0.046$, $p > 0.05$). This meant that the duration of continuous listening does not affect being often recommended to use hearing protection. There was no significant relationship between the duration of continuous listening and aware that hearing protection is important as a musician ($r = 0.048$, $p > 0.05$). This meant that the duration of continuous listening does not affect on the awareness that hearing protection is important as a musician. There was no significant relationship between the duration of continuous listening and how often to take preventive measure for hearing protection ($r = -0.017$, $p > 0.05$). This meant that the duration of continuous listening does not affect on how often to take preventive measure for hearing protection.

There was a significant relationship between the listening levels and how often volume reduced after a period of listening ($r = 0.139$, $p < 0.05$). This meant that the listening levels affected how often volume reduced after a period of listening. Besides, there was a significant relationship between the listening levels and how often taking breaks from listening ($r = 0.062$, $p < 0.05$). This meant that the listening levels affected the PLDs users who often took breaks from listening. There was no significant relationship between the listening levels and often received warning that listening to very high-volume music can be dangerous to our hearing ($r = 0.011$, $p < 0.05$). This meant that the listening levels does not affect on how often

warning received that listening to very high-volume music can be dangerous to our hearing. There was no significant relationship between the listening levels and how often received heeded warnings against the risks of high-volume music ($r = 0.033$, $p > 0.05$). This meant that the listening levels does not affect being often received heeded warnings against the risks of high-volume music. There was a significant relationship between the listening levels and being recommended to use hearing protection ($r = 0.173$, $p < 0.05$). This meant that the listening levels affected being often recommended to use hearing protection. There was a significant relationship between the listening levels and aware that hearing protection is important as a musician ($r = 0.14$, $p < 0.05$). This meant that the listening levels affected the awareness that hearing protection is important as a musician. There was a significant relationship between the listening levels and how often to take preventive measure for hearing protection ($r = 0.098$, $p < 0.05$). This meant that the listening levels affected on how often to take preventive measure for hearing protection.

There was no significant relationship between the increasing of volume in noisy surroundings and how often volume reduced after a period of listening ($r = 0.002$, $p > 0.05$). This meant that the increasing of volume in noisy surroundings does not affect on how often volume reduced after a period of listening. Besides, there was no significant relationship between the increasing of volume in noisy surroundings and how often taking breaks from listening ($r = 0.011$, $p > 0.05$). This meant that the increasing of volume in noisy surroundings does not affect the PLDs users who often took breaks from listening. There was a significant relationship between the increasing of volume in noisy surroundings and often received warning that listening to very high-volume music can be dangerous to our hearing ($r = 0.178$, $p < 0.05$). This meant that the increasing of volume in noisy surroundings affected how often warning received that listening to very high-volume music can be dangerous to our hearing. There was no significant relationship between the increasing of volume in noisy surroundings and how often received heeded warnings against the risks of high-volume music ($r = 0.011$, $p > 0.05$). This meant that the increasing of volume in noisy surroundings does not affect on being often received heeded warnings against the risks of high-volume music. There was no significant relationship between the increasing of volume in noisy surroundings and being recommended to use hearing protection ($r = -0.129$, $p > 0.05$). This meant that the increasing of volume in noisy surroundings does not affect being often recommended to use hearing protection. There was a significant relationship between the increasing of volume in noisy surroundings and aware that hearing protection is important as a musician ($r = 0.07$, $p < 0.05$). This meant that the increasing of volume in noisy surroundings affected the awareness that hearing protection is important as a musician. There was no significant relationship between the increasing of volume in noisy surroundings and how often to take preventive measure for hearing protection ($r = -0.292$, $p > 0.05$). This meant that the increasing of volume in noisy surroundings does not affect on how often to take preventive measure for hearing protection.

There was a significant relationship between the increasing of volume after listening for certain period of time and how often volume reduced after a period of listening ($r = 0.123$, $p < 0.05$). This meant that the increasing of volume after listening for certain period of time affected how often volume reduced after a period of listening. Besides, there was a significant relationship between the increasing of volume after listening for certain period of time and how often taking breaks from listening ($r = 0.057$, $p < 0.05$). This meant that the increasing of volume after listening for certain period of time affected the PLDs users who often took

breaks from listening. There was a significant relationship between the increasing of volume after listening for certain period of time and often warning received that listening to very high-volume music can be dangerous to our hearing ($r = 0.144$, $p < 0.05$). This meant that the increasing of volume after listening for certain period of time affected how often received warning that listening to very high-volume music can be dangerous to our hearing. There was no significant relationship between the increasing of volume after listening for certain period of time and how often received heeded warnings against the risks of high-volume music ($r = -0.29$, $p > 0.05$). This meant that the increasing of volume after listening for certain period of time does not affect on being often received heeded warnings against the risks of high-volume music. There was no significant relationship between the increasing of volume after listening for certain period of time and being recommended to use hearing protection ($r = -0.99$, $p > 0.05$). This meant that the increasing of volume after listening for certain period of time does not affect being often recommended to use hearing protection. There was no significant relationship between the increasing of volume after listening for certain period of time and aware that hearing protection is important as a musician ($r = 0.001$, $p > 0.05$). This meant that the increasing of volume after listening for certain period of time does not affect the awareness that hearing protection is important as a musician. There was no significant relationship between the increasing of volume after listening for certain period of time and how often to take preventive measure for hearing protection ($r = -0.309$, $p > 0.05$). This meant that the increasing of volume after listening for certain period of time does not affect on how often to take preventive measure for hearing protection.

There was no significant relationship between listening as a separate activity and how often volume reduced after a period of listening ($r = 0.003$, $p > 0.05$). This meant that listening as a separate activity does not affect on how often volume reduced after a period of listening. Besides, there was a significant relationship between listening as a separate activity and how often taking breaks from listening ($r = 0.111$, $p < 0.05$). This meant that listening as a separate activity affected the PLDs users who often took breaks from listening. There was a significant relationship between listening as a separate activity and often received warning that listening to very high-volume music can be dangerous to our hearing ($r = 0.106$, $p < 0.05$). This meant that listening as a separate activity affected how often warning received that listening to very high-volume music can be dangerous to our hearing. There was no significant relationship between listening as a separate activity and how often received heeded warnings against the risks of high-volume music ($r = -0.1$, $p > 0.05$). This meant that listening as a separate activity does not affect on being often received heeded warnings against the risks of high-volume music. There was no significant relationship between listening as a separate activity and being recommended to use hearing protection ($r = -0.101$, $p > 0.05$). This meant that listening as a separate activity does not affect being often recommended to use hearing protection. There was no significant relationship between listening as a separate activity and aware that hearing protection is important as a musician ($r = 0.027$, $p > 0.05$). This meant that listening as a separate activity does not affect the awareness that hearing protection is important as a musician. There was no significant relationship between listening as a separate activity and how often to take preventive measure for hearing protection ($r = 0.025$, $p > 0.05$). This meant that listening as a separate activity does not affect on how often to take preventive measure for hearing protection.

Table 3
Spearman's rho Correlation Matrix between Hearing Habits and Hearing Knowledge

Variables (Hearing Habits: 1-6, Hearing Knowledge: 7-13)		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1.	Listening days in a week	1												
2.	Duration of continuous listening	.100	1											
3.	Listening level	.120	.043	1										
4.	Increase volume in noisy surroundings	.229**	.202*	.088	1									
5.	Increase volume after listening for certain period of time	.179*	.215*	.208*	.540**	1								
6.	Listening as a separate activity	.146	.064	.001	-.026	-.034	1							
7.	Reduced volume after a period of listening	.058	.108	.139	.002	.123	.003	1						
8.	Took breaks from listening	.119	-.010	.062	.011	.057	.111	.334**	1					
9.	Someone warned you that listening to very high-volume music can be dangerous to your hearing	.182*	.018	.011	.178*	.144	.106	.031	.222**	1				
10.	Heeded warnings against the risks of high-volume music	.178*	.127	.033	.011	-0.29	-.010	.210*	.360**	.274**	1			
11.	Been recommended to use hearing protection	.020	-.046	.173*	-.129	-.099	-.101	-.004	.129	.188*	.218**	1		
12.	Agreed that hearing protection is important as a musician	.052	.048	.140	.070	.001	.027	.118	.138	.140	.032	-.153	1	

13.	How often to take preventive measure for hearing protection	.022	-.017	.098	-.292**	-.309**	.025	.140	.172*	.151	.121	.327**	.125	1

Note: ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed); The number for samples for all variables was 140.

Average Correlation between Hearing habits and Hearing Knowledge
The result manifested in Table 4 revealed that overall correlation between hearing habits and hearing knowledge was significant ($r = 0.097$, $p < 0.05$). Overall, this meant that hearing habits is correlated with hearing knowledge.

Table 4
Average Correlation between Hearing habits and Hearing Knowledge

	Mean	*Minimum*	*Maximum*	*Range*	*Maximum/ Minimum*	*Variance*	*N of Items*
Inter-Item Correlations	.097	-.315	.549	.864	-1.743	.018	13

Discussion and Conclusion
This study involved 140 tertiary music students with at least five years of experience playing their major instrument and have 12 years of education. The results of the current study indicated that the majority of the music listeners use the PLDs every day, similar to a finding by (You et al., 2020).

The average period of using the PLDs among the participants in the current study was between 15 to 30 minutes. This is slightly different from other studies such as in Neeman et al (2017) where the majority of the listeners listened to their PLDs for 1 to 4 hours, whereas the average duration was 1 to 2 hours in (You et al., 2020). In comparison, only about 17.14% of the participants in the current study used the PLDs continuously for 1 to 4 hours. Nonetheless, it must be noted that Fligor and Cox (2004) had claimed that the maximum duration to use headphones safely is an hour a day, with a maximum of 60% volume level, especially when using a supra-aural headphone.

This study shows that most of the participants (52.14%) sometimes reduce the volume after listening for a period of time and only 7.86% reduce the volume all the time. In comparison, Neeman et al (2017) found that 22% of the participants exceeded the 100% noise dose at least once while Williams (2005) found that the output of personal stereo players (averaged at 79.8dBA) is below the accepted noise exposure level for workplace (85dBA) but above the level which is considered to be at risk (75dBA). The same issue has been discussed in a recent journal article by You et al (2020); Neeman et al (2017) which indicated that a large percentage of college students (76.4%) and 92.5% of young adults increased the volume when utilising PLDs in noisy surroundings respectively.

A study by Vogel et al (2009) indicated that fewer number of users 'always' or 'nearly always' reduced the volume after a period of listening (6.6%) as compared to the present study. According to the study, there were slightly fewer users who 'always' or 'nearly always' took a break for some time while listening (18.5%) and heeded warnings against the risks of high-volume music (18.3%) compared to the users in the current research study. Furthermore, overall in this current study, the correlation between hearing habits and hearing knowledge is high. Thus, the hypothesis is accepted.

Hence, the present study indicated that some tertiary music students lack knowledge about their listening devices and are ignorant of the importance of using a listening device safely. It is recommended that prevention and intervention need to be developed and implemented. For instance, important information and knowledge on the risks related to unsafe hearing habits and listening device usage must be emphasized through health education to ensure safe hearing habits among young adults, especially the tertiary music students. Besides, protective health measures need to be updated and emphasized under the rules and regulations. In other words, further research is needed for an effective development of health education and measures to deter such bad habits that are prevalent in our society as of late. Many people have used the PLDs since young, therefore, the present study suggests that the most effective method is to create awareness regarding the danger of listening to high intensity music starting from primary school children. They need to be advised on how to use the PLDs safely so that they understand the importance of a healthy and good hearing habit, the effect of hearing loss, and the possible protective methods that can be adopted. Educators and health professionals such as paediatricians and doctors should also be more involved in creating an intervention program to correct the children's habits and instil awareness and foster parental participation on this issue.

The limitation of this study is that the current study does not include the information regarding the issue of awareness among tertiary music students for the usage of the PLDs in the long-term. Therefore, for future research recommendation, awareness regarding the PLDs usage for a long-term run should be performed. Nonetheless, it is important that this research serves a purpose to spread awareness to the PLDs users on the safe usage of the PLDs to reduce potential hearing loss otherwise the future generation will have to suffer the consequences as anyone can be a victim.

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