Adolescent Exposure to Sad Music

WC: 4986

I. INTRODUCTION

The undisputable power of music holds immense influence over one's emotions. Music has demonstrated the ability to relieve stress, revive memories, and act as an aid for brain injury recovery (Whiteman 2015). The deep connection we share with music has revealed many benefits to our mental health. However, questions are raised as to whether music has the capability to harm just as much as it can help. In recent years, pop culture has experienced a dramatic influx of sadness. From music to television, themes associated with sorrow and loss are highly prevalent. This is worrisome, as research has proven a link between suicide in the media and suicide in the real world (Pirkis/Blood 2001). Music in particular has undergone an increase in sadness, with University of California at Irvine finding that "pop music has sonically decreased in happiness and increased in sadness" within a sample of 500,000 songs. Interestingly, sadness is an emotion that is paradoxically related to feelings of pleasure (Garrido/Schubert 2015). This suggests that sadness is multifaceted, whereas it has previously been regarded as a solely unpleasant emotion. "Sad music" is traditionally defined as being played in a slow tempo and being in a minor key (Peretz 1998). In the case of sad music, an attachment to certain "problem genres" may indicate vulnerability to mental health problems (North 2012). Although many studies have sought to explore the reasons and effects corresponding to the enjoyment of sad music, they have primarily focused on adults and young children. Adolescents are at a critical point in their development, with music heavily influencing their identity, relationships, coping, and mood regulation (Gold 2011). Furthermore, music interacts with a person's mental health by potentially intensifying maladaptive behavioral patterns and experiences (McFerran/ Saarikallio 2013). In the absence of knowledge regarding the implications and reasons for adolescent exposure to sad music, adolescents will remain vulnerable to the potential detrimental effects of this behavior. With a significant absence of

research regarding adolescent exposure to sad music within the existing literature, this study seeks to answer the following question: To what extent does adolescent exposure to sad music lead towards unhealthy feelings of disparity?

II. LITERATURE REVIEW

Cognitivist v. Emotivist View

Many studies have been conducted in order to explore the supposedly paradoxical relationship between sad music exposure and satisfaction. Historically, attraction to sad music has always been a critical issue (Davies S 1997). There's a classic debate regarding the role of music on emotions, which argues two sides: the "cognitivist" view and the "emotivist" view (Kivy 1989). The cognitivist view holds that music doesn't affect the listener's emotions, while the emotivist view claims that music induces genuine emotions within the listener (Meyer 1956).

Dissociation, Imagination, Empathy, and Rumination

Responses towards listening to sad music are influenced by four main factors: dissociation, imagination, empathy, and rumination (Garrido and Schubert 2011). Dissociation involves depersonalization, amnesia, and absorption. These are all forms of detachment from reality (Ray et. Al 1992). Dissociation can be experienced in traumatic experiences such as childhood abuse, where victims detach themselves from reality in order to cope (Van Ijzendoorn & Schuengel 1996). Musical studies have also shown that engagement with music may contribute to one's development of imagination (Cross 2007). Because of this, sad music may create enjoyment-filled fantasies. Empathy is defined as "sharing the perceived emotion of another" (Eisenberg and Strayer 1987). Empathy as a reward while listening to sad music will be further discussed later. Rumination in psychological terms is "bringing a thought back to mind

over and over" (Joorman 2005). Many of these "ruminators" prefer listening to sad music and "lack the desire to rid themselves of their negative mood" (Garrido and Schubert 2011).

An experiment conducted by Garrido and Schubert analyzed each of these factors in order to explore how they contribute to listener's capacity to enjoy sad music. The participants in this study were 59 students at the University of New South Wales. This experiment utilized a Likert scale survey asking questions based on empathic concern, absorption, fantasy proneness, and rumination. The results showed that absorption and empathy were the largest contributors towards the enjoyment of sad music, while dissociation had the least correlation.

Influence of Empathy on Sad Music

An experiment done by Kawakami and Katahira explored the connection between empathy and preference of sad music. The participants in this study were 42 female and 42 male elementary school students from Japan. The participants listened to the two pieces (Granado's *Allegro de Concierto* and Glinka's *La* Separation) then were asked to describe their emotions with a list of emotional phrases on a scale from 1 (not at all) to 5 (very much). The participants then responded to the Interpersonal Reactivity Index Scale, which is a tool used to assess one's multidimensional empathy.

The results of this study revealed that liking sad music was most directly correlated with empathy and perspective taking. Kawakami and Katahira's results differed from Garrido and Schubert's study's findings, which claimed that fantasy was the biggest factor connected with liking sad music. This difference may be attributed towards the age gaps between the adult population studied in Garrido and Schubert's study and the elementary school students in Kawakami and Katahira's study. This difference raises questions on whether reasons for sad music induced pleasure differs among age groups.

Rewards of Listening to Sad Music

Despite sadness being an undesirable emotion, studies have proven that sad music may be beneficial for the listener. A study conducted by Taruffi and Koelsch utilized an online survey questioning 772 individuals. The survey contained seven sections (e.g. Musical Training and Musical Engagement; Sad Music; Principles Underlying the Evocation of Sadness by Music).

This study revealed that exposure to sad music was correlated with rewards of emotion regulation, empathy, imagination, and no "real life" implications. The reward of emotion regulation is experienced through pleasure from regulating one's emotions through methods such as venting or mood enhancement (Taruffi and Koelsch 2014). Empathy rewards are felt when sharing emotions, such as connecting with a singer singing about familiar hardships. The reward of imagination is derived from the pleasure taken when engaging in imaginative processes. The reward of empathy is felt when sharing someone else's emotion, such as a singer singing about their hardships. No "real-life" implications are derived from pleasure lacking "real life" consequences.

Risks of Sad Music Exposure

Multiple studies have agreed that sad music has beneficial effects on the listener. However, there are concerns regarding the potential consequences of listening to sad music. Research studies have found that the prevalence of media portraying of suicide is correlated to real life suicide (Pirkis and Blood 2001). Recently, there has been an alarming increase of suicides after suicide portrayals in newspapers, movies, television reports, TV series, and soap operas. This "copycat" behavior is referred to as the Werther effect (Phillips 1974).

In order to explore this phenomenon in sad music, an online survey was conducted recruiting 2,221 participants utilizing the Beach method, Suicide Probability Scale (Cull and

Grill 1998), Erlanger Depression Scale (Lehrl and Gallwiz 1983) and Satisfaction with Life Scale (Diener et. al 1985). Participants ranked their preference for suicide and non-suicide related songs provided to them using a Likert 5-point-scale. This study suggested that happy music preference was negatively linked to risk factors of suicidal behavior, such as hopelessness and depression. Conversely, suicidal individuals were observed to excessively focus on tragic parts of life and gravitated towards media, including music, which reflected their current mental state (Till 2016).

These findings are consistent with Garrido and Schubert's study that explored the relationship between sad music preference and personality factors. Both studies display evidence that "maladaptive thinking behaviors" may predict sad music attraction (Garrido and Schubert 2011).

Another risk of listening to sad music is group rumination, since many individuals listen to music in group settings. Music can help in creating social relationships since people with similar music preferences have shared values (Boer et.al 2011). However, listening to sad music in a group setting as a way of ruminating raises questions as to whether this is a healthy or harmful process. For example, Garrido and Schubert's study on personality factors indicated that sad music listening can intensify one's emotions in response (Garrido and Schubert 2011). On the other hand, music being used to share emotions within a group setting may provide valuable community with others and social support.

A study conducted by Garrido, Eerola, and McFerran aimed to address this question with an online survey recruiting 697 participants. They were questioned about their ways of music usage and engagement, effects of music listening, then were asked to name a song they listened to when feeling sad (Garrido et.al 2017). This study revealed that depressed individuals usually

seek isolation. However, when music is associated with social interactions, they're often ruminative, with negative results (Garrido et. al 2017). This contradicts Taruffi and Koelsch's research, which argued that sadness from music is an aesthetic reward and can improve well-being and social interactions (Taruffi and Koelsch 2014). This contradiction can be explained with knowing that the effects of sad music can vary depending on the individual. The outcomes from sharing emotions through music may also depend on the dominant thinking patterns of individuals within a group (Garrido et. al 2017). Therefore, it is important for the sharing of emotions to be facilitated by a therapist in order to ensure positive effects.

These results raise questions concerning the prevalence of young people with tendencies of depression listening to sad music with a group. Although strong social bonds usually fight depression, a group of ruminators will lead to an excess focus on negative emotions, resulting in an elevated chance of depression within individuals at risk.

Many of the studies described have concentrated on populations consisting of primarily adults. Therefore, there is a critical gap in the populations studied within this research since adolescents are often overlooked. Research on adolescent exposure to music is critical in that music supports adolescent development regarding identity, relationships, coping, and mood regulation (Gold 2011). Music also influences the context of adolescents and their state of mental health, which can intensify their experiences and behavior (McFerran 2013). My research aims to further the work of the previously mentioned studies by focusing on high school students in order to explore if unhealthy feelings of disparity and depression are connected with adolescent exposure to sad music. After analyzing foundational sources, the researcher of this paper hypothesized that listening to sad music as an adolescent can contribute towards developing unhealthy feelings of disparity.

III. METHODS

Population

The population in this study consists of high school students from GHC. The high school surveyed consists of around 4,200 students, and is located in suburban California. This ethnically diverse population is primarily middle class (average income of $95, 372) and is composed of fifty percent males and fifty percent females. All GHC students (grades 9-12) were surveyed, in order to obtain a general scope of the population's opinions. Due to the broad diversity of the students surveyed, these findings can be applied towards many other high school populations.

Sample Selection

Data was collected through a stratified random sample by means of a Google Forms survey. Students at GHC are offered a plethora of diverse classes, resulting in many different schedules. However, all students are required to enter school between the times of 7:00 AM and 8:25 AM. Multiple gates across the school are available for students to enter, providing students with easier access to their class location. Random selection was implemented through stratifying by different entry gates, allowing the student population to be accurately represented, since every student had an equal chance of being selected. After gaining consent from randomly selected students, the students' emails were recorded on an Excel spreadsheet. The study's survey was then forwarded to the emails recorded, along with a cover email stating, "Hi everyone, thank you so much for volunteering to participate in my survey for AP Research! This survey is anonymous, so please answer as truthfully as you can. Let me know if you have any questions, and thank you for your time." After five days, 123 responses were gathered. These responses

were condensed through Excel's random number generator, which randomly selected 100 responses from the original 123 responses.

Figure 1. Map and Distribution Table

Color	Entry Point
	Flagpole (Zelzah)
	Zelzah Teacher Parking Lot
	Service Road East (Boy's PE Side)
	Hiawatha Lot (PE Field)
	Service Road West (Girl's PE Side)
	J Gate
	Kingsbury (Main Entrance)
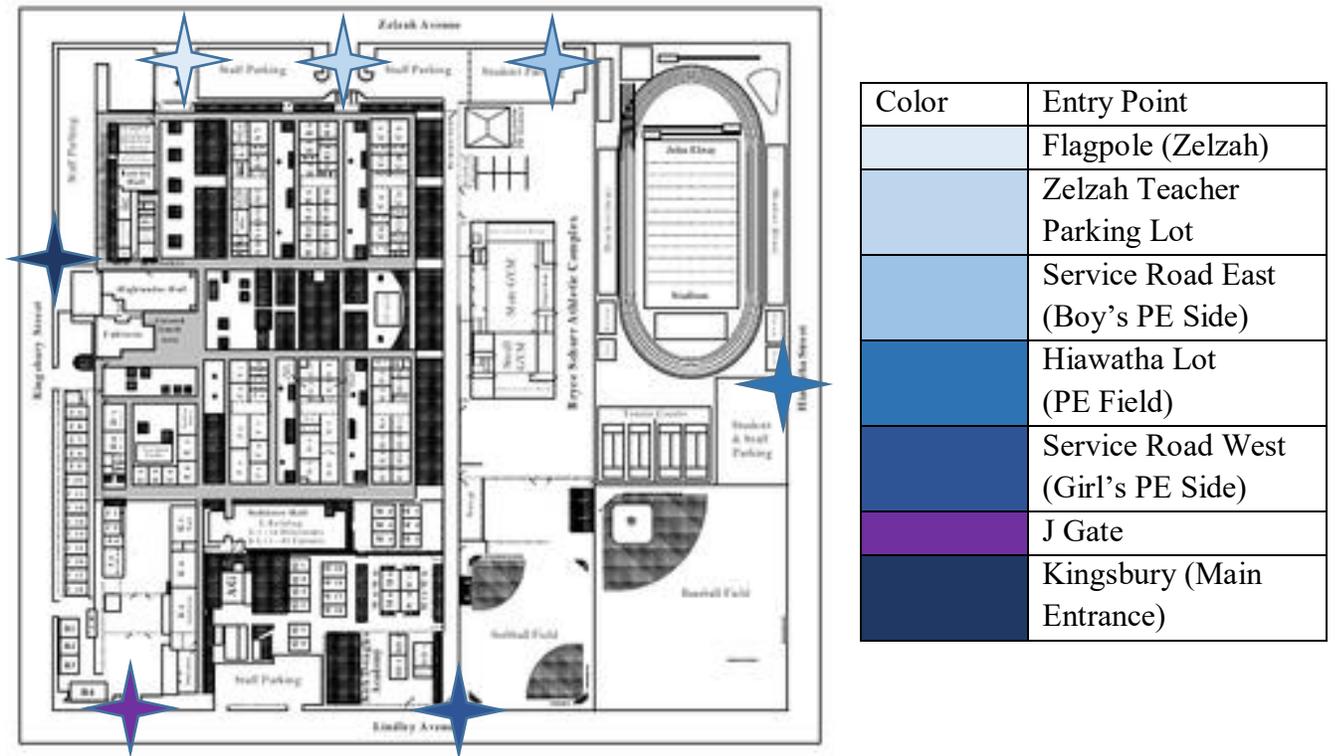
Materials

Chromebooks: Chromebooks are provided to every student, along with access to Wifi networks throughout the campus. This allowed the participants to easily access the Google Forms survey.

Google Forms: The survey was created and distributed through Google forms, a survey administration app used to create forms for questionnaires.

PC Computer: The study's survey was created on a PC computer, which was also utilized to analyze data through various programs.

Microsoft Excel: Microsoft Excel's features of calculation and graphing tools allowed the data gathered from the survey to be analyzed and processed.

Implementation: Survey Construction

This study consisted of a Likert scale survey, which recorded participants' opinions on "sad" music. The enjoyment of sad music phenomena was explored through dividing the survey into six sections: demographics, sad music listening habits, principles underlying the evocation of sadness by music, rewarding aspects of music-evoked sadness (divided into two parts), and a musical piece nomination.

The survey was modeled after Taruffi and Koelsch's study "The Paradox of Music-Evoked Sadness: An Online Survey". Twenty-eight questions were taken from Taruffi and Koelsch's study and implemented in this survey, carefully chosen based on their wording, goal, and specificity. Some questions in Taruffi and Koelsch's survey were redundant in order to cross-reference similar question responses, ensuring that these responses were accurate. However, the goal of this survey must be short and concise in order to maximize the amount of responses. In addition, the goal of some of the questions within Taruffi and Koelsch's survey were not related to my own goals in my study. For example, some of the questions in Taruffi and Koelsch's study asked their participants about death and fantasy worlds. These questions were not utilized in order to avoid uncomfortable feelings within the participants, and they're also loosely related to the goal of this research. In addition, some questions taken from Taruffi and

Koelsch's survey were re-worded in order to ensure accurate comprehension, as my participants are high school students.

Demographic questions are used to categorize the responses collected. Through data analysis, these demographic questions can reveal patterns among different subcategories. The sad music listening habits section of the survey primarily consisted of Likert scale questions exploring the reasons for listening to sad music and how often sad music listening occurs. A free response question was also included in this section, asking for an example of a time in which one would listen to sad music. The principles underlying the evocation of sad music section focuses on Likert scale questions inquiring how one feels when listening to sad music, such as how sad music can evoke a mood in certain situations (e.g. funeral). The rewarding aspects of music-evoked sadness (part one) utilizes Likert scale questions focusing on an individual's personal experience with enjoyment of sad music, beginning each question with the phrase "I like to listen to sad music because…" The rewarding aspects of music-evoked sadness (part 2) utilizes Likert scale questions inquiring how much one agrees with statements concerning potential benefits of listening to sad music, such as releasing feelings of sadness or loss. The last section of the survey is a music piece nomination, which consists of a short answer text allowing the respondent to provide one or more examples of their favorite sad music. This provides an example of the "sad music" the participant's response was based on when responding to the survey.

The table below includes the questions within the survey organized by section, modeled after Taruffi and Koelsch's study.

Table 1: Instrument Table with Citations

| Questions	Measurement Scale	Source
Demographic	Assorted	
Which gate did you enter in the morning?	Flagpole (Zelzah), Zelzah Teacher Parking Lot, Service Road East (Boy's PE Side), Hiawatha Lot (PE Field), Service Road West (Girl's PE Side), J Gate, Kingsbury (Main Entrance)	Self-defined
What gender do you identify as?	Female, Male, Prefer not to say, Other	Self-defined
What grade are you in?	Freshman, Sophomore, Junior, Senior	Self-defined
What is your ethnicity?	American Indian or Alaska Native, Asian (Including Indian subcontinent and Philippines origin)	Self-defined
What generation American are you?	First, Second, Third, Fourth, Unknown	Self-defined
How frequently do you listen to music?	0-1 hours a day, 2-3 hours a day, 4-5 hours a day, 6-7 hours a day, 8+ hours a day	Self-defined
What is your preferred music genre?	Pop music, Classical, R&B/ Soul, Hip Hop/ Rap, Jazz, Other	Self-defined
Sad music listening habits	**Likert Scale (1-7)**	
How often do you actively select sad music to listen to?	Very Rare (1), Rare (2), Somewhat Rare (3), Neutral (4), Somewhat Often (5), Often (6), Very Often (7)	Taruffi/Koelsch 2014, Pg 12
How much do specific situations influence your choice to listen to sad music?	Very little (1), little (2), Somewhat little (3), Neutral (4), Somewhat much (5), much (6), Very much (7)	Taruffi/Koelsch 2014, Pg 4
Could you write down one or more examples of situations in which you engage with sad music (sad melodies, sad lyrics, etc) and why?	Short Answer Text	Taruffi/Koelsch 2014, Pg 12
When I am in a sad mood I like to sad music	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 6
When I am in a positive mood I like to listen to sad music.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 6
Sad music makes me feel sad or sorrowful.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Sad music makes me feel tender, affectionate or in love.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi et al.
Sad music makes me feel nostalgic, dreamy or melancholic.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi et al.
Sad music makes me feel tense, agitated or nervous.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi et al.
Sad music makes me feel serene, calm or smoothed.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi et al.
Sad music makes me feel strong, triumphant, or energetic.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi et al.
Sad music does not make me feel any emotion.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi et al.

Table 1 Continued…

Principles underlying the evocation of sadness by music	Likert Scale (1-7)	
Sad music make me feel sad because it evokes memories of certain past events, people or places.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
I am affected by the expression of sadness in music to the point where I frown or even cry.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Sad music makes me feel sad because its musical features (e.g., slow tempo, legato articulation, etc.) evoke a sad mood in myself.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Sad music helps me to be sad when I want to be sad.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Sad music can evoke mood when it's appropriate (e.g., funeral).	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Sad music makes me feel sad because I imagine sad objects/scenes.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Sad music makes me feel sad because I am touched by the sadness of others.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 13
Rewarding aspects of music-evoked sadness (part 1)	**Likert Scale (1-7)**	
(I like to listen to sad music because…)		Taruffi/Koelsch 2014, Pg 10
…by contemplating this feeling in the music, I can get a better understanding of my own feelings, without negative life consequences.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
…sad music helps me to regulate my mood (e.g. feel better) when I'm feeling sad.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
…experiencing sadness through music makes me feel better after listening to it, and thus has a positive impact on my emotional well-being.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
…I imagine I share the same emotional experience of the composer which makes me not feel alone anymore.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
…it makes me think more realistically about life.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
Rewarding aspects of music-evoked sadness (part 2)	**Likert Scale (1-7)**	
Sad music calms me down or relaxes me.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
Sad music helps me to release feelings of sadness or loss.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
Sad music evokes intense emotions or makes me feel alive.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
Sad music connects me to the suffering of others and makes me feel less alone.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
Sad music helps me to maintain motivation during long working periods.	Strongly Disagree (1), Disagree (2), Somewhat Disagree (3), Neutral (4), Somewhat Agree (5), Agree (6), Strongly Agree (7)	Taruffi/Koelsch 2014, Pg 10
Musical Piece Nomination		
Please provide one or more example(s) of your favorite sad music (either instrumental or with lyrics)	Short Answer Text	Taruffi et al.

Histogram/Line Graphs and Data Correlation

### Section A: Factors in Listening to Sad Music

Question A1a	Question A1b

How often do you actively select sad music to listen to?

7 14 14 25 20 13 7

Very Rare 2 3 4 5 6 Very Often

Source: My December 2018 GHC Study

How often do you actively select sad music to listen to?

13% 18% 16% 26% 27% 16% 11%
3% 11% 13% 24% 8% 8% 5%

Very Rare 2 3 4 5 6 Very Often

Female   Male

Source: My December 2018 GHC Study
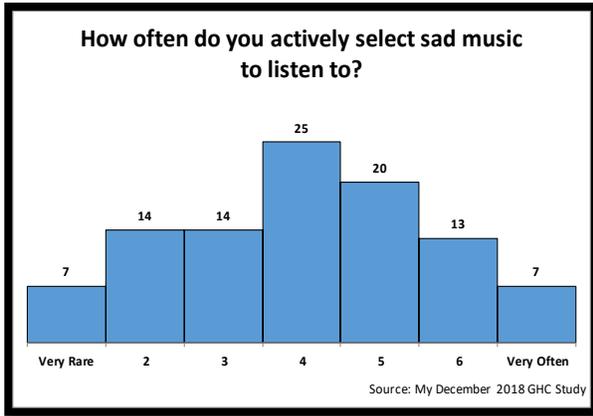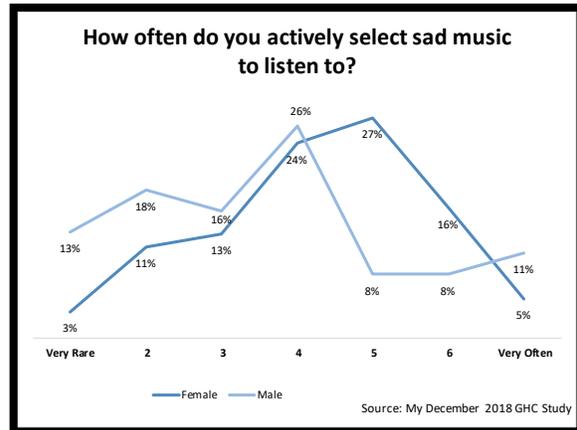
40% of the participants actively listen to sad music. 33% of the participants do not actively listen to sad music

Interestingly, females are shown to actively listen to sad music much more frequently than males.

Question A3	Question A4

When I am in a sad mood I like to listen to sad music

10 8 5 14 16 14 33

Strongly Disagree 2 3 4 5 6 Strongly Agree

Source: My December 2018 GHC Study

When I am in a positive mood I like to listen to sad music.

20 27 16 15 14 2 6

Strongly Disagree 2 3 4 5 6 Strongly Agree

Source: My December 2018 GHC Study
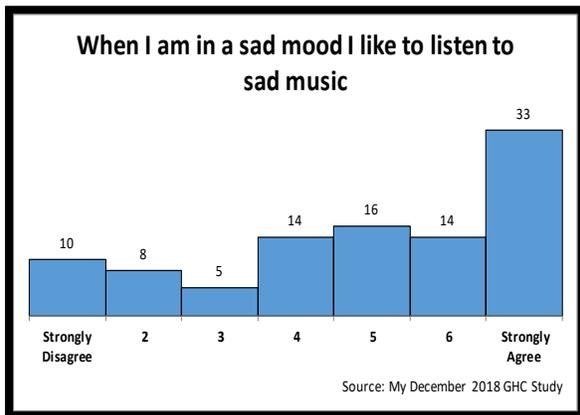
63% of respondents like to listen to sad music when in a sad mood. 23% of respondents do not like to listen to sad music when in a sad mood.
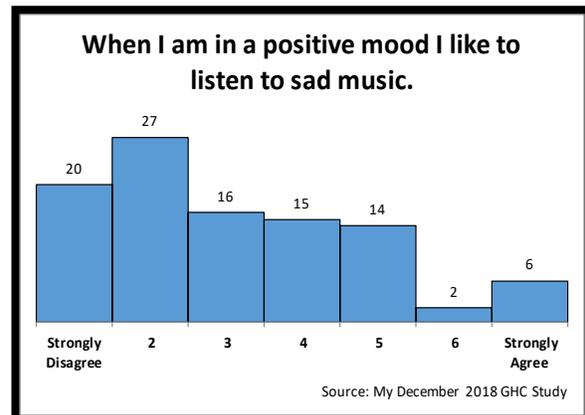
63% of respondents do not like to listen to sad music when in a positive mood. 22% of respondents like to listen to sad music when in a positive mood.

Question A2

How much do specific situations influence your choice to listen to sad music?

Female: 10%, 11%, 8%, 13%, 18%, 18%, 27%
Male: 16%, 10%, 5%, 26%, 11%, 13%, 16%

Very Little — 2 — 3 — 4 — 5 — 6 — Very Much

— Female — Male

Source: My December 2018 GHC Study
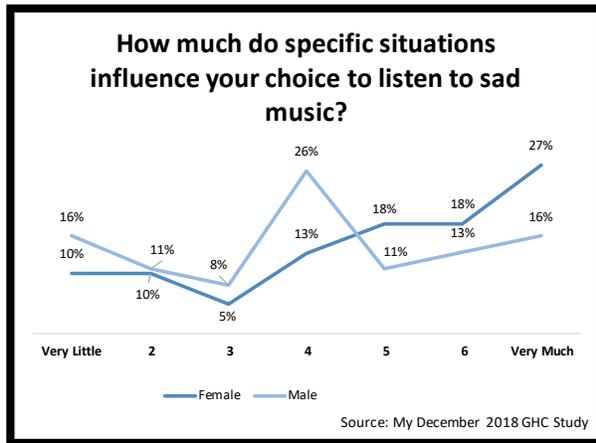
28% of respondents are not influenced by specific situations to listen to sad music. 54% of respondents are influenced by specific situations to listen to sad music.

Question A19

...by contemplating this feeling in the music, I can get a better understanding of my own feelings, without negative life consequences.

7, 6, 11, 28, 18, 22, 8

Strongly Disagree — 2 — 3 — 4 — 5 — 6 — Strongly Agree

Source: My December 2018 GHC Study
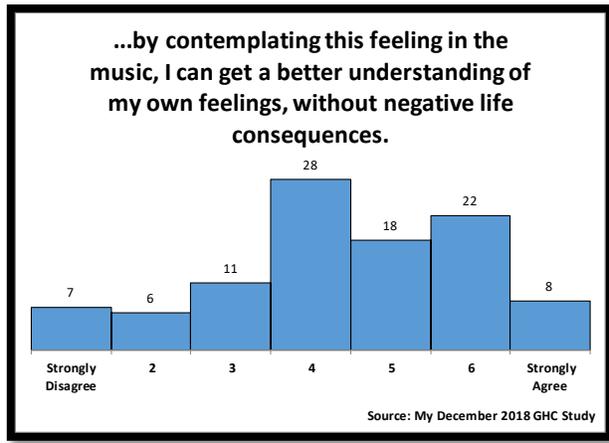
48% of respondents listen to sad music in order to get a better understanding of their own feelings without negative life consequences. 24% of respondents do not listen to sad music in order to get a better understanding of their own feelings without negative life consequences.

Section B: Effects of Listening to Sad Music

Question B11

Sad music does not make me feel any emotion.

45, 23, 8, 10, 6, 4, 4

Strongly Disagree — 2 — 3 — 4 — 5 — 6 — Strongly Agree

Source: My December 2018 GHC Study
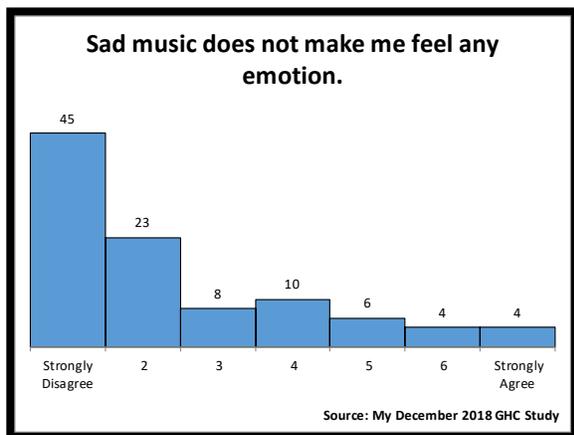
76% of respondents feel emotion when listening to sad music. 14% of respondents do not feel emotion when listening to sad music.

Question B15
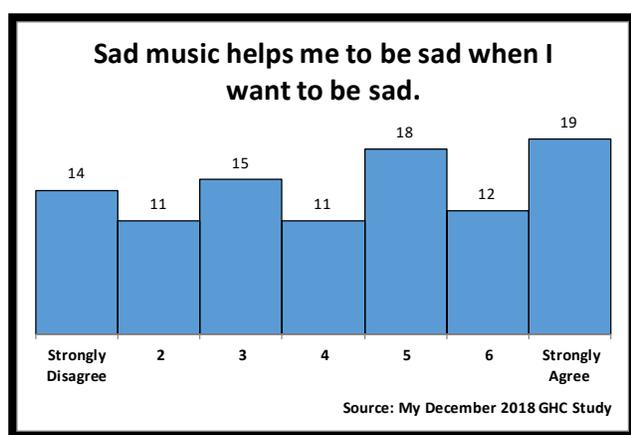
Sad music helps me to be sad when I want to be sad.

14, 11, 15, 11, 18, 12, 19

Strongly Disagree — 2 — 3 — 4 — 5 — 6 — Strongly Agree

Source: My December 2018 GHC Study

This graph displays a unique distribution, with 40% of respondents claiming that sad music does not help them to be sad when they want to be sad and 49% of respondents believing that sad music helps them to be sad when they want to be sad.

Question B16

Sad music can evoke mood when it's appropriate (e.g., funeral).

3	6	8	14	18	22	29
Strongly Disagree	2	3	4	5	6	Strongly Agree

Source: My December 2018 GHC Study

Question B18

Sad music makes me feel sad because I am touched by the sadness of others.

female — male

Source: My December 2018 GHC Study
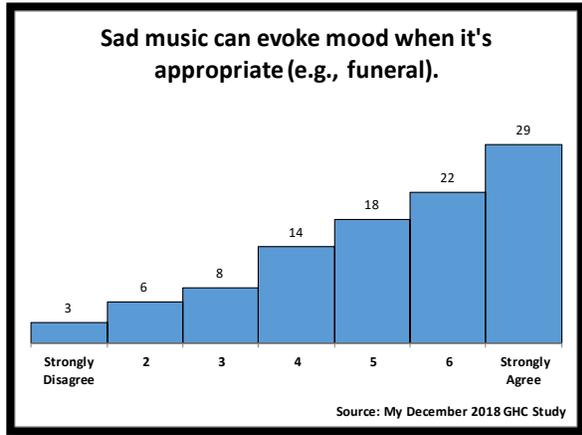
69% of respondents believe that sad music can evoke mood when it's appropriate. 17% of respondents believe that sad music does not evoke mood when it's appropriate.
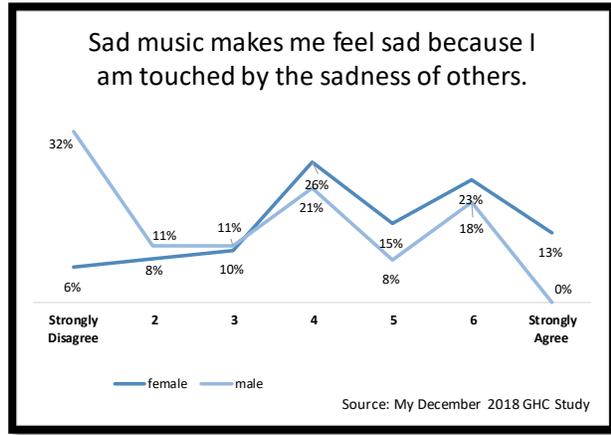
Females appear to claim that being touched by the sadness of others creates dismal emotions more than males.

Figure 2. Correlation Table (*selected questions*)

	How often?	*Situation Influence*	*Sad mood = sad music*	*Positive mood = sad music*
How often?	1.00			
Situation Influence	0.44	1.00		
Sad mood = sad music	0.65	0.66	1.00	
Positive mood = sad music	0.47	-0.02	0.36	1.00
Emotions #7 - No emotion	-0.31	-0.23	-0.24	0.05
Effectiveness	0.52	0.41	0.49	0.21
Setting	0.24	0.32	0.26	-0.01
Empathy	0.20	0.27	0.13	-0.06
Reason #1: Not real life	0.43	0.39	0.43	0.20

	Emotions #7 - No emotion	*Effectiveness*	*Setting*	*Empathy*	*Reason #1: Not real life*
How often?					
Situation Influence					
Sad mood = sad music					
Positive mood = sad music					
Emotions #7 - No emotion	1.00				
Effectiveness	-0.38	1.00			
Setting	-0.21	0.34	1.00		
Empathy	-0.29	0.43	0.36	1.00	
Reason #1: Not real life	-0.27	0.43	0.51	0.50	1.00

V: DISCUSSION

The data gathered from this study aimed to reveal both the factors influencing adolescents to listen to sad music, as well as the effects of adolescent exposure to sad music. The survey was composed of 28 Likert-scale questions, all of which were designed to address two main categories: Factors and Effects of sad music. Discovering the factors leading adolescents to prefer sad music provides background knowledge critical towards identifying the subsequent effects of listening to sad music. In addition, male and female subpopulations were analyzed to further understanding of the results.

A. Factors in Listening to Sad Music

The most significant questions within the "Factor" category are pictured above along with their corresponding graphs. When analyzing factors in listening to sad music, the paradoxical relationship between feelings of pleasure and sad music was apparent with the results of "How often do you actively select sad music to listen to?" (Question A1a). A 40% majority of respondents stated that they often selected sad music to listen to on a Likert Scale of 1 (Very Rare) to 7 (Very Often). This established the prevalence of listening to sad music among my respondents, despite sadness often being a "negatively" associated emotion. My results yielded similar responses to Taruffi and Koelsh's study, which served as a model for my survey. Taruffi and Koelsch attributed the liking of sad music to certain reward dimensions, such as mood regulation, which could in turn help regulate sad moods.

Consequently, two questions were designed to target the "mood" that caused respondents to listen to sad music: "When I am in a sad mood I like to listen to sad music" (Question A3) and "When I am in a positive mood I like to listen to sad music" (Question A4). As pictured above,

an overwhelming majority (63%) of respondents do not like to listen to sad music when in a positive mood, while 22% of respondents like to listen to sad music when in a positive mood. This result is also apparent in Taruffi and Koelsch's study, which found that only 16% of respondents reported engaging with sad music while experiencing a positive emotional state. Likewise, 63% of the respondents like to listen to sad music when in a sad mood, while a mere 23% of respondents do not like to listen to sad music when in a sad mood. As mentioned previously, there are two main views surrounding sad music: the cognitivist and emotivist view. The cognitivist view recognizes music as expressing emotion without inducing it in the listener, while the emotivist view states that music induces genuine emotion in the listener. Because the data gathered clearly demonstrates that one's music correlates with their real emotions, the emotivist view may be a more accurate description of sad music's influence. This would correspond with Eerola's study, which demonstrated that "genuine sadness could be induced by unfamiliar sad music", which would "challenge" the claims of the "musical cognitivists".

Another noteworthy factor leading towards sad music preference is found in Question A19, which states: "(I like to listen to sad music because)… by contemplating this feeling in the music, I can get a better understanding of my own feelings, without negative life consequences." The majority (48%) of participants responded that they listen to sad music in order to get a better understanding of their own feelings without negative life consequences. This is evident as well in Kawaki's study, which reveals that people experience pleasure in sad music due to its negative emotions posing no real threat on the listener. Therefore, the sadness that listeners experience has a pleasant quality to it.

B. *Effects of Listening to Sad Music*

When examining the effects of listening to sad music, the corresponding questions within the survey targeted what specific kinds of emotions were experienced. The emotivist view of music is also supported by Question B11's results, which states: "Sad music does not make me feel any emotion." On a scale of 1 (Strongly Disagree) to 7 (Strongly Agree), 76% of respondents feel emotion when listening to sad music, while only 14% of respondents do not feel emotion when listening to sad music.

A perfect representation of the complexity of the emotions evoked by sad music is best illustrated with Question B15: "Sad music helps me to be sad when I want to be sad." This graph displays a unique distribution, with 40% of respondents claiming that sad music does not help them to be sad when they want to be sad and 49% of respondents believing that sad music helps them to be sad when they want to be sad. The debate centered on whether the emotions induced by music are genuine or purely aesthetic is displayed through this piece of data. Therefore, the effects of sad music do not have a "clear-cut" answer because many variables exist that can determine one's emotional experience due to differing reward centers.

Also noteworthy is Question B16: "Sad music can evoke mood when it's appropriate (e.g., funeral)". This data is skewed to the right, with 69% of respondents believing that sad music can evoke mood when it's appropriate. Only 17% of respondents believe that sad music does not evoke mood when it's appropriate. This corresponds with Taruffi and Koelsch's study, which found that "a considerable number of participants (184 out of 772)" engaged with sad music when they were lonely. Applying this concept of music evoking mood to other social situations reveals how group settings, such as parties or dances, can intensify responses to music. Therefore, group interactions centered on sad music could have a dangerous outcome for people with tendencies for depression.

C. Subpopulations

The results of the survey were further analyzed through male and female subpopulations. This was done in account of males and females having different brain circuitry, resulting in separate emotive responses. When observing the question "How often do you actively select sad music to listen to?" (Question A1b) females were shown to actively select sad music to listen to more frequently than males. This is most illustrated with 27% of females selecting "5" on a scale of 1 (Very Rare) to 7 (Very Often) compared to only 8% of males selecting a "5". Likewise, 13% of males selected a "1" (Very Rare), while only 3% of females selected a "1". Overall, 48% of females engaged in listening to sad music while only 27% of males reported selecting sad music to listen to. This demonstrates a clear difference between male and female responses to sad music.

In regards to the extent of situational influence on listening to sad music, Question A2 addresses this with: "How do specific situations influence your choice to listen to sad music?" On a scale of 1 (Very little) to 7 (Very much), 28% of respondents are not influenced by specific situations to listen to sad music. More than half (54%) of the respondents are influenced by specific situations to listen to sad music. Therefore, it is apparent that certain situational factors may cause one to listen to sad music. When analyzing the male and female subpopulations, males appear to have little opinion on situations influencing their choice to listen to sad music, while women are much more influenced by specific situations in listening to sad music.

In order to explore sad music's empathy reward center, Question B18 asks: "Sad music makes me feel sad because I am touched by the sadness of others." On a scale of 1 (Strongly Disagree) and 7 (Strongly Agree), 41% of respondents are saddened by sad music because they are touched by the sadness of others. This corresponds with Taruffi and Koelsch's study, which

found "the mood-congruent liking of sad music positively correlated with global empathy ($r = .114$, $p,.01$)". When observing the subpopulations, 13% of females and 0% of males ranked a 7 (Strongly Agree). Furthermore, 32% of males and 6% of females ranked a 1 (Strongly Disagree). This indicates that females are more influenced by reward centers associated with empathy when listening to sad music than males. The emotion and reward neural systems music recruits is also witnessed in responses to other biological (ex. food, sex) and artificial (ex. drugs of abuse) stimuli.

D. Correlations

The most significant correlations will be discussed, all of which are gathered from the correlation table pictured above. Situation influence and a sad mood influencing one's choice to listen to sad music revealed a .66 correlation. This is understandable since a situation in which one has dismal emotions would increase the likelihood of choosing to listen to sad music. Based on the results previously discussed, music reflecting one's mental state also supports this correlation. A sad mood influencing sad music choice has a .65 correlation with how often one listens to sad music. Therefore, if one is frequently sad or has tendencies towards depression, they're more likely to listen to sad music. A .52 correlation is seen between the effectiveness of sad music and how often one chooses to listen to it. This is due to the multiple reward centers associated with sad music causing one to choose to listen to sad music more often. The influence of a setting on sad music has a .51 correlation with sad music not having any real life consequences. This can be attributed to sad music's imagination reward centers, in which one experiences the pleasures of no "real life" implications resulting in the absence of "real life" consequences. When at a funeral or other "sad" setting, sad music allows the listener to experience their sorrowful emotions, free of consequences.

VII: CONCLUSION

In conclusion, this study reveals multiple reward centers associated with sad music, such as empathy, imagination, and a lack of real life consequences. As a result, these reward centers may cause adolescents to experience pleasure when listening to sad music. Music has been shown to impact adolescent relationships due to one's taste in music revealing their values. This study, designed to target the critical gap of adolescent data, has most notably found that adolescents tend to use sad music as a way of expressing their inner emotions. Therefore, if an adolescent shows signs of depression, sad music may enhance their feelings of disparity, resulting in negative consequences such as rumination. However, sad music is not always unhealthy due to positive reward centers, such as creativity and imagination, serving as possible factors towards sad music attraction. The direct influence of music on one's emotions contradicts the belief that listening to music is a passive experience. As a result, sad music leaves adolescents vulnerable to feelings of disparity and can heavily impact their views of life. Although sad music is not necessarily unhealthy, listening to it combined with indicators such as frequent negative moods and dismal emotions may in fact aid one's likelihood of developing depression.

In regards to limitations, males and females have distinct neural differences, which can affect the way they perceive sad music. The survey was comprised of 62% females and 38% males, which may have affected the data gathered. However, this is not a large concern due to the survey being comprised of Likert-scale questions. Therefore, the response categories were grouped together (ex. 1-3 being "Rarely" and 5-7 being "Frequently"). There was a clear majority response for many of the core questions (ex. "Sad music does not make me feel any emotion"), so gender did not seem to have a large affect within the purposes of my study.

With the overwhelming influx of sadness in today's society, it is important to know how the prevalence of melancholic emotions within the media and music affects our minds. Understanding how sadness within music affects adolescents may aid in preventing individuals at-risk for depression. This study addresses the gap on the paradoxical relationship between feelings of pleasure and sad music among adolescents. It has been proven that feelings of disparity may increase while listening to sad music, and that music reflects one's mental state. Music can empower. But when misused, the consequences are dire.

WC: 4986

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Music Psychology Survey

Please complete this survey alone in a quiet environment with no music playing :)

* Required

1. **Which gate did you enter in the morning?** *

Mark only one oval.

◯ Flagpole (Zelzah)

◯ Zelzah Teacher Parking Lot

◯ Service Road East (Boy's PE Side)

◯ Hiawatha Lot (PE Field)

◯ Service Road West (Girl's PE Side)

◯ J Gate

◯ Kingsbury (Main Entrance)

2. **What gender do you identify as?** *
Mark only one oval.

- ◯ Female
- ◯ Male
- ◯ Prefer not to say
- ◯ Other: _____

3. **What grade are you in?** *
Mark only one oval.

- ◯ Freshman
- ◯ Sophomore
- ◯ Junior
- ◯ Senior

4. **What is your ethnicity?** *
Check all that apply.

- ☐ American Indian or Alaska Native.
- ☐ Asian (including Indian subcontinent and Philippines origin)*
- ☐ Black or African American.
- ☐ White (including Middle Eastern origin)
- ☐ Native Hawaiian or Other Pacific Islander.
- ☐ Hispanic

5. **What generation American are you?** *
Mark only one oval.

- ◯ First
- ◯ Second
- ◯ Third
- ◯ Fourth
- ◯ Unknown

6. **How frequently do you listen to music?** *
Mark only one oval.

- ◯ 0-1 hours a day
- ◯ 2-3 hours a day
- ◯ 4-5 hours a day
- ◯ 6-7 hours a day
- ◯ 8+ hours a day

7. **What is your preferred music genre?** *
Mark only one oval.

( ) Pop music

( ) Classical

( ) R&B/ Soul

( ) Hip hop/ Rap

( ) Jazz

( ) Other: _____

Music Psychology Survey

8. **How often do you actively select sad music to listen to?** *
Mark only one oval.

	1	2	3	4	5	6	7	
Very rare	( )	( )	( )	( )	( )	( )	( )	Very Often

9. **How much do specific situations influence your choice to listen to sad music?** *
Mark only one oval.

	1	2	3	4	5	6	7	
Very Little	( )	( )	( )	( )	( )	( )	( )	Very Much

10. **Could you write down one or more examples of situations in which you engage with sad music (sad melodies, sad lyrics, etc) and why?** *

_____

11. **When I am in a sad mood I like to listen to sad music** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	( )	( )	( )	( )	( )	( )	( )	Strongly Agree

12. **When I am in a positive mood I like to listen to sad music.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	( )	( )	( )	( )	( )	( )	( )	Strongly Agree

13. **Sad music makes me feel sad or sorrowful.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

14. **Sad music makes me feel tender, affectionate or in love.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

15. **Sad music makes me feel nostalgic, dreamy or melancholic.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

16. **Sad music makes me feel tense, agitated or nervous.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

17. **Sad music makes me feel serene, calm or smoothed.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

18. **Sad music makes me feel strong, triumphant, or energetic.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

19. **Sad music does not make me feel any emotion.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Music Psychology Survey

20. **Sad music makes me feel sad because it evokes memories of certain past events, people or places.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

21. **I am affected by the expression of sadness in music to the point that I frown or even cry.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

22. **Sad music makes me feel sad because its musical features (e.g., slow tempo, legato articulation, etc.) evoke a sad mood in myself.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

23. **Sad music helps me to be sad when I want to be sad.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

24. **Sad music can evoke mood when it's appropriate (e.g., funeral).** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

25. **Sad music makes me feel sad because I imagine sad objects/scenes.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

26. **Sad music makes me feel sad because I am touched by the sadness of others.** *

Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I like to listen to sad music because...

27. **...by contemplating this feeling in the music, I can get a better understanding of my own feelings, without negative life consequences. ***
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

28. **...sad music helps me to regulate my mood (e.g. feel better) when I'm feeling sad. ***
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

29. **...experiencing sadness through music makes me feel better after listening to it, and thus has a positive impact on my emotional well-being. ***
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

30. **...I imagine I share the same emotional experience of the composer which makes me not feel alone anymore. ***
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

31. **...it makes me think more realistically about life. ***
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Music Psychology Survey

32. **Sad music calms me down or relaxes me. ***
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

33. **Sad music helps me to release feelings of sadness or loss.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

34. **Sad music evokes intense emotions or makes me feel alive.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

35. **Sad music connects me to the suffering of others and makes me feel less alone.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

36. **Sad music helps me to maintain motivation during long working periods.** *
Mark only one oval.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Music Psychology Survey

37. **Please provide one or more example(s) of your favorite sad music (either instrumental or with lyrics)** *

_____

_____

_____

_____

_____

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