The Use of Music in Mood Regulation for Teens

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Abstract

      In the era of smartphones, streaming, and social media, adolescents are exploring new outlets and mediums to cope with their problems. Knowing how to regulate their emotions can help many adolescents with their personal mental health, and aid them through the stress of their teenage and young adult years. This study investigated the relationships between how much music adolescents consumed, how they use music to regulate their emotions, and their mental health symptoms. We hypothesized that those with more negative mental health symptoms would not use music to regulate their mood as effectively as those with less symptoms, and would therefore score lower on the Brief Music in Mood Regulation (BMMR) scales. We also hypothesized that there would be a relationship between mental health symptoms and how much a person listened to different amounts and frequencies of music. Participants in our study answered a modified version of the DASS21, mental health survey, over the course of three weeks, and filled out the BMMR at the end of the final week. All together, we found that generally healthy people were more likely to use music for mood regulation, and that depressed people listened to less music while anxious people listened to more music. Therefore, schools and workplaces may benefit from incorporating music into their work environments as a tool, rather than regarding music as a distraction.

Introduction

        Adolescents are constantly exploring different mediums and technologies to cope with mental health concerns and help them through the challenges of their teenage years. One of the mediums that adolescents commonly turn to for mood regulation is music. A study by Common Sense Media found that 82% of adolescents between the ages of 8-18 reported listening to music everyday (1). While many adolescents use music for mood regulation, different factors determine how well they perform this task. With the growing Covid-19 pandemic, nearly one third of teens expressed feeling sad or depressed during quarantine, suggesting mental health is a significant problem for adolescents (2). Knowing how to regulate their emotions can help many adolescents with their personal mental health, and aid them through the stress of their teenage and young adult years.

        Listening to music affects a person's physical and psychological state. Due to emotional contagion, music can have effects on the physical body, such as crying when listening to a sad song (3). The psychological state is altered in a more complicated way. In this way, music triggers the part of the brain called the hippocampus, which produces positive emotions, and triggers the same "reward system" in the brain that is activated when we receive food or money. The hippocampus, when listening to music, can be manipulated to bring the listener a sense of community (social cohesion) and togetherness, even when they are listening by themselves.

Effects of Music on Mental Health

        Adolescents commonly use music to both regulate mood and express identity. McFerran found that most adolescents use two major methods for mood regulation, the mirror metaphor and the stage metaphor (4). The mirror metaphor helps us reflect upon ourselves to identify and think through our emotions. The stage metaphor suggests that we use music to express how we want to be seen by others. However, she also talked about how "problematic music" can be harmful, specifically to vulnerable adolescents, such as those with depression or other mental disorders. On the contrary, this music does not seem to affect healthy people. McFerran's study suggests that teens with a healthy mental state should be using music to regulate moods, and unhealthy teens may not.

        The way in which "adolescents use different mood-regulatory strategies through their everyday musical activities," was explored in a study by Saarikallio (5). In her study, participants

were asked to fill out a questionnaire to assess their musical background and use of music, and their answers were assessed using the Music in Mood Regulation scale (MMR) created by Saarikallio. She found that girls, older adolescents, and those with a musical background were more likely to use music for mood regulation. Even so, listening to music was very important to the adolescents amongst all backgrounds, and listening to more music a day resulted in higher MMR scores. To summarize, music is important to adolescents for their mood regulation, but the level of importance and preference is determined by personal factors.

Another study looked into the effects of music on the human stress response. During the study, various samples were taken from the participants before and after testing (6). They were then exposed to a music stimulus and self-reported stress measures. The results showed no significant correlation between listening to music pre-stress, and that it may have contributed to their heightened state of stress. From this we can conclude that listening to music before a stressful event has little to no effect on lowering stress levels. Therefore, it is possible that mood regulation may only be effective during or after a stressful event.

Effects of Music on Mental Health of those with a Diagnosis

Music is also used as a coping mechanism for adults with mental health conditions, according to a study by Silverman (7). All participants had been diagnosed with a mental illness, participated in therapy, and were given headphones to listen to music. Then, they filled out the Brief Music in Mood Regulation (B-MMR) scale as well as other scales to measure coping skills. Silverman's study found that music used for mood regulation is closely related to self-coping for people with mental health conditions, especially mood strategies such as strong sensation, entertainment, discharge and mental work. However, music was not related to improved coping skills. The results suggest that people with mental health problems may use music to cope, but it does not improve their ability to cope.

Punkanen et al. looked at how perceptions of emotions in music are related to depression (8). Participants were given a set of musical excerpts, and a scale to measure these on a target emotion. They found that depressed patients had a negative emotional bias. This means that sad songs were interpreted as more sad, and happier songs weren't interpreted as happy. If a person was more depressed, they were more biased. Knowing this, we can expect people with more mental health symptoms to score lower on music mood regulation, because if they have a harder

time perceiving emotions in a song, they will have a harder time changing their mood for the better.

Preferred music by young people with mental illness was assessed by Cheong-Clinch and McFerran (9). Patients participated in semi-structured interviews while admitted to an acute adolescent psychiatric inpatient facility in Brisbane, Australia. This study ended with many findings, but overall, participants were not able to consciously regulate their mood or address their problems effectively, even though they did listen to music. Research suggests that teens with poor mental health will not be able to regulate their mood with music well.

Study Hypotheses

Overall, research suggests that teens will use music to regulate their mood, but those with poor mental health symptoms will use music less, or less effectively. The participants of our study are already faced with stressors of being adolescents, African-American, and attending a private school. With the rise of depression rates during the Covid-19 pandemic, adolescents are faced with even more stressful situations, and are having to search for ways to cope. Our study spanned over a course of three weeks and asked participants about how long and how often they listen to music. Participants filled out a mental health questionnaire a few times throughout the study, and the B-MMR at the end.

We have two hypotheses about what we will find. First, we hypothesize that those with more mental health symptoms would not use music to regulate their mood as effectively as those with less symptoms, and will therefore score lower on the BMMR scales. These scales include: Entertainment, Revival, Strong Sensation, Diversion, Discharge, Mental Work and Solace (Table 1). Our second hypothesis is that there is a relationship between mental health symptoms and how much a person will listen to different amounts and frequencies of music. This hypothesis is non directional, as there has been little research on the amount of music listened to.

B-MMR Subscale	Definition (C)
Entertainment	Using music to create a nice atmosphere and happy feeling in order to maintain or enhance a current positive mood.
Revival	Personal renewal, relaxing, and getting new energy from music when stressed or tired.
Strong Sensation	Inducing and strengthening intense emotional experiences.
Diversion	Forgetting unwanted thoughts and feelings with the help of pleasant music.
Discharge	Release of negative emotions through music that expresses these emotions.
Mental Work	Using music as a framework for mental contemplation and clarification of emotional preoccupations.
Solace	Searching for comfort, acceptance, and understanding when feeling sad and troubled.

Table 1. Brief Music in Mood Regulation Subscales. *The seven B-MMR subscales with definitions quoted from Saarikallio (7). Each subscale represents a different way music is used for mood regulation. We hypothesized those with more mental health symptoms will score lower on these subscales.*

Methods

Participants consisted of 11th and 12th grade students at The Neighborhood Academy, a private, college preparatory school. Thirty-five students were asked to participate in the survey. Out of the 35, 31 students accepted and responded to at least one survey with 23% male 77% female. Nineteen participants completed the BMMR and the DASS21, (a common mental health questionnaire), for our first hypothesis, and an additional 12 only took the DASS21. Of the 31 participants, 35% took the DASS21 survey once, 35% took the survey twice, and 29% took the survey all three times.

The materials used in the experiment consisted of two surveys. The first survey used was a modified version of the DASS21 (10). We removed the stress related items to shorten the survey to 14 questions relating to depression and anxiety. Two self-written questions were added to the beginning of the DASS21 to determine how long and how often participants listened to music. The second survey used was the Brief Music in Mood (BMMR) survey, that consists of 7 different scales which include: Entertainment, Revival, Strong Sensation, Diversion, Discharge, Mental Work and Solace (Table 1). There are 3 statements per scale, totaling up to 21 statements (7). The BMMR uses a 5 point Likert scale to determine how much participants agree or disagree with each statement, in order to determine how well they use music to regulate their mood.

The primary researcher and two other student researchers divided up the number of juniors and seniors amongst each other, and sent out the modified DASS21 survey and our own written questions by email to the students we were responsible for. The survey was sent out every week for three weeks, and the B-MMR was given to students alongside the other survey on week three.

Results

In our experiment, we sought out to find how adolescents use music in their everyday lives to regulate their emotions. Participants took part in two surveys over a course of three weeks. One survey determined how much and how long adolescents consciously chose to listen to music and measured depression and anxiety symptoms. The other survey was the Brief Music in Mood survey, which determines why and how well participants use music in mood regulation. We hypothesized that those with more mental health symptoms would not use music to regulate their mood as effectively as those with less symptoms, and would therefore score lower on the BMMR scales. We also hypothesized there would be a relationship between the amount of music and mental health symptoms.

General Trends

The strongest relationships on the BMMR were in the Strong Sensation, Diversion, Discharge, Mental Work, and Solace categories in correlation to depression. However, only Mental Work showed a correlation with anxiety. The data also showed a correlation between participants showing symptoms of depression and anxiety. Despite this correlation, the majority of participants were healthy people, with only a few participants showing unhealthy depression and anxiety scores, as indicated by the DASS21. All but three participants recorded listening to music multiple times a day. Because of this, we did not calculate any correlations between frequency and mental health.

Mental Health & BMMR

We first hypothesized that those with more mental health symptoms would not use music to regulate their mood as effectively as those with less symptoms, and would therefore score lower on the BMMR scales. We used an intercorrelation matrix to identify correlations between the BMMR subscales, anxiety, and depression. The results revealed a positive correlation between anxiety symptoms and Mental Work (using music to process emotion) on the BMMR scale (r(17)=0.599, p<0.05). This is the only relationship for anxiety.

A positive correlation was also found between depression symptoms and Strong Sensation (r(17)=0.534, p<0.05), Diversion (r(17) = 0.507,p<0.05), Discharge (r(17) = 0.505, p<0.05), Mental Work (r(17)=0.612, p< 0.05), and Solace (r(17)=0.506, p< 0.05) on the BMMR scale. Descriptions of the scales can be found in Table 1.

	Revival	Strong Sensation	Diversion	Discharge	Mental Work	Solace	Average Anxiety	Average Depression
Entertainment	0.413	0.603	0.346	-0.238	0.421	0.131	0.383	0.257
Revival		0.411	0.468	0.157	0.169	0.361	0.048	0.381
Strong Sensation			0.699	0.353	0.693	0.601	0.346	0.534
Diversion				0.409	0.639	0.839	0.332	0.507
Discharge					0.519	0.702	0.275	0.505
Mental Work						0.724	0.599	0.612
Solace							0.373	0.506
Average Anxiety								0.585

Table 2. Correlation between depression, anxiety, and the BMMR scales. *We hypothesized that those with higher depression and anxiety scores would score higher on the BMMR. Instead, we found a positive correlation between those with lower depression and anxiety scores and higher BMMR scores. The boxes highlighted in yellow indicate scales where a significant relationship was found.*
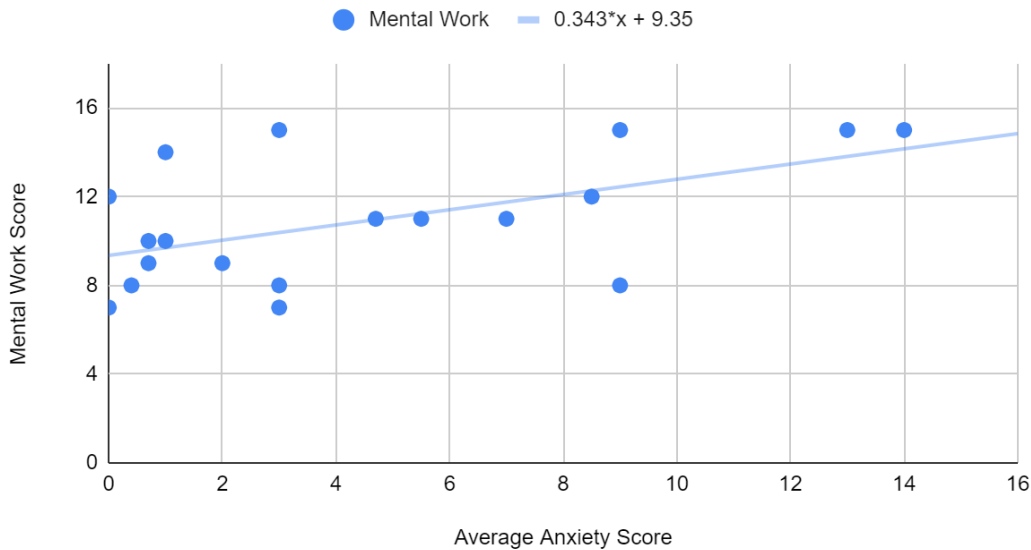
Figure 1. Mental Work and Anxiety Graph. *In our results, we only found a correlation between anxiety symptoms and Mental Work on the BMMR. The graph shows that this was a positive correlation, meaning that those with lower anxiety symptoms tended to score higher on the BMMR, but only when using music for Mental Work.*
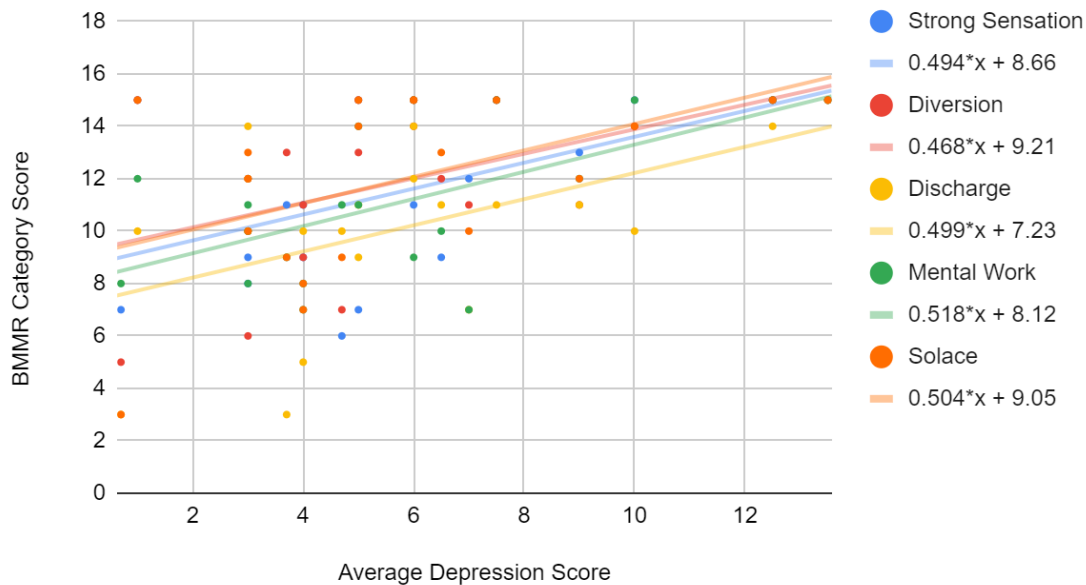

Figure 2. Music Use and Depression Graph. *Our results indicated positive relationships between depression symptoms and Strong Sensation, Diversion, Discharge, Mental Work, and Solace on the BMMR. This means that those with lower depression symptoms tended to score higher on the BMMR when using music for one of these categories.*

Amount & Frequency of Music Consumption and Mental Health

Our second hypothesis stated that people with high and low symptoms will listen to different amounts and frequencies of music. Because nearly all of the participants reported the same frequency, we did not investigate that part of the hypothesis. We removed one participant from the study who recorded 24 hours of music use, which affected our depression results and resulted in a correlation due to the outlier. We found a significant correlation between anxiety symptoms and amount of music ($r(29) = 0.42$, $p = 0.02$). However, there was no significant relationship between depression symptoms and amount of music ($r(29) = 0.28$, $p = 0.13$).
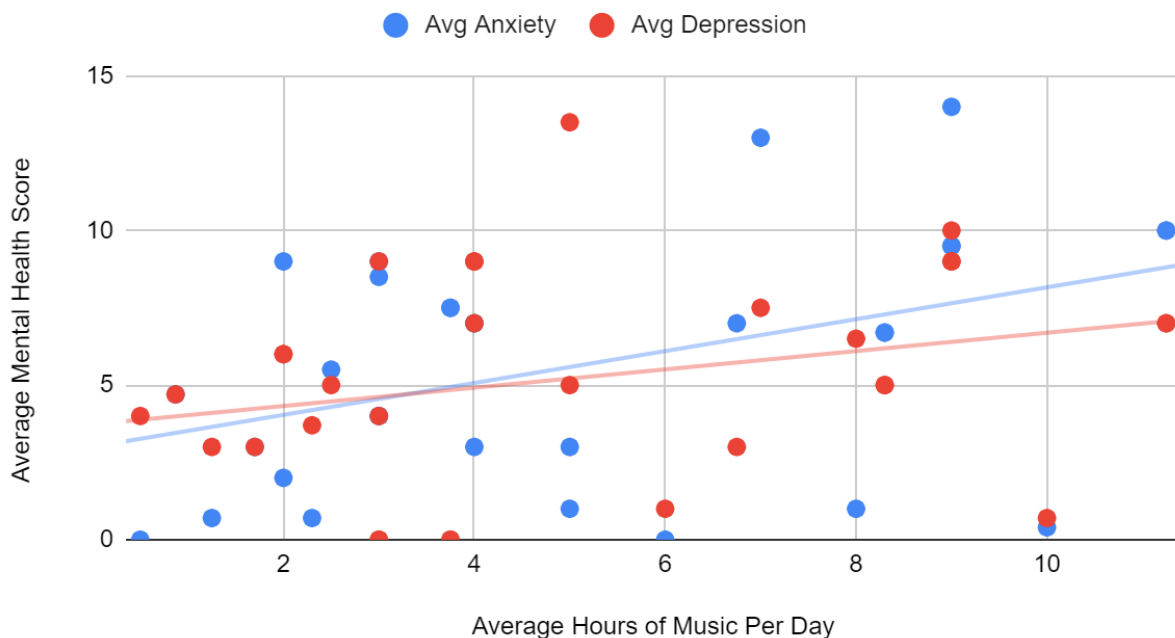

Figure 3. Relationship Between Music Consumption and Mental Health. *We hypothesized that there was a relationship between the amount of music a person listened to and their mental health. In the graph above, there is a positive correlation between music consumption, depression, and anxiety, with a stronger correlation for anxiety.*

Discussion

Our first hypothesis stated that unhealthy people would not regulate their mood well according to the BMMR. Instead we found the exact opposite; most participants were healthy, and there were relationships present (Figures 1 and 2), but they were positive relationships. Thus, we deemed this hypothesis partially supported, because even though we did find significant

relationships, they pointed in a different direction than we expected, due to the overall strong mental health of our participants. Our second hypothesis stated that the amount of music will be related to mental health symptoms in some way. This hypothesis was supported for anxiety symptoms (Figure 3), but not supported for depression symptoms. Essentially, anxious people tended to listen to more music.

Our results showed a positive correlation between depression and five of the BMMR scales, which is inconsistent with other research. Prior research found that people with mental health issues did listen to music, but they did not use it effectively (9). This is not to say that no relationships were found with the BMMR, but music use didn't help to improve their coping skills (7). Contrary to these studies, we found many positive relationships for generally healthy people, meaning that those who showed more depression symptoms may have helped themselves by listening to music. These findings suggest that music can be used as a tool for coping with depression, though it is important to note that we did not prove that participants actually improved their conditions, only that they may have attempted to use music to do so.

Another inconsistency between our findings and prior research was the lack of correlation between depression symptoms and Entertainment on the BMMR. A similar study found a relationship between entertainment and negative coping, seen in the form of denial of problems (7). However, we did not find any significant relationship between music use or mental health with entertainment. All (100%) of the generally healthy teens in our study reported using music for entertainment, therefore making the relationship insignificant. Taking both studies into consideration, people with a mental health diagnosis might use music to avoid problems by entertaining themselves in the moment, but healthy people are more likely to use music just as entertainment. Other research also suggests that unhealthy people will be affected by music, specifically music that is categorized as problematic, in a negative way, while healthy people may not be influenced at all (4).

Concerning amounts of music, we found a significant relationship for anxiety, but not for depression. These results were determined after making the decision to remove an outlier. No other research that we reviewed discussed the amount of music used, so we had to interpret our results as they were. Our results suggest that music is more effective when coping with depression, due to the high number of correlations, so a person may not need a lot of it to feel better. This ties in with the relationship with anxiety; people didn't use music well to cope with

anxiety symptoms (except for Mental Work), and they tended to listen to more of it. We know that depression can be described as a "loner" feeling, and music provides a sense of social cohesion, which can be powerful when coping with depression symptoms (3). However, we also know that anxiety is a more social issue, and it can be harder to access music and use it well when dealing with anxiety. Perhaps adolescents are knowingly using music to cope with depression, but not as much with anxiety, where its use tends to be less intentional.

        As with all studies, some aspects did not go according to plan. Due to the COVID-19 pandemic, the entire study had to be done online, so not everyone that was sent the survey responded to it. Results could have also been more conclusive if we had a larger sample size, but again due to COVID-19, we couldn't get everyone's response. In the future, we would recommend opening the survey to more grade levels, in order to get more potential responses. Another limitation would be the wording of the question pertaining to frequency of music. In the end, the question turned out to be useless, so it could probably use some rewording.

        In future research, we would recommend including additional questions about how participants listen to music, when they listen to music, and other specifics about their behavior. It would also be useful to consider other mental health issues, such as stress. Looking into this could be a good way to deal with a "healthy" population of participants, because everyone experiences stress at one point or another, especially adolescents. It could also be interesting to look into specific song choices or other details in an interview, to observe what types of music are used and which types are effective.

        At the end of the study, we were left with a few important takeaways. We found that music can be helpful and effective for both healthy and unhealthy people, but that it is especially useful for those who are already healthy. Due to its common use for mood regulation by teens in our study, it may benefit parents and teachers to be more open minded about letting teenagers use music in more formal settings, such as in the classroom. Music has been proven to aid people in stressful situations, and is already a very effective tool in psychology via music therapy. Perhaps we should think of music in everyday settings as more of a helpful tool rather than a distraction when helping teens cope with less than ideal situations.

Works Cited

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