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Personal Music Listening for Regulating Emotions: A Survey Study

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Music has long been used as a means of regulating emotions and altering moods. While many report using music for the purposes of affecting their emotions, not everyone utilizes it in the same manner. Music listening can be a way of validating one's current feelings, as a way to change how one is feeling, as well as other functions. It is crucial to identify the ways in which people are utilizing music in this way, as music can powerfully affect neurological activity. This can be used in a positive and adaptive way but can also be used in order to ruminate on negative experiences and emotions in a maladaptive way that can be potentially dangerous for persons suffering from mood disorders, such as depression. Understanding the ways in which people use music to affect emotions in their everyday lives can give context and a baseline for assisting clients in making choices that will support positive emotion regulation skills.

Literature Review

Music therapy has long been utilized as a means of effectively addressing goals of emotion regulation. The efficacy of music listening as a means of improving scores on the state section of the State Trait Anxiety Inventory (STAI) was demonstrated in a study by De La Torre-Luque et al. (2017) where statistically significant results were found in the experimental group ($p < .05$). Additionally, Bidabadi and Mehryar demonstrated the efficacy of music therapy in the treatment of OCD with comorbid depression and anxiety symptoms in their 2015 study

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indicating effects on mood disorders. The music therapy group showed 47% greater relief from anxiety and depression symptoms when compared to the control group. It is also shown to be an effective treatment of anxiety disorders without co-morbid conditions by Landis-Shack, Heinz, and Bonn-Miller (2017), as well as PTSD (Carr et al., 2012; Beck et al., 2018).

In her 2013 systematic review, Moore explains much of the above results through examining the neural correlates between the structures involved in emotion regulation and the impact of music experiences on those neural structures. Neural structures and activity related to emotion regulation include activation of the anterior cingulate cortex (ACC), the orbitofrontal cortex (OFC), and the lateral prefrontal cortex (PFC). The ACC is strongly connected to the limbic system and hypothalamus, indicating its involvement in emotion assessment, emotion-related learning, affect related to pain, and autonomic regulation and integration, as well as affect related to pain (Stevens, Hurley, Taber, 2011). The OFC supports decision making and emotion processing (Bechara, Damasio, Damasio, 2000), while the PFC is the home of executive function and has a mediating effect on the amygdala. Moore's 2013 study demonstrates that music activities stimulate all three of those areas, among others. Multiple studies have used neural imaging as well as other measures to demonstrate the effect of music listening experiences on an increase of activation of the OFC, the ACC, and a decrease of activation in the amygdala (Blood & Zatorre, 2001; Brown et al., 2004, Mitterschiffthaler et al., 2007; Berns & Moore, 2013; Berns et al., 2010, Flores-Gutierrez et al., 2007; Koelsch et al., 2006; Levitin, 2013; Alluri et al, 2015; Hou et al., 2017).

In addition to using music to achieve positive effects, music can also be used to facilitate rumination on negative emotions, particularly in adolescent populations (McFerran, Hense,

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Koike, & Rickwood, 2018). They noted in their study that adolescents could be educated on how to assume responsibility for the ways in which they use music and could make positive changes in order to decrease rumination. The tendency toward rumination on negative emotions was not mediated in a group situation, but actually intensified (Garrido, Eerola, & McFerran, 2017). This indicates that persons experiencing mood disorders could benefit from personal music experiences, and that development of group experiences must be mindful about said tendencies toward rumination.

Significance

By understanding the ways in which individuals use music listening to assist in emotion regulation, music therapists will be able to better understand how specific interventions align with or diverge from a patient's instinctive use of music. The skill of emotion regulation is particularly pertinent as many mental disorders involve emotional dysregulation as a component of their pathology. Linehan (2015) defines skills of emotion regulation as the ability to inhibit inappropriate behaviors that occur as a result of strong emotions, make choices and act in a way that serves one's goals regardless of emotion, manage arousal symptoms induced by strong emotions, and control attentional focus in the midst of strong emotions.

Research Purpose

The purpose of this study is to investigate the ways in which people use music listening as a means of regulating emotions in their everyday lives.

Methods

Research Design

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When seeking to study the ways in which people use music privately as a means of managing their emotions, participant self-report is the only way to access the desired information. As such, the design of this study is a quantitative survey study which explores the ways in which people already use music listening to assist in emotion regulation in their everyday lives. Responses were given by online survey using a Likert scale and short answer. Results for ordinal data regarding music usage were analyzed utilizing a Mann Whitney U, separately from ordinal data gathered on demographic information.

Participants

The sample was drawn from online recruiting on social media and included participants from a variety of regions in the country as well as outside of the US. They were required to be between the ages of 18 and 75, and there were no exclusion criteria other than age. The time commitment for taking the survey was less than 15 minutes and no compensation was offered for participation. The informed consent form contained information regarding the nature of the questions so that all participants understood the content before commencing the survey. Participants were also informed that they could skip any questions they did not wish to answer in order to minimize any potential psychological risks in examining the use of music to regulate difficult emotions.

Apparatus and Materials

Data was collected using the online survey platform Survey Monkey. The survey contained 23 questions, with 16 of them using a Likert scale, 7 being short answers. The first 16 questions ask participants about ways in which they use music to regulate their emotions, and

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the last 7 questions give information on the participants' demographics. All surveys were anonymous, and do not contain any identifying information.

Procedure

Participants were recruited in music classes at University of the Pacific via email as well as on a social media platform. Interested persons were then given a link to the online survey which was present on Survey Monkey. They had no responsibilities past survey completion, and it was noted in the informed consent that they were free to skip over any questions they did not wish to answer. Survey responses were analyzed and will be utilized in future studies on the effects of receptive music experiences on emotion regulation.

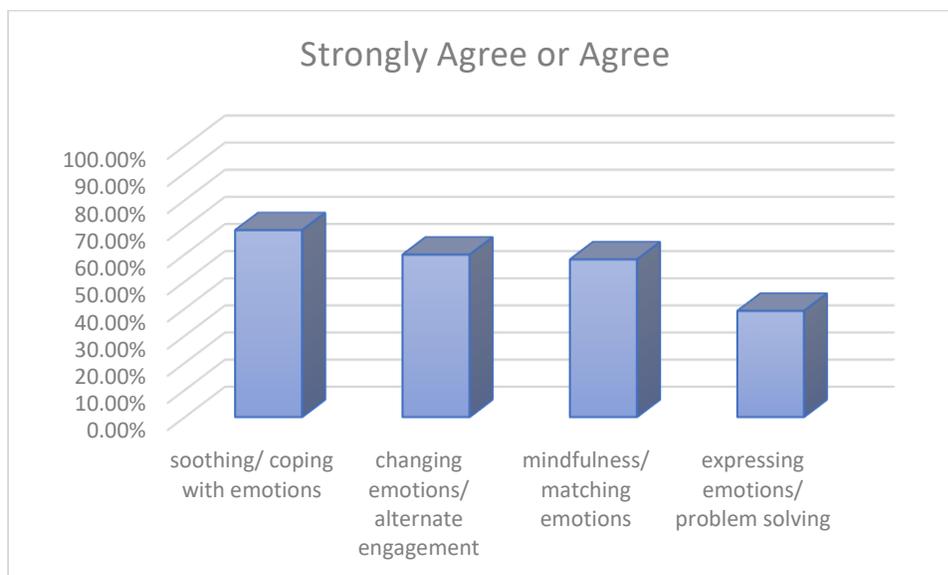
Results

Analysis was performed both on individual line items, as well as by category. Demographic information was analyzed separately from the Likert scale questions. Likert questions were divided into four categories outlining the function of music: soothing/coping with emotions, changing emotions/alternate engagement, mindfulness/matching emotions, and expressing emotions/problem solving. This allowed the researcher to examine broader themes into the ways that music is used for regulation of emotions. Below is a table of line items and their categories, followed by results analyzed by category as well as line items. Demographic information on participants is also charted below.

Function of Music	Survey Line Item
Mindfulness/ Matching Emotions	I listen to music that reflects how I feel
	I listen to music as a way to stay present in the moment
	I am more aware of my emotions when I am listening to music
Soothing/ Coping with Emotions	I use music as a way to soothe myself
	I listen to music to help me cope with my emotions
	I listen to music when I am experiencing difficult emotions

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Expressing Emotion/ Problem Solving	I use listening to music to help me put words to emotions
	I listen to music to communicate my emotions to myself and/or others
	When listening to music I think about solutions to difficult issues
Changing Emotion/ Alternate Engagement	I use music to change the way I feel
	I listen to music when I want to worry less
	I use music to change the way my body feels (i.e. to feel less tense)
	I listen to music as a way of evoking pleasant images
	I listen to music to help me feel like my normal self after a stressful event
	I listen to music to avoid thinking about stressful problems
	I use music to help me relax when I am experiencing stress



Results by function of music

The category with the highest percentage of responses that were Strongly Agree or Agree was Soothing/Coping with Emotions at 68.91%. This indicates that people use music as a way of soothing or comforting themselves while experiencing emotions more frequently than they use it as a tool for altering, matching, or expressing emotions. The next two categories of Changing Emotions/Alternate Engagement at 59.88%, and Mindfulness/Matching Emotions at 58.11% were only 1.77% apart making them comparable in terms of how frequently they are

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used. The largest gap between categories was the drop to Expressing Emotions/Problem Solving, with Strongly Agree and Agree responses at 39.14%.

The line item that had the highest frequency of agreement was the use of music to soothe oneself, at 84.07%. This line item was consistent with the results from the above listed categories. The final item was also consistent with the categorized results as it focused on listening to music while thinking about solutions to problems, which was in the Expressing Emotions/Problem Solving category. Below is the distribution of line items color coded and ranked. As you can see, Soothing/Coping with Emotions all occur in the top third, Expressing Emotion/Problem Solving occur entirely in the bottom third, and Changing Emotions/Alternate Engagement and Mindfulness/Matching Emotions both are fairly evenly distributed throughout.

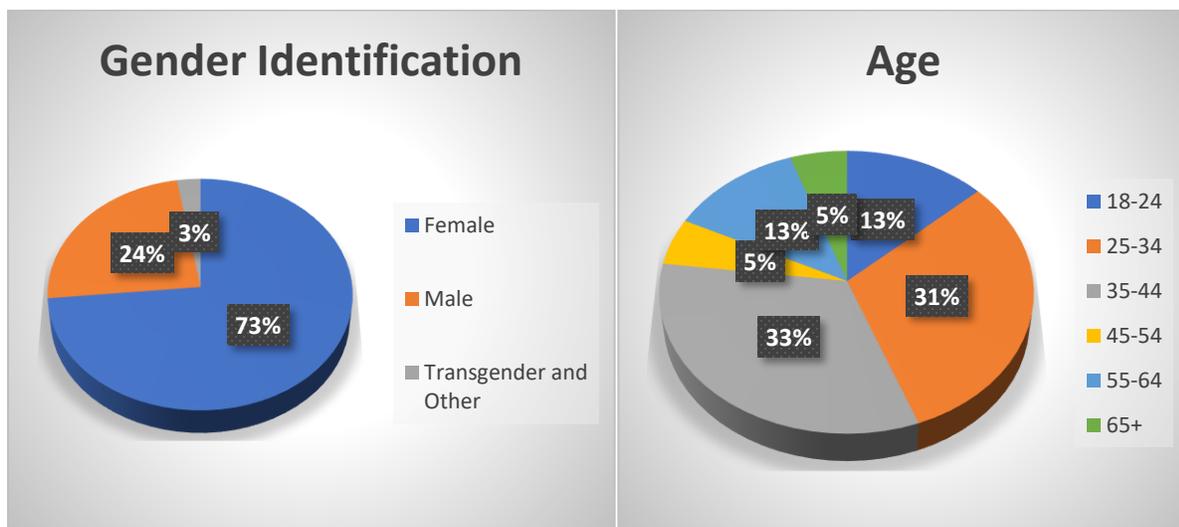
specific function of music	strongly agree or agree
soothe	84.07%
change how body feels	75.22%
reflects how I feel	73.45%
relax	66.96%
when experiencing difficult emotions	61.61%
help with coping	61.06%
return to normal	59.29%
imagery	59.29%
change how I feel	57.52%
more aware of emotions	56.63%
to worry less	56.64%
put words to emotions	46.90%
avoid thinking about problems	44.24%
stay present	44.24%
communicate emotion	38.39%
think about solutions to problems	32.14%

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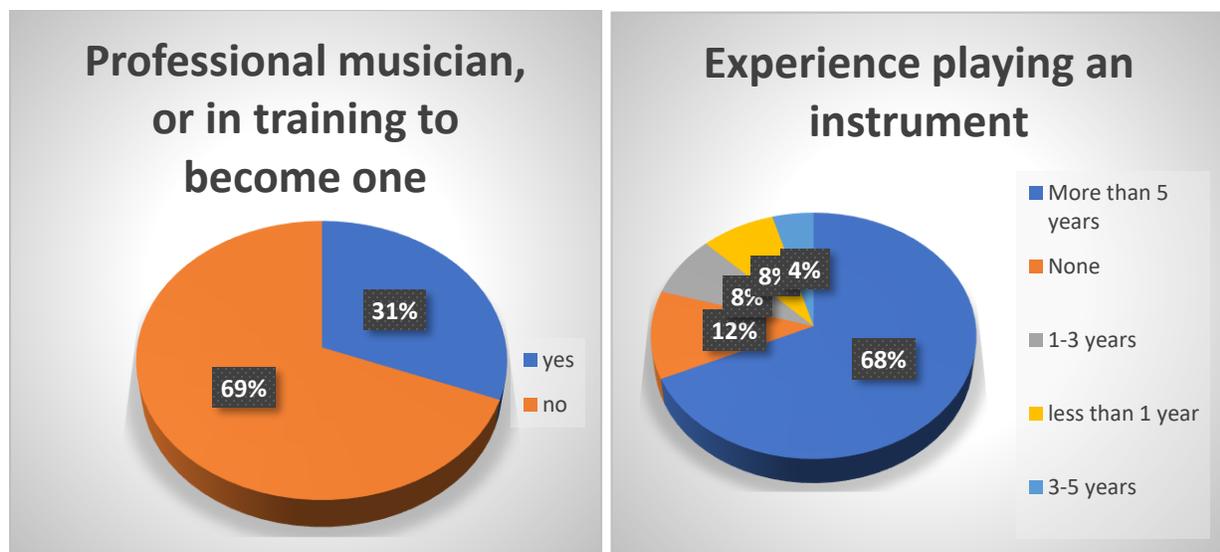
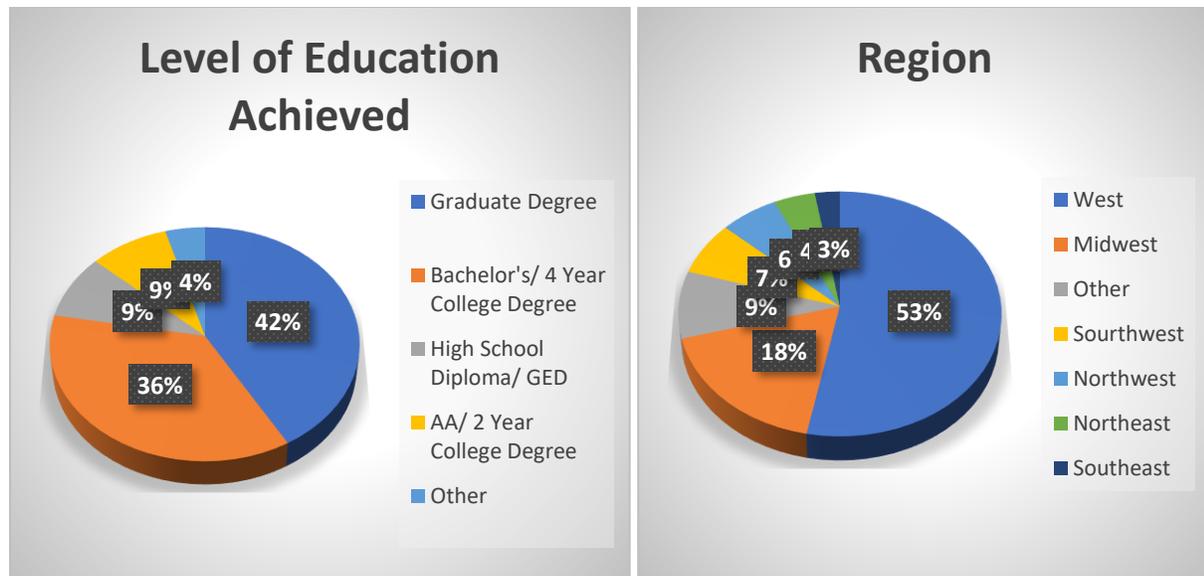
Categories
Soothing/Coping with Emotions
Changing Emotions/Alternate Engagement
Mindfulness/ Matching Emotions
Expressing Emotion/Problem Solving

Below are the charts detailing the demographic information on the study participants.

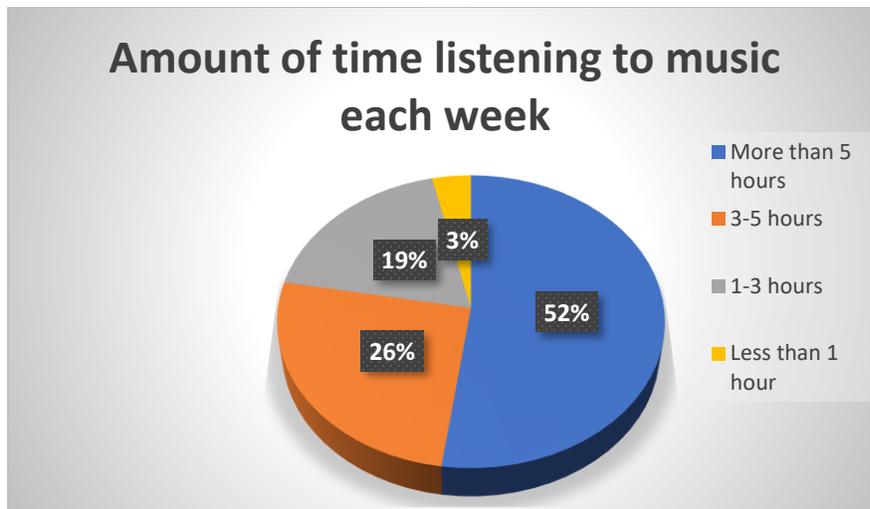
The majority of participants were female, college educated, between the ages of 25 and 44, and most likely to be living in the western United States. Most participants were not professional musicians but had played an instrument for more than five years and listened to music for more than five hours a week. The two categories that showed the greatest diversity were in Age and Level of Education Achieved. The other five categories show over 50% of participants giving a single response. All results from demographic line items were analyzed using percentages and are charted below.



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Discussion

As participants indicated that they use music to cope with emotions and to soothe themselves when experiencing strong emotions, receptive music therapy interventions could be particularly effective in treating emotion dysregulation. This would be the use that most strongly aligns with the ways in which the sample population reported using music in emotion regulation. This also has implications for the ways in which receptive music therapy could be used in congruence with the Emotion Regulation component of Dialectical Behavior Therapy. Given the above results, the ways that would be most likely to align most naturally with a person's current use of music would be to incorporate it into the Cope Ahead skills and the Crisis Management skills.

A line item that is of particular interest is that 73% of the sample report that they listen to music that matches their moods. While not the line item with the greatest percentage of agreement, this has implications in the possibility for rumination on negative emotions in people who have psychopathology in which rumination is a factor such as mood disorders.

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Special attention should be paid to the ways that persons with said psychopathology are using music in their daily lives, as it has the potential to reinforce negative emotions and behaviors to the point where it is negatively impacting them on a neurological level. However, if used to support the transition from maladaptive emotion regulation to healthy emotion regulation practices, it shows the potential to be highly effective. This would be indicated based on the neural correlates between receptive music experiences and emotion regulation (Moore, 2013; Levitin, 2013). In addition, a majority of participants reported the use of music as a mindfulness tool in their lives. This could indicate that music assisted mindfulness training would be a natural fit that may require less training, as it is in congruence with the way that people are already using music.

The category which included using music to express emotion or problem solve had the lowest percentage of reported use. This does not necessarily indicate a lack of effectiveness but does indicate that this usage aligns the least with established use. Music therapists who seek to instruct clients in how to use music to express themselves or as a method of problem solving may need to take this into consideration. More thorough instructions and/or training could be involved in order for clients to effectively carry out the interventions if their music therapist is not present.

Future analysis could include separating out individual surveys and separately analyzing surveys completed by professional musicians from non-professional musicians. This would correct for the effect of working in music on the ways in which musicians use music to regulate their emotions, as that could be very different from non-professional musicians. Responses could also be separated out according to who had played an instrument for more than 5 years

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from those who had never played an instrument, as it would control for the effect that music experience might have. Limitations in this study include selection bias. It is very likely that someone who uses music to regulate emotions is more likely to answer the survey than someone who doesn't. This could be addressed in further studies by using an alternative method for selecting the sample rather than using a sample of convenience.

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