The influence of personality traits and depressive symptoms on music enjoyment and preference

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Abstract

A large body of research has focused on how various characteristics influence music enjoyment and preference. Prior research has indicated that two specific personality traits, openness and empathy, may contribute to greater enjoyment music with negative affect (Vuoskowski, Thompson, McIlwain, & Eerola, 2011). Similarly, depressive symptomatology has also been associated with a preference for negative music (Miranda & Claes, 2007). However, no research to date has explored the impact of both of these factors in the same investigation. The present research focused on music enjoyment and preference after exposure to negative, neutral, or positive music. It was found that individuals high in global empathy were drawn to negative emotional music. However, no relationship was found between openness or depression for any of the dependent measures. Further analysis of responses regarding individual song selections indicates a possible association between situational personality traits and music enjoyment/preference. Future research will be needed to investigate the strength of this relationship.

Music is a common feature in the lives of many people. Indeed, research has demonstrated that music serves several important functional roles. For example, music provides many people with an outward reflection of their identity and values (Schafer & Sedlmeier, 2009). Music can also be used to improve mood, express emotions, or create a more relaxing state (Juslin & Laukka, 2004; Waterman, 1996). Although music choice can vary based on a person's immediate objectives, it is also true that people tend to prefer one genre of music (e.g., alternative) or music that contains a specific emotional characteristic (e.g., anger). To that end, researchers have extensively studied the reasons for these differences in preference (e.g., LeBlanc, 1982).

One common finding in these studies is that music preference can be influenced by a number of factors. Somewhat unsurprisingly, one of the factors that influence music preference is the physical characteristics of the music itself. For example, tempo or pitch can alter enjoyment of a piece, with faster tempo being associated with increased enjoyment. Along the same lines, people evidence a greater preference for pitches ranging from 400 to 750 Hertz (Finnas, 1989). In addition to the physical attributes of the music, the physical attributes of the listener can also influence preference (McNamara & Ballard, 1999), with both gender (Chamorro-Premuzic, Fagan, & Furnham, 2010) and the age of the listener (Holbrook & Schindler, 1989; Mende, 1991) playing a role. It has even been shown that there are innate auditory preferences for certain types of music (McDermott & Hauser, 2005; Trehub, Schellenberg, & Hill, 1997; Umemoto, 1997). Finally, it has been shown that variations in the perceived emotionality of the music can influence preference. For example, people primarily prefer happy music over sad music (Gosselin et. Al, 2005; Hunter & Schellenberg, 2010; Husain, Thompson, & Schellenberg, 2002; Ladinig & Schellenberg, 2011; Thompson, Schellenberg, &

Husain, 2001). This finding is intuitive, as happy music tends to have the positive effect of improving one's mood state (Saarikallio, 2010). The current investigation sought to explore additional factors known to influence music preference. Specifically, this paper will explore the relationship between three different characteristics and music enjoyment/preference.

Music preferences are typically reflective of one's identity (North & Hargreaves, 1999). For example, individuals who listen to music often categorized as rebellious (e.g. heavy metal, rap) are more likely to engage in delinquent behaviors than listeners of other genres (e.g., Arnett, 1991; Hansen & Hansen, 1991). In fact, music preferences tend to be discussed when getting to know others (Rentfrow & Gosling, 2006). Given the importance of music in both individual and interpersonal development, it is understandable that personality has been shown to be related to music preference (e.g. Hunter & Schellenberg, 2011; Rentfrow & Gosling, 2006; Rentfrow & McDonald, 2010).

Numerous studies have looked at the connection between the Big Five personality traits (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) and music enjoyment. These traits represent an attempt to simplify the concept of personality into five simple categories and are commonly used to comprehensively describe an individual's traits (John & Srivastava, 1999). However, only one personality trait of the Big Five, openness to experience, has been shown to have a consistent association with music enjoyment (e.g., Chamorro-Premuzic, Fagan, & Furnham, 2010; Ladinig & Schellenberg, 2011; Vuoskoski & Thompson, 2012). Openness to experience is defined as an appreciation of art, emotion, adventure, imagination, curiosity, and a variety of experiences (Digman, 1990). Those who have high levels of openness are more likely experience music cognitively and utilize it for intellectual stimulation (Chamorro-Premuzic, Reimers, Hsu, & Ahmetoglu, 2009). For example, a person

high in openness may derive pleasure from pondering the meaning conveyed by a song. Openness has also been linked with increased enjoyment of complex music (Chamorro-Premuzic, Fagan, & Furnham, 2010; Langmeyer, Guglhor-Rudan, & Tarnai, 2012) and music that is considered to be sad or melancholy (Ladinig & Schellenberg, 2011; Vuoskoski & Thompson, 2012). This latter finding is likely due to the ability of people that score high on openness to detach themselves from the emotions in music and appreciate it as art – regardless of the emotional content (Hunter et al., 2008; Hunter et al., 2010). Accordingly, it is predicted for the current study that those who score high on openness will prefer music that expresses strong emotions. Specifically, it is predicted that individuals will likely show a preference for both happy and sad music selections, as opposed to more neutral selections.

Another personality trait that is related to song enjoyment/preference is empathy. This trait is not considered a big five personality trait, but nevertheless is often used as an additional measure of personality (e.g., Breithaupt, 2012). In fact, empathy could be considered a narrower component of the Big Five trait of agreeableness. Specifically, empathy describes the ability to understand and share the feelings of another (Davis, 1980). Research has shown that highly empathetic people tend to relate more strongly to emotional stimuli overall. Thus, a connection between empathy and music seems logical, as some researchers argue that preference is influenced by the specific emotions evoked by music (e.g., Hargreaves, Miell, & MacDonald, 2005). In particular, people tend to prefer music that causes them to feel stronger emotions (Gatewood, 1927; Trombly, 1995; Vuoskoski & Thompson, 2012). Specifically, experiencing the emotions in music (i.e. not just perceiving that emotions are present) is a significant contributor to increased enjoyment (Schubert, 2007). One possible explanation for these findings is that music which evokes emotions tends to be viewed as more meaningful than non-emotional music. Songs which create responses such as chills or trigger emotional memories are similarly perceived as

more significant and are thus enjoyed more (Craig, 2009; Woody & Burns, 2001). Given that those who are highly empathetic experience emotions strongly, and that increased emotional involvement is associated with song enjoyment, it is unsurprising that these individuals tend to enjoy sad music more than others (Vuoskoski & Thompson, 2012). For the current study, it is expected that highly empathetic individuals will prefer any music that evokes strong emotions.

A final factor that has been related to musical preference is the presence of depressive symptomatology. It is worth noting that this is a somewhat different predictor than either openness or empathy, as depressive symptomatology tends to be less stable over time. Nevertheless, there are numerous pieces of evidence that people with depressive symptoms are drawn to one particular type of stimuli - those negative in affect. For example, people with depression tend to seek negative feedback in social situations (Casbon, Burns, Bradbury, & Joiner, 2005), whereas non-depressed people pursue positive feedback (Swann, Wenzlaff, Krull, & Pelham, 1992). Along the same lines, adolescents with depressive symptoms often befriend individuals with similar levels of depression (Van Zalk et al., 2010). Not surprisingly then, this affective state has also been associated with a preference for typically negative music, such as heavy metal (Miranda & Claes, 2007).

Numerous factors may contribute to this seemingly contradictory preference of negative stimuli by depressed individuals. There is evidence that those who are in a severely depressed mood may actually feel better after listening to sad music. Yet, individuals who are mildly depressed experience no mood change after exposure to sad music (Matsumoto, 2002). Taken together, these findings suggest that it is the discrepancy between one's current temperament (e.g. severely depressed) and the emotions conveyed by the music (e.g. only slightly sad) that is responsible for the changes in a person's mood state. Thus, sad music may be enjoyed in certain

situations for the same reasons happy music is enjoyed (i.e. positive mood regulation). Indeed, studies have found that there is increased liking for sad music when individuals are feeling tired or depressed (e.g., Schellenberg, Peretz, & Vieillard, 2008). Consequently, in the current study, it is predicted that individuals with elevated levels of depression may also demonstrate a higher preference for sad music.

Overall, there is a lack of research on how these specific personality traits (i.e., openness and depression) and affective state (i.e., depressive symptomatology) will influence music enjoyment and preference. The current study seeks to more accurately define the relationship between these factors. Specifically, it will focus on stimulus enjoyment and preference after exposure to negative, neutral, or positive music. It is hypothesized that those who score high on the personality traits of openness and empathy will be more likely to enjoy and thus prefer both negative and positive music. Individuals with high levels of openness should appreciate emotional stimuli as an art form and thus rate negative and positive music highly. By contrast, it is predicted that those with high levels of empathy will value any stimuli with strong emotions and thus will provide similar ratings/preferences for negative and positive songs – albeit for different reasons than those who score high on openness. Finally, it is predicted that, due to their general preference for negative stimuli, participants with higher levels of depressive symptoms will both enjoy and favor negative sounding music. In general, these findings will contribute to a greater understanding of music preference in various types of individuals.

Method

Participants

A total of 66 undergraduates completed the experiment in fulfillment of a course requirement and were tested individually.

Setting

Previous studies found that certain aspects of a situation, such as upcoming events, can influence music choice (e.g. Saarikallio, 2010). As such, it was thought that the formal laboratory environment where participants were tested might alter musical enjoyment/preference in a way atypical of normal listening. To counter this possible impact, efforts were made to establish a comfortable atmosphere more typical of that in a relaxed, casual setting (e.g. at home). Specifically, the testing room was dimly lit by a single lamp and the walls were decorated with four neutral art prints. In addition, all participants sat on a comfortable futon for the duration of the experiment.

General instructions

Participants were informed they would be taking part in three separate experiments by different researchers. In order to establish the illusion of three experiments, the desk in front of the participants had three envelopes marked "Experiment 1 – Dr. Kliest", "Experiment 2 – Dr. Wunderling", and "Experiment 3 – Dr. Yorke". They were instructed to place all materials in each envelope after completing each section of the experiment.

Part I

Participants were given three partially counterbalanced questionnaires and informed via written instructions to choose the best answer for each question.

Major depression inventory. This questionnaire was used to assess the degree of depressive symptoms in each participant (Konstantinidis, Martiny, Bech, & Kasper, 2011).

Big five inventory. The questions from this inventory were used to measure the big five personality traits of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (John & Srivastava, 1999).

Interpersonal reactivity index. This survey measured the level of various types of empathy in participants (Davis, 1980). These categories include perspective taking, fantasy, empathetic concern, and personal distress. For the purposes of the current study, only a global measure of empathy was used.

Part II

Next, participants listened to three, partially counterbalanced music segments (happy, sad, or neutral) that were each one minute in length. They were told to close their eyes and concentrate on each music selection. After each selection, participants were required to fill out a questionnaire sheet in which they rated their enjoyment of the song, the level of beauty it contained, the degree to which they related to the music, and indicated whether they recognized the band or the song (see Appendix A).

The music selections used in the experiment were chosen based on a several criteria. Emotional reaction to the lyrics was limited by choosing songs that contained ambiguous or muffled lyrics. The effect of familiarity was minimized by choosing less popular songs. Using these basic criteria, three songs were chosen for the experiment:

Positive emotion. The song "Eyes as Candles", by Passion Pit, was chosen for its ambiguous lyrics and uplifting vibe.

Neutral. The song "Slow Motion", by Panda Bear, was slowed down 10% in order to function as the neutral selection.

Negative emotion. The live version of the Radiohead song, "Like Spinning Plates", was used to convey a depressing mood.

Pilot testing verified that the selected songs adequately established the appropriate emotional content (i.e., happy, neutral, or sad). All music selections were rated on a scale of

negative six (extremely sad) to positive six (extremely happy). A rating of zero indicated a lack of strong emotion of either valence, i.e. neutral. Fitting with expectations, the respective songs were rated as happy (M= 2.93), neutral (M= -.41), and sad (M= -2.66). Analysis of variance (ANOVA) and Tukey post-hoc analyses confirmed that the ratings of emotional content for each song were significantly different from each other ($ps< .05$). In addition, pilot testing verified that no one selection was universally disliked relative to the others. Finally, results indicated that participants were relatively unfamiliar with the songs,(overall identification rate was less than 2%).

Part III

Participants were informed that the third experiment was designed to measure the influence that listening to music has on writing. They were told to choose (via written selection) one of the songs played in the previous section and that this song would function as a guide for the type of music they would hear while journaling about a somewhat recent and significant life event. The sole purpose of this part of the experiment was to measure music listening choices. As such, the experiment ended after participants made their selection.

Debriefing

After the three sections, participants were debriefed and probed for suspicion. They were asked general questions about the experiment and their level of suspicion was rated on a standardized number scale. More specific questions concerning deception were posed following this rating, such as "At any point during the study did you think there was something more to the study?" and "Can you think of any other aspects of the study that seemed strange or unusual?" Data was removed from analyses for participants who expressed specific suspicions that could potentially affect the results (e.g., guessing the exact research hypotheses).

Results

Enjoyment Ratings

It was expected that individuals higher in openness and empathy would have increased enjoyment of both positive and negative music. Those with high depression scores were predicted to give higher enjoyment ratings to negative music only. Three multiple regressions were used to test if these factors actually predicted enjoyment of each song respectively. Results are presented in Table 1. For the happy song, none of the factors were significant predictors of enjoyment. For the neutral song, the same pattern of non-significant predictors was obtained. For the sad song, openness was not a significant predictor and neither were depression scores. However, empathy was found to be a significant predictor of enjoyment of the sad song and accounted for 19% of the variance in enjoyment ratings.

Musical Preference

It was predicted that participants who scored high in openness and empathy would choose positive and negative music over neutral music. Individuals with high depression symptoms were expected to prefer negative music only. A multinomial regression was conducted predicting choice from the openness, empathy, and depression scores. The regression was not found to be significant overall (X^2= 5.27, p>.10).

Post-Hoc Analyses: Enjoyment Ratings

Given that only one of the original hypotheses was found to be significant, further analyses were conducted. Three multiple regressions were used to determine if viewing a song as art or relating to the song predicted enjoyment. This data was obtained from the questionnaires given to participants after listening to each music selection (see Appendix A). It was hypothesized that these specific questions would more precisely reflect measurements of

openness and empathy than global assessments of these traits (i.e. Big Five Inventory and Interpersonal Reactivity Index) and would thus influence song enjoyment more strongly. Results are shown in Table 2. For the happy song, there were two significant predictors: viewing the happy song as art and relating to that song. In terms of the neutral song, a similar pattern was found. Viewing the neutral song as art and relating to that song were both significant predictors of song enjoyment. Finally, viewing the sad song as art was found to significantly predict enjoyment ratings of the sad song.

Post-Hoc Analyses: Musical Preference

It was hypothesized that viewing a song as art or relating to the song would similarly be associated with higher preference of that music selection. A multinomial regression was conducted predicting choice from viewing each song as art and relating to each song. Results are presented in Table 3. Overall, the regression was significant. Findings indicated that individuals who related strongly to the happy song had about a three times greater chance of choosing the happy song than the neutral song. Those who viewed the neutral song as art had a decreased chance of choosing both the happy song and the sad song over the neutral song. Furthermore, participants who viewed the sad song as art had approximately a two times greater chance of preferring the sad song instead of the neutral song. No other covariates were significantly associated with music preference.

Discussion

The current research focused on enjoyment and preference for positive, neutral, and negative affect music. This study also analyzed whether attitudes about music enjoyment are synonymous with music listening behavior (i.e. preference). It was predicted that individuals with higher levels of depression would prefer negative music. By contrast, it was thought that

individuals high on openness and empathy would be drawn to emotional music, both positive and negative. The results from the current study provided partial support for these hypotheses. Specifically, individuals high in global empathy gave higher ratings of enjoyment to negative emotional music. However, no relationship was found between empathy and positive emotional music. In addition, no relationship was found between openness or depression for any of the dependent measures. This lack of a relationship between depression and enjoyment/preference for sad music warrants further consideration. Given the truncated range of data, depression scores simply may not vary enough to determine any significant relationship to music enjoyment. Along the lines, most scores on this assessment were far beneath the threshold for a diagnosis of clinical depression.

Although initial hypotheses were only partially supported, further analysis of responses regarding individual song selections indicated a potential connection between situational personality traits and music enjoyment. Specifically, it was found that considering a song to be artistic, a perspective shared by those high in openness, was associated with an increase in enjoyment for that song. Furthermore, relating strongly to a song, a defining characteristic of empathetic individuals, is associated with a higher enjoyment rating as well. These results suggest that a broad evaluation of personality (i.e., the measures of personality in this study) may not accurately reflect how one approaches music listening in particular. Significant relationships with enjoyment and preference may not have been found in the current study if an individual scored low in other aspects of the trait (e.g. empathy toward other persons) but was nevertheless empathetic in regard to music listening. Ultimately, more deliberately designed questions may be necessary to fully tap into the relationship between openness and empathy and their relationship with music preference/enjoyment.

One of the main benefits of this study is of the inclusion of music choice as a dependent variable, as prior research has primarily focused on ratings of music enjoyment. Given that different factors were found to be significant influences for music enjoyment and preference, this study demonstrated that attitudes about music may not be synonymous with music listening behavior. In particular, situation specific measures of empathy and openness were linked to enjoyment of mostly all the songs, while only some of these similar hypotheses held true for preference. Another important contribution of the current study is the analysis of depression symptoms in a non-clinical sample. Participants in this type of sample typically present differently than clinical patients (e.g. less severe symptoms), and thus the results may be more generalizable.

Future research would benefit from a closer look at the relationship between personality traits and music enjoyment/preference. Results from the current study suggest that using specific music related assessments may be more effective than global trait assessments at establishing connections between personality traits and music enjoyment/preference. However, more research is needed to provide evidence for this hypothesis. Other studies should also further explore the possible connection between depression and music enjoyment/preference by using a sample with more variable depressive scores than in the current investigation.

Ultimately, music preferences can be as variable as the individuals who listen to music. Nevertheless, research has been able to identify specific factors that have a substantial effect on song enjoyment and preference. The current study examined three such characteristics. However, given the complexities of human cognition, numerous other factors likely contribute to music enjoyment/preference. As more studies investigate these relationships, it is likely that music listening habits will be viewed with more insight and a higher level of predictability.

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Table 1.

Multiple Regression Analyses of Song Enjoyment Using Planned Predictors

		Happy song	Neutral song	Sad song
	F ratio	1.32	.769	4.83
	R^2	.060	.036	.189
	Openness	.093	.108	.129
β	Empathy	.146	-.013	.387
	Depression	-.125	-.162	.018

Note. $^*p < .10$. $^{**}p < .05$

Table 2.

Post-Hoc Multiple Regression Analyses of Song Enjoyment

		Happy song	Neutral song	Sad song
	F ratio	30.5**	28.9**	22.8**
	R^2	.756	.746	.699
β	Viewing a happy song as art	.667**	.045	-.146
	Relating to a happy song	.294**	.021	.094
	Viewing a neutral song as art	.007	.595**	-.016
	Relating to a neutral song	.035	.32**	.144
	Viewing a sad song as art	-.004	.069	.769**
	Relating to a sad song	-.013	.016	.068

Note. $*p < .10$. $**p < .05$

Table 3.

Post-Hoc Multinomial Regression of Song Preference

	Odds ratio	95% CI
Neutral song versus happy song		
Viewing happy song as art	1.94	.842, 4.46
Relating to happy song	3.40**	1.06, 10.9
Viewing neutral song as art	.494*	.241, 1.01
Relating to neutral song	.442	.147, 1.33
Viewing sad song as art	.921	.574, 1.48
Relating to sad song	.36	.101, 1.29
Neutral song versus sad song		
Viewing happy song as art	1.04	.444, 2.41
Relating to happy song	.633	.137, 2.93
Viewing neutral song as art	.453**	.210, .978
Relating to neutral song	.39	.104, 1.47
Viewing sad song as art	2.25**	1.054, 4.81
Relating to sad song	2.29	.610, 8.5

Note. $*p < .10$. $**p < .05$

Appendix A

Music selection #_____:

1. How much did you like or dislike the music you just listened to? Please circle a number.

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Disliked extremely		Disliked quite a bit		Disliked slightly		Neutral		Liked slightly		Liked quite a bit		Liked extremely

2. How would you evaluate this song as a piece of art? Please circle a number.

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Extremely unpleasant		Quite unpleasant		Slightly unpleasant		Neutral		Slightly pleasant		Quite pleasant		Extremel pleasant

3. How much did you relate to this song? Please circle a number.

0	1	2	3	4	5	6
Did not relate to it at all		Related to it slightly		Related to it quite a bit		Related to it very much

4. Did you recognize the artist or the song? Circle one: YES NO

If you did recognize the artist or the song, please write their name and/or the song title.

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