Article

The influence of stress, optimism, and music training on music uses and preferences

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Abstract

In the present study we examined how different aspects of a person's life, such as the amount of stress experienced, levels of optimism, and the amount of musical training received, were related to their motives for listening to music (for emotional regulation and/or for cognitive stimulation) and their preferences for what types of music to listen to. Participants ($N = 154$) completed surveys measuring stress, optimism, music uses, and music preferences. Results indicate that high stress ratings predicted the use of music for emotional regulation. Additionally, optimistic individuals also tended to use music emotionally, meaning that stress and optimism, though highly negatively correlated, appear to influence uses of music independently. People with more music training followed a different pattern; even though they had higher stress ratings and lower optimism ratings overall, individuals with music training tended to listen to music for cognitive reasons more than for emotional regulation. These findings help us further understand the variables that lead to individual differences in music uses and preferences.

Keywords

music preferences, music training, music uses, optimism, stress

My heart, which is so full to overflowing, has often been solaced and refreshed by music when sick and weary. (Luther, n.d.)

Music is the art of thinking with sounds. (Combarieu, n.d.)

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> Without music to decorate it, time is just a bunch of boring production deadlines or dates by which bills must be paid. (Zappa, n.d.)

As these quotes point out, different people have different motivations for listening to music; some people listen to music to provide solace or reduce stress, others listen to music to provoke thought, and still others listen to music to relieve boredom. Further, the types of music a person listens to are likely tied to that person's motives for listening to music. In the present study we examined how different aspects of a person's life, specifically the amount of perceived stress and optimism they experience and the amount of musical training that they have received, were related to their choices in both what music they listen to and why they listen to music.

Various attempts have been made to categorize the reasons people listen to music (Schäfer & Sedlmeier, 2009; Tarrant, North, & Hargreaves, 2000; Tekman & Hortaçsu, 2002). One of the most common reasons cited for listening to music is mood enhancement and emotional regulation (Juslin & Sloboda, 2010; Rentfrow & Gosling, 2003; Saarikallio & Erkkilä, 2007). Music also plays a key role in shaping a person's social identity (North, Hargreaves, & O'Neill, 2000; Tarrant et al., 2000; Tekman & Hortaçsu, 2002) – arguably because it provides both a medium of communication and a source of common interest (Schäfer & Sedlmeier, 2009). Individuals may also use music in a more intellectual fashion, analyzing the structure of the music and techniques of the musicians. In this way, taking part in music can help to enhance cognitive function and concentration (Schellenberg, 2003).

Personality and music use

Recently researchers have examined the different ways that people use music in their lives (Chamorro-Premuzic & Furnham, 2007; Kreutz, Schubert, & Mitchell, 2008; Saarikallio, 2008). For example, Saarikallio (2008) examined the different ways that people use music to regulate emotions, while Kreutz et al. (2008) detailed the differences between empathetic/emotional and systematic/cognitive uses of music. The Uses of Music Inventory, developed by Chamorro-Premuzic and Furnham (2007), is perhaps the most complete analysis of reasons people have for listening to music. They found that people's reported motives for listening to music tend to fall into three categories: emotional use of music (the extent to which music is used to regulate emotions); cognitive use of music (the extent to which an individual listens to music in an intellectual manner); and background use of music (the extent to which an individual enjoys music while working, studying, or socializing). These distinct uses of music have been replicated in Spanish (Chamorro-Premuzic, Gomà-i-Freixanet, Furnham, & Muro, 2009), Malaysian (Chamorro-Premuzic, Swami, Furnham, & Maakip, 2009), and South African (Getz, Chamorro-Premuzic, Roy, & Devroop, 2012) populations. Further, the Uses of Music Inventory has also been found to predict music consumption (Chamorro-Premuzic, Swami, & Cermakova, 2012).

Differences in the Big Five personality traits have been linked to differences in uses of music (Chamorro-Premuzic & Furnham, 2007; Chamorro-Premuzic, Gomà-i-Freixanet, et al., 2009; Chamorro-Premuzic, Swami, et al., 2009). The strongest association between personality and music use is the positive correlation between neuroticism and emotional use of music, indicating that less emotionally stable individuals seem to show greater music sensitivity and, therefore, often use music to influence their mood state (Costa & McCrae, 1992; Juslin & Sloboda, 2010). Additionally, openness is positively related to cognitive use of music,

explained in terms of higher need for cognition (Chamorro-Premuzic & Furnham, 2005). Extraversion is significantly positively correlated with background use of music, in line with findings that extraverts are under-aroused compared to introverts (Eysenck & Eysenck, 1985) and thus seek arousing background stimuli (Cassidy & MacDonald, 2007; Furnham & Allass, 1999). Research extending beyond the Big Five has shown that individuals with a positive outlook (measured by the Positive And Negative Affect Schedule [PANAS]) are more likely to use music cognitively, while individuals with a negative outlook are more likely to use music for emotional reasons (Getz et al., 2012).

Personality and music preference

In addition to differences in music usage, there are individual differences in the types of music that people tend to listen to based on their personality (George, Stickle, Rachid, & Wopnford, 2007; Litle & Zuckerman, 1986; Rawlings, Vidal, & Furnham, 2001; Rentfrow & Gosling, 2003). Rentfrow and Gosling (2003) were the first to suggest a 'meaningful structure underlying music preferences' (p. 1250), including four independent dimensions – reflective/complex, intense/rebellious, upbeat/conventional, and energetic/rhythmic. Links have been shown between each dimension and typical personality traits. For example, participants high in extraversion are more likely to listen to upbeat/conventional and energetic/rhythmic music, while participants high in openness are more likely to enjoy reflective/complex and intense/rebellious music. Therefore it is possible that personality influences both why people listen to music and which types of music that they listen to.

Stress and music interventions

Stress was chosen as a negative outlook trait for further investigation because of its many potential negative consequences on psychological and physical health. Individuals with high chronic stress levels are at higher risk for coronary heart disease (Greenwood, Muir, Packham, & Madeley, 1996), hypertension (Turner, Wheaton, & Lloyd, 1995; Williams, Yu, Jackson & Anderson, 1997), and physical illness in general (Torsheim & Wold, 2001). High stress levels can also lead to depression (Cui & Vaillant, 1996; Lantz, House, Mero, & Williams, 2005; McGonagle & Kessler, 1990), psychiatric disorders (Dohrenwend, 2000), substance and alcohol abuse (Cooper, Russell, Skinner, Frone, & Mudar, 1992), and suicide (Feskanich et al., 2002). In addition, stress and its related health outcomes are associated with poorer academic (Haines, Norris, & Kashy, 1996; MacGeorge, Samter, & Gillihan, 2005) and work (Lerner et al., 2010; Westman & Eden, 1992) outcomes.

Due to these negative outcomes, methods of reducing stress, anxiety, and the accompanying physiological symptoms are in high demand, and music-related interventions are often employed as one such stress reduction method. For example, Chlan (1998) showed that respirator-dependent patients who listened to music had lower anxiety levels, lower heart rates, and lower respiratory rates than patients in a control resting condition. Similarly, after open-heart surgery, patients who listened to music had higher oxytocin release and reported higher relaxation levels compared to patients on bed-rest only (Nilsson, 2009). Listening to music may help to improve cardiovascular recovery from stress in the general population as well; Chafin, Roy, Gerin, and Christenfeld (2004) found that listening to classical music helped participants return to resting blood pressure levels quicker after performing a stressful task than did sitting in silence.

In these and other examples, music listening seems to serve as a distraction in order to reduce the perception of pain caused by anxiety, tension, and stress (Davis, Gfeller, & Thaut, 1999). Given the relationship between music and stress reduction, it would be beneficial for people who report high levels of stress in their lives to seek out music as a tool to regulate their emotions. Indeed, people high in negative affect, of which stress level might be a contributing factor, tended to use music for emotional regulation (Getz et al., 2012).

Optimism

Optimism was chosen as a positive outlook trait for further investigation because of its negative correlation with stress. People high in optimism experience lower levels of stress (Scheier, Carver, & Bridges, 1994), possibly because they have larger social networks and are more likely to interpret stressful situations in a positive manner (Brissette, Scheier, & Carver, 2002). Further, unlike stress, optimism is associated with a number of positive health outcomes, including cardiovascular health, immune functioning, pain management, and survival rates (Rasmussen, Scheier, & Greenhouse, 2009). Higher optimism can also lead to lower levels of perceived stress in a variety of situations (Vollman, Antoniw, Hartung, & Renner, 2011), including cancer diagnosis (Friedman et al., 2006; Hulbert & Morrison, 2006), illness or death of a family member (Kivimäki et al., 2005), physical recovery (Brenes, Rapp, Rejeski, & Miller, 2002; Scheier et al., 1989), and college and career decisions (Creed, Patton, & Bartrum, 2002; Solberg Nes, Evans, & Segerstrom, 2009). While people high in negative affect tend to use music for regulating their emotions, people high in optimism would seem likely to show a different pattern. In fact, it has been shown that people high in positive affect tend to listen to music for cognitive stimulation more so than emotional regulation (Getz et al., 2012).

Present study

While the majority of previous research has examined the relationship between music uses/preferences and personality in general (i.e., Big Five and positive/negative affect), the present study examined two specific aspects of a person's outlook. We investigated the effects of stress (a trait relating to negative outlook) and optimism (a trait relating to positive outlook) on music uses and music preferences. Additionally, we investigated the effect of music training on these variables.

First, we predicted that individuals with high levels of perceived stress would listen to music largely for emotional regulation. This link seems clear given studies showing the power of music as a distraction from stressful situations (Chlan, 1998; Davis et al., 1999; Nilsson, 2009). Second, because of the negative correlation between optimism and stress, we predicted that participants high in optimism might prefer uses of music other than for emotional regulation. For instance, people high in optimism might be more likely to use music for cognitive stimulation, similar to people high in positive affect in general (Getz et al., 2012). It is also possible that people high in optimism might be more likely to seek background uses of music, as people high in optimism are also often high in extraversion and low in neuroticism (Sharpe, Martin, & Roth, 2011).

Third, we predicted that more years of music training might lead individuals to place emphasis on both emotional and cognitive uses of music. Music is often a source of communication, self-expression, emotionality, and creative flow for musicians, on both an individual and social level (Woody & McPherson, 2010). Therefore it could be predicted that individuals with extensive music training would place high emphasis on music as a source of emotional regulation.

Use of music for emotional regulation by musicians may be further enhanced by the emotional and physical demands that come with being a musician (Kenny, 2010; Steptoe, 2001; Sternbach, 1995) and because musicians, as well as creative types in general, tend to have a negative outlook (Akinola & Mendes, 2008; Cohen & Ferrari, 2010). However, music training is also likely to make it so that individuals are better able to appreciate music from an intellectual perspective, and thus it could be predicted that those with more music training would tend to use music cognitively.

Finally, the influence of perceived stress, optimism, music training, and music uses on music preferences was investigated. While our examination of the factors that influence music preferences was mostly exploratory, previous research indicates a possible influence of optimism on music preferences. A positive link between optimism and extraversion would predict that people high in optimism should prefer upbeat/conventional and energetic/rhythmic music (Rentfrow & Gosling, 2003). It would also seem likely that music training would lead to an appreciation of intellectually stimulating music such as that found in reflective/complex genres. Similarly, those with higher cognitive use of music should likely prefer reflective/complex music.

Method

Participants

A total of 154 undergraduate students (80% females, 90% Caucasian; age range 18–22, *M* = 18.95, *SD* = .96) enrolled in general psychology at Elizabethtown College took part in the study. Only 25 (16.2%) of our participants reported having no music training; the remaining 129 (83.8%) participants had an average of 5.5 years of training (*SD* = 4.0) with a range from one to 15 years. Although we did not ask specifically for the type of music training participants were involved in, Elizabethtown College has a large and active music program involving many students, both those majoring in music and those majoring in other disciplines.

Materials and procedure

Participants completed the study electronically using MediaLab or Survey Monkey (with the exception of the initial consenting process). Participants completed the Uses of Music Inventory (UOM; Chamorro-Premuzic & Furnham, 2007), Short Test of Musical Preferences (STOMP; Rentfrow & Gosling, 2003), Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), and Personal Attributes Optimism Survey (PAS; Scheier et al., 1994).[1] Demographics, including gender, age, ethnicity, academic major(s), and years of music training were incorporated at the end of the study. Methodological details of the instruments are provided below.

Uses of Music Inventory (UOM). This 15-item survey assesses views regarding motives for listening to music using a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). It encompasses three subscales: emotional use of music (emot UOM; e.g., 'Listening to music really affects my mood' and 'When I want to feel happy I listen to a happy song'); cognitive use of music (cog UOM; e.g., 'I often enjoy analyzing complex musical compositions' and 'I seldom like a song unless I admire the technique of the musicians'); and background use of music (back UOM; e.g., 'I enjoy listening to music while I work' and 'If I don't listen to music while I'm doing something, I often get bored').

Short Test of Musical Preferences (STOMP). The 13-item STOMP uses a seven-point Likert-type scale (1 = *not at all*, 7 = *a great deal*) to assess music preferences; it yields four preference categories: reflective/complex (RC; e.g., jazz and classical); intense/rebellious (IR; e.g., rock and heavy metal); upbeat/conventional (UC; e.g., country and pop); and energetic/rhythmic (ER; e.g., rap and dance). Although the original version has 14 items, one of them (soundtracks) was dropped due to its ambiguous nature, as suggested by its creators.

Perceived Stress Scale (PSS). This 10-item scale uses a five-point Likert-type scale (1 = *never*, 5 = *very often*) to assess feelings of stress during the last month; items are summed to generate a total stress score (e.g., 'How often have you found that you could not cope with all the things that you had to do?' and 'How often have you been able to control irritations in your life?' [reverse scored]).

Personal Attributes Optimism Survey (PAS). This 10-item survey uses a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) to assess general feelings of life optimism; items are summed to produce a total optimism score. There are five positively keyed (e.g., 'I look on the bright side of life') and five negatively keyed (e.g., 'I dislike myself') items.

Results

Descriptive statistics for the variables of interest (optimism, stress, UOM, and STOMP) are included in Table 1. First, we examined the correlations between levels of perceived stress, optimism, and years of music training. More music training was significantly correlated with higher perceived stress ($r = .275$, $p = .001$) and marginally correlated with lower optimism ($r = −.147$, $p = .069$). Stress and optimism were also significantly correlated, with higher perceived stress associated with lower optimism ratings ($r = −.645$, $p < .001$).

Linear regressions were then used to examine the relationship between the person variables, music uses, and music preferences. First, we used stress, optimism, and years of music training as predictors of each of the three uses of music factors. As shown in Table 2, higher levels of optimism and stress predicted increased emotional use of music. Cognitive use of music was predicted by lower levels of optimism and (marginally) by more music training.[2] No factors predicted background use of music.

Table 1. Descriptive statistics for variables of interest.

Scale	M (*SD*)	Range of responses	Max possible
Background UOM	17.4 (3.93)	7–25	25
Cognitive UOM	11.7 (3.62)	5–22	25
Emotional UOM	18.1 (2.86)	10–25	25
Energetic/rhythmic	13.2 (3.16)	5–20	21
Intense/rebellious	13.7 (3.56)	5–21	21
Reflective/complex	13.1 (4.58)	4–24	28
Upbeat/conventional	13.1 (3.82)	3–21	21
Optimism	39.6 (6.19)	15–50	50
Stress	28.2 (5.99)	15–48	50

Table 2. Linear regression analyses for variables of interest.

		Predictor	Estimate	t-value	p-value
Background UOM		Training	0.07	0.82	0.420
$R^2 = 0.016$		Optimism	0.02	0.23	0.819
		Stress	0.07	0.96	0.338
Cognitive UOM		Training	0.13	1.74	0.085[a]
$R^2 = 0.056$		Optimism	−0.1	−2.17	0.032 *
		Stress	NA		
Emotional UOM		Training	0.02	0.32	0.747
$R^2 = 0.073$		Optimism	0.1	2.13	0.035 *
		Stress	0.16	3.25	0.001 **
Energetic/rhythmic	1	Training	−0.09	−1.32	0.189
$R^2 = 0.054$		Optimism	0.07	1.3	0.196
		Stress	−0.007	−0.13	0.899
$R^2 = 0.096$	2	Cog UOM	−0.17	−2.36	0.019 *
		Emot UOM	0.07	0.78	0.433
		Back UOM	0.08	0.96	0.337
Intense/rebellious	1	Training	−0.03	−0.35	0.728
$R^2 = 0.023$		Optimism	−0.09	−1.47	0.144
		Stress	−0.12	−1.95	0.053
$R^2 = 0.126$	2	Cog UOM	0.26	3.13	0.002 **
		Emot UOM	0.04	0.43	0.672
		Back UOM	0.12	1.51	0.134
Reflective/complex	1	Training	0.33	3.71	< 0.001 ***
$R^2 = 0.103$		Optimism	0.03	0.42	0.676
		Stress	−0.002	−0.02	0.981
$R^2 = 0.203$	2	Cog UOM	0.27	2.67	0.008 **
		Emot UOM	−0.21	−1.61	0.110
		Back UOM	0.22	2.32	0.022 *
Upbeat/conventional	1	Training	< 0.01	0.001	0.999
$R^2 = 0.123$		Optimism	0.17	2.87	0.005 **
		Stress	0.25	3.94	< 0.001 ***
$R^2 = 0.237$	2	Cog UOM	−0.29	−3.49	< 0.001 ***
		Emot UOM	0.28	2.69	0.008 **
		Back UOM	0.007	−0.87	0.388

[a]Retained due to significant correlation in initial analysis.
*$p < .05$; **$p < .01$; ***$p < .001$.

Next, we added the three uses of music to stress, optimism, and years of music training to predict each of the four STOMP music preference categories. Again looking at Table 2, higher music training, cognitive use of music, and background use of music predicted increased reflective/complex preference; greater cognitive use of music predicted higher intense/rebellious and lower energetic/rhythmic preference; and higher levels of optimism, stress, and emotional use of music, and lower levels of cognitive use of music predicted increased upbeat/conventional preference.

Based on the results of the linear regressions we employed structural equation modeling (SEM) to fit a model whereby stress, optimism, and years of music training predicted uses of music, which in turn predicted music preferences. SEM was used because, unlike regression analyses, SEM enables one to simultaneously treat variables as both predictors and criteria (Byrne, 2006). All significant predictors from the regression analyses were initially included in the SEM model; the model fit the data reasonably well:[3] χ^2 ($N = 154$, $df = 30$) = 66.07, $p < .001$; goodness-of-fit index (GFI) = .924; comparative fit index (CFI) = .840; root mean square error of approximation (RMSEA) = .089 (.060–.118). For the final model, background UOM was eliminated due to the lack of significant predictors in the regression analysis stage. Our model fit the data well (see Figure 1); χ^2 ($N = 154$, $df = 22$) = 30.35, $p = .110$; GFI = .959, CFI = .957; RMSEA = .050 (.000–.089).

Figure 1 shows that years of music training and optimism explain 5% of the variance in cognitive use of music; optimism and stress explain 7.3% of the variance in emotional use of music; years of music training and cognitive use of music explain 16.4% of the variance in preference for reflective/complex genres; cognitive use of music explains 8.5% of the variance in preference for intense/rebellious genres and 4.7% of the variance in preference for energetic/rhythmic genres; and cognitive use of music, emotional use of music, stress, and optimism explain 23.9% of the variance in preference for upbeat/conventional genres.

Discussion

In the present study the effects of stress, optimism, and music training on individual differences in music uses and music preferences were investigated. Our model indicates that people with higher perceived stress tended to use music for emotional regulation and preferred to listen to upbeat/conventional genres of music, supporting our hypothesis. Highly optimistic individuals also preferred to listen to upbeat/conventional music. However, contrary to our predictions, optimism did not have the opposite effect as stress on music usage; individuals high in optimism also used music for emotional regulation and tended to use music less for cognitive reasons. Therefore although stress and optimism are highly negatively correlated, their influence on music uses and preferences appears to be independent (instead of opposite) of each other. People with more music training tended to listen to music more cognitively and tended to prefer reflective/complex music. Overall, the type of music that people listened to was better predicted by their motives for listening to music than their levels of optimism, stress, and music training, with cognitive use of music predicting a preference for reflective/complex and intense/rebellious (but not upbeat/conventional or energetic/rhythmic) genres and emotional use of music predicting a preference for upbeat/conventional genres.

Stress

It is well established that individuals use music for emotional regulation (Juslin & Sloboda, 2010; Rentfrow & Gosling, 2003; Saarikallio & Erkkilä, 2007; Tarrant et al., 2000). In the present study we found that high perceived stress ratings helped to predict emotional use of music, which is in line with past research on neuroticism (Chamorro-Premuzic & Furnham, 2007; Chamorro-Premuzic, Gomà-i-Freixanet, et al., 2009; Chamorro-Premuzic, Swami, et al., 2009) and negative affect (Getz et al., 2012). Perhaps to attenuate the many negative health consequences of stress (see Lantz et al., 2005), individuals with high stress levels tend to listen to
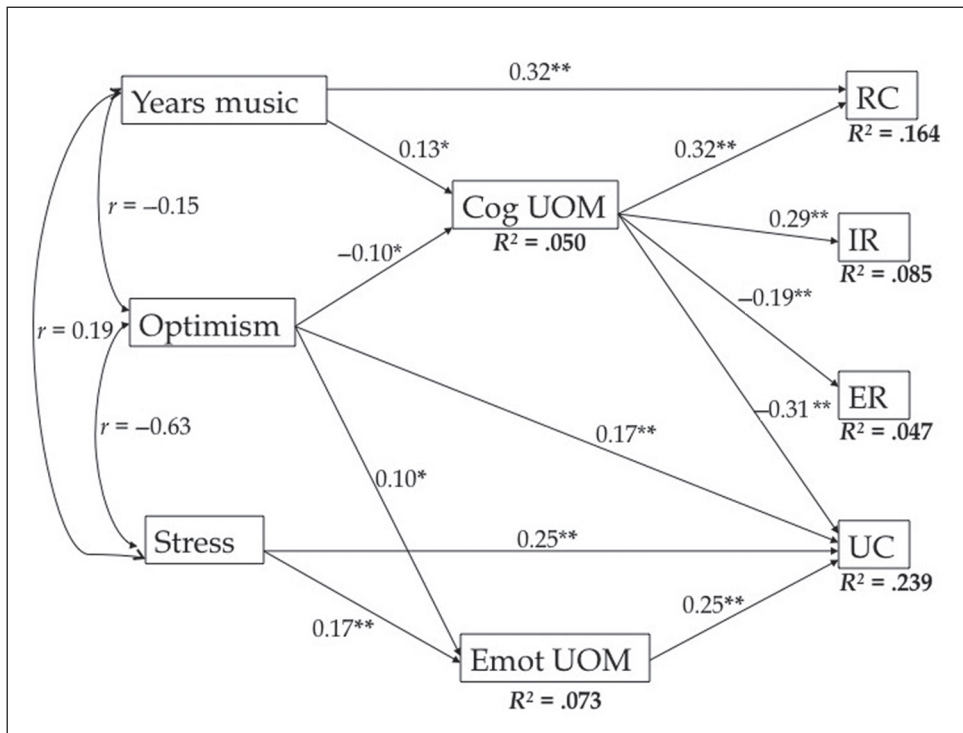
Figure 1. Final SEM model using optimism, stress, and years of music training to predict uses of music and music preferences. R^2 values indicate squared-multiple correlation values; cog UOM = cognitive use of music; emot UOM = emotional use of music; RC = reflective/complex genres; IR = intense/rebellious genres; ER = energetic/rhythmic genres; UC = upbeat/conventional genres.
$*p < .05; **p < .01.$

music as a distraction and to cue relaxation (Davis et al., 1999); research has shown this to be an effective method for regulating physiological and psychological responses to stress (Chafin et al., 2004; Chlan, 1998; Nilsson, 2009). People high in stress tended to listen to country, religious, and pop music (upbeat/conventional). It may be that these types of music are best for either soothing or distracting (Saarikallio & Erkkilä, 2007; van Goethem & Sloboda, 2011). It is also possible that the individuals who enjoy these types of music are also the type of people who are likely to have high levels of stress.

Optimism

Individuals with high stress levels were not the only ones to use music for emotional regulation: individuals with higher optimism ratings tended to use music emotionally as well. Although not the anticipated result, it is possible to frame this result in terms of *successful* emotional regulation. In a variety of research, music has been shown to regulate or control one's emotional state, including providing a diversion from sad thoughts, helping one through difficult times, *and* accentuating, enhancing, or maintaining one's current emotional state by creating a pleasant atmosphere (Juslin & Sloboda, 2010; Rentfrow & Gosling, 2003; Saarikallio & Erkkilä,

2007). It may be that individuals higher in optimism are more proficient at using music to maintain their positive mood, which in turn may help them to deal with stressful situations more effectively (Vollman et al., 2011). It is also possible that some third, unmeasured variable, such as extraversion, may help to explain the link between optimism and emotional use of music. A link with extraversion also helps to explain the preference of individuals with high optimism for upbeat/conventional genres (Rentfrow & Gosling, 2003); it may be that, in addition to being soothing and/or distracting, music in this category tends to be played in social settings and thus preferred by extraverted optimists.

Music training

Individuals with more music training had higher stress ratings and lower optimism ratings overall, which is in line with past research suggesting that musicians tend to have a negative outlook (Akinola & Mendes, 2008; Cohen & Ferrari, 2010). However, while emotions are obviously important for musicians as a means of communicating (Woody & McPherson, 2010), those individuals with more music training in the present study tended to use music for cognitive reasons more than for emotional reasons. It may be that individuals with music training listen to music more intellectually simply because they are better equipped to do so; music training may lead individuals to focus on analyzing the structure of the music or the performance quality of their fellow musicians rather than focusing on simply enjoying the music as background to other activities or as an emotional escape. Therefore it appears that the cognitive use of music overwhelms the emotional use of music for individuals with music training, even though these individuals reported higher levels of stress overall. Given their increased cognitive use of music, it is not surprising that participants with more musical training were more likely to prefer reflexive/complex music like classical and jazz.

Uses of music

Uses of music were highly predictive of music preferences overall. People with higher cognitive use of music tended to prefer intense/rebellious and reflective/complex music and to dislike upbeat/conventional and energetic/rhythmic music. The somewhat surprising link between cognitive use of music and intense/rebellious music (rock, alternative, heavy metal) might be due to the fact that certain subgenres of this music are technically complex. People may also prefer to listen to these genres in order to analyze the performers' technique. While cognitive use of music was connected significantly positively and negatively to all the STOMP categories, emotional use of music was predictive only of a preference for upbeat/conventional music. As with highly stressed individuals, those who use music emotionally are likely to seek music that soothes them or music that distracts them from their emotions (Saarikallio & Erkkilä, 2007; van Goethem & Sloboda, 2011); it may be that upbeat/conventional music is best for this purpose.

Limitations

The present study provides interesting preliminary results regarding stress and optimism as predictors of music uses and music preferences; however, several limitations still existed. First, as with most individual differences research, it relied solely on self-reports of optimism, stress, music use, and music preferences. More precise measures of stress and optimism in future research may help to explain more variance in music usage and preferences. Along those lines,

the variance explained by the factors in the present study only explains a small percentage of individual differences in music usage and preferences. Future research would do well to come up with additional factors that may explain the different motives people have for listening to music as well as their differing music preferences. Additionally, it is important to keep in mind that the sample in the present study was limited to college undergraduates from a small liberal arts college and thus their particular music usage and preferences may not necessarily generalize to the larger population.

Finally, although stress and optimism predicted emotional and cognitive uses of music well, these factors had little impact on background use of music or the genre preference categories other than upbeat/conventional. Problems have been reported with questionnaires such as STOMP that make use of musical genre classifications, particularly that people do not have a firm enough understanding of genre labels to accurately report their preferences (Aucouturier & Pachet, 2003). Therefore it may be beneficial to more clearly define music preferences in the future (as in Rentfrow, Goldberg, & Levitin, 2011) in order to provide a fuller picture of the relationship between positive and negative outlook, music uses, and music preferences.

Summary

Overall, the current study indicates that high stress ratings were a predictor of emotional use of music. Additionally, optimistic individuals also tended to use music emotionally, meaning that stress and optimism, though highly negatively correlated, appear to influence uses of music similarly and independently. People with more music training followed a different pattern; even though they had higher stress ratings and lower optimism ratings overall, individuals with music training tended to listen to music for cognitive reasons more than for emotional regulation. Finally, uses for music predicted individual differences in music preferences more so than did stress, optimism and music training, with cognitive use of music predicting preference for reflective/complex and intense/rebellious music and emotional use of music predicting preference for upbeat/conventional music genres. Our results here echo the quotes from Combarieu (n.d.), Luther (n.d.), and Zappa (n.d.) in showing that different people listen to music for a variety of reasons and that, in turn, these motives for music listening appear to influence people's music preferences.

Funding

Notes

1. An early, exploratory analysis also included measures of self-esteem and maximizing/satisficing ($N = 64$). Based on this analysis, self-esteem was eliminated from the study because it was highly correlated with optimism ($r = 0.82$), and in fact the two scales contained a number of very similar questions. Maximization/satisficing was eliminated due to lack of significant correlations with any other variables. It should be noted that the results of this initial analysis were nearly identical to those reported here; however, there were not enough participants to conduct a proper SEM analysis. Therefore an additional 90 participants completed only the measures reported here (total $N = 154$).
2. When we calculated a regression using stress, optimism, and music training as predictors of cognitive use of music, none turned out to be significant. However, because of the high correlation between

stress and optimism and the near significant results for music training and optimism, we left out stress and re-computed the regression.

3. The following fit indexes were used: χ^2 (Bollen, 1989), which tests whether an unconstrained model fits the covariance/correlation matrix as well as the given model (non-significant χ^2 values indicate good fit); the goodness-of-fit index (GFI; Hu & Bentler, 1999) measures the percent of observed co-variances explained by the co-variances implied by the model, and values close to 1.00 are indicative of good fit; the CFI (Bentler, 1990) compares the hypothesized model with a model based on zero-correlations among all variables (values around .90 indicate very good fit); and for the root mean-square error of approximation (RMSEA; Browne & Cudeck, 1993), values < .08 indicate good fit.

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