Gender Differences in the Function of Music for Emotion Regulation Development in Everyday Life: An Experience Sampling Method Study

Zheng Danhe[1,3]
[1] Faculty of Human Ecology, Universiti Putra Malaysia, Serdang, Malaysia
Serdang, 43400, Selangor, Malaysia
[3] Department of Music and Dance, Jingdezhen University, Jiangxi, China
Jingdezhen, 333403, Jiangxi, People's Republic of China
danhezheng@126.com

Aini Azeqa Ma'rof [1,2] *
[1] Faculty of Human Ecology, Universiti Putra Malaysia, Serdang, Malaysia
Serdang, 43400, Selangor, Malaysia
[2] Institute for Social Science Studies, Universiti Putra Malaysia, Serdang, Malaysia
Serdang, 43400, Selangor, Malaysia
azeqa@upm.edu.my

Zeinab Zaremohzzabieh[2]
[2] Institute for Social Science Studies, Universiti Putra Malaysia, Serdang, Malaysia
Serdang, 43400, Selangor, Malaysia
z_zienab@upm.edu.my

*Corresponding author: azeqa@upm.edu.my

Abstract

The present study employed experience sampling methodology (ESM) to examine the role of music in regulating emotions and the potential differences in music usage for emotion regulation between men and women in everyday life. The study spanned over seven days, including both weekdays and weekends, during which 28 participants (14 men and 14 women) were asked to complete a brief questionnaire 21 times a day. The questionnaire aimed to

document instances of music listening in the past three hours, resulting in a total of 588 questionnaires being sent and 264 instances of music listening being analysed. Results indicate that listening to music in daily life may have a positive impact on emotion regulation and suggest possible differences in music usage between men and women for this purpose. The study's primary findings include: (1) Relaxation was the most commonly used strategy for regulating emotions with music; (2) Four primary mechanisms of music usage for emotion regulation, including emotion type, familiarity, and content of music, were found to be essential; (3) Listening to music was an effective emotion regulation strategy, particularly for regulating happiness and peacefulness; (4) Men were more likely to use music for active coping and to consider the type and content of music when selecting music; and (5) Music appeared to regulate the intensity of emotions similarly for both men and women, although men tended to report higher emotional intensity.

Keywords: emotion regulation, gender differences, music listening, strategies and mechanisms

Introduction

Numerous empirical studies have demonstrated how music can regulate emotions in various aspects of daily life (Carlson et al., 2021; Fancourt et al., 2019). People use music both consciously and unconsciously to manipulate, generate, preserve, or elevate their emotions and moods for personal benefit (Stewart et al., 2019). Giordano et al. (2020) discovered that music listening is the second most common method for improving mood, boosting energy, and reducing tension. Among 162 emotion regulation strategies identified by Parkinson and Totterdell (1999), music is one of them. Moreover, gender differences in emotion regulation have been identified in psychology research (Goubet & Chrysikou, 2019). Men, for example, are more prone than women to repress melancholy but less likely to suppress anger (Gross & John, 2003). In comparison, Greasley (2008) discovered that women use music more frequently than men to regulate their emotions. Understanding how individuals use music as a tool for emotion regulation in their daily lives is becoming a more significant field of study. However, there is a considerable vacuum in our understanding of potential sex differences in the use and effectiveness of music for emotion regulation. Thus, the purpose of this study is to look at the role of music in emotion regulation and how gender differences affect this emotional regulatory activity. This study is noteworthy because it tries to provide insight on how people use music to regulate their emotions in their daily lives. A greater knowledge of these systems can lead to better emotional self-management and mental health.

Emotion Regulation in Everyday Life

Emotion regulation include altering or maintaining the duration, intensity, and frequency of both negative and good moods (Harley et al., 2019). Individual music preferences and choices result in distinct musical experiences, making the use of music to impact mood complex (Chaturvedi et al., 2022). Participants in laboratory experiments are rarely allowed to listen to their favourite music, so they may not be listening to music that they normally love (Knobloch & Zillmann, 2002). An

alternative research approach, such as the Experience Sampling Method (ESM), should be used to explore emotion regulation with music in everyday life (Negishi & Sekiguchi, 2020). ESM is one of the main methods used in everyday life research with music, alongside diary studies and interviews (Quiñones, 2019). Self-report is the most common and straightforward method used to measure emotions in the context of music, as it provides information about the subjectively experienced component of emotion (Fallon et al., 2020). However, relying solely on physiological measures to identify emotions without participant reports is unreliable (Scherer & Zentner, 2001). Self-report data, while useful, may also be subject to individual biases and may not reflect habitual modes of listening (Anderson et al., 2021). ESM, on the other hand, is a solid approach that enables direct monitoring of daily musical life without interference (Taruffi, 2021). It entails signalling participants at random times throughout the day using electronic pagers, with each signal prompting participants to complete a brief answer form regarding their present or previous experience. This method provides reliable and valid data on emotional responses to everyday musical experiences (Greb et al., 2019). To investigate daily music listening and emotion regulation, the present study employed ESM over one week.

Emotion Regulation Strategies with Music

There is growing interest among music psychologists in studying the functions of music in everyday life, particularly concerning emotion regulation strategies that have been supported by numerous empirical studies (Jakubowski & Ghosh, 2021). A variety of emotion regulation strategies exist (Ziv & Hollander-Shabtai, 2022). Saarikallio and Erkkilä (2007) conducted group interviews and follow-up studies to gather data on how Finnish adolescents use music to regulate their emotions. They discovered seven main techniques that the teenagers utilized to control their emotions: consolation, mental work, diversion, amusement, revival, strong sensation, and intense sensation. Adolescents use music as entertainment to set the mood and for fun and relaxation. They frequently played background music when reading, traveling, participating in sports, visiting friends, conversing online, doing chores or homework, and sleeping. This strategy was used to uplift their mood and maintain a positive attitude. The revival strategy involved using music for personal renewal, relaxation, and energy. Adolescents would often listen to their favourite music while lying in bed alone to experience strong sensations of enjoyment, excitement, and pleasure. The diversion strategy involved using music to forget about negative emotions. Adolescents would listen to peaceful or cheerful music to calm down and lift their spirits. The discharge strategy involved using music to express and release emotions. Adolescents used drumming, for example, to release emotional pressure and improve their mood. The mental work strategy involved using music to facilitate contemplation and mental imagery. Adolescents would contemplate issues while listening to music, such as falling in love, daily events, or significant life events. Finally, the solace strategy involved using music to offer comfort during times of sorrow and trouble and provide a sense of connection to significant things. These seven techniques may be utilized concurrently and interact with one another, demonstrating the role of music in emotion control (Schäfer et al., 2020).

Van Goethem and Sloboda (2011) took Saarikallio and Erkkilä's (2007) findings and compared the seven strategies with a general standardized strategy for mood regulation. They broke down the process of emotion regulation into four levels: goals, strategies, tactics, and underlying mechanisms. They then observed the functions of music in emotion regulation by dividing 500 music-listening episodes among 44 participants and collecting data on their responses through questionnaires and interviews. Before thoroughly analysing the data, they categorised several tactics, such as rationalizing reappraisal, optimistic thinking, and rationalization. According to the authors, listening to music may be used to relax, divert attention, engage in active coping, engage in introspection and vent, and engage in rational thought. Relaxation was found to be the primary strategy for regulating mood with music, accounting for 62.9% of participant use in the study. Although there were some differences in the definitions of the strategies between Saarikallio and Erkkilä (2007) and Van Goethem and Sloboda (2011), both studies showed that musical activities can be an effective means of regulating emotions. People use music consciously or unconsciously as a tool to adjust and enhance their emotional state in everyday life (Saarikallio & Erkkilä, 2007; Van Goethem & Sloboda, 2011). Our study builds upon the previously presented literature on emotion regulation strategies and investigates which strategies were most used for music listening and emotion regulation.

Underlying Mechanisms of Music in Emotion Regulation

Juslin and Västfjäll (2008) reviewed several emotion-induction processes and discovered six distinct mechanisms that might explain emotional reactions in everyday life: brain stem response, evaluative conditioning, emotional contagion, visual imagery, episodic memory, and music expectation are all examples of brain stem reflexes. The first mechanism, known as the brain stem response, includes the induction of emotion by music as a result of one or more basic acoustical features that the brain stem interprets as signifying an urgent and significant occurrence. The second mechanism, evaluative conditioning, involves the induction of emotion by a piece of music through affective learning, emotional conditioning, or preference conditioning. The third mechanism, emotional contagion, involves the induction of emotion by a piece of music because the listener perceives the emotional expression of the music and "mimics" this expression internally through feedback from muscles or activation of emotional representations in the brain. Visual imagery, the fourth mechanism, involves the induction of emotion in a listener by conjuring up visual images while listening to music. The fifth mechanism, episodic memory, involves the induction of emotion by music that evokes a memory of a particular event in the listener's life. The sixth and final process, known as musical expectancy, is the induction of feeling in a listener as a result of a specific aspect of the music that contravenes, postpones, or validates the listener's expectations regarding the music's progression. These six mechanisms offer potential explanations for how music affects emotions (Van Goethem & Sloboda, 2011).

Van Goethem and Sloboda (2011) conducted a study to investigate the mechanisms involved in using music as an emotion regulation tool. They collected data from 44 participants using structured interviews and questionnaires and

identified eight underlying mechanisms: the emotion of music, type of music, familiarity with music, the content of music, another world, memories, music-related activities, and music-unrelated activities. Participants said that furious, hilarious, cheery, upbeat, joyful, pleasurable, amusing, melancholy, or romantic music helped them control their emotions, showing that the emotion of the music was a key element. Additionally significant factors included the type of music, musical familiarity, and musical substance. Other techniques included music evoking memories, transporting listeners to different worlds, and engaging in music-related or unrelated activities. Van Goethem and Sloboda (2011) found that these mechanisms interacted with mood regulation goals and concluded that music's mood was essential in regulating emotions. This study aims to determine the most significant underlying mechanisms involved in music listening for emotion regulation.

Emotion Regulation Goals with Music

It is widely acknowledged that emotions are closely linked to the pursuit of specific goals (Baltazar, 2019). Music is used by people to help them control their emotions and gain emotional insight and expression (Varner, 2020). Previous research has found that the primary objective of musical encounters is to impact emotions. Music is used by individuals to transform or release feeling, to fit their present emotional state, to enjoy or soothe oneself, and to reduce stress (e.g., Stewart et al., 2019). According to Saarikallio and Erkkilä (2007), the major aims of teenagers in mood regulation are mood control and improvement, with music having a particularly favourable influence on mood improvement. Another important objective is to manage and self-determine one's mood, as seen by attempts to relax through calming music, to make sense of one's thoughts and feelings, and to match mood and energy levels to situational needs. North et al. (2004) investigated participants' daily listening episodes and discovered three primary reasons for listening to music: to pass the time, to enjoy it, and to create the ideal environment. According to Juslin and Laukka (2004), there are 10 primary reasons why people listen to music, including expressing emotions, relaxation, enjoyment, energy, and remembering. While previous research has provided some insight into the intentions that individuals have when listening to music, this study will concentrate on six distinct emotions: happiness, sorrow, surprise, anger, fear, and tranquillity. These emotions were found to be commonly experienced in everyday life, with guilt, shame, jealousy, disgust, contempt, embarrassment, and fear being less frequently associated with music listening. This study aims to determine which of these six emotions can be most effectively regulated through music listening.

Gender Differences with Emotion Regulation

Emotion regulation is a critical component in any study involving emotional expression, language, or comprehension (Montana et al., 2020). It is critical to evaluate gender disparities in emotion regulation and to investigate the advantages of various ways of self-regulation for different emotions (Peistaraite & Clark, 2020). Individual variations in two typical emotion management methods, cognitive

reappraisal and expressive suppression, were investigated by Gross and John (2003). Cognitive reappraisal is the process of revising one's viewpoint on an emotional occurrence, whereas expressive suppression is the reduction of emotional expression once one has already entered an emotional state. Gross and John (2003) used short questionnaires to measure individual differences in these two strategies and also studied gender effects. They found that men tend to use suppression more than women and are more likely to suppress sadness but less likely to suppress anger. Similarly, other studies have found gender differences in emotion regulation strategies. For example, boys tend to display greater emotional control than girls (Underwood et al., 1992), while women use a wider range of adaptive and maladaptive coping strategies than men (Tamres et al., 2002).

The evidence also points to gender disparities in the control of musically induced emotions. Men often listen to music for relaxation and diversion, and they are more likely than women to feel negatively about the music they don't enjoy (Saarikallio et al., 2013). However, few studies have specifically investigated gender differences in the use of music as a mood-regulation strategy (North & Hargreaves, 2010). Despite this, some studies have found gender-related differences in the functions of music. For instance, females tend to use music as a means of mood regulation, while males view it as a way to establish their identity (North et al., 2000). Moreover, girls report more positive mood changes due to music than boys (Wigfield & Eccles, 1992).

Based on these findings, understanding how people use music for emotional regulation is critical in the study of psychology. Music's reputation for dramatically influencing our emotional state emphasizes the need of understanding how it is used for this purpose, whether purposefully or unintentionally. This study also adds to determining the usefulness of music in guiding various emotions, giving significant information for persons seeking emotional well-being techniques and music therapy specialists. Furthermore, investigating how different genders use music for emotional control adds a critical layer to our knowledge of emotional management. As a result, the purpose of this study was to look at the use of music in emotion regulation and its relationship to gender differences. The research aims to address several crucial research inquiries, including:

1. Which strategies were mostly used for music listening to help people regulate emotion?
2. Which underlying mechanisms can be considered highly important in music listening?
3. How successful is music listening, and which emotion can be most effectively regulated?
4. Can gender differences be found in the use of music listening for emotion regulation?

Methodology

Participants

This research was carried out in 2021. For this study, 28 people (14 men and 14 women) ranging in age from 16 to 36 years (Mean = 23.86 and SD = 2.56) were recruited. Thirteen of the participants had received more than 3 years of musical

training, while the remaining fifteen had no musical training. Initially, email was used to contact potential participants in the UK and China, but due to a lack of response, social media was used to directly contact individuals and send them information about the study. The participants were informed that the study focused on music listening but was not told specifically that the topic was emotion regulation. One crucial aspect to consider is the rationale behind selecting participants from both the UK and China in this study, as it could potentially introduce cultural variations that impact the findings. The choice to include participants from these two distinct countries stems from a deliberate effort to explore potential cross-cultural differences in how individuals, specifically music students, utilize music for emotion regulation. It is well-established that music, being deeply intertwined with culture, can hold different meanings and functions in various societies. Therefore, including participants from both the UK and China allows for the examination of potential variations in the perception and impact of music on emotion regulation. For instance, music may play different roles in emotional expression and regulation within these cultures due to varying musical traditions, preferences, and societal norms.

Materials

The initial part of the questionnaire aims to determine if participants are currently listening to music or if they have listened to music in the past three hours. It also seeks to gather information about their location, activity, and reasons for listening to music at that particular time. If a participant has not listened to music in the past three hours, the questionnaire ends automatically. The term "music listening" is defined as times when the participant has actively chosen to listen to music.

The second section of the questionnaire contains various items related to music. It asks participants to identify the people they are with while listening to music and the genre of music they are listening to. The music genre is measured using the 14-item STOMP (Short Test of Musical Preferences) scale, which identifies four broad music preference dimensions (Rentfrow & Gosling, 2003).

Additionally, the second section asks participants to rate the emotions they experienced before and after listening to music. The emotions include happiness, sadness, surprise, fear, anger, and peacefulness. Participants are also asked if they intentionally listened to music to influence their emotions and if so, what their intention was (e.g., to change their mood). After describing how they use music to regulate their emotions, participants are asked to tick all the appropriate emotion regulation strategies from a list of options provided. These techniques, which include several behavioural and cognitive techniques identified in research on emotion regulation, were chosen based on a thorough study of the literature and two surveys (Bushman et al., 2001; Gross et al., 2006; Salovey et al., 2002). The strategies include rational thinking, seeking distraction, expressing feelings, active coping, and introspection.

Procedure

The study was conducted for seven consecutive days, including both weekdays and weekends, to capture typical everyday situations where music might be involved. Participants were asked to fill out a questionnaire, which took approximately 2-3

minutes, at random times during their waking hours. The participants were required to carry their mobile phones with them at all times and complete the online questionnaire as soon as they received the text message with the link to it. Each participant received a total of 21 text messages, with three texts per day. If a participant was unavailable, they were asked to complete the questionnaire as soon as possible. Participants who had not listened to music in the last three hours only had to complete the first section of the questionnaire. However, if participants were currently listening to music or had listened to music in the last three hours, they were asked to complete all sections of the questionnaire. The questionnaire included a section where participants could write down their thoughts if the categories provided did not cover their experiences. Participants were informed that there were no correct or incorrect answers and that their answers were confidential. During the first experiment, the researcher defined each strategy to ensure that participants understood the questions and different strategies. Definitions of the strategies were also given in the online questionnaires, and participants had the opportunity to discuss the strategies with the researcher to ensure comprehension. Participants were instructed not to report any events that they initially forgot to decrease the possibility of retrospection bias. The information sheet, which contained contact details and an indication of normal waking hours, was filled out by participants before the first experiment to ensure the study was as non-intrusive as possible.

Results

A total of 588 questionnaires were distributed to research participants in this academic examination, with a selection of 264 episodes subjected to rigorous analysis. Only episodes were considered if participants gave information on who they had been listening to music from in the preceding three hours. Of these episodes, 213 were identified as serving an emotion regulation purpose (80.6% of the total), and 208 were found to have successfully regulated the listener's emotions (78.8% of the total). In addition, it was discovered that 41 episodes (15.5% of the total) that were not initially listened to for regulatory purposes affected the listener's emotions. These results indicate that music listening is frequently used for emotion regulation in everyday life and can effectively influence the emotions of the listener.

Research Question 1: Which strategies were mostly used for music listening to help people regulate emotion?

Relaxation, diversion, active coping, introspection, venting, and rational thinking were the six strategies investigated in the study. Suppression, denial, and social support were removed from the investigation since they were not deemed unambiguous processes. Participants were able to indicate which strategies they used to regulate emotions with music and could select multiple appropriate strategies by ticking the corresponding boxes in Question 11 of the questionnaire. The percentages of nominations for each of the six strategies are presented in Table 1. The results indicate that music was most commonly used for relaxation (52.7%), followed by distraction (22.7%) and rational thinking (18.6%). Participants often reported using

several strategies simultaneously or sequentially to achieve the same emotion regulation goal, resulting in a total percentage greater than 100%.

Table 1.

The emotion regulation strategies used with music (n=264).

Strategies	N nominations	% of nominations
Relaxation	139	52.7
Distraction	60	22.7
Rational Thinking	49	18.6
Venting	34	12.9
Active Coping	20	7.6
Introspection	4	1.5
Total	306	116

Research Question 2: Which underlying mechanisms can be considered highly important in music listening?

Participants were instructed to identify the important factors in music listening each time they listened to music. Five mechanisms related to the characteristics of the music itself were identified as important by participants. These mechanisms are as follows:

1. The emotional content of the music, including its mood and whether it is angry, funny/cheerful/upbeat, happy/enjoyable/amusing, melancholic, or romantic.
2. The type of music, including whether the listener admires the artist, likes the variety of the music or can pinpoint key musical features.
3. The familiarity of the music, which participants highlighted as crucial due to their relationship to their favourite songs or singers, frequently referring to them as "old friends."
4. The familiarity of the music, which participants highlighted as crucial due to their relationship to their favourite songs or singers, frequently referring to them as "old friends."
5. Music's ability to create memories. Participants described how music can help recall memories, either related to the music or not, and how music associated with difficult events can provide strength for the present situation. Additionally, participants noted that music can create a feeling of nostalgia.

Table 2.

Nominations for each basic process in music listening (n=264)

Underlying mechanism	No. nominations	% nominations
Emotion of music	108	40.9
Type of music	117	44.3
Familiarity with the music	105	39.8
Content of music	88	33.3
Memories	30	11.4
Total	448	169.7

Table 2 displays the total number of nominations for each mechanism in music listening. A total of 448 instances of using music for emotion regulation were reported. Table 2 indicates that the emotion, type, familiarity, and content of the music were the most significant underlying mechanisms in music listening for emotion regulation.

Research Question 3: How successful is music listening, and which emotion can be most effectively regulated?

A repeated-measures ANOVA was performed on the intensity of emotions before and after music listening, using emotion rating type as a within-subject variable. The residuals were checked for normality and found to be approximately normally distributed. The results, with a Greenhouse-Geisser correction, showed a significant effect of emotion type ($F(3.138, 825.364) = 340.360$, $p<0.001$), a main effect of time ($F(1, 263) = 46.675$, $p<0.001$), and a significant interaction between emotion type and time ($F(1.768, 465.084) = 469.089$, $p<0.001$). Happiness and peacefulness showed a significant increase over time compared to other emotions. A paired-sample t-test confirmed a significant difference in the intensity of happiness and peacefulness conditions ($t(527) = 30.409$, $p<0.001$). Figure 1 shows a linear progression of happiness and peacefulness ratings across time, indicating that these emotions increased after music listening. However, sadness, surprise, and fear showed little change over time ($p>0.005$). In summary, the findings suggest that music listening can most effectively regulate happiness and peacefulness emotions.
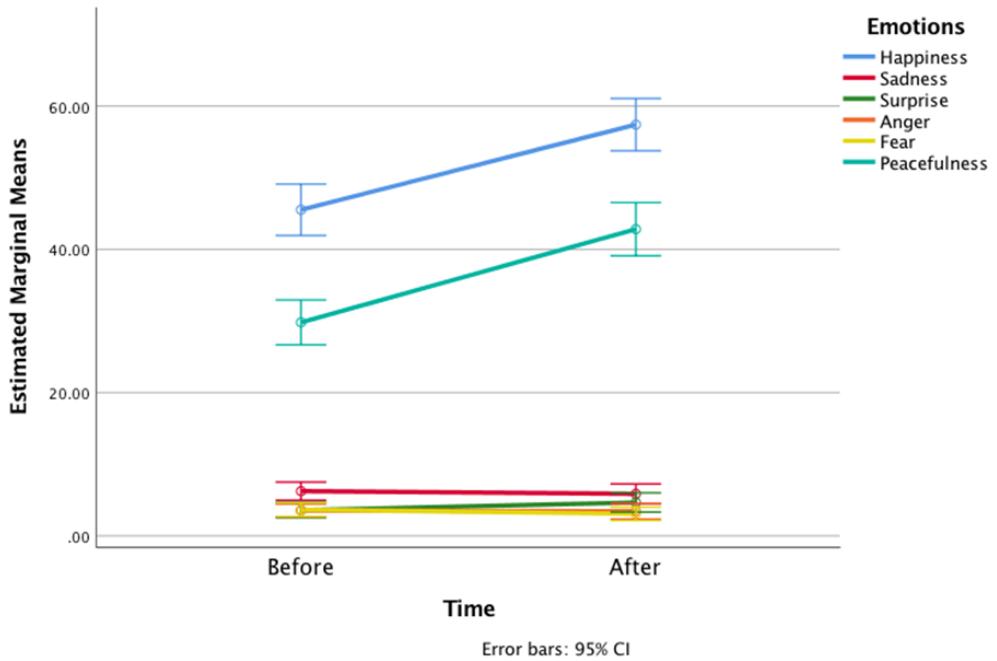
Figure 1. Means of participants' basic emotion ratings separated by time and emotion types. Error bars indicate a 95% confidence interval of the mean.

Research Question 4: Can gender differences be found in the use of music listening for emotion regulation?

We conducted a study to investigate gender differences in three aspects of emotion regulation, which were the strategy used, underlying mechanisms, and the effectiveness of change. We looked at six basic emotions and analysed the data separately for males and females. Figure 2 shows the frequency of nominations for each emotion regulation strategy used by males and females. The most commonly used strategies were relaxation, rational thinking, and distraction. A Chi-square test was performed to determine if there were any differences between the genders in their use of each strategy. However, we were unable to conduct a reliable statistical test for the strategy of introspection as its expected frequencies were less than five. Reliable Chi-square testing was possible because of the employment of relaxation, distraction, active coping, venting, and logical thought techniques (Table 3). The findings showed that there was a substantial difference in the usage of the active coping approach between males and females, with females being more likely to report using introspection while listening to music. However, no significant differences were discovered between males and females in the use of the strategies of relaxation, distraction, venting, and rational thinking.
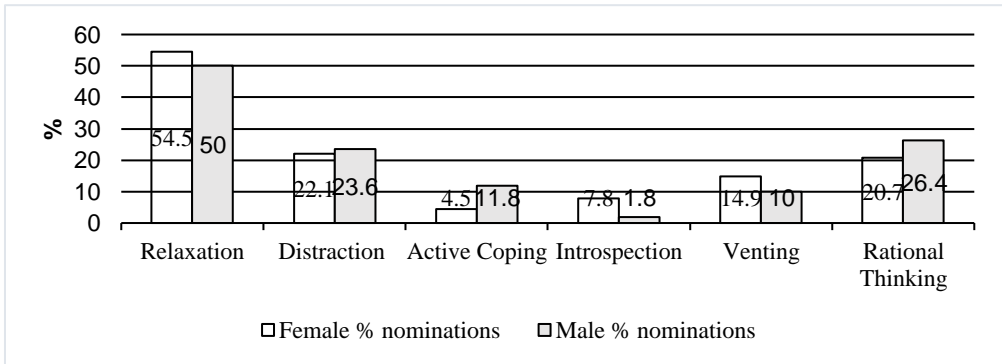
Figure 2. The number of nominations for each strategy is separated by gender.

Table 3.

Crosstabulation of strategy type and gender.

	Relaxation	Distraction	Active coping	Introspection	Venting	Rational thinking
Male	55	26	13	2	11	22
Female	84	34	7	2	23	18
χ^2	0.532	0.089	4.847		1.393	3.448
p	0.466	0.766	0.028*		0.238	0.063

Note. Adjusted residuals appear in parentheses below observed frequencies. *$p<.05$.

Figure 3 illustrates the number of nominations for each emotion regulation underlying mechanism used by males and females separately. Both genders reported that the characteristics of the music, such as its emotion, type, familiarity, and content, were the most important underlying mechanisms in music listening. Males were more likely than females to consider the type, familiarity, and content of the music in their emotion regulation. Table 4 shows the observed frequencies of each mechanism and adjusted residuals. A Chi-square test was conducted to determine if there were any multivariate differences between males and females in their use of each mechanism. As all the mechanisms had expected frequencies of more than 5, a reliable Chi-square test was conducted (see Table 4 for results). The mechanisms of music type and content of music showed significant differences between males and females (type of music ($\chi^2=16.676$, p <0.001), and content of music ($\chi^2=4.870$, p <0.05). However, the mechanisms of the emotion of music ($\chi^2=0$, p=1), familiarity with the music ($\chi^2=1.793$, p $=0.181$), and memories ($\chi^2=0.967$, p=0.325) did not have significant effects on gender differences in emotion regulation.
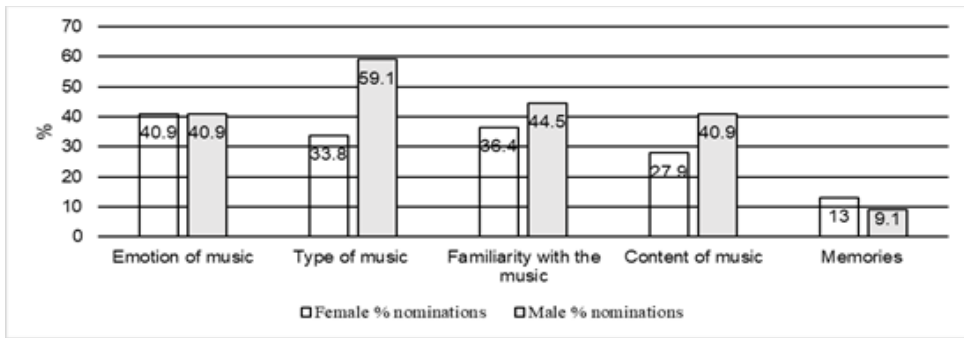
Figure 3. The number of nominations for each underlying mechanism in music listening is separated by gender.

Table 4.

Crosstabulation of each underlying mechanism and gender.

	Emotion	Type	Familiarity	Content	Memories
Male	45	65	49	45	10
	(0)	(4.1)	(1.3)	(2.2)	(1)
Female	63	52	56	43	20
	(0)	(-4.1)	(-1.3)	(-2.2)	(1)
χ^2	0	16.676	1.793	4.870	0.967
p	1	p<.001[**]	0.181	0.027[*]	0.325

Note. Adjusted residuals appear in parentheses below observed frequencies. [*]p<.05. [**] p<.001.

The study tested for gender differences in emotion changes over time by conducting a repeated-measures ANOVA with a Greenhouse-Geisser correction. Participants were asked to rate the intensity of each emotion before and after listening to music, with time and emotion as within-subject variables. The results are presented in Figure 4, with Graph A showing the effects of time and Graph B showing the effects of emotion. The analysis showed significant effects of time ($F(1, 262) = 55.160$, p< 0.001) and emotion ($F(2.319, 607.667) = 573.572$, p< 0.001), as well as a significant interaction effect between emotion and time ($F(1.913, 501.220) = 0.695$, *p*< 0.001). Both men and women reported feeling happier and more peaceful than the other four emotions, with men reporting a higher intensity of emotions overall. There was a non-significant trend towards an interaction effect between time and gender (*p*=0.054), as shown in Figure 3, where women responded more strongly to the music than men, but men reported higher overall intensity of emotions. There was no three-way interaction effect between emotion, time, and gender *(p=0.482)*. Graph C and Graph D show that both men and women reported changes in emotion intensity in the same way over time.
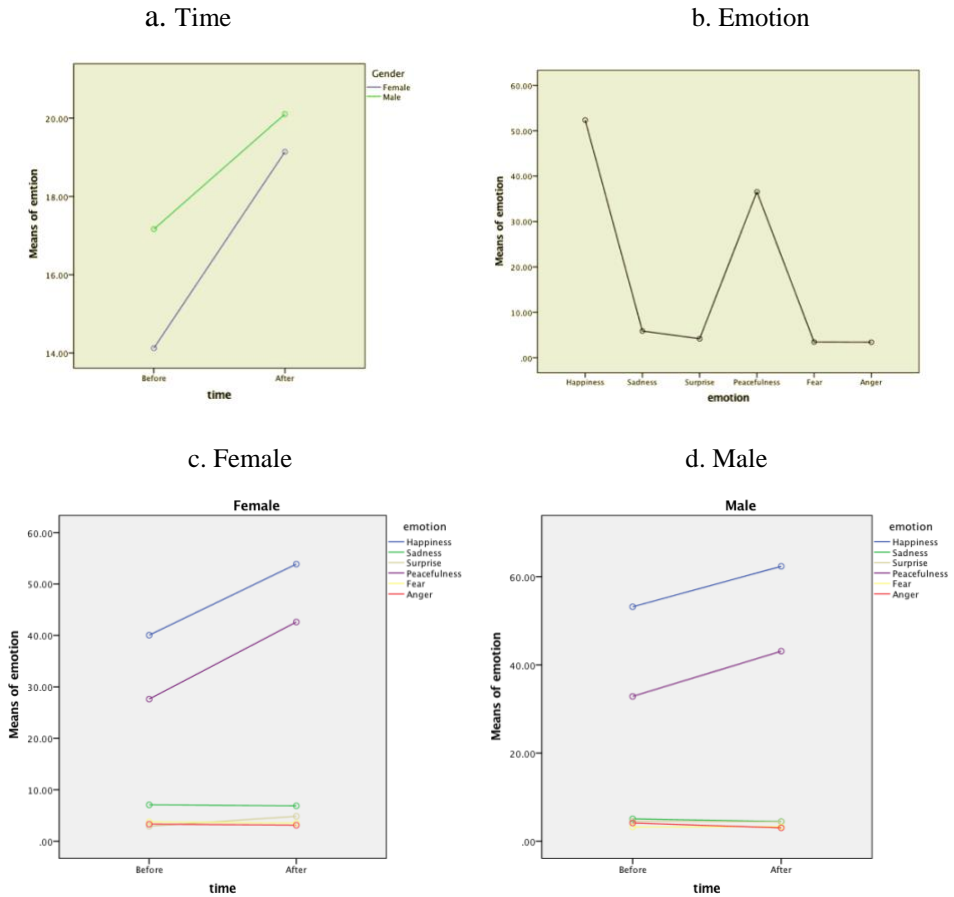
a. Time

b. Emotion

c. Female

d. Male

Figure 4. The results of gender differences in the use of music for emotion regulation.

Discussion

The goal of the study was to understand how listening to music helps people regulate their emotions in daily life and how gender variations may affect this activity. This topic was investigated through three levels of analysis: strategy, the underlying mechanism, and changes in each emotion. The first research question aimed to identify which emotion regulation strategies were mostly used in music listening. This result supports the results of Van Gothem and Sloboda (2011). The results confirm that the strategy of relaxation was mostly used. People are mainly listening to music for enjoyment and relaxation in everyday life (Juslin & Laukka, 2004; Juslin et al., 2008; Sloboda, 1999). The strategies of distraction, rational thinking, and venting are also commonly used, but the strategy of introspection was rarely mentioned in this study. However, several questions should be taken into account in further research. Participants frequently selected the multiple-choice option when they could choose from a variety of tactics for each music-listening session in this study. Although it

seems like the relaxation approach was employed frequently, it's possible that, when combined with another strategy, it wasn't the most crucial for establishing emotion regulation. Therefore, even if several methods can be used at once, it is beneficial to find out which ones are seen to be more crucial in emotion regulation with music by limiting participants' choices.

The second research question aimed to determine the most important underlying mechanisms in the use of music listening for emotion regulation. Four mechanisms related to the characteristics of the music itself were identified as the most important: emotion, type, familiarity, and content of the music. However, the mechanism of memories did not receive enough nominations in this study. These findings are consistent with previous research by Van Goethem and Sloboda (2011), who also found that these four mechanisms were most frequently reported. Some of the underlying mechanisms in this study were also identified in Juslin and Västfjäll's (2008) study. The process of emotional contagion, for example, may be related to the feeling of music, and episodic memory was also discovered as a memory here. According to Juslin and Västfjäll (2008), familiarity is arousal feedback, and the style of music is musical expectation. However, it is important to note that this study focused on regulating the existing effects of emotions through music, while Juslin and Västfjäll's (2008) study was based on emotions evoked by music. Therefore, it may be challenging to directly compare the results regarding the importance of underlying mechanisms.

The third study question assessed the efficacy of listening to music for regulating emotions and identifying which emotions may be most successfully controlled. The goal was to determine the effectiveness of listening to music for regulating emotions. The results revealed a marked rise in happiness and peacefulness over time. These findings support Juslin et al.'s (2008) observation that listening to music tends to have primarily positive effects, indicating that music listening may have implications for health psychology. While sadness, surprise, fear, and anger were less affected, the overall attempts at emotion regulation were successful. To find out how successful each method is when paired with music listening, more study is required. The significance of music listening in emotion regulation should be assessed in terms of its application to a variety of emotion regulation techniques as well as the degree to which the mood shift was successful. Among the vast number of possible strategies that can be used in emotion regulation, music listening was found to be a frequently used strategy. However, whether music has unique applicability compared to other strategies remains to be determined. Future research could compare the success levels of music with other potential strategies used for emotion regulation purposes.

The fourth study question sought to determine if listening to music for emotional regulation varied by gender. Previous studies suggested that women report using all emotion regulation strategies more than men, particularly rational thinking, active coping, and suppression (Tamres et al., 2002). The study did not discover any noteworthy differences between men and women in their use of relaxation, distraction, venting, and rational thought. Although women were slightly more likely than men to report using introspection in music listening, this difference was small, only 6%. Furthermore, although both men and women considered emotion, type,

familiarity, and content of the music to be the most important underlying mechanisms in music listening for emotion regulation, gender differences emerged regarding the mechanisms of type and content of the music. Men were more likely than women to consider the type and content of music when listening. Gender differences were also observed in emotions and changes in emotions over time, with men reporting more intense emotions than women. This finding is in contrast to previous research on gender differences in emotion regulation (Augustine & Hemenover, 2009). However, it is possible that instructing individuals to apply a certain strategy may have a similar effect on men and women when using music for emotion regulation. Although women are more likely to emotionally react than men (Augustine & Hemenover, 2009), music may be an effective means of venting emotions for men, as suggested by Saarikallio et al. (2013), who found that men use music for revival and distraction more than women.

Limitations and future direction

This study explores gender differences and the function of music in emotion regulation, but there are several limitations to consider. The sample used in the study is limited to highly educated individuals in their 20s from British and Chinese backgrounds, which may not be representative of the broader population. Therefore, future research should include participants from diverse age groups and backgrounds to gain a better understanding of music listening habits and emotion regulation strategies. The study did not take into account the sort of music listened to, how much was listened to, or how music was used in conjunction with other techniques, all of which might reveal important differences or similarities. Future research could investigate whether music listening can be replaced with other emotion regulation strategies or if it has unique goals, strategies, and underlying mechanisms. For example, the research could compare the underlying mechanisms of music with those of other activities, such as housework, exercising, or reading. By doing so, we can gain a better understanding of the specific role of music in emotion regulation. Finally, it's crucial to note that the study's participants are mostly from China and the United Kingdom, limiting the findings' generalizability to a larger, more culturally varied population. While the study focuses on gender differences in emotion control through music and includes individuals from various cultural backgrounds, it is critical to explore how gender and culture interact to shape the function of music in emotion regulation. Expanding the research to include a more diverse cross-cultural approach with participants from various cultural backgrounds, professions, and levels of musical expertise in the future could provide a more comprehensive understanding of how gender and culture interact to influence the intricate dynamics of using music to regulate emotions. This larger approach would provide more nuanced insights into this complicated interaction and broaden the study's application across many contexts.

Conclusions

To sum up, the findings of this study indicate that listening to music is a widely employed emotion regulation technique with a high success rate in enhancing positive emotions by utilizing various techniques and underlying processes. Based on

the findings of this study, suggestions are made regarding how music might be used to control emotions in daily life. The current study's findings offer some evidence for the role of music in emotion regulation across genders. While these findings may provide a valuable starting point, further research should be conducted to examine the specific role of music in emotion regulation and the relationship between emotion regulation and gender.

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Biographies

Zheng Danhe is a postgraduate student at the Faculty of Human Ecology, Universiti Putra Malaysia.

Aini Azeqa Ma'rof is a Senior Lecturer in Social Psychology, Department of Social Sciences and Development, Faculty of Human Ecology as well as head of lab at Institute for Social Sciences, Universiti Putra Malaysia.

Zeinab Zaremohzzabieh is a research fellow at Institute for Social Science Studies, Universiti Putra Malaysia.