

**MUSIC IN MOOD REGULATION IN ADOLESCENCE: AN INITIAL
EXPLORATION OF THE SINGAPORE CONTEXT**

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<p>Tiivistelmä – Abstract</p> <p>The use of music in mood regulation for adolescents is an important topic in the field of Music and Psychology. However, studies on this specific but important topic have been few and limited. The small number of studies that have been done have used mainly participants from Finland and Europe. The use of music in mood regulation for adolescents in other cultures like in Asia has not been explored. There also appears to be a lack of focus and understanding in the country of Singapore regarding the use of music for more therapeutic purposes like for mood regulation. This study seeks to be a pilot in presenting and understanding the use of music in mood regulation by adolescents in Singapore, a country made up mainly of people of Asian cultural lineage. Findings may fill in the gap in the understanding of the use of music and mood regulation in adolescence beyond a Western cultural context, and at the same time, serve as an initial data and proposal for expanding the use of music in therapeutic ways in Singapore. A self-administered questionnaire, consisting of both a quantitative survey using the Music in Mood Regulation (MMR) scale as well as open-ended interview questions, was distributed online. 60 responses were collected from adolescents in Singapore. Data from the open-ended questions were content-analysed and numerical information were gathered. Data collected from the MMR scale were statistically analysed. Results show that Singaporean adolescents do use music for mood regulation, and an overview of when, what, and why music is used is presented. It was also found that Singaporean adolescents use all regulatory strategies of music, and this was similar across age, gender and ethnic groups. Comparisons of findings from the current Singaporean study with what has been previously found of Finnish adolescents suggested that the basic process for the use of music in mood regulation is similar between Asian and Western cultures, but some differences relating to cultural contexts were also seen. Applications and limitations of the study are also discussed.</p>	
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1 INTRODUCTION

Affect constitutes an integral part of all human beings and the ability to self-regulate is vital for adaptive functioning (Larsen, 2000). In particular, affective experiences may be especially intense during the adolescence period, and affect dysregulation appear to be a significant factor as well as feature of various adolescent mal-adaptations and disorders (Silk, Steinberg & Morris, 2003). Hence, affect regulation may be considered an important part of adolescent health and well-being, and may be a topic worthy of attention.

Studies have suggested that one of the most common and important reasons for people to use music is for mood and/or emotional regulation (Juslin & Laukka, 2004; Laiho, 2004; Sloboda, O'Neill & Ivaldi, 2001). Different studies have been conducted to explore the strategies, tactics and underlying mechanisms in place when music is used to regulate mood (Juslin and Västfjäll, 2008; Saarikallio, 2010; Saarikallio & Erkkilä, 2007; Van Goethem and Sloboda, 2011). The Music in Mood Regulation (MMR) scale was also developed by Saarikallio (2008a) to assess the use of different mood regulating strategies related to musical activities. Other studies have been done to support the importance and effectiveness of the use of music in mood regulation specifically in the adolescent phase of life (Laiho, 2004; Saarikallio, 2008a; Saarikallio & Erkkilä, 2007). However, the number of studies in this topic is considerably few and limited. Furthermore, closer inspection revealed that most of these studies on the use of music in mood regulation in adolescence, including the testing of the MMR scale, were conducted mainly with Finnish adolescents and done by the same researchers. Little is known of the role of music in mood regulation for adolescents beyond Finland and in other cultures. According to Boer and Fischer (2010), limited explorations of cultural experiences in musical functioning and the lack of research on non-Western participants present to be gaps in music psychological research. Therefore, it may be necessary and valuable to expand our knowledge regarding the use of music in mood regulation in adolescence in cultures beyond Finland and Europe, as well as explore possible similarities and differences in the use of music in mood regulation between adolescents of different cultures.

The current study aims to explore the use of music in mood regulation of adolescents in Singapore through a mixed method research. Singapore is a country in Southeast Asia made up of mainly people of Asian cultural lineage. Issues related to moods are also of concern for the Singaporean adolescent population, yet the use of music for mood regulation is an area that appears to be lacking in research and support. It is hoped that findings from this study may provide a better understanding of the use of music for mood regulation in adolescents of a more Asian cultural background, beyond the Finnish or Western context. Moreover, findings from the current study could also serve as an initial data and proposal for expanding Music Therapy and the use of music in therapeutic ways in Singapore, particularly in the area of adolescent emotional health and well-being. In these ways, it is the researcher's hope that the current study will be of added value to the understanding and development of the field of Music Psychology and Music Therapy.

2 BACKGROUND

2.1 Mood Regulation and Adolescence

Affect constitutes an integral part of all human beings. Affective states are experienced and expressed by everyone, and they serve functional, communicative and informational roles for adaptive living (Larsen, 2000). With these important roles, the ability to self-regulate affective states, then, may be seen as vital not only for the effective and adaptive psychological functioning of an individual, but also for adaptive social interaction and behaviour (Larsen, 2000).

Affect and affect regulation are significant themes in the field of Psychology and Psychopathology. Theories in both child and adult psychopathology point out difficulties in affect regulation as aspects of maladjustment (Steinberg & Avenevoli, 2000). In particular, adolescence, the phase between childhood and adulthood, is a period characterised by changes and challenges. Adolescents face transitional demands in all physical, cognitive, social and behavioural areas, including issues related to physical changes, independence, self-identity, sexuality, relationships and self-esteem (Santrock, 2012). Adolescents may also face greater instability in moods and mood regulation (Halle, 2003). Silk, Steinberg and Morris (2003) suggested that affective experiences may be particularly intense during the adolescence period and affect dysregulation appear to be a significant factor as well as feature of various adolescent mal-adaptations and disorders like depressive symptoms and problem behaviour. Hence, mood regulation may be seen as an important aspect of development in the adolescence phase. Increased research and knowledge in this area may aid and add to the understanding of mental health and well-being of adolescents during this crucial phase of life.

Considering the importance of the topic, some definitional clarifications may be necessary to aid our understanding of research in the field. While the terms “affect”, “emotions” and “moods” have sometimes been used inter-changeably, there is a need to distinguish between them (Bridges, Denham, & Ganiban, 2004). According to Parkinson, Totterdell, Briner and Reynolds (1999), affect can be considered an overarching term that includes both mood and emotions, and any process aimed to modify or maintain these two dimensions may be

considered affect regulation. Moods and emotions are both states of being that are felt by an individual and may be expressed behaviorally. However, moods generally differ from emotions by their longer duration and lack of specific cause (Gross, 1999; Parkinson et al., 1999). Moreover, moods are thought to provide information about internal states and tend to lean towards cognition while emotions represent environmental states and lean more towards action (Gross, 1999; Larsen, 2000). Therefore, mood regulation differs from emotion regulation in that it is more about the regulation of undifferentiated mood states and what is subjectively experienced rather than regulating expressed behavior or specific emotional responses to specific events (Gross, 1999; Saarikallio & Erkkilä, 2007). Mood regulation may be seen as processes aimed to modify or maintain the occurrence, duration, and intensity of both negative and positive moods (Gross, 1999; Parkinson & Totterdell, 1999). The current study is more interested in exploring the general internal and cognitive state of affective being and its regulation. Therefore, the terms “mood” and “mood regulation” will henceforth be of main focus for the purpose of this research.

2.2 Music in Mood Regulation

With mood regulation being an important process for adaptive human behavior, the means for regulating mood would also seem a necessary area of research. The use of music for mood regulation is a topic that has received increasing attention. The importance of music in mood regulation has been presented through a substantial number of studies. Studies from the field of neuroscience have suggested the links between music and affective regions and functions of the brain. Other studies from the field of music psychology include those aimed to find out the functional goals of the use of music, those which seek to understand the strategies that serve to regulate mood, and those which focus on specific tactics of musical experiences used in regulating mood. All these studies provide support for the impact that music has on affect and affect regulation.

Findings from neuroscience and studies of brain regions and functions have found that in the limbic and para-limbic areas of the brain known to be responsible for affect functioning, music has been found to modulate activity in the core brain structures. Imaging studies have consistently implicated the Amygdala, Hippocampus, and Nucleus Accumbens in music-induced emotions (Koelsch, 2010). For example, the amygdala, which has a central role in

affect processing, has been found to be activated both when listening to joyful or sad music (Koelsch, 2015). Patients with amygdala lesions also showed impairment in the recognition of scary music (Gosselin et al., 2005). The hippocampus, which is involved in the regulation of stress and attachment-related behavior, has been reported to be activated during music-evoked tenderness, peacefulness, joy and sadness but also unpleasantness and fear (Koelsch, 2015). The Nucleus Accumbens (NAc), which is a part of the mesolimbic dopaminergic reward pathway and is sensitive to different types of reward, has been found to be implicated in dopamine release in the experience of peak emotional responses to familiar, pleasurable music (Salimpoor et al, 2011). Therefore, music may be seen to have the possibility of affecting a person's mood through activating brain regions associated with affect processing.

Also, several studies have been done to explore the goals of musical experiences. Results of the studies have suggested that one of the most common and important reasons for people to use music is for mood and/or emotional regulation (Juslin & Laukka, 2004; Laiho, 2004; Sloboda, O'Neill & Ivaldi, 2001). Saarikallio and Erkkilä (2007) proposed that the main goals of using music for mood regulation is to feel good and to control mood. Van Goethem and Sloboda's (2011) study also revealed that most regulation were aimed at changing negative moods like stress and sadness into more positive ones and people use music mostly with the goal of becoming happy/excited and calm/relaxed.

Other studies have presented the strategies that are in place when music is used to regulate mood. Saarikallio and Erkkilä (2007) proposed a theoretical model that describes mood regulation as a process that functions through seven regulatory strategies activated through different musical activities. According to their study, music works as *entertainment* to maintain or enhance current positive mood; as a form of *revival* to renew, relax and gain new energy when stressed or tired; as a *strong sensation* in searching for intense emotional experiences; as a *diversion* in forgetting unwanted feelings with the help of pleasant music; as a form of *discharge* in releasing anger or sadness through music that expresses them; as a form of *mental work* when music is used for contemplation of emotional preoccupations; and as a form of *solace* when feelings are accepted and understood by music (Saarikallio & Erkkilä, 2007). Saarikallio (2010) further found that the goal of using music for mood regulation and the regulatory strategies that music serves appear to be similarly maintained across the human lifespan, from adolescence all the way to the golden years of life. In another

study also focusing on the strategies of music for mood regulation, Van Goethem and Sloboda (2011) also suggested that the three most important uses of music for mood regulation is through serving as a form of distraction, for relaxation and as a form of active coping to focus on changing the situation.

Grounded in the theoretical model and the seven regulatory strategies proposed (Saarikallio & Erkkilä, 2007), Saarikallio (2008a) further came up with a 40-item Music in Mood Regulation (MMR) scale to assess the use of different mood regulating strategies related to musical activities. The scale was further tested and used to explore individual differences in mood regulation (Saarikallio, 2008a). Through this initial scale development, it was proposed that the MMR scale is an appropriate tool to assess the musical strategies and the extent to which they are used for the purpose of mood regulation. The MMR scale may be said to be the first of its kind developed for the assessment of the use of music in mood regulation, and served to convert the theoretical understanding of the use of music in mood regulation into a quantifiable form (Saarikallio, 2008a).

There are also others who have studied the musical tactics that are used in mood regulation. Van Goethem and Sloboda (2011), for example, have found that music listening is a commonly used tactic for mood regulation with a high level of success. In Saarikallio and Erkkilä's (2007) study, it was also presented that music listening was a tactic which served all the identified strategies of entertainment, revival, strong sensation, diversion, discharge, mental work and solace. They further suggested that singing was a tactic used for the strategies of revival, strong sensation and diversion; playing musical instruments was a tactic that served the strategies of revival, strong sensation, diversion, and sometimes discharge; the tactic of song-writing was related with revival, strong sensation and mental work; while musical performance was a tactic used mainly for strong sensation seeking.

Therefore, the range of studies done provides support for the use of music in mood regulation and adds weight to its importance as a topic in the field of Music Psychology.

2.3 Music in Mood Regulation in Adolescence

Since music in mood regulation and mood regulation in adolescence appear to be two areas that are important and gaining greater recognition in the research field, the topic of music in mood regulation in adolescence may therefore be one that deserves more exploration as well. Music appears to play a significant role in adolescence. Adolescents have been found to consume a huge amount of music, and to view music as a huge part of their life (Christenson, DeBenedittis & Lindlof, 1985; Christenson & Roberts, 1998; North, Hargreaves & O'Neill, 2000). It has been presented that most of the strong experiences of music seem to occur in adolescence and early adulthood (Gabrielsson & Lindstrom Wik, 2003), and the clearest marker of adolescence may be a passion for popular music (Christenson & Roberts, 1998).

Studies have been done on the adolescent population to support the importance and effectiveness of the use of music in mood regulation in this phase of life. Laiho (2004) proposed in her study that serving an emotional function is one of the four most common psychological functions of using music by adolescents. Also, the study by Saarikallio and Erkkilä (2007), based on information collected from Finnish adolescents, proposed a theoretical model that describes mood regulation as a process of feeling good and controlling mood as it functions through seven regulatory strategies activated through different musical activities including music listening, playing, singing, song-writing et cetera. These goals and strategies may be activated in adolescents no matter the range of individual differences like age, gender and mood states, as well as external influences like time, place, situation and life event. In the study to develop and test the Music in Mood Regulation (MMR) scale (Saarikallio, 2008a), Finnish adolescents from the ages of 10 to 20 were recruited as participants. Results from this study presented that the seven musical strategies of Entertainment, Revival, Strong Sensation, Diversion, Discharge, Mental Work, and Solace were indeed used by adolescents to regulate their mood. Gender and age differences were also found. The strategies of Entertainment, Revival and Strong Sensation were strategies that were most used, for both boys and girls in all age groups (Saarikallio, 2008a). In all age groups, music for mood regulation was used more by girls than boys (Saarikallio, 2008a). Music for mood regulation was also used more by older adolescents than younger adolescents (Saarikallio, 2008a). Thus, the outcomes from these research studies appear to support the significant use of music in mood regulation in adolescence.

However, the number of studies done on this topic of music in mood regulation for the specific population of adolescents is few and considerably lacking. Moreover, upon closer inspection, it was found that participants in most of the studies in this specific area were limited only to adolescents in Finland, and were done by the same few researchers like Saarikallio. Even the development and testing of the MMR scale was done on Finnish adolescents. It is hardly known if the role of music and the musical strategies used in mood regulation is significant and supported for adolescents beyond Finland and in other cultures. Therefore, more research in this topic of music in mood regulation for this particular population of adolescents may be valuable and necessary, particularly in cultures beyond Finland and the West.

2.4 Cross-Cultural Studies on the Use of Music in Mood Regulation

It has appeared that although the psychological function of music used for affect regulation is recognized as an increasingly important area of study in the field of Music Psychology, most of the studies on music in mood regulation have recruited only European participants, and “only few studies have explored cross-cultural similarities and differences” (Saarikallio, 2008b, p.1). Boer and Fischer (2010) commented that there is an assumption in much of Psychology literature that music listening is an individual and solitary activity. However, “this assumption may be, in fact, linked to the cultural background of the many music psychologists who hail from Western societies, which typically tend to be more individualistic” and culture may be seen as a neglected aspect in studies from the field of Music Psychology (Boer & Fischer, 2010).

It is of no surprise, then, that only a few studies have been done in relation to the functions of music beyond western cultures. Rana and North (2007) conducted a study in which they explored the role of music in the everyday life of Pakistanis. Many similarities were found when results from this Pakistani study were compared to those from a similar study of British participants (Boer & Fischer, 2010). Also, an examination of 17 functions of music and their links to music preferences in both a German and an Indian sample showed that music accomplishes the same functions in everyday life and to the same extent for both samples. However, the link between these functions and musical preference was weaker for the German sample (Schäfer, Sedlmeier & Tipandjan, 2008). In another study, Boer and Fischer

(2010) examined the functions of music listening across four sub-samples: the more collectivistic Asian and Latin-American sub-samples, as well as the more individualistic non-Anglophone Western and Anglophone Western sub-samples. It was presented that the function of self-regulation was the most important personal use of music across all four sub-samples, bonding was the most important social use of music, and the expression of cultural identity was the most prominent cultural use of music (Boer & Fischer, 2010). While these studies examined cross-cultural comparisons, the focus was more on what and how functions of music may be affected between European and Asian cultures. There was not so much an exploration of the use of music on the specific topic of mood regulation across cultures. There was one study found done by Gregory and Varney (1996) that focused more on music and affect across cultures. The study compared between European and Asian listeners, and they suggested that cultural background appears to be a determining factor in affective responses to music. Nonetheless, this was still not a cross-cultural study that focused on the use of music for mood regulation. Therefore, “limited explorations of cultural experiences in musical functioning and the lack of research on non-Western participants present to be gaps in music psychological research” (Boer & Fischer, 2010), particularly in the specific topic of music in mood regulation.

If there is already such a lack of focus and cross-cultural studies on the topic of music in mood regulation, then cross-cultural studies specific to the topic of the use of music in mood regulation in the adolescent population may be expected to be even more limited. There appeared to be only one study found that examined this specific topic. Saarikallio (2008b) explored the use of music in mood regulation between Finnish and Kenyan adolescents. Both quantitative and qualitative data were collected from Finnish and Kenyan adolescents and compared between the two groups. The comparison revealed that the nature of using music in mood regulation is similar across the two samples of adolescents. The seven regulatory strategies of mood regulation previously established from Finnish adolescents were also found to be used by Kenyan adolescents. However, there were also some cross-cultural differences presented. Specifically, Kenyan adolescents expressed three additional processes of mood regulation compared with their Finnish counterparts, namely the use of music to stimulate concentration, gain energy, and express happiness (Saarikallio, 2008b). Survey data showed that the mean ratings of the regulatory strategies in both the Kenyan and Finnish groups had relatively similar patterns. Both Kenyan and Finnish adolescents used Discharge

substantially less than all the other strategies. However, the difference between discharge to other strategies was more notable for Kenyans than for Finns (Saarikallio, 2008b). In general, Kenyan adolescents used all the strategies more than Finnish adolescents. They also listened to music substantially more, as well as giving much higher ratings of liking musical styles as compared to Finnish adolescents (Saarikallio, 2008b). The comparison also found a difference in the preferred styles of music. Finnish adolescents preferred more pop and rock genres, while Kenyan adolescents preferred more jazz and hip-hop genres (Saarikallio, 2008b). Therefore, Saarikallio's (2008b) cross-cultural study on the use of music for mood regulation in Kenyan versus Finnish adolescents showed that there are similarities in the basic processes, but certain differences characteristic to the cultures also exist. Despite the valuable cross-cultural viewpoints that this study provides to the field of music and mood regulation in adolescence, it appears to be the only research on the specific topic of cross-cultural comparisons on the use of music in mood regulation in adolescence. No study has yet been done on the topic to collect data from adolescents of other cultures like Asia. Asian and Western cultures inevitably have differences, being mostly collectivistic versus individualistic in nature. It may be expected that there will be differences in mood and mood regulation between the two cultures. Mesquita (2001) suggested that some differences in the emotions of collectivistic cultures as compared to individualistic ones are: "emotions in collectivist cultures were more grounded in assessments of social worth and of shifts in relative social worth, were to a large extent taken to reflect reality rather than the inner world of the individual, and belonged to the self-other relationship rather than being confined to the subjectivity of the self". It would be worthwhile to explore and understand more about the use of music in mood regulation in adolescents of Asian cultures.

Thus, the lack of cross-cultural research and findings, particularly from the Asian culture, appears to be a gap in the understanding of the use of music in mood regulation in adolescence. Expanding our knowledge of the use of music in mood regulation with adolescents in an Asian culture, one that is different from Finland or Europe, and possible comparisons with what previous studies done on Finnish adolescents had found, could be a valuable and necessary step forward in this field.

2.5 The Singapore Context

Singapore is a small city state situated in Southeast Asia. Due to its historical background of being a small fishing village and subsequently a flourishing British colony before gaining independence in 1965, the country's people are largely of migrant origin, making up a multi-ethnic population with lineage hailing from mainly China, India and the rest of the Malay Archipelago (National Library Board Singapore, 2016). According to the latest statistics, Singapore currently has a total population of 5.54 million, with those of Chinese ethnicity making up 76.2%, Malay ethnicity 15.0%, Indian ethnicity 7.4%, and other minority ethnicity 1.4% (National Population and Talent Division Singapore [NPTD], 2015).

The World Health Organization (2015) defines the age range of adolescence to be from 10 to 19. Based on this definition of age range and the latest statistics, the population of adolescents in Singapore is currently 411,200 (NPTD, 2015). Further search on adolescent mood and mental health issues suggested that depression is estimated to be between 2 and 2.5% for Singaporean adolescents, that there is a trend of increasing suicide rates for those aged below 20, and that stress from academics appeared to be of significant link with suicide (Lim, Ong, Chin & Fung, 2015). Therefore, it seems that issues related to moods are also of concern for the Singaporean adolescent population and mood regulation may be considered an important and necessary aspect for the mental health and well-being of Singaporean adolescents.

However, while studies have shown the support and importance of the use of music in mood regulation in adolescence as previously presented, the use of music in therapeutic ways does not seem to be very supported and used in Singapore. The largest provider of mental health services and the only public psychiatric hospital in Singapore is the Institute of Mental Health (IMH), which offers treatment interventions like medication, psychotherapy, family therapy and academic interventions (Lim, Ong, Chin & Fung, 2015). The main forms of psychotherapies offered to children and adolescents include cognitive behavioural therapy, interpersonal therapy and dialectical behavioural therapy, and the multi-disciplinary team is made up of psychiatrists, nurses, clinical psychologists, medical social workers, occupational therapists and specialist teachers (Lim, Ong, Chin & Fung, 2015). As it may be seen, music therapy is not a common form of intervention in the field of mental health in Singapore.

Even in the school context, while all national schools have a school counsellor and there are community-based multidisciplinary teams of mental health professionals who work directly with them (Lim, Ong, Chin & Fung, 2015), music therapy or the therapeutic use of music in the work with adolescents is limited.

Clinical and practical use aside, even in terms of research, there have been no studies found with regards to the use of music for mood regulation and other mental health well-being within the Singapore adolescent population.

It is therefore not surprising to find that “Music Therapy is one of the lesser known professions in Singapore” (Association for Music Therapy Singapore [AMTS], 2014). According to the Association for Music Therapy of Singapore [AMTS] (2014), literature written from the Singaporean perspective in the field of mental health is already limited, and “this is even more so for the already small music therapy scene”. Music therapy practice in Singapore has traditionally been mainly restricted to the field of special education (AMTS, 2014), and it appears that music therapy or the therapeutic use of music for the general population, including adolescents, is less heard of or supported.

Therefore, it may be seen that mood regulation in adolescence, even for the Singapore context, is important and necessary. While studies have shown support for the use of music for mood regulation, music therapy or the use of music in therapeutic ways is less common and supported in regulating of mood for Singaporeans. Coupled with the fact that there appears to be a need for expanding our knowledge on the topic of the use of music in mood regulation with adolescents in Asian cultures, exploring the use of music in mood regulation in Singaporean adolescents may be valuable and necessary.

3 PURPOSE OF STUDY

It has been presented that mood regulation is a vital aspect of adaptive human behaviour and an important aspect of adolescent development. There have also been some studies done to support the significance of using music for mood regulation in adolescence. Yet, the number of studies done on this topic is still few and considerably limited. Furthermore, a lack of research and findings on non-Western and non-European cultures like the Asian culture appears to be a gap in the understanding of the use of music in mood regulation in adolescence. The researcher, as a Singaporean, is keen to find out more about the use of music in mood regulation in the context of Singaporean adolescents. Singapore is located in Southeast Asia, and has a multi-ethnic population that is essentially of Asian heritage. Moreover, while mood issues and the importance of mood regulation appears to also be of concern in the Singapore adolescence context, music therapy or the use of music in therapeutic ways is not common or supported in regulating of mood for Singaporeans. Thus, it may bring necessary and added knowledge to the field to explore the use of music in mood regulation in the context of Singaporean adolescents.

3.1 Research Questions

With the purpose of exploring the use of music in mood regulation in the context of Singaporean adolescents, the current study seeks to address the following research questions:

1. What is the general landscape like for the use of music in mood regulation in Singaporean adolescents? For example, is music used for mood regulation? If so, when and why is music used? What are the musical behaviours of Singaporean adolescents in relation to mood regulation?
2. What are the regulatory strategies of music used by Singaporean adolescents for mood regulation? Are there any differences in the use of music and regulatory strategies for mood regulation between different groups of Singaporean adolescents?

3. How does the use of music for mood regulation in the Singapore context compare with that of findings from previous studies on Western (Finnish) adolescents? Are there any similarities or differences?

3.2 Aim

The current study, therefore, aims to provide a better overall understanding towards the use of music in mood regulation in adolescents specific to the context of Singapore. Findings from the Singapore context as compared with findings from previous studies done on Western (Finnish) adolescents will also be discussed. These could potentially provide support and increased knowledge to the field of music and mood regulation in adolescence, beyond a Western cultural context, and at the same time, serve as an initial data and proposal for expanding Music Therapy and the use of music in therapeutic ways in Singapore, particularly in the area of adolescent mental health and well-being. In these ways, it is the researcher's hope that the current study will be of added value to the field of Music Psychology and Music Therapy.

4 METHOD

4.1 Participants

60 Singaporean adolescents responded to the questionnaire. Although the initial target was to have responses from adolescents between the ages of 10 to 19, in accordance with the age range of adolescence as defined by WHO (2015), there was, unfortunately, a lack of responses from adolescents between the ages of 10 to 12. Perhaps adolescents in this age group were less likely to go onto online platforms nor interested in participating in research like this current study. Moreover, adolescents aged 10 to 12 in Singapore are in Primary education and often considered to be still “children” in the general Singaporean perspective. Therefore, the final data collection consisted of responses from 60 adolescents aged 13 to 19, who are considered “teenagers” and fit in with the perspective of “adolescence” in the general Singapore context.

4.1.1 Recruitment of Participants

Participants for this study were recruited through a process of convenience and snowball sampling (Field, 2009). The researcher has no access to information of the whole adolescent population in Singapore and in order to reach any Singaporean adolescent, it is easier and more practical to approach those adolescents who the researcher know, and then get in touch with more adolescents through them and other acquaintances who have contact with other adolescents. Therefore, although this non-random sampling may lead to higher error, but for the sake of practicality, convenience and snowball sampling was used as the method of participant recruitment. The questionnaire for this research was in the form of an online survey and was posted onto social media platform. Any Singaporean adolescents within the target age range who saw the post or had the link to the questionnaire were free to volunteer and participate in the study.

4.1.2 Demographic Information

Out of the total 60 participants, there were 26 participants (43%) who were within the 13 to 16 years old age group, which is the group still in Secondary education in the Singapore

context, while there were 34 participants (57%) in the 17 to 19 years old age group, which is the group in Higher Education. Also, the participants were made up of 38 females (63%) and 22 males (37%). In terms of ethnicity, although Singapore is a multi-ethnic country, the ethnic group that is of 76.2% majority is the Chinese (NPTD, 2015). As Malays, Indians and those of other minority ethnicity make up a smaller percentage of the population and it seemed highly likely that lesser responses may be received from them, it was decided that they will be viewed together as a Malay, Indian and Others (MIO) ethnicity group to ensure a more substantial and hopefully more balanced number of participants for this group as compared to the Chinese group. In light of this ethnicity grouping, of the 60 participants, 29 were Chinese (48%) and 31 were in the MIO group (52%). Figures 1 to 3 below present the make up of the participants by age group, gender and ethnic group respectively.

There were also 2 participants with a clinical diagnosis of Depression, 1 with Social Anxiety Disorder, and 1 with the neurological diagnosis of Narcolepsy. 27 participants (45%) stated responses to having faced challenging life situations that significantly affected their lives.

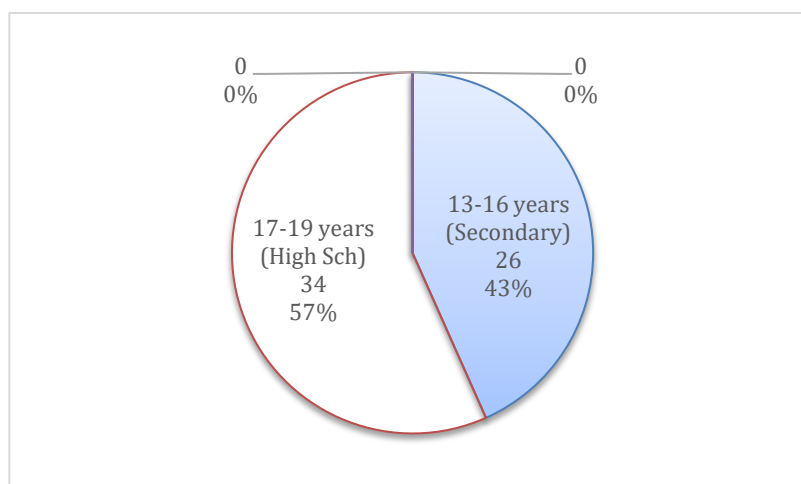


FIGURE 1. Number and percentage of participants by age group.

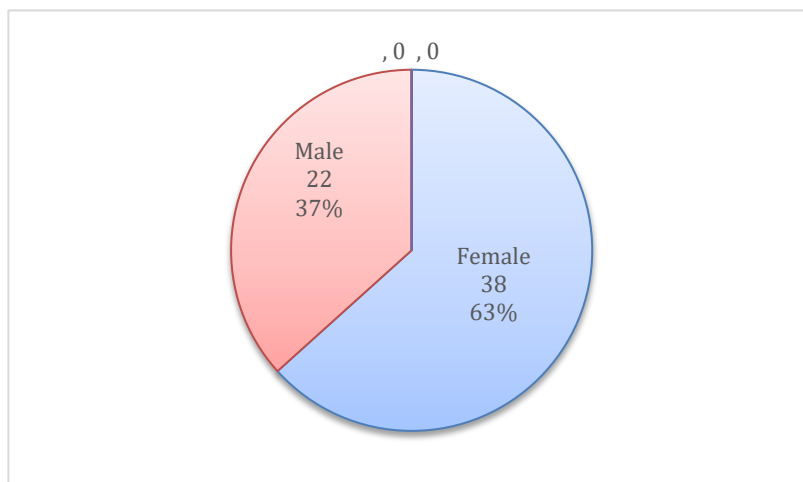


FIGURE 2. Number and percentage of participants by gender.

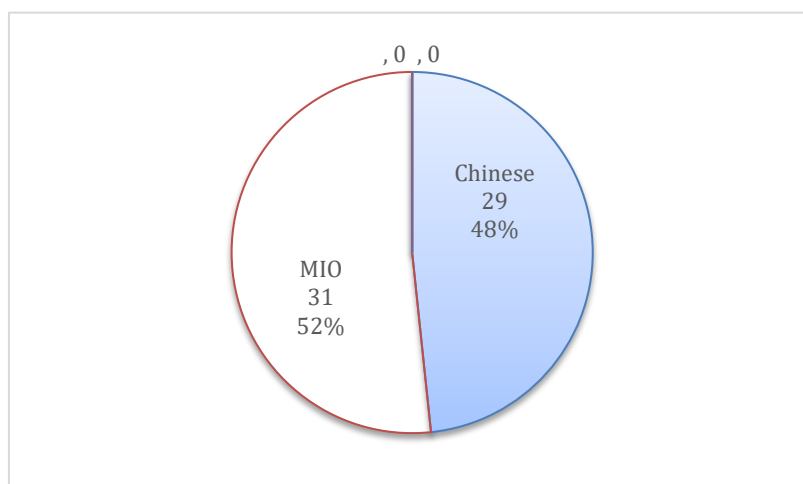


FIGURE 3. Number and percentage of participants by ethnic group.

4.2 Materials

A self-administered questionnaire was developed for the purpose of this study, consisting of a main survey portion and additional structured interview questions. In Singapore, English is the first language and the medium of education throughout all school years, with students' official mother tongue as according to ethnicity required as a single subject. English is also the official working language in the country (Contact Singapore, 2016). Hence, the questionnaire was designed to be in English. The survey portion was essentially the MMR scale developed by Saarikallio (2008a). It is a 40-item scale to assess what are the different mood regulating strategies related to musical activities used by people, and responses are made on a 5-point Likert-scale ranging from *Strongly disagree* to *Strongly agree*. Structured

interview questions were included with the MMR scale to collect more detailed information in relation to the use of music and other musical behaviours for mood regulation in the context of Singaporean adolescents.

4.2.1 Music in Mood Regulation (MMR) Scale

The MMR scale was developed by Saarikallio (2008a) to assess the use of different mood regulating strategies related to musical activities. The development of the scale was grounded in a proposed theoretical model that describes mood regulation as a process of feeling good and controlling mood as it functions through seven regulatory strategies activated through different musical activities including music listening, playing, singing, song-writing et cetera. These goals and strategies may be activated in adolescents no matter the range of individual differences like age, gender and mood states, as well as external influences like time, place, situation and life event. (Saarikallio & Erkkilä, 2007). From the model, items in the scale were then constructed based on the seven regulatory strategies of entertainment, revival, strong sensation, diversion, discharge, mental work, and solace. The measurement model of the MMR was tested with structural equation modelling using the MPlus software, and the model fit was tested with χ^2 -test, comparative fit index, the Tucker-Lewis Index, root mean square error of approximation, and the standardized root-mean-square residual (Saarikallio, 2008a). The final 40-item version of MMR was then compared to the measures of general mood regulation abilities. Overall, the alpha reliabilities for MMR, its subscales, and the scales for measuring general mood regulation abilities were acceptable (Saarikallio, 2008a). The correlations between MMR and abilities of general mood regulation were found to be low to moderate, and music-related mood regulation was thus proposed to be a distinct and specific construct (Saarikallio, 2008a). The scale was further tested and used to explore individual differences in mood regulation. Through this initial scale development, it was proposed that the MMR scale is an appropriate tool to measure the musical strategies that are used for the purpose of mood regulation (Saarikallio, 2008a).

The MMR scale may be said to be the first of its kind developed for the assessment of the use of music in mood regulation. The scale is proposed to be grounded in theory, and has been tested and validated (Saarikallio, 2008a). Moreover, this was the scale used in previous studies to assess Finnish adolescents and their use of musical strategies in mood regulation.

There is also an English version of the MMR scale readily available. With no other scales or tools available in the field to specifically test for the use of music in mood regulation, it made sense that an exploration with Singaporean adolescents be done using the MMR scale as well. Any comparisons of findings from the Singapore context with Finnish adolescents may then also be more equal, and may also bring further understanding on the validity of the scale across cultures. Furthermore, the developer of the MMR scale, Saarikallio, is a faculty member in the department where the researcher is currently based. It made it easier to get advice regarding the use of the scale or to have discussions when questions arise. As a survey type questionnaire, the MMR also allowed for standardized questions to be asked to the whole sample, and may hence lead to more reliable and generalizable results. Thus, considering all the above, the MMR scale was used as a main source of data collection and as a quantitative method for this current study. It aimed to collect data to answer the second research question of what are the regulatory strategies of music used by Singaporean adolescents in mood regulation.

4.2.2 Structured Interview Questions

Nonetheless, the MMR scale as a survey questionnaire is limited in that it does not focus much on contextual details. While it may provide information on what and to what extent different musical strategies are used in mood regulation, it does not allow for or reflect details in the context of the participants, for example, in what situations or mood states do they use music, or what kind of musical activities in particular they use or prefer, or what effects they consider music to have on their mood. These were some of the details that were needed in order to answer the first research question of what is the general landscape of the use of music in mood regulation for Singaporean adolescents. Therefore, additional interview questions relating to specific contextual details were included in the questionnaire.

Eight structured interview questions were included in the questionnaire to allow for better understanding of how music is used in mood regulation by Singaporean adolescents. This constituted the qualitative aspect of the questionnaire and was aimed to provide the data for the general landscape and musical behaviours in the use of music for mood regulation in Singaporean adolescents. These interview questions were in the form of structured questions so that each participant answered the same questions in the same order, and while they were

free to respond as they desired, the questions were structured in such a way that responses may be short and to the point, without much room for giving too long or open-ended responses (Croucher & Cronn-Mills, 2014). The interview questions were also limited to eight so that the whole questionnaire was not too long and participants could complete the whole questionnaire properly in about 15 minutes without feeling too tired or bored. Based on the model proposed by Saarikallio and Erkkilä (2007), there may be individual as well as external influences leading to the use of music for mood regulation. Individual factors may include age, gender, mood states and life experiences, while external influences may include time, place, situations and life events. Different musical activities could also be used for mood regulation. These factors were deemed important and were the basis for the structured interview questions for the questionnaire. The eight questions making up the qualitative portion of the questionnaire were:

1. In what kind of environment/situation(s) do you most often use music?
2. In what kind of mood states(s) do you most often use music?
3. Which musical activity/activities do you usually engage in when you are in the situation(s) and mood(s) mentioned above?
4. Do you usually engage in the activities stated above by yourself or with others?
5. What type (genre) of music do you most often engage in? (Choose top 3)
6. Have you had any situations or experiences in life that are particularly difficult or challenging, and that considerably affected your mood and daily functioning?
7. What kind of effects would you say music has on your mood?
8. Is music the method that you use most often to manage or adjust your mood? If no, what other method or activity do you use the most?

Together, the standardized questions of the MMR scale and the eight structured interview questions made up the questionnaire used for this study, in the hope that it could provide a

holistic overview and understanding of the use of music in mood regulation in Singapore adolescents and answer the research questions. A print version of the online questionnaire can be found in the Appendix of this paper.

4.3 Data Collection

The self-administered questionnaire consisting of the MMR scale and additional structured interview questions was made into an online form. Online survey platforms are an easy and convenient way to distribute surveys and to gather data. With participant recruitment being a convenience and snowball sampling method, an online questionnaire made it easy and convenient to send out the link to adolescents the researcher is acquainted with, and for them and other people to further share and forward the link to even more people, thereby allowing the questionnaire to be distributed to more people. Online forms are also easy and convenient for participants to fill in and the questionnaire may thus be completed more easily. Moreover, online data collection was also a more practical and convenient method since the researcher was based in Finland but the target population of the current study were adolescents in Singapore.

The online questionnaire was disseminated on social media, on the researcher's open Facebook page. A message accompanied the questionnaire, calling for Singaporean adolescents within the target age range to freely volunteer and participate in the study, and/or to share the questionnaire with others. The message also asked for others not within the target participant group to kindly and freely share the post so that the questionnaire could reach more Singaporean adolescents.

4.4 Data Analysis

Both quantitative and qualitative data analysis were done on the data collected to answer the research questions and find out how music is used in mood regulation among Singaporean adolescents.

4.4.1 Numerical Content Analysis

Data collected from the structured interview portion of the questionnaire were mainly aimed to answer the first research question of what is the general landscape of the use of music in mood regulation in the Singaporean adolescent context. Responses in this section of the questionnaire were in the form of single words, phrases and short sentences, and analysing the content of these responses for each structured interview question to find information and/or categories (Croucher & Cronn-Mills, 2014) may provide more contextualised details to give an overall landscape understanding of Singaporean adolescents' use of music in mood regulation.

Responses to each structured question were analysed by their words and phrases. Open codes were first given to these words and phrases to describe and group responses, and axial coding was subsequently used to put and label the responses into more general group categories. A numerical analysis was then carried out to look at the amount of occurrence of codes and categories for each interview question. These results were then used to present a general overview of the use of music and musical behaviours of Singaporean adolescents in mood regulation.

4.4.2 Quantitative Analysis of Results from MMR Scale

Data collected from the survey portion, that is the MMR scale, are interval variables. These continuous variables were analysed by quantitative statistical methods, using the SPSS software (Field, 2009), to answer the second research question of what are the regulatory strategies of music used by Singaporean adolescents for mood regulation. Descriptive statistics were examined to understand what and to what extent the regulatory strategies are used, both as an overall Singaporean adolescent sample, and also by age group, gender and ethnicity. Descriptive statistics of the MMR for the participants with clinical diagnoses as well as those who faced challenging life situations were also examined separately to provide information of their use of regulatory strategies as compared to adolescents without.

To examine if there were any differences in the use of regulatory strategies between age group, gender and/or ethnicity of Singaporean adolescents, a three-way Analysis of Variance (ANOVA) was done to test for main effects and any interaction effects between groups.

4.4.3 Comparison of Findings with Previous Studies

Results with Singaporean adolescents obtained from the above analyses were compared with results previously found from studies that had been done with Finnish adolescents. The studies that presented on the use of music in mood regulation with Finnish adolescents using the same MMR scale and that had findings as well on musical behavior were mainly from Saarikallio's study on differences in adolescents' use of music in mood regulation (2006) and the study that compared the use of music for mood regulation between Kenyan and Finnish adolescents (2008b). Therefore, results on the musical behaviours and use of regulatory strategies from the MMR scale for Singaporean adolescents were compared with what had been reported in these two studies from Saarikallio. Musical activities, musical preference, as well as mean scores from the MMR scale, mainly through looking at descriptions and descriptive statistics, were used as points of comparison to answer the third research question of whether there are any differences in the use of music for mood regulation between Singaporean (Asian) and Finnish (Western) adolescents.

5 RESULTS

5.1 General Landscape of the Use of Music in Mood Regulation

5.1.1 Music as Preferred Medium for Mood Regulation

Results show that music is, more often than not, the medium most used by Singaporean adolescents for mood regulation. 27 of participants (45%) stated “yes” to music as the most often used medium for regulating their mood, 9 participants (15%) stated music to be used sometimes or in combination with other medium or activities for mood regulation, while 18 participants (30%) stated “no” to using music for mood regulation. The combined responses of participants who do use music for mood regulation, whether most often or sometimes and in combination with other activities, added up to a total of 60% of the responses. This is double of the number of participants who do not use music for mood regulation, suggesting that using music is a method that is used often by Singaporean adolescents when it comes to mood regulation. Figure 4 presents the number and percentage of participants who used music most often, sometimes, or not at all for mood regulation.

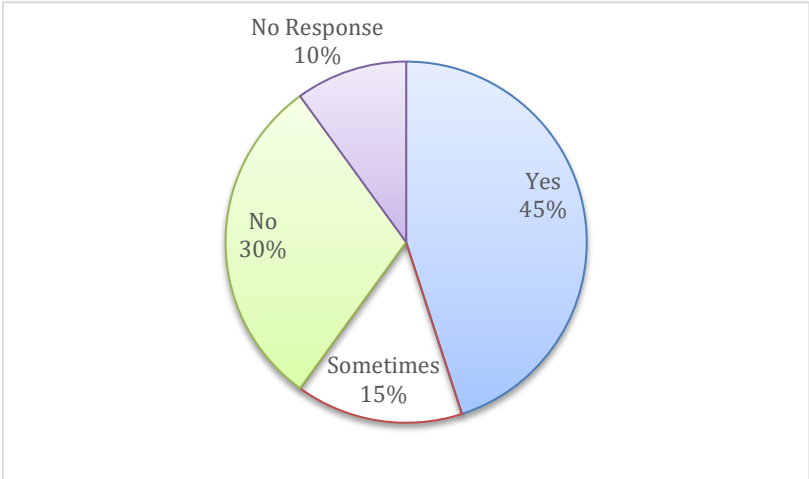


FIGURE 4. Percentage of participants who stated music as preferred medium for mood regulation.

Apart from music, other media or activities for mood regulation that are stated by participants include talking with important people (“chat with parents”, “talk to friends [and other people]”), spending time with others (“spend time with people I love”, “go out with friends”, “play with pet”), doing activities that can distract (“eat [junk food]”, “sleep”, “watch variety

shows”, “watch Youtube videos”, “watch movies”, “gaming”), spending time alone (“cry it out”, “have some quiet time alone”, writing”), “exercise” and “sports”, as well as spiritual comfort (“meditation”, “prayer”).

5.1.2 Musical Activities Engaged In

The most used musical activity involved in mood regulation by Singaporean adolescents was music listening. 78% of the respondents had “Listening” in their responses. The next most used musical activity was singing, which had 25% of participants listing it in their responses. They mentioned “sing”, “hum” and “sing along [to the song]” as part of this category of *Singing*. 18% had “Playing [an instrument]” listed. The musical activities of song-writing and dancing appear to be least involved in Singaporean adolescents’ mood regulation. 7% of the respondents listed “writing” or “composing” in their responses. These included short musical compositions, songs, as well as covers or parodies to songs. As for the musical activity of dancing, only 3% of participants had stated it in their responses. Table 1 presents the number and percentage of participants who listed each of the musical activities in their responses.

TABLE 1. Number and percentage of participants who listed each musical activity.

Musical Activity	<i>n</i>	%
Listening	47	78
Playing an Instrument	11	18
Singing	15	25
Song Writing	4	7
Dancing	3	5

5.1.3 Musical Preference

Singaporean adolescents’ most-liked musical genres was *Pop*, with more than half of the participants (55%) selecting it as one of their top three choices. *Dance and Techno*, *Hip-Hop and Rap*, and *Soundtracks and Theme Songs* were also genres preferred by Singaporean adolescents, with 32%, 30% and 28% of participants respectively selecting them. *Classical*, *Jazz and Blues*, *Inspirational and Religious*, *Rock*, and *Classic Oldies* had a fair amount of preference. The genres that were least preferred by Singaporean adolescents were *New Age and Alternative* (8%), *Heavy Metal* (2%) and *Others* which included Folk and Indies music

(10%). Table 2 presents the number and percentage of participants who selected each of the musical genres as their preferred music.

TABLE 2. Number and percentage of participants who selected respective genres as their preferred music.

Musical Genre	<i>n</i>	%
Pop	33	55
Dance and Techno	19	32
Hip-Hop and Rap	18	30
Rock	8	13
Soundtracks and Theme Songs	17	28
Classical	11	18
Jazz and Blues	9	15
Inspirational and Religious	9	15
Classic Oldies	7	12
New Age and Alternative	5	8
Heavy Metal	1	2
Others (including Folk and Indies)	6	10

5.1.4 Using Music Alone Or With Others

Singaporean adolescents mostly responded that they engage in musical activities mostly alone (72%). Only 1 person (2%) mentioned that he engaged in musical activities mostly with others. 17% of participants responded that they engaged in musical activities both alone and with others. It was particularly interesting to note that some adolescents stated that they would engage in musical activities alone when sad, but engage with others when in a positive mood. Examples of such responses include “When I'm sad, I listen to music alone. When I'm happy, I prefer to listen to music with friends and my love ones”, “sad/stressed - listen to music alone; happy - listen with a friend”. The type of music also seemed to change depending on whether they are listening alone or with others, with songs that are more positive and upbeat being a preferred choice when listening with others. For example, “when I’m alone, I listen to songs that follow my mood but I'll change it up to an upbeat song when I’m with my friends.” Table 3 presents the number and percentage of participants who stated whether they mostly engaged in music alone, with others, or both.

TABLE 3. Number and percentage of participants who engaged in music mostly alone, with others, or both.

Musical Engagement	<i>n</i>	%
Mostly Alone	43	72
Mostly With Others	1	2
Both	10	17

5.1.5 Situations for Using Music

Coding of the words and phrases for responses to what are the situations in which they use music, seven categories were derived where music are used by Singaporean adolescents. The categories of the situations and examples of words and phrases described in the responses are as follows:

1. *Background Entertainment.* Singaporean adolescents used music in situations where they wanted background music to fill the space, to perk up and to maintain a positive mood when they are alone and engaging in boring or mindless activities. They stated situations like “when I’m home alone”, “when travelling”, “walking when I’m alone”, “on the train and bus”, “going home”, “when I’m doing chores”, “doing repetitive tasks”, “when the atmosphere seems really quiet and there’s nothing much to do”, “when waiting for someone” and “when life seems dull”. Background entertainment was also seen by adolescents’ use of music as background to create a positive atmosphere like “when I go out with friends of family”, “in the car”, during “parties” and “occasions”.
2. *Background Accompanying Tasks Involving Cognitive Work and Concentration.* Music was also used in situations of doing work that involved cognitive activity like studying, and music served as a background accompanying these activities. Situations described include “studying”, “when I do homework”, “doing school work”, “reading”, “think about a lot of things” and “settling administrative work and emails”. There was also one respond of “gaming” included in this category as playing computer and video games requires an amount of cognitive work and concentration as well.

3. *Background Accompanying Physical Activity*. Another category of situation described by Singaporean adolescents for the use of music is when music is used as background that accompanies physical activities. Descriptions stated include “doing sport”, “jogging” and “exercising”.
4. *Relaxation and Calmness*. Singaporean adolescents also described situations when music is used to help them relax and calm them down so that they can be in a more restful state. “When I can’t sleep”, “during a shower”, “resting”, “wanting to sleep” and “before bed” are examples of situations stated for this category.
5. *Revival*. Another category is the use of music by Singaporean adolescents in situations where they are stressed or tired and want to be refreshed and gain new energy. Descriptions like “in between stressful activities” and “rough day” were stated.
6. *Escape*. Music was also used as a tool by Singaporean adolescents when they are in situations that they actually want to escape from. For example, they described using music “to escape reality when people are arguing or fighting”, “when I need to avoid conversations”, “when I want to be away from everything”, when my friends talk about uninteresting topics” and “to block out awkwardness”.
7. *Manage Mood*. Singaporean adolescents also mentioned using music in situations directly relating to their mood, usually negative ones. Descriptions include “when I feel emotionally unstable”, “if I feel as though I’m about to break down”, “stressed”, “sad”, “angry”, and “feeling down”.

Table 4 below presents the number and percentage of participants who stated responses relating to each of the situation categories. The situation where music was most used is when it serves as *Background Entertainment*, with 49 participants (82%) stating responses which fall under this category. Music was least used in situations of wanting *Revival* in tiredness and stress, with only 2 participants (3%) stating responses which fall under this category.

TABLE 4. Number and percentage of participants who responded to each category relating to situation for use of music.

Situation	<i>n</i>	%
Entertainment	49	82
Cognitive Activities	20	33
Physical Activities	4	7
Relaxation and Calmness	11	18
Revival	2	3
Escape	4	7
Manage Mood	4	7

5.1.6 Mood States where Music is Used

A total of eight mood state categories were derived from Singaporean adolescents' responses to which mood states they usually use music in. The eight categories of mood states are as follows:

1. *Sad*. One of the mood states where Singaporean adolescents used music was when they were in a sad or down mood. Words and descriptions that fall into this mood state include "sad", "miserable", "depressed", "melancholic" and "down".
2. *Happy and Positive*. Another category of mood state where Singaporean adolescents used music was when they were in happy and positive moods. Words and descriptions that fall into this mood state include "happy", "excited", "pumped", "hyper", "delighted" and "beautiful moments".
3. *Angry*. Singaporean adolescents also stated being "*angry*" as another mood state where they use music.
4. *Stressed*. Singaporean adolescents used music also when they were in stressful moods. Words and descriptions that fall into this mood state include "stressed", "distress", "a lot on mind" and "anxious".

5. *Bored*. The category of boredom was also mentioned by Singaporean adolescents. They mostly stated explicitly descriptions of “bored” and “boring”.
6. *Tired*. Tiredness was another category that was mentioned. Singaporean adolescents’ responses of “tired” and “sleepy” were used to derive this category.
7. *Scared*. There was also “scared” stated as a mood state where music was used.
8. *Relaxed*. The last category that was derived is from mood states stated as “relaxed” and “peaceful”.

Table 5 summarises the number and percentage of participants who stated responses that fell into each of the eight categories of mood states where music is used.

TABLE 5. Number and percentage of participants who stated responses that fall into the mood state categories.

Mood State	<i>n</i>	%
Sad	28	47
Happy and Positive	20	33
Angry	5	8
Stressed	26	43
Bored	8	13
Tired	5	8
Scared	1	2
Relaxed	2	3

The mood states where Singaporean adolescents most use music are when they are sad and when stressed. 47% of the participants had responses that fell into the category of *sad* mood state and 43% had responses that fell into *stressed* mood state. *Happy and Positive* mood state was the next most stated, with 33% of participants having responses that fell in this category. The mood states where music was least likely used were when adolescents are scared or when relaxed. Only 1 person (2%) had a response that fell into the *Scared* category, and only 2 people (3%) had responses that fell into the *Relaxed* category of mood state.

5.1.7 Effects of Music on Mood

Upon coding and categorizing Singaporean adolescents' responses to what effects they feel music has on their mood, it was found that the categories that arose actually tie in with the categories of the seven regulatory strategies proposed by Saarikallio and Erkkilä (2007). On top of that, one additional category also emerged, giving rise to a total of eight categories. The categories of effects of music and examples of words and phrases reflecting the effects of music are as follows:

1. *Entertainment*. One of the effects that music had on Singaporean adolescents was that it makes them feel good, and maintains or enhances positive mood. They stated descriptions like: "I listen to it because it's nice. If I discover a song with a melody that I really like, my mood will improve for the next 1 to 2 days", "during happy days, music is a great element to brighten up my day", "if I am in a happy mood, music makes my mood more happy" and "boost my feelings and make me happier".
2. *Revival*. Music also had the effect of renewing, and giving Singaporean adolescents new energy when they are stressed or tired. Descriptions include "relaxing energy", "cheers up when tired", "lightens my mood and makes me feel more relaxed" and "feel less tired and bored".
3. *Strong Sensation*. Singaporean adolescents also stated music as having the effect of reaching into their emotions and giving them intense emotional experiences. For example, they responded with: "music has a special effect on me", "pump me up and get me inspired or motivated", "engages my emotions", "make me feel emotional" and "makes crying so much faster".
4. *Diversion*. Another category that captures Singaporean adolescents' description of the effects of using music is that it helps them forget unwanted thoughts and feelings. They described this in ways like: "forget my worries for that moment", "music makes me lose focus on reality", "a short getaway from sadness", "feel less pressured about life and the problems I have", "music helps me forget about my previous emotion", "when I'm sad, I would listen to pop songs to cheer me up", "helps me turn my mood from bad to good", "stops me from thinking negatively", "like nothing in the world is

happening”, “makes me a happier person than before, just for a while”, “few moments of happiness when I’m listening to it” and “helps me to control my anger and boost up my mood from sad to happy”.

5. *Discharge*. Another category that was derived was the effect of having negative emotions get vented and released through music. Singaporean adolescents mentioned descriptions like “good way to vent your feelings when no one is around” and “helps me to let go of negative emotions”.
6. *Mental Work*. Singaporean adolescents also provided responses regarding how music, and often lyrics, brings about an effect of reflection and working through of thoughts, problems and emotional experiences, and facilitating better understanding. Examples of responses include: “music helps me by changing my opinion towards life”, “music makes me understand my feelings more”, “lyrics in the song helps me understand [myself and my problems] and makes me feel better”, “help me clear my thoughts”, “helps me on deciding what to do in a particular situation”, “music helps me to sort out my moods”, “make me think and reflect about my life more”, “makes me think about the problem from another angle”, “gives me the time to reflect more about myself and finding out more about myself”
7. *Solace*. There is also the category describing music as having the effect of making adolescents feel understood and comforted. Music becomes the voice that understands and describes what they are feeling inside. Responses in this category include: “do find comfort when listening to music”, “it helps me voice out feelings I can’t express...helps me express feelings I would usually bottle”, “If I am watching a music video that describes the situation I am in, then I would feel understood and won’t make impulsive decisions”, “sometimes describe the mood of me”, “music is just there for me when I’m trying to explain something”, “some songs hold me together” and “comfort me because the lyrics are relatable”.

The one additional categories of how the use of music has an effect on mood is:

8. *Relaxation and Calmness*. Although “relaxation” is also mentioned in the category strategy of *Revival*, but there is a difference deemed between relaxation that leads to a

revival, renewal and gain of energy, and relaxation that leads to calmness and a more restful, less stimulated state of being. Therefore, *Relaxation and Calmness* was taken as a category strategy of its own, where music has the effect of creating relaxation and calmness that brings one to a more restful state of being, rather than bringing *Revival*. Examples of descriptions that fall into this category are “feel less tensed before school”, “calms me down”, “soothe me” and “calm down and be relaxed”.

Table 6 below presents the number and percentage of participants who stated responses relating to each of the effect categories. The most mentioned effects of music are *Relaxation and Calmness*, with 23% of participants stating responses which fall into this category, and *Diversion* and *Mental Work*, with 18% and 17% of participants respectively stating responses which fall in here. The effect of *Solace* had a fair amount of 13% of participant response. Effects of *Entertainment*, *Revival*, *Strong Sensation* and *Discharge* were not very pronounced, having only 7%, 5%, 5% and 3% of participants respectively mentioning responses which fall in these categories.

TABLE 6. Number and percentage of participants who responded to each category relating to effect of using music.

Effect	<i>n</i>	%
Entertainment	3	5
Revival	4	7
Strong Sensation	3	5
Diversion	11	18
Discharge	2	3
Mental Work	10	17
Solace	8	13
Relaxation and Calmness	14	23

5.2 Quantitative Results from MMR Scale

Data from the MMR scale showed that Singaporean adolescents do use regulatory strategies of music, in overall, for mood regulation ($M = 3.69$, $SD = 0.59$). Based on raw mean scores alone, the most used regulatory strategies were: *Strong Sensation* ($M = 4.03$, $SD = 0.61$),

Entertainment ($M = 4.00$, $SD = 0.72$) and *Revival* ($M = 3.83$, $SD = 0.81$) while *Discharge* was the least used ($M = 2.83$, $SD = 0.96$). The means and standard deviations of MMR and its strategies for Singaporean adolescents as a whole are presented in Table 7.

TABLE 7. Means and standard deviations of overall MMR score and regulatory strategies for Singaporean adolescents.

	Mean	S.D
Overall MMR	3.69	0.59
Entertainment	4.00	0.72
Revival	3.83	0.81
Strong Sensation	4.03	0.61
Diversion	3.76	0.68
Discharge	2.83	0.96
Mental Work	3.76	0.84
Solace	3.68	0.80

5.2.1 Overall MMR Scores by Age, Gender and Ethnicity Groups

Results from the 3-way ANOVA showed no significant main effects of age, ethnicity, and gender groups on the overall use of regulatory strategies through music in mood regulation for Singaporean adolescents. Adolescents in both the 13 to 16-year-old and 17 to 19-year-old age groups showed no significant difference in their overall MMR mean scores ($F(1,52) = 0.01$, $p = .93$). Similarly no significant difference was found in the overall use of music for mood regulation between Chinese adolescents, and adolescents of MIO ethnicity ($F(1,52) = 0.08$, $p = .77$). In terms of gender, results were also non-significant when comparing between males and females ($F(1,52) = 0.05$, $p = .15$). Therefore, the overall use of regulatory strategies of music for mood regulation by Singaporean adolescents was generally similar between different age groups, ethnicity and gender.

There were also no significant interaction effects found between age group and gender ($F(1,52) = 0.69$, $p = .41$) in the overall use of regulatory strategies of music for mood regulation. When comparing means separately by age groups, no significant differences were found in the 13 to 16-year-old age group between females ($M = 3.71$, $SD = 0.64$) and males' ($M = 3.66$, $SD = 0.17$) overall use of music for mood regulation. In the same way, although based on raw mean scores, females in the 17 to 19-year-old age group ($M = 3.60$, $SD = 0.47$)

appeared to use overall regulatory strategies of music for mood regulation slightly less than their male counterparts ($M = 3.78$, $SD = 0.71$), this difference was not statistically significant. Hence, it is suggested that gender differences in both the 13 to 16-year-old as well as 17 to 19-year-old age group did not have any significant effect on Singaporean adolescents' overall use of regulatory strategies of music for mood regulation.

Also, no significant interaction effect was found between age group and ethnicity groups ($F(1,52) = 1.17$, $p = .28$). Results showed that Chinese adolescents aged 13 to 16 years old ($M = 3.74$, $SD = 0.58$) did not differ significantly in their overall use of regulatory strategies of music for mood regulation as compared to adolescents of MIO ethnicity in the same age group ($M = 3.67$, $SD = 0.60$). For adolescents aged 17 to 19 years old, raw mean scores suggest that Chinese adolescents in this age group ($M = 3.58$, $SD = 0.69$) appeared to use music regulatory strategies for mood regulation overall less than their counterparts of MIO ethnicity ($M = 3.80$, $SD = 0.50$), but these differences were also not statistically significant. Thus, Singaporean adolescents of different ethnicity groups, in both the 13 to 16 and 17 to 19-year-old age groups, did not have any significant differences in their overall use of music regulatory strategies for mood regulation.

Furthermore, results showed that no significant interaction effect was found between gender and ethnicity groups ($F(1,52) = 0.08$, $p = .78$). For Chinese adolescents, females ($M = 3.61$, $SD = 0.55$) and males ($M = 3.69$, $SD = 0.75$) did not differ significantly in their overall use of music regulatory strategies for mood regulation. For MIO adolescents as well, females ($M = 3.70$, $SD = 0.58$) and males ($M = 3.84$, $SD = 0.43$) also did not differ significantly in their overall use of music regulatory strategies. Thus, Singaporean adolescents of different gender, in both the Chinese as well as MIO ethnicity groups, did not have any significant differences in their overall use of music regulatory strategies for mood regulation.

Results further showed no significant 3-way interaction effects for age group, gender and ethnicity ($F(1,52) = 0.09$, $p = .76$). This suggests that Singaporean adolescents of different gender and/or different ethnicity groups in both the 13 to 16 as well as 17 to 19-year-old age groups, did not differ in their overall use of music regulatory strategies for mood regulation.

Table 8 presents a summary of the means and standard deviations of Singaporean adolescents in the overall use of music for mood regulation by age, gender and ethnicity groups, and their possible interactions.

TABLE 8. Means and standard deviations of overall MMR scores between different age, gender and ethnicity groups.

Age Group	Ethnicity	Gender	Mean	SD
13-16 years old	Chinese	Female	3.73	0.68
		Male	3.76	0.13
		Total	3.74	0.58
	MIO	Female	3.69	0.65
		Male	3.50	0.07
		Total	3.67	0.60
	Total	Female	3.71	0.64
		Male	3.66	0.17
		Total	3.70	0.58
17-19 years old	Chinese	Female	3.45	0.32
		Male	3.67	0.86
		Total	3.58	0.69
	MIO	Female	3.70	0.54
		Male	3.93	0.45
		Total	3.80	0.50
	Total	Female	3.60	0.47
		Male	3.78	0.71
		Total	3.69	0.60
Total	Chinese	Female	3.61	0.55
		Male	3.69	0.75
		Total	3.65	0.64
	MIO	Female	3.70	0.58
		Male	3.84	0.43
		Total	3.74	0.54
	Total	Female	3.66	0.57
		Male	3.75	0.63
		Total	3.69	0.59

5.2.2 Use of Regulatory Strategies of Music by Age, Gender and Ethnicity Groups

Results were also obtained from 3-way ANOVAs done for each of the regulatory strategies of the MMR. No significant main and interaction effects were found for all of the seven MMR strategies.

For the regulatory strategy of *Entertainment*, no significant main effects of age group ($F(1,52) = 0.20, p = .66$), ethnicity group ($F(1,52) = 0.002, p = .97$), and gender ($F(1,52) = 0.12, p = .73$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 1.45, p = .23$), age group and ethnicity group ($F(1,52) = 1.52, p = .22$), as well as gender and ethnicity group ($F(1,52) = 1.96, p = .17$). Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 1.89, p = .18$).

For *Revival*, no significant main effects of age group ($F(1,52) = 0.06, p = .81$), ethnicity group ($F(1,52) = 0.02, p = .90$), and gender ($F(1,52) = 0.003, p = .96$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 1.25, p = .27$), age group and ethnicity group ($F(1,52) = 1.05, p = .31$), as well as gender and ethnicity group ($F(1,52) = 0.05, p = .82$). Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 0.67, p = .42$).

Similarly, for the strategy of *Strong Sensation*, no significant main effects of age group ($F(1,52) = 0.54, p = .46$), ethnicity group ($F(1,52) = 0.83, p = .37$), and gender ($F(1,52) = 0.39, p = .53$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 0.13, p = .72$), age group and ethnicity group ($F(1,52) = 2.33, p = .13$), as well as gender and ethnicity group ($F(1,52) = 0.49, p = .49$). Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 0.14, p = .71$).

For the regulatory strategy of *Diversion* as well, no significant main effects of age group ($F(1,52) = 0.39, p = .54$), ethnicity group ($F(1,52) = 0.01, p = .93$), and gender ($F(1,52) = 0.54, p = .47$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 0.32, p = .57$), age group and ethnicity group ($F(1,52) = 0.56, p = .46$), as well as gender and ethnicity group ($F(1,52) = 0.27, p = .61$).

Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 0.001, p = .98$).

Also for *Discharge*, no significant main effects of age group ($F(1,52) = 0.07, p = .80$), ethnicity group ($F(1,52) = 0.88, p = .35$), and gender ($F(1,52) = 0.09, p = .76$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 1.01, p = .32$), age group and ethnicity group ($F(1,52) = 0.01, p = .93$), as well as gender and ethnicity group ($F(1,52) = 0.10, p = .75$). Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 0.80, p = .38$).

For the strategy of *Mental Work* as well, no significant main effects of age group ($F(1,52) = 0.01, p = .92$), ethnicity group ($F(1,52) = 0.02, p = .89$), and gender ($F(1,52) = 1.35, p = .25$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 0.12, p = .73$), age group and ethnicity group ($F(1,52) = 3.10, p = .08$), as well as gender and ethnicity group ($F(1,52) = 0.02, p = .90$). Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 0.01, p = .94$).

Finally, for the regulatory strategy of *Solace*, also no significant main effects of age group ($F(1,52) = 0.29, p = .60$), ethnicity group ($F(1,52) = 0.79, p = .38$), and gender ($F(1,52) = 0.20, p = .66$) were found. There were also no significant 2-way interaction effects found between age group and gender ($F(1,52) = 0.02, p = .88$), age group and ethnicity group ($F(1,52) = 0.01, p = .94$), as well as gender and ethnicity group ($F(1,52) = 0.17, p = .68$). Neither was there any significant 3-way interaction effect found between age group, gender, and ethnicity group ($F(1,52) = 0.94, p = .34$).

In summary, results on each of the individual regulatory strategies of MMR showed no significant main and interaction effects for age group, gender and ethnicity group in all strategies. This suggests that Singaporean adolescents of different gender and/or different ethnicity groups in both the 13 to 16 as well as 17 to 19-year-old age groups, did not differ in their use of all the music regulatory strategies of Entertainment, Revival, Strong Sensation, Diversion, Discharge, Mental Work and Solace.

5.2.3 MMR and Singaporean Adolescents with Clinical Diagnoses

Results of the MMR for Singaporean adolescents who stated clinical diagnoses were specifically looked at to explore how regulatory strategies of music may be used for mood regulation by them as compared to adolescents without any clinical diagnoses. Based on raw mean scores, Singaporean adolescents who stated a clinical diagnosis appeared to use overall MMR and its regulatory strategies generally less than adolescents who did not have any diagnoses. The adolescents with a Depression diagnosis had slightly lower mean scores in overall MMR and all regulatory strategies than those without, while the adolescents with Social Anxiety Disorder and Narcolepsy had slightly lower mean scores for overall MMR and all strategies except *Solace* as compared with adolescents who did not have any diagnoses. Nonetheless, the differences in scores are not great. Statistical analysis for comparison was not carried out as there were only 1 to 2 respondents for the diagnoses group and may not generate accurate results. Table 9 shows the means and standard deviations of MMR and its regulatory strategies of adolescents who have a clinical diagnosis as compared to those who do not. No standard deviations for Social Anxiety Disorder and Narcolepsy are provided as there were only 1 respondent for each of these 2 diagnoses.

TABLE 9. Means (and standard deviations) of overall MMR scale and its regulatory strategies between adolescents with clinical diagnosis and those without.

	Depression (n = 2)	Social Anxiety Disorder (n = 1)	Narcolepsy (n = 1)	Nil
	Mean (SD)	Mean	Mean	Mean (SD)
Overall MMR	3.40 (0.32)	3.45	3.48	3.74 (0.58)
Entertainment	3.00 (0.71)	3.50	3.25	4.06 (0.66)
Revival	3.64 (0.10)	3.29	3.86	3.85 (0.82)
Strong Sensation	3.64 (0.91)	4.00	3.71	4.05 (0.64)
Diversion	3.50 (0.71)	3.60	3.60	3.82 (0.64)
Discharge	2.83 (0.00)	2.50	2.33	2.91 (0.97)
Mental Work	3.30 (0.14)	3.40	3.60	3.78 (0.85)
Solace	3.67 (0.24)	3.83	3.83	3.74 (0.77)

5.2.4 MMR and Singaporean Adolescents Who Faced Challenging Life Situations

Results of the MMR for Singaporean adolescents who stated that they had faced particularly difficult situations in life were also examined and compared with adolescents who did not

state having such experiences. There were altogether 27 participants who stated that they faced challenging life situations. T-test results for mean scores were non-significant between adolescents who stated challenging life situations and those who gave a nil response. This was seen in all aspects of mean of overall MMR ($t(58) = 0.15, p = .88$), and means of all regulatory strategies of *Entertainment* ($t(58) = 0.13, p = .90$), *Revival* ($t(58) = 0.54, p = .59$), *Strong Sensation* ($t(58) = -0.46, p = .65$), *Diversion* ($t(58) = 0.09, p = .93$), *Discharge* ($t(58) = 0.004, p = 1.00$), *Mental Work* ($t(58) = 0.19, p = .85$) and *Solace* ($t(58) = 0.20, p = .84$). Thus, Singaporean adolescents who faced challenging life situations did not differ in their overall use of music and regulatory strategies for mood regulation as compared to those who did not face such situations. Table 10 shows the means and standard deviations of the overall MMR scale and its regulatory strategies for adolescents with challenging life situations as compared to those who do not.

TABLE 10. Means (and standard deviations) of overall MMR scale and its regulatory strategies between adolescents with life challenging situations and those without.

Challenging Life Situation	Yes	Nil
	(n = 27)	(n = 33)
	Mean (SD)	Mean (SD)
Overall MMR	3.68 (0.60)	3.70 (0.58)
Entertainment	3.99 (0.70)	4.02 (0.76)
Revival	3.77 (0.73)	3.88 (0.87)
Strong Sensation	4.07 (0.60)	4.00 (0.63)
Diversion	3.75 (0.73)	3.76 (0.65)
Discharge	2.83 (1.00)	2.83 (0.94)
Mental Work	3.74 (0.78)	3.78 (0.89)
Solace	3.66 (0.79)	3.70 (0.83)

Responses from those who stated challenging life situations faced could be grouped into three main category kinds, namely: Issues related to *Relationships* (n = 10), including loneliness, boy-girl-relationships, friendships and other social interactions and relationships; *Family* problems (n = 7), including parental issues, parents' marital relationship, fights in the family and loss of loved ones; and situations related to *Studies* (n = 10) including stress and issues connected with academics and major examinations. Based on raw mean scores alone, adolescents who faced with *Relationship* issues appeared to use overall regulatory strategies of music for mood regulation slightly less than adolescents in the *Studies* and *Family* issue groups. However, statistical results from ANOVA were non-significant for comparisons

between adolescents who faced challenging life situations of different kinds. This was seen in all aspects of mean score of overall MMR ($F(2, 24) = 0.95, p = .40$), and mean scores of all regulatory strategies of *Entertainment* ($F(2, 24) = 0.09, p = .92$), *Revival* ($F(2, 24) = 2.81, p = .08$), *Strong Sensation* ($F(2, 24) = 0.72, p = .50$), *Diversion* ($F(2, 24) = 1.08, p = .36$), *Discharge* ($F(2, 24) = 0.35, p = .71$), *Mental Work* ($F(2, 24) = 0.45, p = .64$) and *Solace* ($F(2, 24) = 1.13, p = .34$). Thus, Singaporean adolescents who faced challenging life situations of Relationships, Family and Studies related issues were more similar than different in their overall and also individual regulatory strategies of music for mood regulation. Table 11 shows the means and standard deviations of overall MMR and its regulatory strategies for adolescents with different category kinds of challenging life situations.

All in all, results from the MMR scale suggest that the overall and individual use of regulatory strategies of music for mood regulation were general similar within Singaporean adolescents who had different challenging life situations, as well as between those who faced such situations and those who did not.

TABLE 11. Means (and standard deviations) of overall MMR scale and its regulatory strategies of adolescents with different life challenging situations.

Issues	Relationships	Studies	Family
	(n = 10)	(n = 10)	(n = 7)
	Mean (SD)	Mean (SD)	Mean (SD)
Overall MMR	3.49 (0.78)	3.71 (0.52)	3.90 (0.38)
Entertainment	3.93 (0.80)	4.00 (0.70)	4.07 (0.62)
Revival	3.38 (0.92)	3.91 (0.44)	4.12 (0.56)
Strong Sensation	3.93 (0.69)	4.06 (0.58)	4.29 (0.49)
Diversion	3.48 (0.95)	3.90 (0.46)	3.91 (0.66)
Discharge	2.78 (1.30)	2.68 (1.01)	3.10 (0.42)
Mental Work	3.72 (0.89)	3.60 (0.73)	3.97 (0.76)
Solace	3.37 (1.01)	3.85 (0.65)	3.81 (0.50)

5.3 Comparing between Singaporean and Finnish Adolescents

Results obtained as above of the use of music in mood regulation in Singaporean adolescents were compared with results of Finnish adolescents previously presented in Saarikallio's studies (2006, 2008b).

5.3.1 Comparison of Use of Musical Activities

The most used musical activity by Singaporean adolescent for mood regulation was found to be music listening, which was stated by 78% of the participants. This was similar with Finnish adolescents, where more than half of participants chose “Listening alone” to be the top choice for regulating mood (Saarikallio, 2006).

However, when it came to musical preference, Singaporean adolescents and their Finnish counterparts appeared to have some different responses. Saarikallio (2008b) presented that the musical genre most preferred by Finnish adolescents was *Rock*. For Singaporean adolescents, however, *Rock* was selected as a preferred genre by only 13% of the participants. Also, while *Heavy Metal* was presented to be the second most preferred genre for Finnish adolescent boys and fourth most preferred for Finnish girls (Saarikallio, 2008b), this genre was hardly liked by Singaporean adolescents. In fact, only 1 participant selected *Heavy Metal* as a preferred musical genre in the Singaporean adolescent context. Therefore, there were some differences in musical preference between Singaporean and Finnish adolescents.

Nonetheless, there were still some similarities. *Pop* was the genre that was most preferred by Singaporean adolescents, with more than half of the participants selecting it. For the Finnish adolescents, although it was not the top preferred genre, yet *Pop* was seen to be the second choice of preferred music for Finnish adolescent girls, and the third choice for Finnish adolescent boys (Saarikallio, 2008b). Thus, pop music could be considered a musical genre that was among top preferred genres in both Singaporean and Finnish adolescents, though Singaporean adolescents seemed to consider it as their preference more. Another genre of music that may be seen to be similarly preferred is *Hip-hop and Rap*. Results from Singaporean adolescents suggested *Hip-hop and Rap* to be the second most preferred genre of music, while it was also the top third and fourth genre for Finnish adolescent girls and boys respectively (Saarikallio, 2008b). Therefore, it could be said that *Hip-hop and Rap* is another genre that has fairly high preference among both Singaporean and Finnish adolescents.

5.3.2 Comparison of MMR Scores

Looking at scores from the MMR, it appeared that Singaporean adolescents generally used regulatory strategies of music for mood regulation more than Finnish adolescents. The mean

score for overall MMR was 3.69 for Singaporean adolescents, which was slightly more than that of 3.18 of Finnish adolescents (Saarikallio, 2008b). For each of the individual regulatory strategies, apart from *Entertainment* which had fairly similar means of 4.00 for Singaporean adolescents and 3.98 for Finnish adolescents (Saarikallio, 2008b), mean scores of the other six strategies were typically higher for the Singaporean as compared to Finnish adolescents. The strategies of *Mental Work* and *Solace* particularly seemed to be used more by Singaporean adolescents than Finnish adolescents, with mean score difference between adolescents from the two countries being 1.06 and 0.81 for these two respective strategies. Table 12 shows the means and standard deviations for overall MMR and individual regulatory strategies of music between Singaporean and Finnish adolescents.

TABLE 12. Mean scores (and S.D) of overall MMR scale and regulatory strategies for Singaporean versus Finnish adolescents.

	Singaporean	Finnish*
	Mean (SD)	Mean (SD)
Overall MMR	3.69 (0.59)	3.18 (0.82)
Entertainment	4.00 (0.72)	3.98 (0.93)
Revival	3.83 (0.81)	3.57 (1.02)
Strong Sensation	4.03 (0.61)	3.55 (1.01)
Diversion	3.76 (0.68)	3.23 (1.01)
Discharge	2.83 (0.96)	2.36 (1.24)
Mental Work	3.76 (0.84)	2.70 (1.09)
Solace	3.68 (0.80)	2.87 (1.16)

* Scores for Finnish adolescents were taken from results presented in Saarikallio's (2008b) study comparing the use of music for mood regulation between Finnish and Kenyan adolescents.

However, there were also similarities found in the use of regulatory strategies of music between Singaporean and Finnish adolescents. The strategies of *Entertainment*, *Revival* and *Strong Sensation* were the top three strategies used by adolescents of both countries, and the strategy of *Discharge* was similarly the least used strategy by both Singaporean and Finnish adolescents. Therefore, although it appeared that Singaporean adolescents used regulatory strategies of music generally more than Finnish adolescents, the top most and least used strategies were similar in both groups.

Further comparison was made between Singaporean and Finnish adolescents according to gender. Table 13 shows the means and standard deviations for overall MMR and individual

regulatory strategies of music between male and female adolescents from both Singapore and Finland.

TABLE 13. Mean scores (and S.D) of overall MMR scale and regulatory strategies for Singaporean versus Finnish male and female adolescents.

	Male		Female	
	Singapore	Finland*	Singapore	Finland*
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Overall MMR	3.75 (0.63)	2.95 (0.84)	3.66 (0.57)	3.36 (0.75)
Entertainment	4.00 (0.82)	3.68 (1.01)	4.01 (0.68)	4.20 (0.79)
Revival	3.86 (0.81)	3.39 (1.07)	3.82 (0.82)	3.72 (0.94)
Strong Sensation	4.16 (0.56)	3.33 (1.04)	3.95 (0.64)	3.73 (0.94)
Diversion	3.85 (0.67)	3.04 (1.05)	3.71 (0.69)	3.39 (0.94)
Discharge	2.79 (1.18)	2.28 (1.23)	2.85 (0.82)	2.41 (1.26)
Mental Work	3.95 (0.86)	2.44 (1.06)	3.66 (0.82)	2.91 (1.08)
Solace	3.70 (0.96)	2.50 (1.12)	3.67 (0.71)	3.16 (1.10)

* Scores for Finnish adolescents were taken from results presented in Saarikallio's (2008b) study comparing the use of music for mood regulation between Finnish and Kenyan adolescents.

Again, it seemed that Singaporean male and female adolescents generally used regulatory strategies of music more than their male and female counterparts from Finland. Looking at raw mean scores, Singaporean male adolescents used overall and all individual regulatory strategies more than Finnish male adolescents. Similarly, for female adolescents, Singaporean females generally used overall and individual regulatory strategies, except for *Entertainment*, more than Finnish female adolescents. The difference between males (difference in mean scores ranging from 0.32 to 1.51) seemed to be more pronounced than for females (difference in mean scores ranging from 0.10 to 0.75). In particular, the highest difference in mean scores for both male and female comparisons between Singapore and Finnish adolescents were from the strategy of *Mental Work* (1.51 for males and 0.75 for females). The strategy of *Solace* also showed fairly high differences in mean scores, being 1.20 for males and 0.51 for females.

However similar to what was found in the comparison of Singaporean and Finnish adolescents as a whole, comparison between males and females showed again that the strategies of *Entertainment*, and *Strong Sensation* were the top strategies used by both male and female adolescents of both countries. The strategy of *Revival* was the third most used strategy for females of both countries, and was third and fourth most used for Finnish male

and Singaporean male adolescents respectively. The strategy of *Discharge* was still the least used strategy by both male and female groups in both Singapore and Finland contexts. Therefore, results from comparisons between gender of both countries seemed to suggest that although Singaporean adolescents in both gender groups used overall and regulatory strategies of music more than their Finnish counterparts, there were still similar patterns in terms of most used and least used strategies for the groups.

6 DISCUSSION

6.1 Overview of the Use of Music for Mood Regulation in Singaporean Adolescents

This study has found that music is an important part of mood regulation in adolescents, in the specific context of Singapore. Music is, more often than not, the method most used for mood regulation.

In answering the first research question, results of this study further provided an overview in terms of when, what, and why music is used in mood regulation for Singaporean adolescents.

6.1.1 When Is Music Used

Results from the Singapore context presents that music is used in a variety of situations, but that mood regulation appears to be a main and common feature within these situations. This is supportive of previous findings in that one of the most important and common uses of music is related to mood and mood regulation.

Singaporean adolescents mostly tend to use music as a background fill. However, within this broad category of “background music”, it may be further seen that background music can accompany different mood-related purposes. Most Singaporean adolescents use music as a background for entertainment when they are in a bored mood or in need of something to fill the space and during mindless activities. Background music is next most used in situations where cognitive work and activities needing concentration are involved. It could be that in these situations, music serves as an accompaniment to what they are doing, but yet does not distract them. It could even be that having music in the background when studying and doing work boosts concentration by creating and maintaining a positive mood state for mental processing and learning. A small number of Singaporean adolescents also use music in the background during situations of physical activities. Perhaps the rhythm in music helps to boost endurance during exercise or music may create or maintain positive mood for keeping up with the physical activity. Thus, situations of music being used in the background may also be related to mood and mood regulation in these situations.

Apart from using music as background, other situations that Singaporean adolescents commonly use music for include when they want to relax and be in a more calm and restful state, when they want to regain energy when tired or stressed, and also when they are in a situation that they actually want to escape from. It is interesting that music could be a medium that has the ability to both calm down as well as revive adolescents, and either or both of these purposes may be used by different adolescents depending on their own mood, needs as well as preferences. Also, in terms of using music for escape, perhaps the use of music in these cases is an attempt by adolescents to distract themselves and prevent negative moods that could possibly arise from these situations to take root. Again, these situations and the use of music in them may be seen to have some relation to mood and mood regulation.

Singaporean adolescents also use music in situations directly relating to their mood, like when they feel emotionally unstable or when they are stressed, sad, angry et cetera. A direct examination of mood states where music is used revealed that the top two mood states where Singaporean adolescents use music are when they are sad and when they are stressed. This seemed to support Van Goethem and Sloboda's (2011) finding that most regulation were aimed at changing negative moods like stress and sadness into more positive ones and people use music mostly with the goal of becoming happy/excited and calm/relaxed.

Therefore, it appears that adolescents in Singapore use music in a range of situations that may be seen to be related to mood and mood regulation, supporting previous findings.

6.1.2 What Musical Behaviour and What Type of Music is Used

Music listening was the most used musical activity by Singaporean adolescents. This is actually in line with findings from previous studies. Van Goethem and Sloboda (2011) have found that music listening is a commonly used tactic for mood regulation with a high level of success, and it was also presented that music listening was a tactic which served all the identified regulatory strategies of music (Saarikallio & Erkkilä, 2007).

Most Singaporean adolescents engaged in music alone. Some adolescents engaged in musical activities both alone and with others. It was particularly interesting to note that in this group, one commonality found was that adolescents would engage in musical activities alone when they were sad, but engage with others when in a positive mood. Perhaps this reflects some

cultural distinction with respect to the idea of collectivism in a more Asian culture like Singapore. Emotions in collectivist cultures are often more grounded in social worth and the self-other relationship rather than the inner world of the individual (Mesquita, 2001). That is to say, Singaporean adolescents of a more collectivistic, Asian culture may tend to consider what is socially acceptable and beneficial to others, and attempt to create or maintain positive moods when with other people, than to pull the other person down with them into negative moods. Negative moods are more to be experienced alone.

In terms of musical preference, Singaporean adolescents' most-liked musical genres was Pop, with more than half of the participants selecting it as one of their top three choices. Dance and Techno, Hip-Hop and Rap, and Soundtracks and Theme Songs were also genres preferred, while New Age and Alternative, Heavy Metal and others like Folk and Indies music were least preferred.

6.1.3 Why is Music Used

Through their responses to the effects of music on their mood, a better understanding of why Singaporean adolescents use music for mood regulation was obtained.

Music is used for mood regulation because it brings Entertainment, Revival, Strong Sensation, leads to Diversion, Discharge, Mental Work, brings Solace, as well as Relaxation and Calmness. The effect of music that is most important to Singaporean adolescents is Relaxation and Calmness. Diversion and Mental Work were next in importance in why music is used for mood regulation. It was interesting to note that for the effect of Diversion, some adolescents pointed out that using music as a distraction to forget their thoughts and feelings is only temporary. Indeed, distraction is more often than not, a temporary solution and the problem or issue is actually still present. The effect that was least valued by Singaporean adolescents was Discharge, only a very small number of Singaporean adolescents stated it as an effect for why they use music for mood regulation. Nonetheless, all these eight categories of effects were stated by Singaporean adolescents, and it may be summarized that Singaporean adolescents have a desire to feel good and to control mood through the use of music, just like what previous findings have shown (Saarikallio & Erkkilä, 2007).

As it may be seen, the effects of using music for mood regulation by Singaporean adolescents actually tie in with the categories of the seven regulatory strategies proposed by Saarikallio and Erkkilä (2007), and there is also one other category added. This suggests that the purpose of using music for mood regulation for Singaporean adolescents is largely similar to the regulatory strategies described by the MMR model proposed by Saarikallio and Erkkilä (2007), showing support for the strategies and MMR model from a more Asian context. Nonetheless, the presence of the additional category of Relaxation and Calmness also reflects a small difference. Although relaxation is also mentioned in the category strategy of Revival, there is a difference deemed between relaxation that leads to a renewal and gain of energy, and relaxation that leads to calmness and a more restful, less stimulated state of being. Thus, relaxation and calmness is considered to be an effect of using music that is on its own, different from that of Revival and not fitting into any of the regulatory strategies previously proposed. This additional category further has the highest mention by participants. These results are not too surprising. Van Goethem and Sloboda (2011) had suggested that the three most important uses of music for mood regulation is through serving as a form of distraction, for relaxation and as a form of active coping to focus on changing the situation. Singaporean adolescents' top three effects of why music is used for mood regulation are Relaxation and Calmness, Diversion, and Mental Work, which may be seen to be parallels of relaxation, distraction and active coping. Once again, the results from Singaporean adolescents support findings from previous studies on the effects and importance of why music is used for mood regulation.

6.2 Regulatory Strategies Used for Mood Regulation

An overall picture has been painted of when, what and why music is used for mood regulation in Singaporean adolescents. In an attempt to answer the second research question, results from the examination of the regulatory strategies of music used for mood regulation will now be discussed.

Results from the current study showed that Singaporean adolescents do use the regulatory strategies of music for mood regulation proposed by Saarikallio and Erkkilä (2007). The most used regulatory strategies were: Strong Sensation, Entertainment and Revival. Discharge was

the least used. Nonetheless, the difference in mean scores for the different strategies were not that stark.

It may be of interest to point out that Singaporean adolescents' view of effects of music, scenarios for use of regulatory strategies, and situations when they actually use music, may be seen as different and separate entities. Although similar categories were found for regulatory strategies and the effects of using music for mood regulation as presented in the previous section of this paper, the categories that were portrayed as the most used are different when compared between the two. Singaporean adolescents' top three effects of why music is used for mood regulation are for Relaxation and Calmness, Diversion, and Mental Work, but their top 3 regulatory strategies of music used are Strong Sensation, Entertainment and Revival, and their top 3 situations where music is used are in Background Entertainment, Background Accompanying Cognitive Work, and in situations of Relaxation and Calmness. This difference may actually suggest that what adolescents subjectively view as important effects of music is different from the situations and regulatory strategies they actually actively use to achieve mood regulation. For example, a Singaporean adolescent may often use music as entertainment when faced in a situation of boredom or mindlessness, and the regulatory strategy of entertainment is hence used, but the adolescent feels an effect of relaxation and calmness after listening to music. Moreover, the effect of Relaxation and Calmness was not a stated category of strategy in the MMR scale, so adolescents may have rated scenarios relating to Revival higher, since this strategy includes some scenarios related to relaxation. In getting a better understanding of the use of music for mood regulation in Singaporean adolescents, it may be important to understand and note that adolescents view the regulatory strategies and situations when they use music more similarly, but these are considered to be separate and different from their subjective perspective of what the effects of music are on them. Hence, their responses on each of these entities should also be looked at and understood separately and differently.

6.2.1 Use of Regulatory Strategies Between Age, Ethnic and Gender groups

Singaporean adolescents of different age, ethnic and gender groups did not differ in their overall use of regulatory strategies of music for mood regulation. This suggests that the

overall use of regulatory strategies of music for mood regulation is fairly homogenous across Singaporean adolescents, regardless of their age, gender and/or ethnicity.

An examination of individual regulatory strategies again showed no differences between Singaporean adolescents of different groups. This suggests that not only were Singaporean adolescents fairly similar in their overall use of regulatory strategies of music, this similarity runs through even for each of the individual regulatory strategy of Entertainment, Revival, Strong Sensation, Diversion, Discharge, Mental Work and Solace.

This suggestion that the use of regulatory strategies of music for mood regulation may be homogeneous across Singaporean adolescents of regardless of their age, gender and/or ethnicity seems to be contradictory to what has been presented in previous studies. Previous findings have typically shown females to use regulatory strategies of music for mood regulation more than males, regardless of age groups (Saarikallio, 2006; 2008a; 2008b). Also, it had been previously found that the use of regulatory strategies of music for mood regulation increased with age for both gender groups (Saarikallio, 2006; 2008a). Yet, these differences were not seen in the Singaporean adolescent population. While this similarity across groups may suggest a different trend for adolescents' use of regulatory strategies of music in Asian cultures as compared to Western cultures, that is, that adolescents of an Asian culture use regulatory strategies of music for mood regulation in similar ways across age, gender and ethnic groups, the lack of differences between groups may also have been due to a limitation in the sample size with the current study. Having a small sample size of 60 as compared with 1515 participants from Saarikallio's study (2008a) may have led to error causing a lack of statistical difference to be found. Also, the current study did not have participants from the 10 to 12-year-old age group, and this could also have led to a lack of statistical results in the comparison of use of regulatory strategies between Singaporean adolescents of different age groups. Therefore, while this is an initial exploration on the Singapore adolescent population, it may be worthwhile to carry out the study with a larger population in future to see if results may be different and if any differences in age, gender and/or ethnic groups may then be found in their use of regulatory strategies of music in mood regulation.

6.2.2 Use of Regulatory Strategies for Adolescents with Clinical Diagnoses and Challenging Life Situations

In an attempt to explore possible relationships between the use of regulatory strategies of music and adolescent mental health, results of the MMR for Singaporean adolescents who indicated a clinical diagnosis or who faced challenging life issues were particularly examined.

It seemed that Singaporean adolescents who stated a clinical diagnosis like Depression and Social Anxiety Disorder appeared to use regulatory strategies of music generally less than adolescents who did not have any diagnoses. This finding could portray a 2-way explanation. It could be that, in line with findings from literature, the use of regulatory strategies of music helped with mood regulation, thereby playing a part in prevention and protection against clinical disorders. Or it could be that due to clinical disorders, adolescents used music and its regulatory strategies less. Nonetheless, this finding is based only on raw mean scores instead of statistical differences. The number of adolescents with diagnoses was very small in the current study, with only three diagnosis labels (Depression, Social Anxiety Disorder, Narcolepsy). No statistical analysis was used to compare for possible statistical differences in the use of regulatory strategies due to the limitation in number of participants with diagnoses. Moreover, the difference in mean scores for overall and each individual use of regulatory strategies was not that great between adolescents with diagnoses and those without. Therefore, the possibility that adolescents who had a clinical diagnosis generally used music and its regulatory strategies less than those who did not, ought to be taken with caution. Future studies with a bigger sample size of adolescents with clinical diagnoses could be carried out to further explore the differences in use of music and regulatory strategies in mood regulation between those with diagnoses and those without, and what might be the possible direction of relationship or explanation for the possible differences.

An examination of the use of music and its regulatory strategies between Singaporean adolescents who faced self-professed challenging life situations and those who did not was also done to explore any possible relationships. There were no patterns nor differences seen in the use of music and its regulatory strategies between adolescents who faced challenging life situations and those who did not. Among those who had such challenging experiences, Singaporean adolescents who faced relationship, family and studies issues did not differ from each other in their use of music and regulatory strategies. Perhaps when adolescents stated

challenging situations in their lives, these situations, though real, were actually not as serious or did not have as strong or lasting impact on them, unlike clinical diagnoses which are considered serious and have definite effects on daily functioning. Therefore, there was no impact or differences in the use of regulatory strategies of music for those who faced challenging situations and those who did not state any. Or perhaps, it may again be error due to a limitation of a small sample size, and future studies with a larger sample size may be done to explore if there may be any differences in the use of regulatory strategies of music for adolescents who faced challenging life situations and those who did not.

6.3 Comparison of Asian and Western Cultural Contexts

The findings thus far provide a general overview of Singaporean adolescents' use of music for mood regulation, as well as a closer examination of the use of regulatory strategies of music across groups of Singaporean adolescents. Putting it together, this landscape of use of music in the focused context of Singapore can be summarized in a model that seems to support and follow after the process model of mood regulation by music proposed by Saarikallio and Erkkilä (2007). In the study on Finnish adolescents, the proposed theoretical model of mood regulation by music describes mood regulation as a process of feeling good and controlling mood as it functions through seven regulatory strategies activated through different musical activities including music listening, playing, singing, song-writing et cetera (Saarikallio & Erkkilä, 2007). These goals and strategies may be activated in adolescents no matter the range of individual differences like age, gender and mood states, as well as external influences like time, place, situation and life event (Saarikallio & Erkkilä, 2007). A similar process model may be found with the context of Singaporean adolescents, who are of an Asian culture lineage. Singaporean adolescents use music in different situations and mood states, regardless of individual differences like age, gender, ethnic groups and/or clinical diagnoses. Music is used to gain effects of Relaxation and Calmness, Diversion, Mental Work, Solace, Entertainment, Revival, Strong Sensation and Discharge, which may be culminated as effects of feeling good and controlling mood. The seven regulatory strategies are used to bring about these effects through musical activities like listening, singing, playing, song-writing and dancing, through different genres of music, and through engagement in music alone, with others or both. Figure 5 presents the model of mood regulation by music in the Singapore context, taken after the model proposed on Finnish adolescents. The fact that a process model

for the Singapore context can take the form of what was initially proposed from findings from Finnish adolescents suggests that the use of music for mood regulation in adolescents follow a similar basic process for both Asian and Western cultures.

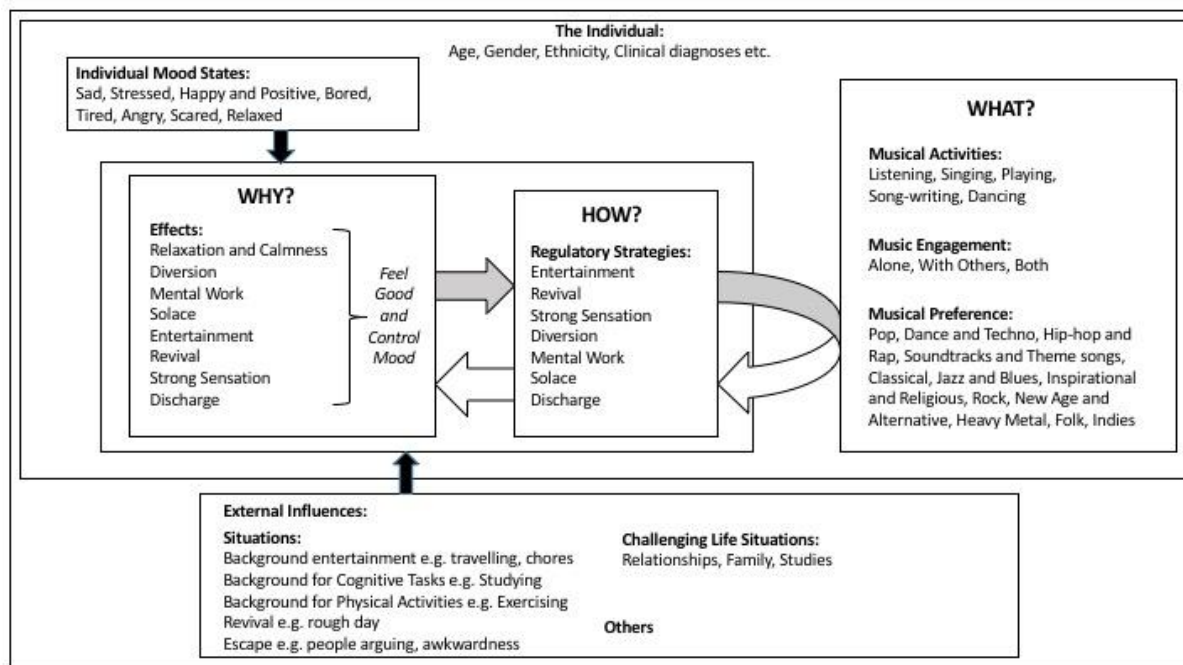


FIGURE 5. Mood Regulation by Music in the Singapore Context (Taken after proposed model by Saarikallio and Erkkilä (2007)).

Apart from a similar general process model, there were also similar patterns in some details and behaviour of Finnish and Singaporean adolescents' use of music for mood regulation. In both contexts, adolescents' most used musical activity was music listening. Also, Pop music, and Hip-hop and Rap music, were two of the musical genres that were quite preferred by both Finnish and Singaporean adolescents. In terms of the use of regulatory strategies, the strategies of Entertainment, Revival and Strong Sensation were the top three strategies used by adolescents of both countries, and the strategy of Discharge was similarly the least used strategy by both Singaporean and Finnish adolescents.

Nonetheless, amidst the similarities, there were still some cultural differences found between adolescents from the more Asian Singapore culture as compared to the more Western Finnish culture. Although both Singaporean and Finnish adolescents seemed to like Pop and also Hip-hop and Rap music, the musical genre most preferred by Finnish adolescents was actually Rock (Saarikallio, 2008b). For Singaporean adolescents, however, Rock was among the lesser preferred genres. Also, while Heavy Metal was preferred by Finnish adolescents (Saarikallio,

2008b), this genre was hardly liked by Singaporean adolescents at all. In terms of the use of regulatory strategies, despite similar patterns, Singaporean adolescents used all strategies more, both as a whole and also when compared by gender. Also, Singaporean adolescents seemed to use the strategies of Mental Work and Solace particularly more than Finnish adolescents, both as a whole and also when compared by gender. This difference may be possibly due to a difference in cultures. Perhaps the expression of negative emotion and aggression is less acceptable in Asian cultures than in Finland, hence Singaporean adolescents used the strategy of Discharge considerably less than other strategies and instead, with a collectivistic culture in place, they tend to work through issues and mood inwardly by oneself through Mental Work and coping with understanding of the mood internally through Solace rather than dragging others along in the negative mood. Therefore, it may be said that while a similar process model may be found and similar patterns could be seen, there were still some cultural differences in the use of music for mood regulation by adolescents of Asian and Western backgrounds. This is actually in line and supportive of Saarikallio's (2008b) cross-cultural study on the use of music for mood regulation in Kenyan versus Finnish adolescents. There are similarities in the basic processes, but certain differences characteristic to the cultures also exist.

Comparisons between Singaporean and Finnish adolescents' use of music for mood regulation has answered the third research question, and at the same time, provided some initial information to fill some gap in the research concerning the use of music in mood regulation with adolescents across different cultures. Nonetheless, the comparison done may be seen only as a face value comparison, taking only figures already presented in previous studies instead of carrying out new data collection using the same materials with adolescents of both cultures. Therefore, findings may be said to be suggestive and would still have to be taken with caution. In order to make comparisons more substantial, future studies may consider collecting data from adolescents of both the different cultures. The subsequent comparative analysis of these data may serve to provide better findings that may be of greater power to fill in the gap in research in this field.

6.4 Application

Mood issues appear to be a cause for concern in adolescents in Singapore. It was reported that Depression is estimated to be between 2 and 2.5% for adolescents, and there is also a trend of increasing suicide rates for those aged below 20 (Lim, Ong, Chin & Fung, 2015). Also, Singaporean adolescents appear to be a stressed population. It had been presented that stress from academics appeared to be of significant link with suicide in Singapore (Lim, Ong, Chin & Fung, 2015). The life situations that were professed and deemed challenging by adolescents in Singapore in this current study also had the category related to studies and examinations. With stress, particularly from school and academics, being such a prevalent aspect of adolescent life in Singapore, it seems appropriate and necessary to manage stress and moods in healthy and beneficial ways. The current study presented that music is a medium used by Singaporean adolescents to regulate their mood, much of which includes stressed and sad states, that music is used in a range of mood related situations, and has effects on managing their moods through different regulatory strategies. Thus, music may appear to be important and beneficial for Singaporean adolescents in this prevalent need of mood regulation.

However, findings from this study has also provided some information about other ways and activities of mood regulation undertaken by Singaporean adolescents. These include talking with important people, spending time with others, distracting self with other enjoyable activities, spending time alone, doing sports and exercise, as well as turning to religious and spiritual outlets for comfort. Although most of these other methods for mood regulation may be healthy and beneficial, some of the activities used seem to have more cause for concern. In particular, some activities that Singaporean adolescents use for distraction and enjoyment to regulate their mood include eating (junk food), sleeping, gaming, watching variety shows, Youtube videos and/or watch movies. Singapore is a highly connected country with internet connection in nearly every household and many public areas. According to a local study, it was reported that 17.1% of secondary school adolescents in Singapore spent an average of more than 5 hours daily on the internet (Lim, Ong, Chin & Fung, 2015). Also, the prevalence of pathological gaming among Primary and Secondary school students was 8.7%, which was much higher than that reported in European adolescents (Lim, Ong, Chin & Fung, 2015). It was further presented that when followed up longitudinally, pathological gamers appeared more likely to develop mental health issues like depression, anxiety, social phobia, and have

poorer school performance (Lim, Ong, Chin & Fung, 2015). Therefore, these alternative strategies of mood regulation related to going online and also gaming may actually affect adolescents' mood and mental health in the longer term. Music for mood regulation may be considered a safer and healthier option for adolescent mood regulation.

Since music and its regulatory strategies, which may be considered to be a safer and healthier medium, are indeed used by Singaporean adolescents and have been presented to have effects on mood and mood regulation, it may be recommended that bringing music into Singapore schools as therapeutic uses and programs for adolescents who face mood related issues, particularly stress from academics, may be a beneficial move. Since the current study has found that the effect most mentioned by Singaporean adolescents for the use of music is for Relaxation and Calmness, and music listening is the most used tactic for mood regulation, school-wide programs where music is played before the start of school or having breaks in between lessons where music listening can take place in classrooms may help with stress from school and studies. Programs as such could allow music to be used for mood regulation on a more intentional and frequent basis and reach a wider sphere of adolescents. This may help with mood-related issues and stress levels of adolescents, and perhaps also serve as a healthier alternative to other activities that they may seek to regulate their moods. Findings from this study may hence serve as the initial data to support and be a proposal for the Ministry of Education in Singapore to bring in music for therapeutic uses into Singaporean schools.

Also, findings from the current study provide information and support for the effects and use of music and its regulatory strategies, as well as describe the type of musical behaviours undertaken by Singaporean adolescents for mood regulation. These information may be valuable for social and psychological services and workers in Singapore with regards to how, what and why music could be used and incorporated in their interventions and work with adolescents, particularly for mood and mood regulation issues. Therefore, this study may be an initial data to propose to the Ministry of Health in Singapore for greater research, acceptance and usage of music therapy in the adolescent psychological and psychiatric scene in Singapore. For example, since music is a medium used and found to have effects on mood and mood regulation, having music therapy as a form of intervention or including music therapy in the range of psychotherapy services under the Institute of Mental Health could benefit and appeal to adolescents who are being seen for mood related diagnoses and issues.

Hence, with the initial data and support that the current study provides for the importance and use of music for mood regulation by Singaporean adolescents, proposals may be submitted to ministry bodies for further research and for music therapy and the therapeutic use of music to be implemented in schools and mental health services and institutions. The expansion of the field of music therapy in Singapore, particularly for adolescent mood and mental health, may become a possibility.

6.5 Limitations

This study was an initial exploration on the use of music for mood regulation in adolescence in Singapore, a context that is of an Asian culture. While findings have hopefully filled some gap in the literature by providing support and increased knowledge to the topic that goes beyond a Western cultural context, and at the same time, provided support and data for a proposal of the therapeutic use of music into wider spheres in Singapore, there were limitations to the study that render findings to be suggestive and to be taken with caution.

First of all, there was a limitation in the sample size of the study. Only 60 participants took part in this initial exploratory study, and there was a lack of participants as a whole to make up enough participants for different group categories. For example, there were no participants from the 10 to 12 years old age group, who are also considered to be adolescents by definition of WHO. There were also a considerable lack and difference in number of Malay and Indian participants as compared to Chinese participants to form three separate ethnic groups. The small sample size and small numbers constituting each group in terms of demographics may have caused error, especially in statistical analysis, hence affecting results. Moreover, some of the statistical results have a trend of moving towards significance, suggesting that results may be different and may reach significance if a larger sample size is used. Therefore, future studies aimed at a bigger sample size covering the whole range of adolescent age and aiming to have larger and more equal numbers of participants in each demographic group should be considered to reduce error and also to see if findings from this current study may be supported and confirmed. Perhaps by going into schools for data collection, it could be possible to gather over 1000 adolescents to ensure greater statistical power and accuracy.

There were also limitations in data collection. Participants were recruited through a convenience and snowball sampling in this study, which is non-random and could have led to higher error (Field, 2009). Future studies may consider sending the questionnaire into schools to reach a wider net of adolescents, and ensure a more random sampling method. Also, while having an online self-administered questionnaire was convenient and practical, it is important to be aware that this method of data collection gave participants their own time and freedom to make responses, which might lead to more casual and non-committal responses as well as possible social-desirability bias (Field, 2009), thereby affecting reliability and accuracy of findings collected. Moreover, the current study did not collect real data from adolescents from the Finnish culture for real cross-culture comparison. Future studies with real data collected from adolescents of both cultures to be compared could ensure a better and fairer cross-cultural comparison study.

Thus, an addressing of these limitations in the study in future could ensure more supported and conclusive findings for the use of music in mood regulation in adolescence in Singapore and beyond a Western culture.

7 SUMMARY AND CONCLUSION

In an attempt to fill in the gap for the research beyond a Western culture, this initial study has explored the important topic of the use of music in mood regulation in the context of Singaporean adolescents.

Findings from the study showed that Singaporean adolescents do use music to regulate their mood, that music and its regulatory strategies are used in a variety of situations that are mood related, and that music does have effects on mood. Music is used by Singaporean adolescents when in sad and stressed moods, music listening is the most used activity, and the most important effects of music are for Relaxation and Calmness, Diversion and Mental work. These findings from the Singaporean context are in line with and support results from previous studies on the use of music for mood regulation.

In a closer examination of the regulatory strategies used by Singaporean adolescents for mood regulation, the trend appears to be that Singaporean adolescents do use all the regulatory strategies of music that were proposed by previous researchers, and this may be seen to be homogeneous across different groups of Singaporeans, regardless of age, gender and ethnicity. The most used strategies are Entertainment, Revival and Strong Sensation, and the least used is Discharge. Also, adolescents with clinical diagnoses appear to use music for mood regulation less than those without, while adolescents who faced challenging life situations used music in similar ways with those who did not.

A comparison of the use of music for mood regulation in the Singapore context with that of findings from previous studies on Western (Finnish) adolescents presented that the process model of Singaporean adolescents' use of music for mood regulation takes after what was proposed with Finnish adolescents. The possibility of the model may suggest that although there might be some cultural differences in their details, the basic process of the use of music in mood regulation in adolescents is still of a similar model between Asian and Western cultural contexts.

Some similar patterns found in the use of music for mood regulation between adolescents from Asian and Western cultures are that the most used musical activity was music listening, that Pop and Hip-hop and Rap music were two of the musical genres preferred, and that regulatory strategies of Entertainment, Revival and Strong Sensation were the top three strategies used, while the strategy of Discharge was the least used. On the other hand, some differences characteristic to culture may be seen in different preferences towards the music genre of Rock and Heavy Metal, that Singaporean adolescents used all regulatory strategies of music more, and that this difference was most obvious in the strategies of Mental Work and Solace. All in all, findings from the use of music for mood regulation between the Asian Singaporean and the Western Finnish adolescents show and support the proposal from previous cross-cultural studies that there are similarities in the basic processes and also some similar patterns, but certain differences characteristic to the cultures also exist.

In conclusion, having answered all three research questions of the study, this study has provided a better overall understanding towards the use of music in mood regulation in adolescents specific to the context of Singapore. It is hoped that findings from the study has filled in some gap in the literature by providing support and increased knowledge that is beyond a Western cultural context to the important topic of music and mood regulation in adolescence. At the same time, the information presented regarding the Singapore context may serve as initial data and support for further research and proposals to bring music therapy and the therapeutic use of music more intentionally into wider spheres in Singapore like in schools and psychological and psychiatric services dealing with adolescent stress and mood related diagnoses and issues. In this way, the benefits and importance of the use of music in therapeutic ways may be further developed in the Singapore context through findings from this study.

It is the researcher's hope that this study and paper has provided added knowledge and value to the understanding and development of the field of Music Psychology and Music Therapy, particularly in the area of adolescent mental health and well-being. Nonetheless, this was an initial exploration on the topic of the use of music in mood regulation in adolescents from the context of Singapore. Sample size and data collection methods were limited, and no real data was collected from adolescents from another culture for real cross-culture comparison. Future studies aiming at a bigger sample size covering the whole range of adolescent age and data

collection going into schools in both cultures to reach a wider yet more random sampling of adolescents could be considered. These could lead to reduced error, fairer cross-cultural comparison, and serve to check and confirm findings from this current study. This important topic of the use of music in mood regulation in adolescence, beyond the Western context, may then be developed even further.

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Appendix

Adolescents' Use of Music in Mood Regulation (Singapore)

Thank you for taking the time to respond to this questionnaire. This questionnaire is designed to help us better understand how music may be used to regulate mood in adolescents. The questionnaire comprises of both rating scale and open-ended questions, and should take around 20 minutes to complete. Please read each question carefully and provide a truthful response that best represents you. There is no right or wrong answer. Please respond to all questions. Responses will be kept strictly confidential and used for research purposes only.

Part 1: Music in Mood Regulation Rating Scale

Rate each of the statements below from 1 to 5 (1 = Strongly Disagree and 5 = Strongly Agree), in relation to your own use and experience of music. Please answer all questions.

1. **1. When I'm busy around the house and no one else is around, I like to have some music in the background.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

2. **2. When I'm going out (e.g. for school, hobbies, or a party), I listen to music to get myself in the right mood.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

3. **3. I listen to music to make cleaning and doing other housework more pleasant.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

4. **4. I usually put background music on to make the atmosphere more pleasant.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

5. 5. When I'm tired out, I rest by listening to music.*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

6. 6. Listening to music doesn't help me relax.*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

7. 7. I listen to music to perk up after a rough day.*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

8. 8. When I'm exhausted, I listen to music to perk up.*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

9. 9. When I'm exhausted, I get new energy from music.*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

10. 10. I listen to music to get a breathing space in the middle of a busy day.*Mark only one oval.*

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

11. **11. Listening to music helps me to relax.***Mark only one oval.*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

12. **12. I feel fantastic putting my soul fully into the music.***Mark only one oval.*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

13. **13. Music has offered me magnificent experiences.***Mark only one oval.*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

14. **14. Music offers me unforgettable moments.***Mark only one oval.*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

15. **15. Music does not evoke strong emotional experiences in me.***Mark only one oval.*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

16. **16. I want to listen to music that evokes feelings in me.***Mark only one oval.*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

17. **17. I want to feel the music in my whole body.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

18. **18. Sometimes, music feels so great that I get goosebumps (in a positive sense).**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

19. **19. When stressful thoughts keep going round and round in my head, I start to listen to music to get them off my mind.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

20. **20. For me, music is a way to forget about my worries.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

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21. **21. Listening to music helps to block out disturbing factors from my mind.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

22. **22. When I feel bad, I try to get myself in a better mood by engaging in some nice, music-related activity.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

23. **23. I can't push my worries aside with the help of music.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

24. **24. When I get angry, I give vent to my anger by listening to music that expresses my anger.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

25. **25. When everything feels miserable, I start to listen to music that expresses these feelings.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

26. **26. When I'm angry with someone, I listen to music that expresses my anger.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

27. **27. When I'm really angry, I feel like listening to some angry music.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

28. **28. When I'm angry, I almost never listen to angry music.**

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

29. **29. When everything feels bad, it helps me to listen to music that expresses my bad feelings.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

30. **30. Music has helped me to work through hard experiences.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

31. **31. Music helps me to understand different feelings in myself.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

32. **32. Listening to music takes me back to memories and gets me thinking about different things that have happened to me.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

33. **33. Music inspires me to think about important issues.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

34. **34. When I'm distressed by something, music helps me clarify my feelings.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

35. **35. When something is troubling me, I find solace in music.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

36. **36. I listen to music to find solace when worries overwhelm me.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

37. **37. Listening to music doesn't comfort me in my sorrows.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

38. **38. When everything feels bad, music understands and comforts me.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

39. **39. Music is like a friend who understands my worries.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

40. **40. When I'm feelings sad, listening to music comforts me.**

Mark only one oval.

1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

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Part 2: Open-Ended Responses

Please respond freely and truthfully to the following questions. Your response would provide further and deeper elaboration on how music may be used by adolescents to regulate mood. Please answer all questions.

41. In what kind of environment/situation(s) do you most often use music? (Please be as specific as possible)

E.g. When I'm home alone, when I'm studying, when I'm on the train, when i'm at a party etc.

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42. In what kind of mood state(s) do you most often use music? (Please be as specific as possible)

E.g. When I'm sad/angry/happy/stressed/scared etc. about something that has happened or with someone.

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43. Which musical activity/activities do you usually engage in when you are in the situation(s) and mood(s) mentioned above?

E.g. Listen to music/ play an instrument/ sing/ write a song etc. when I am stressed/ studying etc.

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44. Do you usually engage in the activities stated above by yourself or with others?

E.g. When I am sad, I listen to music alone/ play an instrument by myself/ perform for others/ sing by myself/ write a song with a friend etc.

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45. What type (genre) of music do you most often engage in?

You may choose your personal top 3 genres from the list below.
Check all that apply.

- Blues
- Classical
- Dance/Electronic
- Easy Listening
- Folk
- Hip Hop/ Rap
- Inspirational (including Religious)
- Metal
- Jazz
- New Age/Alternative
- Oldies
- Pop (including Asian Pop)
- Rock
- Soundtrack/Theme Songs
- Other:

46. Have you had any situations or experiences in life that are particularly difficult or challenging, and that considerably affected your mood and daily functioning?

If yes, please describe and elaborate as much as possible the situation or experience and how it affected you. (E.g. My parents got divorced and I was so angry I didn't want to go to school and refused to do my homework. / When I was having my national exams, I got so stressed I couldn't eat or sleep properly and lost alot of weight.)

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47. What kind of effects would you say music has on your mood?

Please describe and elaborate as much as possible. (E.g. Music has a special effect on me and always helps me to manage my mood.)

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48. Is music the method that you use most often to manage or adjust your mood? If no, what other method or activity do you use the most?

Please describe and elaborate as much as possible. (E.g. Yes, I usually use music to manage my mood. / No, I usually shut myself in the room and scream to manage my mood.)

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Part 3: Demographics

The following demographic questions are purely for research analysis and will remain strictly confidential.

49. What is your age?

Mark only one oval.

- 10-12 years old
- 13-14 years old
- 15-16 years old
- 17-19 years old

50. Where are you currently pursuing your education?

Mark only one oval.

- Primary School
- Secondary School/Specialised Program
- Polytechnic
- Institute of Technical Education (ITE)
- Junior College/Centralised Institute
- University
- Special Education School
- Other:

51. What is your nationality?

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52. What is your ethnicity?

Mark only one oval.

- Chinese
- Malay
- Indian
- Other:

53. What is your gender?

Mark only one oval.

- Female
- Male
- Other:

54. Do/Did you have any medical and/or clinical condition or illness?

If yes, please specify. (E.g. Autism Spectrum Disorder/ Asthma/ Depression etc.)

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55. Please leave your email address below if you would allow the researcher to contact you to ask you further questions related to your responses and the topic.

Details will remain strictly confidential and for research purposes only.

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