Negative Feelings among Adolescents and Music Listening

Behavior: The Interaction with Gender and Music Involvement

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Abstract (English)

This study aimed to examine the relation between negative feelings among adolescents and three functions of music listening: the social function, emotion regulation and coping. Furthermore, the relation between negative feelings and the frequency of music listening is. examined. These associations are controlled for gender and music involvement. This study used data from Qrius (2007). The 928 respondents included in this study were 13 to 24 years old, 74% women (M = 19.14, SD = 2.60). The results of a MANOVA showed that adolescents with more negative feelings used the functions of music listening more often and listened to music more often. However, these associations were attenuated when they were checked for gender and music involvement. Music involvement seemed to be a stronger predictor of music listening behavior than negative feelings; adolescents with a higher level of music involvement listened more to music as a social function, emotion regulation strategy and coping strategy and also listened to music more frequently. Implications for further research are discussed.

Keywords: music, adolescents, negative feelings, emotion regulation and coping

Abstract (Dutch)

Het doel van dit onderzoek was om de relatie tussen negatieve gevoelens bij adolescenten en drie functies van het luisteren naar muziek te onderzoeken: de sociale functie, emotieregulatie en coping. Daarnaast is de relatie tussen negatieve gevoelens en de frequentie van het luisteren naar muziek onderzocht. Deze associaties worden gecontroleerd op gender en muziekbetrokkenheid. In dit onderzoek zijn gegevens van Qrius (2007) gebruikt. De 928 respondenten in dit onderzoek waren 13 tot 24 jaar oud, waarvan 74% vrouw (M=19.14, SD=2.6). De resultaten van een MANOVA lieten zien dat adolescenten met meer negatieve gevoelens de functies van muziek luisteren vaker gebruikten en dat zij vaker naar muziek luisterden. Deze associaties werden echter afgezwakt toen ze werden gecontroleerd op geslacht en muziekbetrokkenheid. Muziekbetrokkenheid bleek een sterkere voorspeller van luistergedrag te zijn dan negatieve gevoelens; adolescenten met een hogere mate van muziekbetrokkenheid luisterden meer naar muziek als sociale functie, emotieregulatie en coping en zij luisterden ook vaker naar muziek. Implicaties voor verder onderzoek zijn besproken.

Keywords: muziek, adolescenten, negatieve gevoelens, emotieregulatie en coping

'Music can change the way children feel, think and act. Music enables children to define themselves in relation to others, their friends, social networks and to the cultures in which they live…' (North, Hargreaves and O'Neill, 2000). Music exists in adolescents' life like 'the air they breathe' (Beckmann, 2013). For most adolescents, music serves a number of practical purposes, such as relieving boredom, alleviating tension, increasing energy, and providing a distraction from concerns (Thomson, Reece and Di Benedetto, 2014). Furthermore, music facilitates developmental and psychosocial tasks by fulfilling social and individual needs. Thus, listening to music has many functions for adolescents. At the same time, a large number of adolescents nowadays are experiencing physical or mental health issues (Beckmann, 2013). Depression rates increase during adolescence; by the age of 18 years, an estimated 15% of teens will have experienced at least one episode of depression (Webb et al., 2021). To reduce this number, important factors that alleviate negative feelings, which are precursors to depression, need to be examined. One of these is listening to music. Research indicates that music may alleviate negative feelings by regulating state of minds and reducing stress (Beckmann, 2013). However, within the group of adolescents there are differences regarding use of music, such as different functions of music listening, the amount of music listening and music involvement (Beckmann, 2013). Thus, for reducing mental health issues and negative feelings among adolescents, it may be very relevant to examine the impact of music, while taking these differences into account.

The aim of this study is to investigate the association between negative feelings among adolescents and three functions of music listening (the social function, emotion regulation and coping) and the frequency of music listening. Furthermore, this study examines whether being female or a highly involved music listener are reinforcing factors in these associations. Being female and being a highly involved listener have also been included as predictors, as well as age.

Theoretical Substantiation

For examining the association between negative feelings among adolescents and the functions of music listening, it is necessary to make a distinction between these functions. In general, the multiple functions of music listening may be divided into two overall categories: Social Function and Individual Functions (Miranda & Claes, 2009). Furthermore, the individual functions may be separated into two functions: Emotion Regulation and Coping (Miranda & Claes, 2009). This results in three overarching presumed function categories, namely: the Social Function (socialization with peers and identity), Emotion Regulation (mood-regulation) and

Coping (coping with life stresses).

Adolescents are rearranging their stimulus environments in a way that aids them in their mood optimization. The Theory of Mood Management assumes that adolescents tend to diminish their negative feelings and to preserve and intensify their positive feelings (Garrido & Schubert, 2011; Reinecke, 2017; Thomson et al., 2014). Listening to music is often used to arrange a stimulus, because it is one of the strategies that requires no effort (Reinecke, 2017). Adolescents with an increase in negative feelings are more likely to listen to music as they may have a greater need to cope or regulate their emotions. Habitual use of cognitive reappraisal may explain the effectiveness of listening to music for mood optimalization (Chin & Rickard, 2013; Papinczak et al., 2015).

Coping may be distinguished into two categories: problem-focused coping and emotion-focused coping (Miranda & Claes, 2009; Tamres, Janicki & Helgeson, 2002). Problem-focused coping is handling problems through altering the stressor, while emotion-focused coping aims at handling problems through altering the emotional response to the stressor. In adolescence, listening to music is mainly used as an emotion-focused coping strategy, which is associated with more negative feelings (Miranda & Claes, 2009). The Role Constraint Theory adds gender differences in using music listening for coping (Tamres, Janicki & Helgeson, 2002). This theory suggests that gender differences in coping are mostly due to the different roles men and women assume in society. Certain factors, such as discrepancies in workplace and the fact that women are more likely to be primary caretakers, cause women to experience more stress than men (Tamres, Janicki & Helgeson, 2002). Because women experience more stress, they are more likely to use emotion-focused coping strategies, such as listening to music (Miranda & Claes, 2009; Tamres, Janicki & Helgeson, 2002).

Empirical Substantiation

Multiple studies found a positive association between negative feelings and the social function of music listening among adolescents (Papinczak et al., 2015; Prinstein & la Greca, 2002). Adolescents are considering themselves as part of a particular identity group through music listening, what fulfills their need to belong (Prinstein & la Greca, 2002). Fulfilling an adolescent's need to belong in turn is associated with a decrease of negative feelings.

The results of multiple studies also indicate a positive association between negative feelings and the use of emotional regulation strategies (Papinczak et al., 2015; Randall et al., 2014). These results are in line with the Theory of Mood Management (Garrido & Schubert, 2011; Reinecke, 2017; Thomson et al., 2014). According to the Theory of Mood Management,

adolescents experiencing more negative feelings will be more likely to use emotion regulation strategies because they have a greater need to regulate their emotions.

In addition, an increase in negative feelings seems to be associated with an increase in coping (Miranda & Claes, 2009; Tamres, Janicki & Helgeson, 2002). An adolescent with more negative feelings will experience a greater need to use emotion-focused coping strategies, such as listening to music, and will therefore listen to music more often than adolescents with less negative feelings.

Also, negative feelings seem to be associated to a higher frequency of music listening (Mitchell et al., 2007). Listening to music more often reduces negative feelings and enhances positive feelings (Mitchell et al., 2007). Adolescents experiencing more negative feelings may therefore listen to music more frequently.

Gender seems to be associated with negative feelings as well as with the functions and frequency of music listening. Multiple studies suggest that adolescent girls are experiencing more negative feelings, such as feelings of anxiety, guilt and sadness, compared to boys (Nolen-Hoeksema, Larson & Grayson, 1999; Seiffge-Krenke & Stemmler, 2002; Thayer et al., 2003). Gender differences in negative feelings may be explained by multiple factors. Firstly, ovarian hormones may cause an increase in negative feelings for adolescent girls (Thayer et al., 2003). Secondly, the lower social status and lower power experienced by women may cause negative feelings, such as friction and frustration. Thirdly, girls are often experiencing more chronic strain, rumination, mastery and depression, what may cause more negative feelings (Broderick, 1998; Nolen-Hoeksema, Larson & Grayson, 1999; Thayer et al., 2003). Because girls experience more negative feelings, they are more likely to use music listening as social function, emotion regulation strategy and coping strategy and they will listen to music more frequently.

Furthermore, music involvement seems to be associated with music listening behavior. Highly involved music listeners are more likely to use music listening as social function, emotion regulation strategy and coping strategy (Ter Bogt et al., 2010). Highly involved listeners will therefore also listen to music more frequently.

Age seems to be associated with music listening behavior. Early adolescents listen to music more frequently (Bonneville-Roussy et al., 2013). It is therefore likely that they use the three functions of music listening more often than late adolescents. An explanation for this is the fact that young adolescents listen to music in different contexts, while late adolescents and adults primarily listen to music in private (Bonneville-Roussy et al., 2013). Adolescents use music for identity formation. Late adolescents mostly have formed a stable self-concept and

identity becomes invested in newly emerging social roles, what causes a decrease in music listening for identity formation (Bonneville-Roussy et al., 2013; Delsing et al., 2008).

Previous research did not examine whether being female interacts with the association between negative feelings and the three functions and frequency of music listening. Furthermore, the interaction of music involvement with this association has not yet been examined in previous research.
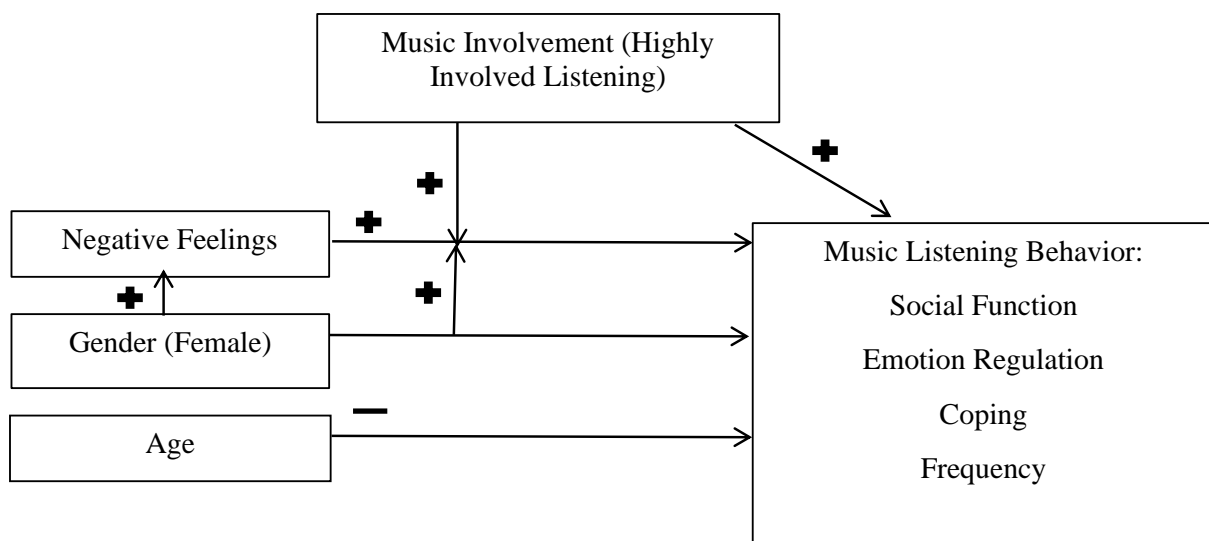

Figure 1. The research model including the hypotheses visualized with the '+' and '-' signs.

Current Study

The aim of this study is to examine the association between negative feelings among adolescents and the functions and frequency of music listening. Based on the theories and literature, an increase in negative feelings is hypothesized to be positively associated with use of music listening as social function, emotion regulation strategy, coping strategy and the frequency of music listening. To increase insight into predictors of music listening behavior, gender and music involvement will be included in this study as predictors as well as moderators. As adolescent girls experience more negative feelings, it is hypothesized that girls have a greater need to use music listening as a social function, emotion regulation and coping. In addition, it is hypothesized that the associations in this study will be strengthened for girls (Nolen-Hoeksema, Larson & Grayson, 1999; Seiffge-Krenke & Stemmler, 2002; Thayer et al., 2003). Furthermore, it is hypothesized that high involvement in music listening is associated with more use of music listening as social function, emotion regulation strategy, coping strategy and a higher frequency of music listening (Ter Bogt et al., 2010). Because high involvement is

positively associated with the functions and frequency of listening to music, the association between negative feelings and the functions and frequency is hypothesized to be strengthened for highly involved listeners. Figure 1 shows the associations examined in this study, including the moderators 'gender (female)' and 'music involvement (highly involved listening)'.

Method

Design and procedure

The current study used the Qrius dataset from 2007. Qrius is a research agency specializing in children aged 0 – 12 years old, adolescents of 12 – 18 years old and young adults aged 18 – 29. A Youth Survey is conducted and published every two years by Qrius. This study used the dataset of this Youth Survey from 2007. This dataset contains data from multiple waves; wave 1, wave 3 and wave 5. Only wave 3 will be used in the current study, which has a cross-sectional design.

Sample and participants

The age range of the dataset are limited to 13 – 24 years old, as this study focused on adolescence. Participants older than 24 are removed from the dataset. After removing the unwanted cases, the total of the respondents is 928. Although age ranged from 13 to 24 years, the ages 17 to 19 are most represented in the dataset. The statistics of gender show that women are relatively over-represented compared to men; 685 women (74%) and 243 men (26%) are included in this study.

Measuring instruments

Negative Feelings

To measure negative feelings, adolescents are asked to answer four statements. Each of these statements represents a negative feelings. One of these statements is: Ik geef mezelf van alles de schuld (I blame myself for everything)'. These statements were measured on a five-point Likert scale with answering options from *totally disagree* (1) to *totally agree* (5). Applying a factor analysis in SPSS, resulted in one factor that explained 67,9% of the variance. This factor is therefore labeled as 'Negative Feelings'. The Cronbach's Alpha of the included items is 0.84.

Social Function

To measure the variable 'the Social Function of Music Listening', adolescents are asked to answer four statements regarding the question 'How does music play a role in your social life?' For example, one of these statements is: 'Ik vind het belangrijk dat mijn vrienden naar dezelfde muziek luisteren als ik. (I think it's important that my friends listen to the same music

as I do.) These statements were measured on a five-point Likert scale with answering options from *totally disagree* (1) to *totally agree* (5). Factor analysis showed a two factor solution, explaining 29,2% of the variance. Only factor 1 is included in this study. The Cronbach's Alpha of the included items is 0.58.

Emotion Regulation

To measure the variable 'Emotion Regulation through Music Listening' four statements are asked regarding the question 'How do you use music?'. For example, one of these statements is: 'Muziek helpt me te ontspannen en te stoppen met nadenken over dingen (Music helps me to relax and to stop overthinking)'. These statements were measured on a five-point Likert scale with answering options from *totally disagree* (1) to *totally agree* (5). The factor analysis showed a one factor solution, explaining 50,8% of the variance. This factor is therefore labeled as 'Emotion Regulation'. The Cronbach's Alpha is 0.67.

Coping

To measure the variable 'Coping through Music Listening', five statements are asked. For example, one of these statements is: 'Hoe gebruik jij muziek? Artiesten zijn voor mij een voorbeeld (How do you use music? Artists are role models for me)'. These statements were measured on a five-point Likert scale with answering options from *totally disagree* (1) to *totally agree* (5). Factor Analysis showed a one factor solution, explaining 51% of the variance. The Cronbach's Alpha of the included items is 0.75.

Frequency of Music Listening

To measure 'the Frequency of Music Listening', the following open question is asked: 'Hoe lang luister je gemiddeld per dag naar muziek? (What is your average music listening time a day?)'. Answering options were *to 30 minutes* (1), *30 – 60 minutes* (2), *61 – 90 minutes* (3), *91 – 121 minutes* (4), *more than 4 hours and less than 5 hours* (5), *more than 5 hours and less than 6 hours* (6), *more than 6 hours and less than 8 hours* (7) and *more than 8 hours* (8).

Gender

To measure 'Gender', participants were asked 'Ben je een: meisje of jongen? (Are you; a girl or boy?)' Respondents could choose between the two options: '*girl*' and '*boy*'.

Music Involvement

To measure 'Music involvement', five statements are asked regarding the question 'You may indicate to what extent the statement applies to you'. An example of these statements is: 'Zonder muziek kan ik niet leven. (I cannot live without music)'. These statements were measured on a five-point Likert scale with answering options from *totally disagree* (1) to *totally*

agree (5). Factor analysis showed a one factor solution, explaining 47,4% of the variance. The Cronbach's Alpha of the included items is 0.72.

 Age

To measure 'Age', the used question is: 'Mijn leeftijd is …? (My age is …?)' Respondents could choose between the age 1 to 51; only the respondents who responded with an age between 13 to 24 years were included in this study.

Data analysis

After the age range within the dataset was limited to a maximum of 24 years old, tests were performed to examine the outliers and missing values. The missing values were tested by a Missing Values Analysis. This analysis was applied to all variables within the research questions, namely: negative feelings, social function, emotion regulation, coping, frequency of music listening, gender, music involvement and age. Subsequently, a factor analysis and a reliability analysis were applied to the relevant variables, discussed above. A MANOVA was conducted to test the associations within the research model.

Results

Table 1 shows the minimum score (Min.), maximum score (Max.), Mean (M), Standard Deviation (SD) and Standard Error of the Mean of each variable. This table visualizes differences between males and females by comparing mean scores of each variable through t-tests. Girls report experiencing more negative feelings and listening to music as emotion regulation strategy and coping strategy. Boys report a higher score of listening to music as a social function, a higher frequency of music listening and more music involvement.

Table 1

Descriptive Statistics of Variables by Gender

	Gender	N	M	SD	Standard Error Mean
Negative	Male	243	**2.37**	.94	.06
Feelings	Female	685	**2.73**	.93	.04
	Total	928	2.63	.94	.03
Social Func-	Male	243	**2.71**	.65	.04
tion	Female	685	**2.54**	.61	.02

	Total	928	2.59	.62	.02
Emotion	Male	243	**3.66**	.71	.05
Regulation	Female	685	**3.84**	.67	.03
	Total	928	3.79	.69	.02
Coping	Male	243	**3.05**	.76	.05
	Female	685	**3.27**	.72	.03
	Total	928	3.21	.74	.02
Frequency	Male	243	**4.81**	2.00	.13
of Music	Female	685	**4.04**	1.98	.08
Listening	Total	928	4.24	2.02	.07
Music In-	Male	243	**3.66**	.71	.05
volvement	Female	685	**3.47**	.70	.03
	Total	928	3.53	.71	.02

Note: bold typeface indicates significant differences between boys and girls ($p <.05$)

Table 2

Correlation between Independent and Dependent Variables

	Social Function	Emotion Regulation	Coping	Frequency
Negative Feel-ings	-.03	.27**	.28**	.00
Music Involvement	.43**	.45**	.39**.	.38**
Age	-.07*	-.05	-.05	.04

* $p < 0.05$, ** $p <.01$

In Table 2 Pearson correlation between the independent and dependent variables are shown. The results of the Pearson correlation show that negative feelings are significantly associated with music listening as emotion regulation and coping strategy. This implies that adolescents who experience more negative feelings listen more to music for emotion regulation

and coping. Adolescents with more negative feelings do not listen to music more often as a social function, nor do they listen to music more frequently.

The correlations (Table 2) show that music involvement is a very powerful predictor of music listening behavior. The degree of music involvement is associated with music listening as a social function, emotion regulation, coping and frequency. Age is slightly associated with social function, implying that older adolescents are using music listening for social function less than younger adolescents.

In order to incorporate negative feelings into a multivariate analysis this variable was recoded into two categories, indicating a group with no or little negative feelings (low) and a group with some or much negative feelings (high). A MANOVA with negative feelings and gender as fixed factors, and functions and frequency of music listening as dependent factors, controlling for age and music involvement, was conducted. Interactions terms between negative feelings and gender, and negative feelings and music involvement were added to the equation. Results of this multivariate analysis indicated a significant difference between the low and high negative feelings groups on the combined dependent variables ($F4, 924$) = 10.34, $p < .01$, partial $\eta^2 = .043$). Multivariate significant effects were also found for gender ($F4, 924$) = 15.88, $p < .01$, partial $\eta^2 = .065$), and, particularly, music involvement ($F4, 924$) = 147.33 , $p < .01$, partial $\eta^2 = .39$), but not for age ($F4, 924$) = 2.22 , $p = 065$, partial $\eta^2 = .01$). No significant interactions between negative feelings and gender, or negative feelings and music involvement in relation to the combined dependent variables were found. These interactions were therefore removed from the equation.

Univariate analysis was used to examine the associations separately. Table 3, Table 4 and Table 5 show the univariate effects between each significant independent variable and the dependent variables. First, the results of the univariate analysis do show a significant associa-tion between negative feelings and social use of music (Table 3). This implies that adolescents who experience more negative feelings will listen more to music as a social function. Negative feelings among adolescents are also significantly associated with music listening as an emotion regulation strategy and with coping. This indicates that adolescents experiencing more negative feelings are more likely to listen to music as an emotion regulation strategy and to cope with problems. No association was found between negative feelings and the frequency of music lis-tening. Partial η^2 range between .006 and .027 for the significant coefficients, indicating small effect sizes.

In addition, results of univariate analyses show that gender and, in particular, 'music

involvement' seem to be significant predicting factors of functions and frequency of music listening (Tables 4 and 5). Females report a higher rate of music listening as emotion regulation strategy and a higher rate of music listening as coping strategy (Table 4, see Table 1 for descriptives). On the other hand, males report a higher rate of listening to music as a social function and a higher frequency of daily music listening (Table 4, see Table 1 for descriptives). Partial η^2 range between .006 and .030 for the significant coefficients, indicating small size effects.

Furthermore, highly involved listeners listen to music more often as a social function; report a higher degree of listening to music as emotion regulation strategy and for coping. Last highly involved music listeners report listening to music more frequently. Partial η^2 values range between .136 and .216 for the significant coefficients, indicating small to medium effect sizes.

Table 3
Univariate Effects for Negative Feelings

Dependent Variable	*df*	*F*	Mean Square	Sig.	Partial η^2
Social Function	1	5.63	1.755	.018*	.006
Emotion Regulation	1	25.79	9.129	.000**	.027
Coping	1	22.91	9.818	.000*	.024
Frequency	1	0.34	1.176	.559	.000

$* p < 0.05$; $** .p < 0.01$

Table 4
Univariate Effects for Gender

Dependent Variable	*df*	*F*	Mean Square	Sig.	Partial η^2
Social Function	1	5,261	1,640	.022*	.006
Emotion Regulation	1	26.512	9.419	.000**	.028
Coping	1	28.176	12,077	.000**	.030
Frequency	1	14.504	49,682	.000**	.015

$* p < 0.05$; $** p < 0.01$

Table 5

Univariate Effects for Music Involvement

Dependent Variable	df	F	Mean Squares	Sig.	Partial η^2
Social Function	1	199,091	62,071	.000**	.177
Emotion Regulation	1	253,963	90,228	.000**	.216
Coping	1	182,400	78,182	.000**	.165
Frequency	1	144,868	496,250	.000**	.136

$* \ p < 0.05$; $** \ \ p < 0.01$

Discussion

The current study focuses on the association between negative feelings among adolescents and the frequency and three distinct functions of listening to music; Social Function, Emotion Regulation and Coping. The results of this study show that an increase in negative feelings is related to more music listening for social function, emotion regulation and coping. Music involvement is a stronger predictor of music listening behavior than negative feelings. Highly involved listeners listen more to music and use the functions of music listening more often. Gender also is a predictor of music listening behavior. Girls experience more negative feelings than boys and more often use music listening as an emotion regulation and coping strategy. Boys, on the other hand, appear to listen to music more frequently and they listen more to music as a social function. Despite the direct associations, gender and music involvement do not interact with negative feelings, implying that for both genders and different levels of music involvement negative feelings trigger increased music listening, emotion regulation and coping.

Negative Feelings and the Functions and Frequency of Listening to Music

The first hypothesis states that adolescents who experience more negative feelings listen more to music as a social function. The results of the univariate analysis confirm this analysis, while the results of the Pearson correlation does not. This implies that negative feelings are associated with the social function of music listening by itself, but when other associations are added, this association attenuates. The results confirm the second hypothesis: adolescents who experience more negative feelings, listen more to music as an emotion regulation strategy. This is in accordance with the results of earlier studies and is confirming the Theory of Mood Management, which states that adolescents who experience more negative feelings feel a

greater need for emotion regulation, for example by listening to music (Garrido & Schubert, 2011; Reinecke, 2017; Thomson et al., 2014). The third hypothesis states that adolescents who experience more negative feelings listen more to music as a coping strategy. The results are confirming earlier research and the hypothesis (Miranda & Claes, 2009; Tamres, Janicki & Helgeson, 2002). This association may also be explained by the Theory of Mood Management (Garrido & Schubert, 2011; Reinecke, 2017; Thomson et al., 2014). According to the Theory of Mood Management, adolescents experiencing more negative feelings feel a greater need for coping by music listening. However, no association has been found between negative feelings and the frequency of music listening. This result implies that frequency of music listening does not differ in experiences of negative feelings; thus, everyone listens to music equally often. The fourth hypothesis is thereby not confirmed by the results of this study.

Music Involvement and the Functions and Frequency of Music Listening

The results of this study confirm the hypothesis that highly involved listeners listen more to music as a social function, emotion regulation strategy and coping strategy. Also, highly involved listeners listen to music more frequently than lower involved listeners. These findings are in accordance with the findings of the study of Ter Bogt et al. (2010). Highly involved music listeners value the impact of music listening more than less involved listeners. Based on these results, and the effect sizes, we can conclude that music involvement is a greater predictor of music listening behavior than negative feelings among adolescents or gender.

Gender and Functions and Frequency of Music Listening

The results confirm the hypothesis that girls listen more to music as an emotion regulation strategy and coping strategy than boys. This may be explained by the fact that girls experience more negative feelings in adolescence and therefore, according to the Theory of Mood Management, have a greater need for emotion regulation and coping (Nolen-Hoeksema, Larson & Grayson, 1999; Seiffge-Krenke & Stemmler, 2002; Thayer et al., 2003). Contrary to the hypothesis, this study found that boys listen to music more as a social function and more frequently than girls. This is a relevant extension to the scientific knowledge from previous research. Boys have less need for emotion regulation and coping, because they experience less negative feelings than girls (Nolen-Hoeksema, Larson & Grayson, 1999; Seiffge-Krenke & Stemmler, 2002; Thayer et al., 2003). However, boys seem to focus on forming their identity through using the social function of music listening.

Age and Functions and Frequency of Music Listening

The results of the Pearson correlation confirm the hypothesis that music listening as a

social function slightly decreases when age increases. This finding may be explained by a decrease in the need for identity formation as adolescents get older (Bonneville-Roussy et al., 2013; Delsing et al., 2008). In contrast to the hypothesis, age differences in listening to music for emotion regulation and coping, and frequency, are non-existent. This result implies that adolescents do not change their music listening behavior with age, except that they listen a little less music as a social function.

Gender and Negative Feelings

The results confirm the hypothesis that girls experience more negative feelings than boys. This is in accordance with previous research (Nolen-Hoeksema, Larson & Grayson, 1999; Seiffge-Krenke & Stemmler, 2002; Thayer et al., 2003). It may be explained by the working of ovarian hormones, the lower social status and fewer possibilities that women experience. Furthermore, girls are experiencing more chronic strain, rumination, mastery and depression what causes them to be more likely to experience negative feelings (Broderick, 1998; Nolen-Hoeksema, Larson & Grayson, 1999; Thayer et al., 2003).

Gender and Music Involvement as Moderators

The results do not show an interaction between gender or music involvement with negative feelings in relation to functions and frequency of music listening. This implies that there is no distinction between genders or level of music involvement in the power of music listening; everyone benefits from the power of music listening. However, direct links have been found between gender, music involvement and the functions and frequency of music listening. It is therefore important that further research includes these indicators.

Limitations and Strengths

There are a few limitations to this study. First, the research is cross-sectional, implying that no direction of the association can be determined. Only associations between variables have been examined, but no effects between variables. Further research should examine the effects between the associations found in this study to expand insight in music listening behavior.

In addition, an existing dataset was used in this study. This means that scales are created based on statements or questions for this dataset. The disadvantage of using an existing dataset is that the reliability is less guaranteed than a dataset designed to specifically test the research question. Questions and items may not have captured the concept that we wanted to measure. However, the Cronbach's Alpha's show that the reliability of the scales created for this study is valid enough.

The dataset used in this study, the Qrius dataset, is originated in the year 2007. This is

already 14 years ago, meaning that the dataset is less current. There may have been changes over time, causing that the results may not be representative of today's adolescents. An example of this is the emergence of social media. Research shows that social media use is linked to increases in negative feelings (de Lenne et al., 2018). As a result, stronger or weaker associations may be found, if a dataset from 2021 was used.

However, this study has some strengths. A strength of this study is that the variables 'gender' and 'music involvement' are included as both predictor and moderator. As a result, the association between the variables are investigated more specifically than in preceding research. For example, this study shows that gender differences and music involvement are directly related to the functions of music listening and the frequency.

Another strength of this study is the fact that the tested variables and the resulted scales are highly reliable. Despite creating scales based on existing items, the Cronbach's Alphas of the variables are high. This indicates a high reliability of the variables examined in this study.

Implications

Further research should investigate the associations found in this study. Awareness about the impact of negative feelings among adolescent should be increased. By expanding knowledge about the coherence between negative feelings and music listening, negative feelings may be more easily reduced. Furthermore, this study adds to existing findings in research that boys listen more to music as a social function and that they listen more frequently to music. This finding expanses insights in factors coherent with music listening and should therefore be further examined. In addition, music involvement seems to be a large predictor of music listening behavior. In order to expand knowledge about music listening behavior among adolescents, further research should focus on examining music involvement.

Furthermore, further research should focus on the long term effects of music listening on emotion regulation and coping. By examining the long term effects, direction of effects of music listening behavior may contribute to existing knowledge. In order to do so, a longitudinal study is needed with multiple moments of measuring.

Conclusion

As hypothesized, negative feelings and the functions of music listening appear to be associated. An increase in negative feelings among adolescents is associated with more music listening as emotion regulation and coping strategy. However, music involvement seems to be a greater predictor of music listening behavior; highly involved listeners use the functions of music listening more often and listen to music more frequently. Gender also seems to be

associated with music listening behavior. In order to further expand knowledge about music use among adolescents, further research should examine the found associations. By increasing knowledge about the coherence between music listening behavior of adolescents and negative feelings, negative feelings among adolescent may be more easily reduced.

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