

EFFECTS OF MUSIC ON EMOTION REGULATION: A SYSTEMATIC LITERATURE REVIEW

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Abstract

Music and its use for emotion regulation processes, to this day remains an unresolved question. Multiple experimental layouts encompassing its daily life use and clinical applications across different cultures and continents have preserved music as a self-regulative tool. Therefore it is seen as a very individual but by some researchers cross-culturally, accepted therapeutic tool. Large amounts of recent studies demonstrate the effects of music on emotion and emotionally evoked processes. A thorough literature search was conducted across the data bases for the timeframe from January 2001 to July 2012; CINAHL, EMBASE, PubMed, PsychINFO, The Cochrane Library, Eric, Psychology and behavioral science collection, SpringerLink, google scholar, picarta, Web of Science, Science Direct, DARE, Worldcat, and handsearch. Inclusion criteria encompassed youth/adolescents from 10 to 29, including healthy as well- as clinical populations. Music intervention and emotion regulation measures were viewed and included only when at least forms of music participation (singing, playing, listening, engagement) were noted in the study and effects on emotion regulation were directly measured. The interrelations between the effects of music on emotion regulation and the use of it as a purposeful instrument, e.g. music interventions for specific educational or therapeutic functions, yielded limited results. Music has a 'self-regulative capacity', but is restricted as valuable instrument for specific emotion regulation interventions. This review presents the effects of music on emotion regulation for youth population, detecting 1) insufficient adequate (clinical) studies about the purposeful use of music for emotion regulation, and 2) insufficient actively used music interventions, like listening, singing, playing in academically studies.

Keywords: emotion processing, emotion regulation, music and emotion

1. Introduction

Humans spent an average of 18 hours a week (Rentfrow 2012), and an increased amount of money (1000% increase since 2004; Rentfrow 2012) on various forms of music activities. Music is wildly used, described in different ways and its complexity and effects are multi-interpretable. Music can involve cognitive processes influencing attention, memory, categorization, motor action planning, prediction, communication and emotion (Levitin 2009), while large amounts of recent studies demonstrate the effects of music on emotion and emotionally evoked processes (Koelsch 2012, 2009;

Koelsch et al. 2011; Juslin and Sloboda 2011; Peretz 2009; Schlaug 2009; Levitin 2009; Patel 2008; Thaut 2005). In this review, music will be described as an instrument for processing and regulating emotions in humans. This description has been found in different cultures where humans preserve music as a self-regulative tool; a very individual however cross-culturally accepted therapeutic instrument, as research of Boer and Fischer (2010) and Chamorro-Premuzic et al. (2009) show. The researchers in this review have widely agreed on music as an effective regulative tool for emotions. Its ca-

capacities range from arousing and intensifying specific feelings, evaluating and accepting – especially – negative emotions and mood management as well as coping and facilitating thoughts and feelings (Thoma et al. 2012; Miranda 2012; Rentfrow 2012; Boer and Fischer 2010; Goethem and Sloboda 2011; Miranda and Gaudreau 2010; Sarikallio 2007, 2008, 2011; Chamorro-Premuzic et al. 2007, 2009; Greenwood and Long 2009; Sarikallio and Erkkilä 2007 and Mennin et al. 2005). Moreover, the use of music as an active intervention to measure how individuals actually regulate their emotions is limited. This review will present the gap between existing studies as reviewed by Miranda (2012), Rentfrow (2012) and Saarikallio (2007, 2008, 2011), and inspecting the effects of music on emotion regulation purposes. Measurements of applied use of music as active intervention tool are scarcely presented, in addition to the limited interest on emotion dys-regulation, an important perspective for psychopathology and health not only in clinical studies.

2. Results

The 13 included studies about music and emotion regulation for youth populations (10-29) were categorized in age groups: adolescents (age $M=15.11$), youth (age $M=21.88$) and young adults (age $M=28.7$). The age categories reflect divergent developmental stages and abilities of adolescents, youth and young adults. From the 13 included studies, 12 studies are non-clinical studies, only one study revealed clinical case descriptions. A general overview of all included studies is presented in table (1).

3. Discussion

The robust empirical studies of everyday listening effects of music here presented are one sided: most samples are taken from (non-psychopathologic, not diagnosed or healthy) university students of common social and economical background, reporting about their experiences after music listening, filling in dairies, questionnaires, online surveys and interviews. Representative samples of schoolchildren are exclusive, only one large study of schools (Fin-

land) (Saarikallio 2008) was found. 12 of the 13 included studies are non-clinical studies, and only one of these studies integrated psychopathological tests in a university setting (Mennin et al. 2005). Further, only one study offered active music making in the only clinical setting (Plener et al. 2011), and two studies applied music listening interventions (Thoma et al. 2012, Mennin et al. 2005). Reflecting, talking and writing about the use of music seem to be most applied interventions, but we believe that they do not echo real effects of music on emotion regulation of the individual. Music is very complex, containing musical elements as rhythm, melody, timbre, harmony and dynamics and is therefore in-separately to any measurement of music making and listening. Purposefully, goal-oriented application like music interventions of active listening, singing or playing for specific emotion regulation purposes in education or therapy, in schools or clinical settings are rare. These studies are very poorly researched and documented. Nevertheless, applied music for this emotion regulative purpose can be directly measured while influencing and affecting participants, like the study of Mennin et al. (2005) demonstrated. More detailed research studies of multidimensional aspects are in demand, including regular participants with and without psychopathology, using control groups and measuring directly the effects of music (on health). Also Miranda (2012), Rentfrow (2012), Rottenberg and Gross (2007) as well as Aaldo (2013) urge for more detailed and combined studies, building bridges between researchers, educators and therapists, focussing on emotion regulation for real world participants. Furthermore, the direct influence of music on health and psychopathology, like thoughts about emotional (dys)regulation are supported by Mennin et al. (2005), Thoma et al. (2012) and Ellis and Thayer's (2010) relating to the effects of music on the autonomic nervous system and its therapeutic relevance. Emotional dys-regulation in case of depression, BPS, ODD/CD, anorexia and anxiety (GAD) reported difficulty evaluating, managing and accepting negative emotions and makes it complicated to achieve emotional and physiological health, whereby

Table 1. General overview of included studies

Populations/ research setting	Adolescents/clinical	Adolescents/school	Youth/young adults universities
Studies	1 pilot	3	9
inpatient/outpatient	Outpatient	Non-clinical	Non-clinical

Table B: intervention/measurement clinical/non-clinical study	
Intervention	1 study live music MT band project & DBT-A Total: 12 studies experiences about music listening; 10 studies without + 2 studies with applied music listening intervention (column right)
Measurements	Diary card, tests, parent sessions, psycho education self-rating lists/online survey, interview
Participants adolescents/youth	N=5 outpatient clients psychiatric youth unit
Gender	females N=4588 schools + universities study 1: 41 females, 48 males study 2: 69% female, 41% male
Adolescent ages	14-16 3 studies M=15.11
Young adults ages	9 studies M=21.88 1 study M=28.7 study 1: M=24.29 study 2: M=19.52

misinterpretations of emotional valences and musical emotions can appear. Music might be able to prevent psychopathology, by using music making and listening as natural intervention of health promotion to increase or restore wellbeing (Plener et al. 2011, Miranda 2012, Miranda and Gaudreau 2010, Saarikallio and Erkkilä 2007). Therefore, the purposeful application of music for 'self-regulation' (Blair and Diamond, 2008) is required whereby the cognitive and behavioural processes through levels of emotional, motivational, and cognitive arousal are combined for positive adjustment and adaptation. And these multidimensional processes of life command specified music interventions, integrating difficulties of emotional dys-regulation for reliable results which are valid for school environments, universities as well as clinical settings.

4. Conclusion

The clinical as well as the non-clinical studies, all demonstrate the effective use of music as self-regulative tool for emotions. Despite the diversity between the study designs, using active music making and listening versus reflective and non-experimental use of music, all studies revealed the individual applications of music for personal employ, promoting self-regulative skills for positive adjustment, which are culturally comparable between all tested societies. These studies support the general agreement of this review that music listening is most frequently used with a large range of goals and strategies for emotional regulation purposes.

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