Summary PhD study Teens R(h)apsody

Summary of main findings

This dissertation studied the effects of an age-appropriate music therapeutic intervention on the development of self-regulative skills of adolescents. The intervention, Rap&SingMT, aims 1) to enhance the well-being of adolescents, 2) to reduce their potential development of problem behaviours, and 3) to establish the power of music therapy in a non-clinical, educational setting. The main results are summarized and discussed below, followed by formulations of perspectives for future research.

In the Introduction, Chapter 1, we presented a study about adolescents and explored their emotional demands and needs, such as support for self-regulation and coping capacities. Despite a general familiarity with the leading global mental problems of young people – depression, suicide and violence – the majority of these problems go unrecognized. This illustrates the enormous costs of mental health, which are 10 times higher for people who develop antisocial behaviours in childhood than for those whose problems surface later in life. Hence adolescent burdens require adequate responses, such as offering early school intervention programmes and investing in quality of life to improve their well-being. Music therapy programmes can offer music as a motivating engagement strategy for effective self-regulation, with rewarding efforts. The results from our systematic literature review illustrate the difficulties of fully understanding the rewarding efforts of music (Uhlig, Jaschke, & Scherder, 2013). Music appears to have self-regulative capacities for youth, but there are only a few convincing studies. Adequate and generalizable applied music interventions of actively listening to, singing and playing music are mostly for children. Studies about the effects of music on emotion regulation commonly involve young persons, such as university students of middle-class social and economic backgrounds, who were mainly assessed after
they had listened to music privately. Representative samples of group music applications for youth at school with self-regulative purposes are rare or just newly developed (Tuned In programme).\(^1\) Similarly, preventive music therapy initiatives have recently been tested internationally on non-clinical and large educational settings. Due to the limited research the potential of music and music therapy in schools is rarely acknowledged as a valuable instrument for emotional regulation or as a natural health-promoting tool to increase or restore youths’ well-being.

Chapter 2 reports on a survey among music therapists mapping their experiences with a wide variety of applications of rapping and singing interventions for regulative purposes in clinical settings for youth. With these applications music therapists generally observed changes in three domains: emotional engagement, cognitive functioning and sense of self. Additionally, during the music therapy process young clients appeared to grow more aware of the substantive content of their treatments, for example because they constructed personal and meaningful song lyrics, hinting at improvements in personal, cognitive and social insights. These reported experiences suggest that engaging emotionally and vocally in the music-making process helps young people enhance their self-regulative skills. The results of the survey thus provide scope for the further professionalization of music therapy: clients may benefit from more refined techniques for rapping and singing interventions, and well-defined interventions and approaches may support music therapists enhance their methods. These findings motivated us to develop a specific rap-and-sing training and to encourage music therapists and students to use specialized methods for engagement in order to optimally benefit from the hypothesized effect.

\(^1\) The Tuned In programme shows promise as a brief emotion regulation intervention using music listening for adolescents; these findings extend to an earlier study with young adults (Dingle, Hodges, & Kunde, 2016).
To this end, a study protocol (Chapter 3) was developed to conduct a randomized controlled trial (RCT) for the rap-and-sing intervention labelled Rap&SingMT\(^2\) in large classroom settings, and to substantially contribute to insights on its application. In this chapter the operationalization of the musical concepts is explained, and the expectations for their effects on emotion regulation, executive functions and rest-activity rhythm (sleep) monitoring for well-being are formulated. The protocol elaborates on the main concepts of the intervention, i.e. rhythm, vocalization and verbalization, and the way in which they are embedded in the context of the therapeutic approach. Key to the intervention is that it allows the music therapist to explore the role of rhythm and speech (rhyming words) and melody in singing, and that together all offer the client the opportunity to express both joyful and uncomfortable feelings. In line with an approach from cognitive behavioural therapy and psycho-education, the intervention also facilitates coping through the identification of personal and peer themes, thereby promoting well-being. Apart from the data collection on variables for well-being (emotional, cognitive and sleep behaviour) in the formal RCT protocol, we also studied the lived experiences and reflective insights of music therapists and adolescents during Rap&SingMT. This latter phenomenological approach required data collection and qualitative interpretation of attitudes and values of music therapists (by way of a survey), as well as observed motivations and experiences of adolescents (by way of interviews and videos).

Chapter 4 reports on the results of the RCT protocol. The chapter presents the ‘overall benefits’ of psychological well-being of adolescents in emotion regulative subjects, which decline by a modest yet significant total problem score of SDQ and DERS on all

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\(^2\) The former name RMT (RapMusicTherapy) was changed into Rap&SingMT during the process of developing our study protocol. RMT gives rise to a potential misunderstanding because of its abbreviation for ‘Regulative Music Therapy’, which refers to a different method.
measures produced by teachers, parents and adolescents. Specifically, while there was an increase on these problem measures for the control group, Rap&SingMT yielded a significant different effect: on the SDQ scales a stabilization of emotional symptoms and hyperactivity/inattention, and on the DERS scale a stabilization of difficulty engaging in goal-directed behaviour when distressed. Other measures yielded no significant differences. In contrast to significantly higher problem scores in the control group as indicated by teacher measures and non-significant yet also higher problem scores by parent measures, the Rap&SingMT intervention group yielded a stabilization over time between pre- and post-measurements. Assessments of the positive self-perception scores (which do not focus on problems) of adolescents were non-significant in both groups. However, our adolescents expressed difficulties translating their personal – primarily pre-verbal musical experience – into verbal answers because, in their own words, the items included in this questionnaire were ‘not connected to the music’.

In Chapter 5 we studied the effect of Rap&SingMT for adolescents on measures of executive functions: inhibition, planning and working memory. The results revealed no significant effects on tasks, performed on iPads. One of the tasks (Stop-Signal test) suffered from technical problems, forcing us to partially exclude datapoints and thereby compromising sample sizes and power. Despite this lack of quantitative power, a qualitative video assessment of the intervention sessions allowed us to investigate executive functions from another angle. These video micro-analysis observations yielded a selected total of 76 minutes of relevant music moments (interactions between therapist and adolescent that were mainly in the musical domain) during our Rap&SingMT sessions. The analysis showed that those musical interactions – ongoing music without spoken words – took place for only a limited amount of time, with an average of 15 minutes per session. During these
Rap&SingMT interactions adolescents strongly engaged in e.g. rhythmic movements with increased rhythmic bodily activity. While involved in those musical moments, observations indicated heightened attention of adolescents with decreased distracting gestures and movements. Those observations give rise to the assumption that the entire group was engaged in the flow\textsuperscript{3} during the music process, which suggests a momentary and localized improvement of executive control.

Chapter 6 examined the effects of the Rap&SingMT intervention on sleep in normally developing adolescents. Using actigraphy to monitor rest-activity rhythm (indirect measure of sleep), our Rap&SingMT group did not yield significant improvements compared to the control group. In both groups the sleep variations of adolescents seemed to follow natural fluctuations between parameters (total sleep time, sleep efficiency, average length of sleep episodes, measures of wake behaviour, onset latency, snooze time, wake time percentage). The sample yielded generally healthy sleep efficiency of around 85\% of sleep per eight hours of sleep a night, and did not suffer from sleep disturbances. However, a decline in total sleep time over the experimental period of four months was lower in the Rap&SingMT group than in the control group. Whether this declined impact on sleep – in the context of a seasonal change from winter to summer – in the Rap&SingMT group could be related to the intervention experiences remains unclear.

Conclusion

This dissertation conducted a \textit{R(h)apsody} of creative, emotional, cognitive and social self-expression by using vocalization of rapping and singing, similarly to the different brain regions working together as one orchestra. Music affects and effects both structures, the left

\textsuperscript{3}‘Flow’ moments can lead to enhanced action awareness, improving momentary executive control, as is common during music performance (Chirico, Serino, Cipresso, Gaggioli, & Riva, 2015). ‘Flow’ in Rap describes all of the rhythmical and articulative features of a rapper’s delivery of the lyrics (Adams, 2009).
and right sides of the brain, as our adolescents produced a holistic composition of emotional self-regulation developing into a symphony. This composition is not only important for the adolescents but might help society as a whole, by acknowledging the expansion of the understanding of music’s potential within communities. Despite our limited results we encourage the application of music(therapy) integrated into daily school programmes, attuned to the emotional needs of adolescents, to stimulate and to assess the benefits of rhythm, rhyme, rap and singing for well-being in education and in therapy. More research is desired to further explore this potential in the regular school program.