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**MUSIC AND ITS BENEFITS ON THE MENTAL HEALTH OF YOUNG PEOPLE**

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## Contents

1. Introduction .....	3
2. Where can music take us? .....	4
2.1 Music and behaviour .....	4
2.2 Music and emotions .....	5
2.3 Music and personal and social development .....	7
3. Biological foundations of the effects of music on health .....	8
4. Music as therapy .....	12
4.1 What is music therapy? .....	12
4.2 Music therapy for children .....	13
4.2.1 The case of M. (Bunt, 1994) .....	13
4.2.2 The Hammersmith project (1978-80), The Islington/Haringey project (1980), and The Hackney project (1981) (Bunt, 1994) .....	16
4.3 Music therapy for adolescents .....	18
4.3.1 The case study of Ben (McFerran, 2009) .....	19
4.3.2 The case study of Jake (Cobbett, 2009) .....	20
5. Conclusion .....	24
6. References .....	26

## 1. Introduction

Having no need for translation, music is the language of all people. It takes hands, head, and heart to make music. (Ellys, 2005). As Stockhausen says, '*Music is the medium that touches human beings most deeply, capable of impelling the most delicate inner vibrations.*' As a form of art, it's a way of perceiving reality that goes beyond just emotional expression. We see and comprehend things we otherwise would not have understood via artistic endeavours and the appreciation of art (Podolsky, 1954).

The primary driving force for this paper is the ability of music to have an enduring and universal impact on how young people feel and think. Its effects have been researched and the results discovered were impressive. Music seemed to assist people with different issues overcome their circumstances and grow more resilient and confident. They described their music therapy as pleasant and delightful, providing them with a secure means of processing and communicating tough situations without having to rely just on words, which can feel intrusive or might not adequately convey the nature of their experience (Cobbett, 2009).

The present dissertation will attempt to present a comprehensive picture of the ways in which music affects young populations such as children and adolescents, considering research on its effects on a personal, social, and emotional level, the physiological underpinnings of this influence, and music therapy as a practical intervention therapy that employs music as its "magic wand."

The main research question that has been posed on the beginning of the resources analysis is whether music really has beneficial influences on the mental health of young people and if it so, under what condition? The basic theoretical premise of this dissertation is that, when tailored to the requirements and circumstances of children and adolescents, music and music therapy interventions can be utilized to treat them and facilitate the therapeutic process.

## 2. Where can music take us?

Music, as a daily part of our lives, influences us in different ways and aspects of our functioning. This means that it can affect us on cognitive, social, emotional, and even spiritual level, determining our behaviour, attitudes, views on life and society, etc. In this chapter, it will be presented the way in which this impact is practiced in everyday situations emphasizing the various ways in which it can be ‘reorganised’ to reach maximum benefit from it.

### 2.1 Music and behaviour

Although most of this paper will focus on benefits that music has on mental health of young people, it is necessary to discuss the damaging effect which certain types of popular music can have, to understand the importance of quality when referring to positive aspects of music.

On a study performed among 8–18-year-olds in the United States, it was found that 85% of youth listens to music daily, on an average of 1.5-2.5 hours (Roberts et al., 2005). It is important to add that the number of hours spent daily listening to music is even higher among at-risk youth, reaching 6.8 hours on average (Ward, Hansbrough, and Walker, 2005).

Analysing further the type of music these groups listen to, some surprising and concerning data was discovered. In fact, the following connections between negative emotional response, risky behaviour, and type of music, have been discovered:

- Heavy metal and some rock music listeners were found related to higher suicide risks (Martin, Clarke, and Pearce, 1993; Litman and Farberow, 1994; Scheel and Westefeld, 1999; Burge, Goldblat, and Lester, 2002; North and Hargreaves, 2006)
- Heavy metal audience was associated with higher depression rates, delinquent behaviours, conducts and smoking (Pedersen and Skrondal, 1999; Martin, Clarke, and Pearce, 1993; Arnett, 1991)
- Songs with sexual or misogynistic lyrics affected more negative attitudes towards women as well as increased aggressive responses (Roberts and Christensen, 1990; Fischer and Greitemeyer, 2006; St. Lawrence and Joyner, 1991)
- Music videos that contain sexual or violent content were related to formation of false stereotypes and bigger importance given to physical appearance by girls (Borzekowski, Robinson, and Killen, 2000), alcohol use (Robinson, Chen, and Killen,

1998; Strasburger, 2002), increased promiscuity (Wingood et al., 2003), and permissive sexual behaviours (Strouse, Buerkel-Rothfuss, and Long, 1995)

These findings suggest that adolescents' preferences for a particular genre of music may reflect their negative emotional states and ideologies, which are a direct result of the challenging circumstances to which they are exposed (especially those who are at risk), demonstrating that, in addition to the song's presentation style, the emotional reaction to music also depends on the listener's age as well as their experiences, preconceived ideas, and beliefs. ( Epstein, Pratto, and Skipper, 1990; Took and Weiss, 1994; Roberts et al., 1998; Gardstrom, 1999; Roberts, Henriksen, Christenson, 1999; Roberts, Christensen, 2001; Reddick and Beresin, 2002; North, and Hargreaves, 2006).

However, this data could be used by experts in order to: accentuate potential emotional conflicts of youth in early phases (Brown, Hendee, 1989), educate parents about importance of monitoring the content their children follow, especially in the most sensitive stages (Federal Trade Commission, 2000; Christenson, 1992; Federal Trade Commission, 2001), inform and impact music performers and music industry to serve as a positive role model and promote healthy material to the audience.

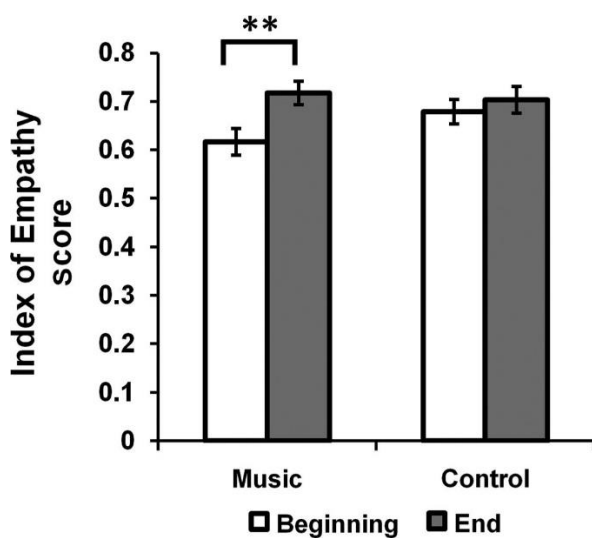
Additionally, the research that proved a decrease in aggressive behaviour and an increase in self-control after a music-based intervention (Ye et al., 2021) or enhanced helpful and cooperative behaviour in 4-year-olds after music-making activities (Kirschner and Tomasello, 2010) are just one of the many pros of how music can be used to promote prosocial behaviour.

## 2.2 Music and emotions

Even if science had not given any foundation to the world, the link between music and emotions wouldn't remain unseen. The way music lets people express themselves and feel a spectre of emotions, is the reason it can have such a powerful impact, especially on groups such as children and adolescents, who, while in the process of developing more abstract and complex use of language, may encounter difficulties when needing to express themselves only verbally. In fact, music can improve the advanced thinking abilities in children through tone, emotion and motion (Destiana, E, 2017). By lowering stress hormones, relaxing, distracting, calming, purifying the mind, and blocking the 'noise,' music can also bring a relief from anxiety and stress. Therefore, music is used among adolescents to reduce tension

and escape from everyday issues, allowing them to have better emotional regulation and deal with loneliness (Roberts, 2001; North, 2000).

One of the components of emotional intelligence to which a special focus should be given, considering its importance for the future prosocial and altruistic generations, is empathy. The ability to sympathise with another human being and their emotional state, as well as give a proper emotional response to them, seems to be better acquired and developed by children engaged in musical activities. In a study conducted by Rabinowitch, Cross, and Burnard (2012), children who were part of the musical group intervention (MGI) programme for one year showed significantly higher emotional empathy than the control group.



*Figure 1.1 Index of Empathy for children who were part of the musical group intervention programme and for the control group (Rabinowitch, Cross, and Burnard, 2012)*

An advantage of this study is that the MGI programme was designed to stimulate interaction and creativity through musical tasks, therefore stimulating indirectly the process of empathising. Various components of MGI, called empathy-promoting musical components, tried to increase empathy using these musical activities, hypothesizing that this programme could promote empathy among children outside of musical context as well. In fact, the empathy-promoting musical components include some cognitive processes such as motor resonance (Langer, 1953; Scruton, 1997; Webb, 2003), imitation (Frith and Frith, 2006), and entrainment (synchronisation) (Clayton, Sager, and Will, 2004) which can result in shared intentionality and intersubjectivity during communication within a musical interaction. All this dynamic together can lead to shared and synchronised object of attention (Tomasello et al., 2005), cognitive and affective processes (Trevarthen and Aitken, 2001), which are remarkably close to the processes of empathy itself.

### 2.3 Music and personal and social development

Harland et al. (2000) found that the strongest influence within school on personal and social development has engagement in arts. Among 9–17-year-olds, playing an instrument enhanced feeling of achievement, self-esteem and eased the way of expressing emotions (Tolfree and Hallam, in preparation). Moreover, increasing the amount of music within the classroom resulted in higher social cohesion among pupils, self-reliance, positive attitudes and social adjustment, especially among unsatisfied students with lower abilities (Spychiger et al., 1993). To some of them, learning to play another instrument gave the satisfaction of learning something new and developing an extra skill, while others had benefits from therapeutical aspects of music by feeling more relaxed when interacting with others and less pressured on their performance outcome (Harland et al., 2000). In two studies by Brown (1980), music participation within a school band resulted in a development of a variety of skills such as discipline, creativity, teamwork, self-efficacy, cooperation, sense of belonging, responsibility, self-expression, etc. Adding to the sense of belonging, character building and personality (Brown, 1980), music engagement can aid the personal identity formation (Sward, 1989), as well as group identity and integration within the youth group (Chapman and Williams, 1976; Rosenblum et al., 1999). Music stimulates social bonding much faster than other social activities (Pearce, Launay, Dunbar, 2015) since it has impact on social behaviours and oxytocin levels (Kreutz, 2014; Weinstein et al., 2016; Fancourt, et al., 2016). In a study conducted by Clift and Hancox (2001), among members of a college choir, 87% claimed to have felt social benefits of music through meeting new people, 75% felt emotional gains by feeling more positive and 49% felt spiritually uplifted. However, although all this research suggest the various positive effects of music, other variables must be considered to understand this correlation between music and personal and social development. Active music participation or exposure to music needs to be accompanied with quality of teaching music, will of the students to participate voluntarily in these activities, match between personal music preference and exposed music types, personal perception of success (Hallam, 2010), as well as parents' consciousness about their child's emotional and behavioural conditions, when choosing an instrument (Destiana, 2017).

### 3. Biological foundations of the effects of music on health

The musical experience is perhaps the richest human emotional, sensorimotor and cognitive experience. It involves hearing, observing, feeling, moving, coordinating, remembering, and anticipating. It is often accompanied by deep feelings of joy, happiness, bittersweet sadness, or culminating in an overwhelming climactic experience expressed as physical reactions such as tears in the eyes or trembling in the back. Numerous brain regions in different areas contribute to this musical experience (Tramo, 2001; Altenmüller and McPherson, 2007). A combined sensory impression which is characteristic for a musical experience is located in the parietal lobe and temporo-occipital regions where a variety of inputs from the ears, eyes and touch integrate forming a sensory impression, while a wider network such as the two frontal lobes, the cingulate gyrus, amygdala, hippocampus, and midbrain oversee the emotional experience of music and individual motivation for engaging in a musical activity (Altenmüller and Schlaug, 2012). Since brain can adapt to the requirements of the environment, it seems that this adaptation, specifically the one induced by music, may have positive effects on overall wellbeing, affect neurohormonal status, cognitive, and emotional functions in healthy and diseased people, and aid in the improvement of various sensory, motor coordination, or emotional disabilities. When compared to non-musicians and amateurs, the brain anatomy of professional musicians seemed significantly different. Gaser and Schlaug (2003) were able to show increased grey matter density in the cerebellum, left dorsolateral prefrontal cortex, auditory regions (like Heschl's gyrus), and cortical sensory-motor regions (like precentral gyrus and right superior parietal cortex). These differences can be seen in Figure 1 where the authors specifically selected three different regions and observed the differences in the left precentral gyrus (PrecG L), left Heschl's gyrus (HG L), and right superior parietal cortex (SPC R).

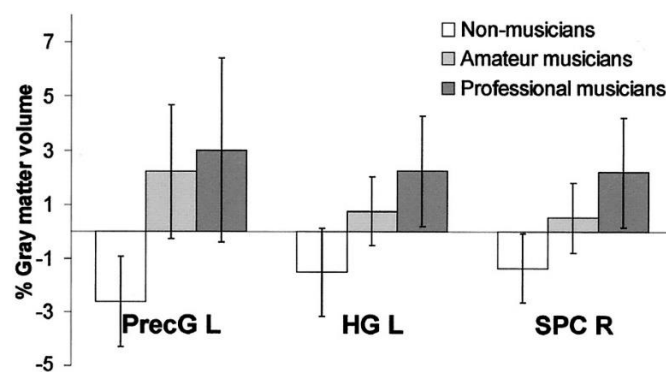
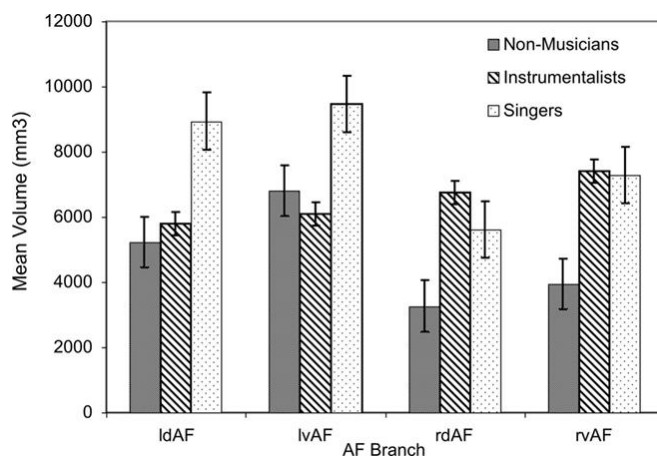


Figure 2.1: Relative variations in grey matter volume among musicians of various levels of expertise, as well as non-musicians, in three focused regions. (Gaser and Schlaug, 2003)



However, this change was only observed in those who started practicing music after the age of seven, while in those who started earlier these brain adaptations weren't present. They did appear to have an "early optimized network," though, which allows them to accomplish motor tasks better without having to use larger anatomical components (Steele et al., 2013; Vaquero et al., 2014).

White matter didn't remain intact either, since differences in both macrostructure and microstructure of the arcuate fasciculus were found between non musicians, singers and instrumentalists. This distinctive white-matter tract that connects the temporal and frontal lobes of the brain, seemed to be bigger in volume in the right dorsal and ventral areas in both categories of musicians in comparison to non-musicians, as it can be seen in Figure 1.2. (Halwani et al., 2011). However, only singers showed a higher tract volume and distinct microstructures on the left side when compared with the other two groups.



*Figure 2.2: Mean volume in both hemispheres for all groups for all arcuate fasciculus branches. L=left, R=right, D=dorsal, V=ventral (Halwani et al., 2011)*

This suggests that years of vocal training correlated with arcuate fasciculus's left dorsal branch's microstructural characteristics, may not only result in an increase in volume but also in the microstructural complexity of white-matter tracts that make up the so-called aural-oral loop, interconnecting the areas which are crucial for sound perception, production, and its feed-forward and feedback control. Therefore, the left-hemisphere arcuate fasciculus shows a stronger response to the specialized parts of vocal-motor training and control that singers participate in, whereas the right-hemisphere arcuate fasciculus may exhibit a more general influence of music creating.

Adapting to the need of coordination between two hands and quick exchange of information,

the corpus callosum resulted in major size among musicians in comparison to non-musicians. (Hyde et al., 2009). This may occur either through the stimulation of the growth of the nerve fibre by promoting the myelination, which affects the speed of nerve conduction, or through prevention of the natural loss of nerve tissue during the typical adolescent or aging pruning processes.

Numerous physiological changes in the body are known to occur as a result of listening to music, such as those in heart rate, breathing, blood pressure, skin conductivity, skin temperature, muscle tension, and biochemical reactions (Hodges, 2010; Kreutz et al., 2012). The therapeutical effect of music on the hormonal status have attracted a lot of curiosity from scientists. By encouraging the release of stress-relieving peptide hormones like interleukin-1 (Bartlett et al., 1993) or by limiting the release of stress-related hormones like cortisol (Tanioka et al., 1987) and peptide antibodies like immunoglobulin A (Tsao et al., 1991; Kreutz et al. 2004), research has discovered that musical experiences associated with imagery boost the immune system. Additionally, the use of music in medical settings has shown tremendous success in lowering patient's pain, accelerating recovery, and using up to 50% less medication (Spintge and Droh, 1992).

Music affects the release of neurotransmitters in the brain as well, specifically serotonin and dopamine. Serotonin levels were significantly greater when subjects were exposed to music they felt pleasing in a study of the neurochemical reactions to pleasant and unpleasant music (Evers and Suhr, 2000). In a different study with participants exposed to pleasant music, a network of mesolimbic structures involved in reward processing, including the dopaminergic nucleus accumbens and the ventral tegmental area, as well as the hypothalamus and insula, were found to be strongly modulated by listening to music. This network is thought to control physiological and autonomic reactions to rewarding and emotional inputs (Menon and Levitin, 2005). Additionally, another study suggests that the striatal system can release dopamine in response to music that causes intense pleasure, indicating that the sole anticipation of an abstract reward can cause the release of dopamine in a different physical circuit than the pathway connected to the actual peak pleasure, which is within the mesolimbic structure (Salimpoor et al., 2011). Dopaminergic activation will aid in the recall of auditory stimuli evoking such potent emotional responses since it controls and enhances arousal, motivates behaviours, and facilitates memory formation (Karabanov et al., 2010).

Cortical rearrangement can occur after prolonged active music engagement. The way the brain processes information may change functionally as a result of this. If this happens

early in development, the modifications to the brain's wiring may become permanent and affect how information is processed forever ( Schlaug, et al., 1995a, 1995b). It takes time for the brain to permanently and significantly reorganize its structure, and the alterations that result are also unique to the particular musical learning that was undertaken (Munte et al., 2003). For example, string players process pitch with longer surveillance and more frontally distributed event-related brain potentials attention, and they also have more somatosensory representations of finger activity compared to non-musicians (Pantev et al., 2003), whereas drummers produce more complicated memory traces of the temporal organization of musical sequences and conductors exhibit stronger auditory space surveillance (Munte et al., 2003).

It is obvious that the brain changes in very specific ways in response to different learning activities, and the degree of change depends on how much time is spent learning. Therefore, the degree to which transfer can take place to other areas will depend on the level and type of musical engagement (Hallam, 2010).

## 4. Music as therapy

All the benefits of music indicated in the previous chapters are a clear indicator that music should be used as a method of treatment. This applies especially for younger ages considering its impact on the brain plasticity (Altenmüller and Schlaug, 2012). Considering that the brain's ability to change in response to experiences decreases over time and the amount of effort needed for a change to occur grows (Fox, Levitt, and Nelson, 2010), this chapter will focus particularly on interventions done with children and adolescents, using music as a treatment tool.

### 4.1 What is music therapy?

The oldest art form connected to healing the unwell is music. The oldest written accounts of the use of music to affect the human body date back to 1500 BC in Egyptian medical papyri (Benenson, 1981). However, the Greeks made a significant effort and laid the foundation by using music in a systematic manner as a preventative or therapeutic measure that could and should be monitored, as its effects on a person's physical and mental state were predictable (Alvin, 1975). The expanding use of music as a unique and essentially human act of expression—which, in the early days of opera, was interchangeable with speech itself—was relevant to the development of music therapy. As a less indiscriminate approach to the use of music in medicine emerged, the physiological impacts of music started to be documented (Alvin, 1975). With a group of research that examined the physiological reactions to music and development of behaviour therapies, music therapy started being widely accepted and applied in the USA as a science of behaviour between 1950s and 1970s. Further work focused more on the cognitive approach and the mother-infant relationship, setting the ground for development of music therapy with children. (Bunt, 1994)

The following definition is the result of Music Therapy's continued development and construction on the underlying mechanisms of current psychological theories and other treatment philosophies, establishing itself as a distinct discipline:

“ Music therapy provides a framework in which a mutual relationship is set up between client and therapist. The growing relationship enables changes to occur, both in the conditions of the client and in the form that the therapy takes. By using music creatively in a clinical setting, the therapist seeks to establish an interaction, a shared musical experience leading to the pursuit of therapeutic goals.” (The Association of Professional Music

Therapists, 1990)

Due to the complexity of official definitions, Leslie Bunt (1994) summarised them, emphasising the most important aspects of this treatment:

“ Music therapy is the use of sounds and music within an evolving relationship between client and therapist to support and encourage physical, mental, social and emotional well-being.”

She also highlighted the fact that the relational aim of music therapists is to connect with another person through music. Bruscia (1989) finds music therapy to be click between art, science and an interpersonal dynamic: “ *As an art, it is concerned with subjectivity, individuality, creativity and beauty. As a science it is concerned with objectivity, collectivity, replicability and truth. As an interpersonal process it is concerned with empathy, intimacy, communication, reciprocal influence and role relationships.*”

All these definitions and evolution of music therapy are a proof of how long music has been among humans, guiding and alleviating the hardships and beautifying the life itself.

## 4.2 Music therapy for children

Early interventions music therapy are numerous, and research has been done with children with different family backgrounds and problems such as learning, language, social, relational difficulties, etc. In order to have a clear picture of how the process of music therapy occurs in everyday practice, a case study and main points of three research projects will be described.

### 4.2.1 The case of M. (Bunt, 1994)

M. was a three-year-old sent to music therapy due to difficulties with his expressive speaking, sporadic interactions with adults and other children, and a growing feeling of social isolation. Up to 24<sup>th</sup> month of his life, M. had a hearing problem, after whose diagnosis a surgical intervention occurred that improved his state. However, M.'s speech was modest, quick, and lacked distinguishing distinction even after the operation. He would substitute other sounds for those he couldn't hear. When he was not understood, he grew agitated and disappointed, which made him withdraw even more and isolate himself. The first music lessons amply displayed the image of M. that his mother, the speech therapist, and others had described and seen on the initial visit. M. appeared more interested in the instruments' manufacturing process than in their ability to produce sound, only briefly interacting with any

of the instruments. He walked right by his mother and the therapist in the room, making little to no sustained eye contact. He didn't seem to be particularly aware of their presence. During the first sessions, the musical interaction could only take place with his own initiation, since immediate distancing would occur if he felt being pressured to engage by anyone else. First signs of openness happened during the improvisation of therapist to engage in music creation when M. self-initially started playing with what seemed to be his favourite instrument, glockenspiel. After his attention was drawn by created music which accompanied the therapist singing his name as well, the therapist transcribed their creation transforming it to M.'s music and setting the base of trust between them. Giving him both physical and musical space, not putting pressure on him to play and forcing the other types of communication, beside the verbal one, M. started feeling more comfortable, engaging slowly in musical games with instruments such as piano and drums. It seems that one of the most significant factors here was correct following of the spontaneous initiation of the child's ideas. Therefore, once he felt comfortable to initiate the musical activity, the proceedings were further guided by his preferences and actions, letting the expectations in a musical form build up and cause curiosity and interest.

After he felt more comfortable and showed small signs of trust to the therapist, it was time to start with activities that will work on his relational problems. The first phase consisted of predictable and safe activities with focus on non-verbal aspects. M. created structures employing a range of instruments, such as alternating on drum and cymbal and building up imitative and turn-taking sequences on drum, cymbal, and xylophone, as a result of his apparent joy in anticipating musical patterns and sequences. With greater control and resulting confidence, he started to experiment with the musical contrasts of fast/slow and soft/loud. M. was able to maintain his focus for longer and longer periods of time thanks to all this practice. As a result, he started to accept more playful and turn-taking musical concept exchanges. These exchanges seemed to continue into the following week in some cases and they developed a rhythmic interchange of brief phrases with one, two, and three beats that was alternately soft and loud.

M. was showing a highly innovative, creative, and shrewd use of the instruments as he became more absorbed in the song. Suddenly, he started to resist some of this contact as they entered the fourth and fifth months of sessions. Despite a developing sense of assurance and faith in the music, there still seemed to be an issue with getting too immersed. They went back to less demanding and combative musical exercises with more side-by-side playing on the tuned percussion instruments after very challenging sessions. This seemed to have lessen

some of the distress, and it served as a period of consolidation prior to a fresh work phase. The next step was his sessions with another girl and her music therapist in order to test the transfer of what was experienced alone with his therapist and work more on his social awareness. Although initially he was interested to participate only in those activities he had decided upon and on his own terms, he eventually showed some consideration for the other child's needs and reacted well to the adults' more direct style. After group sessions and a short break, he went back to individual work. This work period's primary goal was to firmly create this mutual sharing in each individual activity. Improvised music and more explicitly scheduled music and activities were balanced out. His playing grew more sensitive and adaptable as he became more conscious of variations in volume, mood, and speed. He also developed a more sophisticated understanding of phrase lengths, pauses, and melodic and rhythmic form. The best example of this was a prolonged interchange at the keyboard during which there was complete mutual interplay of musical ideas, demonstrating enormous flexibility to the rhythmic and melodic patterns. Such dialogue was freed of the anxiety and loneliness that had characterized their beginning.

Close to the age of turning four, he brought his toy cats to the session to show them to his therapist. They served as a source of a song that was created afterwards and that was extending week after week, introducing new characters, places and events. The therapist gave M. freedom to decide about further development of the events in the song and instruments that he finds fitting for the next verse, and she would come back with a song. In this way, M. developed a memory for a long string of musical occurrences, displaying an almost phenomenal capacity for remembering the song's specifics and anticipate the next action. This song gave him plenty of opportunities for spontaneous conversation while also assisting him in giving the instruments a more meaningful and occasionally symbolic significance. Although his speech was still occasionally hazy and tended to be quick and low, he was now able to piece together rather complicated phrases.

Following this, M. started going to the nursery more frequently, and this was thought to be the most important step in ensuring as much contact with other kids as possible. His preparation for attending elementary school marked the culmination of the final working period. With this harmony of composed and improvisational music, the task went on. With M. being able to forecast the time and date of the next session with accuracy, a new watch song was written to capitalize on M.'s growing interest in the present, past, and future of time. He continued to utilize the same format over the ensuing weeks, occasionally opting for a low-key conclusion and other times appearing to have trouble really terminating the session.

He appeared to be figuring out how to end the work and their relationship naturally. In fact, the latter two sessions were joyful and included a look back at all their favourite content. It is obvious that music therapy had been a medium where M. had been able to build a certain amount of positive self-achievement, even though there were still some communication and socialization issues. He was able to gain knowledge of several non-verbal coping mechanisms that he could apply outside of the sessions. Although there are obvious normal developmental factors and outside influences, such as the nursery school, to take into consideration, his speech had developed over the course of the intervention, and it does seem possible that more organization and clarity in his musical expression may have contributed to this development. Later, in his secondary school, he was very successful academically and, although still with some socialising difficulties, his early contact with music resulted in interest in writing.

This intervention program's limitation is the absence of any formalized method of measuring change that occurs. Therefore, it is necessary to construct metrics for tracking behavioural improvements in children receiving music therapy.

#### 4.2.2 The Hammersmith project (1978-80), The Islington/Haringey project (1980), and The Hackney project (1981) (Bunt, 1994)

Between 1978 and 1985, a number of interconnected studies were carried out in order to satisfy the demand to develop easier and more effective methods of describing interactive music therapy with young children who had a variety of disabilities and issues.

The Hammersmith project was an intervention study that examined the value of music therapy for kids with learning challenges in the South Hammersmith neighbourhood of London. The researchers were able to identify some of the areas where music therapy looked to be successful by compiling observations of children receiving music therapy. Two research plans were developed: one to evaluate the advantages of music therapy for the kids who were sent to the project, and the other to find out how the personnel involved felt about the intervention. Although the results can be criticized due to the use of retrospective questionnaires, absence of use of any systematic controls, and the sheer volume of questions that were asked, music therapy was recognised as a powerful and needed asset when working with children with difficulties. This project also offered a wealth of data that was used as a subject of the next research.



The Islington/Haringey project wanted to specify and record the changes caused by music therapy intervention and make sure that these changes aren't just an outcome of normal child's development. Eighteen pre-schoolers with a variety of issues were divided into two groups, with comparable spectrum of issues in each group. In this standard cross-over research design, each group experienced a period of twelve weekly individual sessions and an equivalent period without music therapy, with the kids serving as their own control groups. Throughout the study, each child was recorded with the music therapist at key moments. The results showed that more time was spent with the instruments after the music therapy intervention and that especially drums and maracas got the most attention and interest from children stimulating them to engage more in the musical activities. It seems that making music and being around music encouraged spontaneous vocalization. This change may be strongly tied to the development of trust between the child and therapist, as it was in the playing measure, since the child feels more at ease exploring vocal sounds with the therapist. The results of the vocalization process support the use of music therapy as a support and stimulus for spontaneous vocalization when working nonverbally. There are obvious similarities with the following aspects of nonverbal behaviour: the start and stop of sounds, intonation, turn-taking, mimicry, initiation, duration of sounds, number of sounds, timing, and phrasing. A child's development in vocal activity can greatly benefit from music therapy, which can, when necessary, be linked with speech treatment. Additionally, music therapy seems to be able to reduce looking away while focusing attention on the instrument and the adult therapist.

When watched and analysed within sessions and contrasted to a period of normal development without music therapy, it does seem that music therapy appears to have a marked effect on the wide range of developmental behaviours. The time-based metrics, however, were relatively simple and intentionally chosen because of observations made by other observers. The outcomes of this project also showed that a longer intervention period was required to determine whether any of the observed behavioural improvements could be maintained. Another limitation of this project is that it didn't focus on one or more of the internal processes that many therapists believe to be the core of music therapy.

The Hackney project was designed in one special school in Hackney, and it hypothesized that developmental play and music therapy could share some characteristics, and that these comparisons might also reveal other characteristics unique to music therapy. A prolonged intervention lasting three academic terms would also make it possible to take

greater note of any fall-off effect that was shown during the earlier, shorter intervention phase. It might also be able to start looking at the challenging issue of generalization from any improvements using the three conditions of music treatment, no music therapy, and individual play. The same time-based and filming measures were used as in the previous project. It is evident from the results of this experiment that music therapy can affect improvements in a wide variety of behaviours, despite the developmental changes over a longer time of involvement. While some of these changes resemble playtime patterns, others—like vocalizations and turn-taking—appear to be more unique to music therapy. However, further work is necessary for developmentally based music therapists to undertake even longer projects, with a follow-up six to twelve months later to determine whether any behavioural changes were sustained and served as the foundation for further behavioural adjustments.

Any meticulous attempt to relate specific goals to revealed outcomes was absent from all three projects. Information was provided by the Hammersmith study in the form of specific questionnaire results, where a lot of important data is left out due to the examination of group-based patterns. More single-case studies with carefully crafted baseline measurements and questions could be one suitable paradigm. The issue with the general type of research described in this chapter is the simplification of a very complicated stream of events and information.

These three interconnected projects did make it very evident, however, that music therapy has a unique place in pediatric health. To comprehend some of the processes, the knowledge of how children use music as they grow can serve as a good reference. The three projects also showed potential connections with early child development processes. These connections can help provide music therapy an intellectual foundation and support its growing validity as a paramedical discipline offering a coherent service for kids with all kinds of issues and difficulties.

### 4.3 Music therapy for adolescents

The amount and quality of information that an individual intervention can offer is valuable. Although it can't have the same validity as group research, the individual intervention can provide a very detailed description of the single process, focusing on the real-life stories, interventions and their outcomes. One of the reasons why this may be the

case is that statistical analysis of the data can 'cut' some significant impacts of the intervention, if it doesn't result as effective for the majority of the group participants. Music therapy can be successful in both contexts, although it seems that the combination of both individual as well as group activities might be the best, since adaptation to the patient and his/her needs is required in the beginning of the process, while later participation, out of the therapist-patient context, might be beneficial to examine the level of transfer that occurred or to improve social skills of the patient through interaction with others. In this part of the paper, focus will be given to one mixed and one individual (in-school) intervention of music therapy with adolescents.

#### 4.3.1 The case study of Ben (McFerran, 2009)

Ben is a 12-year-old boy diagnosed with ADHD in his first year of school, and mild intellectual disability (IQ score equals to 65) that occurred one year after his diagnosis, due to the medication he was taking. Since he stopped taking his medication after its influence on his school performance, the behaviour in the classroom was described as aggressive and he was consulted with music therapy treatment. He was transferred to a special school, started taking his medications again and going to weekly music therapy sessions. For the first 5 months, sessions were individual, after which another student was introduced.

Song writing, improvisation, song singing, and working toward the performance of a song written by Ben for the school were some of the music therapy techniques used. The sessions' original objectives centred on giving Ben options for control and choice as well as encouraging active creative interaction that represented genuine self-expression. In response to the overwhelmingly good experiences that occurred during sessions, more ambitious goals were then established that centred on extending the qualities displayed during sessions into behaviour outside of music therapy, particularly in the classroom and schoolyard. At this point, another ADHD-diagnosed kid, who had been attending individual counselling, was invited to join Ben in music therapy. This inclusion was made with the intention of raising the session's social demands and putting more emphasis on interactions with peers their own age than with therapeutically inclined adults.

By giving him engaging creative chances, the music therapist worked to highlight the young man's strengths. Ben found that the music therapy process gave him the ability to express himself and exert control over intrapersonal and interpersonal behaviour. Ben used imagination to help him feel powerful as he eagerly showed himself as competent by identifying as a musician and creating music. By the end of the sessions, this adolescent was

able to: inhibit task-irrelevant responses so that he could concentrate on playing the drums and singing; carry out goal-directed responses and show dedication in asking others to play in ways that would achieve his desired results for the performance of songs he had composed himself; carry out complex motor sequences in playing the drums (in a non-traditional manner); and show sensitivity to response feedback when others were playing with him.

Although music sessions resulted mainly in the changes in observed behaviour of Ben, the main focus of the intervention was to guide towards creative expression and empowerment, since the research of the behavioural treatment of patients with ADHD has been outdated claiming it to be useless once it's not practiced regularly (Barkley, 2007). The requirement for individually tailored, diversified solutions for enhancing psychosocial results is highlighted by the fact that behavioural treatment alone does not improve treatment outcomes (Greene and Ablon, 2001).

This case study implies that a sense of control combined with artistic expression may help the development of executive skills like inhibition in the quest for mediators and moderators of ADHD. Young people's irritation and sense of helplessness in regulated environments may even be a factor in how poorly they perform in these commonplace circumstances. Perhaps, instead of focusing on the externally observed 'problematic' behaviours and how to control them (Armstrong, 1998), importance should be given in understanding the moments of top performance of the patients diagnosed with ADHD.

#### 4.3.2 The case study of Jake (Cobbett, 2009)

Jack is a fifteen-year-old boy, attending secondary school for students with social, emotional, and behavioural difficulties. Coming from a very difficult background, with a mother who is a crack addict, with mental health issues and without a father, he was abused and neglected while growing up which resulted in expressing aggressive and violent behaviours, crime involvement, marijuana consumption and self-harming. He was also instructed to go to Child and Adolescent Mental Health Services for psychotherapy sessions, but he wasn't interested in participating. During his first music therapy session he expressed his interest in grime and rap music, and singing about someone's life in general, as well as his need to talk to someone when emotions arise, and he finds himself in difficult situations. When attempted to create music or play a musical instrument, he demonstrated insecurities and laughed at himself. However, it seems that music making on computer using a FL Studio sequencing software, gave a better result since he managed to create a beat he was satisfied

with, although this also happened after a lot of encouraging from the therapist. During the following sessions, he talked a lot with the therapist and continued with computer music making, becoming more confident and creative. He was combining the strong and fast grime beats, with softer and, how he referred to them, sad sounds, seemingly displaying his other, more gentle side through music, although he was showing himself always as tough. He also wanted to learn playing the piano, so he actively engaged in learning 'Für Elise' while relying on his therapist to help him during the moments of anxiety and anger that occurred when he made mistakes. After some weeks, the outcome was great as he added his own touch to the melody, and he felt very proud at himself. When assessment of the therapy happened after six weeks, he decided to continue with the treatment as he felt it was helping him a lot to express himself.

An idea of his therapist to write a rap song, which he assumed would help him express some suppressed emotions of various life experiences, eventually was put in action. He was thrilled with how his voice sounded via the microphone, claiming it was deeper than he had imagined, and was able to successfully play it in front of the therapist to an instrumental background track. Although there seemed to be some artifice in the lyrics, his therapist thought there was also a connection to his experiences of violence, both in his family and on the streets. The lyrics were typical of the posturing gangster rap lyrics that many of the guys he works with produce. According to Osofsky et al (1993), children who have been exposed to violence "act tough" to get away from uncomfortable emotions and "untrustworthy" individuals, and he assumed that Jake did the same. Together, they discussed his song and the pressures on the streets that led young people to use violence and how difficult that must have been.

He continued writing more lyrics, expressing rage, love, aggression, fear, hope, assistance, and humour. One day, after he had a fight with his sister, he came very upset showing marks on his wrists that happened when he lost control over his emotions and tried to harm himself. He created the song's lyrics as a chat with a friend, but the therapist saw it as a metaphor for a dialogue he was having with various aspects of himself. Their relationship was based on trust and honesty, and this helped Jake a lot to open up about his own experiences, wanting also to know about his therapist's life and points of view on certain topics. This gave him an opportunity to get an insight in someone else's views on life, that varied significantly from his own, to have a male role model that could serve as a positive example, and to release the tension he felt about different experiences in his life and the role he was playing in the society.

Jake was progressing a lot with a better control over his anger and showed more confidence, although there were still serious worries regarding his interactions with his sister and his ongoing criminal activity. Things reached a breaking point when, following a fight, he overdosed at his sister's apartment and wound up in the hospital. He was unable to discuss the events leading up to the overdose in the session that followed, but he was able to pen another song that captured some of his perplexity as well as some of his hopes for the future:

*When the pressure's building up inside your mind  
Think about life cos you're not so blind  
When you're confused in your mind, beat the hard times  
Everyone gets stressed, everyone gets depressed  
Think about where you're going in this life  
You might wanna have kids, you might wanna have a wife  
As I said you gotta think about your life  
Life's too soon, don't wish your life away  
Cos if you wish it too soon you might pass away  
You must have dreams there's no need to betray  
One more year - it's your birthday*

In one of their sessions afterwards, before start of his summer break, he wrote a song in which he described traumatic events from his childhood such as his mother's drug abuse as well as drug distribution, and the emotions of anger and disappointment he felt for her, that followed these experiences.

Up to six months of his staying in the hospital, no more attempts of overdose occurred. In this period Cobbett (2009) published his article, so following outcomes aren't familiar. This is unfortunately limiting our understanding of the further proceedings and the longitudinal impact of the musical treatment provided. However, Jake seemed to be getting on a good path, although this requires a lot of patience, since in situations like his, change takes a lot of work and time to repair the damage made during the first years of life. It was impressive the level of trust he had in his therapist which he demonstrated in sharing such difficult life stories and performing all his songs in front of him, considering that he was reluctant to do this in the first sessions. He managed to get completely immersed in music and to create a piece of art out of the traumatic experiences he lived through.

Locating his therapy sessions in school influenced his attendance rate, enabling him to work

in a more comfortable and familiar space as well as easier communication between the school staff and the therapist creating more understanding for his situation. Giving him space and showing curiosity about his culture, music culture, their differences, adapting to his style of communication, as well as consulting his wishes with modalities to proceed, created an optimal working environment. Rap music technology and its application as a music therapy practice were helpful in getting him involved, finding the tools he needed to express himself, and exploring alternative options. Cobbett has discovered that most of the young people he deals with share this characteristic, and he hypothesizes that other client groups, such as offenders, substance abusers, and adolescents and young adults in psychiatric settings, could benefit from using similar media.

## 5 Conclusion

Building trust and relationships with individuals, offering a place for musical expression, and reflecting on this in the context of what the person feels is relevant and needed at that particular time, are at the heart of the role of music therapists, whether music therapy is provided in a mental health facility or in a community setting (Carr, Odell-Miller, & Priebe, 2012; Carr, 2014). The connection to music gives users the chance to reflect on their relationships with others, identify coping mechanisms for their discomfort, and express feelings that are sometimes difficult to put into words (McCaffrey, 2018).

The main research question seems to be answered in an affirmative way, meaning that, based on the gathered data of a variety of studies conducted over time, music has proven to have positive effect on the mental health of young people. Previously described interventions can also demonstrate that the music therapy treatment can aid the expression of delicate topics as well as create a comfortable atmosphere for the patient. However, this only occurs in a well-planned intervention, adjusted to the needs and the background of the person. For example, allowing Jake to bring his cultural identity to the sessions, create music based on his musical taste and being flexible during the whole treatment allowed him to engage in the therapy process. If this have been limited only to the option of playing a specific musical instrument, perhaps no interest would be shown, and the music therapy would be considered unsuccessful. Therefore, it's crucial to remember that in order to fully utilize the benefits of music therapy, specific academic and clinical training as well as the careful selection of intervention strategies that meet the needs of the client are vital. To ascertain which music-based interventions, such as music therapy and music medicine, are most effective for which individuals and under what conditions, further in-depth study is still required (Stegemann et al., 2019). However, although applied and proven to be helpful in a wide range of sectors, music therapy and other music-based interventions do not always work for everyone at all times. They seem to perform best when used in conjunction with other forms of therapy and within a multimodal therapeutic approach.

Overall, the purpose of this dissertation was to highlight the ways in which we can interact with young people who are experiencing a variety of issues in a way that would make it enjoyable for them and set the stage for a stable future. Treatments like music therapy may be able to replace those that subject kids to traumatic events or use chemical agents like drugs to upset the chemical balance of their bodies. Music interventions can be a much softer, yet



effective, tool for treating a variety of challenges and preventing potential future growth of the problem if they are tailored to them appropriately and if they are exposed at the right moment. Referring to the third chapter's discussion of brain development, it is evident that building strong brain circuits early in life is easier and less expensive than attempting to "fix" them later.

Being available to everyone and without requiring any materialistic substitute, music should serve as a valuable treatment tool all around the world, providing relief, peace, distraction, coping mechanism or a form of expression. If designed with sensibility and adapted to its audience, it could impact implicitly formation of healthier and positive values and attitudes in the society, forming a new movement or 'revolution' that could reset the present situation and put it on a more stable stand.

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