

University of Groningen

Music therapy for children with Autism Spectrum Disorder

Pater, Mathieu

DOI:
[10.33612/diss.202791160](https://doi.org/10.33612/diss.202791160)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2022

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Pater, M. (2022). *Music therapy for children with Autism Spectrum Disorder: development and first evaluation of the Papageno Music Therapy Program*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. <https://doi.org/10.33612/diss.202791160>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Summary

The development and first evaluation of the Papageno Music Therapy Program (PMTP).

Introduction

This dissertation aims to investigate whether or not the provision of music therapy can be associated with a positive improvement in the development of the social behavior of children with ASD.

Autism

An Autism Spectrum Disorder (ASD) is a developmental disorder characterized by deficits in social interaction and/or the presence of restricted, repetitive behaviors. ASD appears to be highly heritable; its expression is determined in part by its combination with environmental factors. An ASD diagnosis has significant direct and indirect social consequences that extend across many different areas, including health care, education, social care, housing, employment, social services, and labor market.

In the Netherlands, no research has been conducted to date on the number of registered ASD diagnoses but in a 2018 health survey by the Central Bureau of Statistics, 3 percent of parents with children aged 4 to 12 years indicated ASD, which amounts to approximately 43 thousand children.

ASD, social interaction and communication

The problem in social communication and interaction is often the most prominent feature in ASD. Children with ASD engage in significantly fewer social interactions with peers than children with 'normal' development. This has major implications for them when it comes to building and maintaining relationship or when interaction is expected. As a result, they often develop fewer friendships.

When the child does manage to engage in social contact, there is often an increased level of stress and uncertainty. It is then no longer possible to respond in a deliberate and conscious manner. A problem that is strongly associated with difficulty with social interaction is communication. This is not just about communication in the form of spoken words, it can also involve gestures or facial expressions. For children with ASD, this social communication is often difficult to understand which makes their ability to interact difficult. As a result, they sometimes lack the interest and motivation to socially interact with others.

Music therapy

Music therapy is a form of treatment that is used regularly in the Netherlands for children and adolescents with ASD. This form of therapy is offered in institutions context, within (special) education and in an outpatient form. Since communications skills are less developed and engaging in social interaction is less natural, it seems that music therapy can play an important role in the treatment of children with ASD. Music therapy can provide an additional means of

communication that stimulates children with ASD to engage in social interaction to express their needs and emotions. Through music therapy, they can learn how to deal with social situations and be given skills to do so. In this way, it is expected that through music therapy, children and adolescents with ASD will experience fewer problems in social situations arising from their inadequate social behavior.

There is not yet an inventory of which music therapy interventions are used for the treatment of children and adolescents with ASD and the possible results. As a consequence, there is still insufficient knowledge about what the therapy actually entails. This also makes it difficult to examine the effects of music therapy on children and adolescents with ASD.

Nevertheless, several studies have been carried out on effects of music therapy treatments of children and adolescents with ASD. Based on these studies, it can be concluded that there is some evidence that music therapy has an effect on the social functioning of the children. But this evidence is still insufficient to say that music therapy is evidence-based. Strictly speaking, the idea that music therapy improves the social behavior of children with ASD is still an ill-substantiated hypothesis.

The reason for the thesis was the many questions that kept coming up when it came to music therapy for children with ASD, such as what exactly happens during music therapy, which elements contribute to the results and what results can be achieved with music therapy in children with ASD.

To achieve this goal, several steps were followed:

- Literature review
- Establishing uniform method, development therapeutic treatment module (PMTP)
- Collecting initial indications of effectiveness of the PMTP through empirical research.
- Larger scale research on children's development during the PMTP, inside and outside the therapy setting.

Results

Review of Literature.

Chapter 2 discusses the findings of the literature review. The central question here is: what goals and results have been described so far about music therapy with children and adolescents with ASD, and what interventions are being used to achieve these goals?

The literature review into the state of development and the effectiveness of music therapy shows that, although studies confirm the positive effects of music therapy with children and adolescents with ASD, there are many critical comments to be made about the research carried out. Besides the fact that the research population is very small, another point of criticism is the great variety of music therapeutic methods that are used. In order to thoroughly study an intervention such as music therapy, it is essential that the target behavior is clearly defined. What is the focal point of the treatment and what are the objectives? It is also important that the intervention is well defined and that a clear manual is used so that the intervention can be

offered in an unambiguous way. Effect studies of music therapies that focus on improving communication skills often lack clear definitions and operationalizations of these skills. In addition, in many studies the target group remains unclear, despite the importance of a clear identification of the cases included. This is especially important in children and adolescents with ASD because this disorder is expressed in many different ways. As a result, it can be expected that in many studies the heterogeneity of the target group is very high. Once these elements are clearly defined, it is important to choose the right tools to measure the effects. This way we can transparently draw conclusions about the effectiveness of the treatment.

Active elements in music therapy

In Chapter 3, on the basis of a qualitative practice survey, an inventory is made of which forms of work and elements seem crucial within the music therapy treatment of children with ASD. Whereas music therapists initially indicated that they work mainly intuitively, our studies revealed that there were great similarities in the working methods for these children. These were particularly the (improvisational) work forms used and the search for connection with the child. By combining these similarities and the insights from the literature review and practice, the music therapeutic treatment module ‘Papageno Music Therapy Program’ (PMTP) for children and young people with ASD was developed. The PMTP consists of 20 music therapy sessions of approximately 40 minutes at home.

During the treatment with PMTP, the therapist uses an intervention guide (Pater, 2016). This guide outlines the working methods to be used during the intervention. The techniques described in the intervention manual are improvisational techniques. The following techniques are used: empathy techniques, structuring techniques, incitement techniques, techniques to take back the lead, techniques concerning intimacy, procedural techniques, referral techniques and techniques to explore their emotions, among others. In addition, structured methods are also offered that use musical parameters and the various aspects that define music (sound, rhythm, melody, dynamics and form) (Hegi1996) to facilitate change. Based on the needs of the child, the therapist can choose the most appropriate forms of work.

Next, the effective elements of the Papageno Music Therapy treatment module were further explored. Videos of PMTP therapies with 14 children with ASD were analyzed. These analyses formed the input for an interview with the music therapists using the Stimulated Recall Method. These interviews were then developed so that they could be coded and analyzed. After data analysis, five categories of elements that stimulated change in social behavior in children and adolescents with ASD were presented: Setting, Communication, Musical Elements, Connecting, and Challenging.

These categories were then incorporated into an initial working model showing how changes in the social behavior of these children and adolescents occur during the music therapy process. The therapist’s constant adaptation to the child appears to be an important element of this process. When the therapist, by adapting, connects with the child, he can then bring about change by initiating challenging activities.

Music therapy, a case study

A discussion of an $N=1$ study follows in Chapter 4. Papageno music therapy was used for 20 weeks to improve the social interaction of an eight-year-old boy with ASD. Contact with other children was very difficult for him, which caused his self-confidence to decrease. In addition, it was difficult for him to recognize emotions in himself and others, which gave him a lot of anxiety. The developments within the music therapy were monitored by means of a questionnaire which the mother filled in every week. In addition, at the start, after ten weeks and at completion, the VISK questionnaire was filled in. This is a questionnaire that inventorizes the social behavior of children. The weekly questionnaire shows strong progress in the areas of 'Eye contact', 'Concentration', 'Coping with changes', 'Communicates verbally', 'Joint attention', 'Considering others' and 'Takes initiative'. This progress is confirmed by the VISK scores which also show significant progress.

The follow-up measurement of the VISK taken after six months shows a perpetuation of the result. This case study shows the added value of a music therapy treatment in a child with ASD as an addition to the regular offerings in clinical practice.

Indications for effectiveness

Chapter 5 describes the first indications for the effectiveness of the PMTP by means of a repeated $N=1$ study. This is a way of research in which the same study is repeated each time in new persons. If similar results are found each time then it is increasingly plausible that the intervention under investigation plays a role in this. Indications of effectiveness of the Papageno Music Therapy Program are found when 10 children with ASD are observed for 23 weeks. The study shows that during 20 weeks of music therapy a significant improvement in the social behavior of children with ASD is visible. All participants show significant change on 2 or more aspects of problematic social behavior compared to a pre-measurement ('baseline'). These changes are strongest in the areas of 'can handle change', 'behavior is adapted', 'can communicate verbally', 'can take into account another person' and 'takes initiative'. We also examined whether this improvement in behavior could be associated with the intervention phase. For the items "dealing with change" and "takes initiative" we see that this applies to eight children. For the item "is able to be considerate of others" this is true for seven children and for the item "behavior has changed" this is true for six children. This closer look at the data might imply that there is an acceleration of development during the intervention phase. This study confirmed previous studies indicating that during music therapy the social behavior of children with ASD improves compared to the developmental pace prior to therapy.

Effectiveness of PMTP

Chapter 6 uses a repeated $N=1$ with 40 children to discuss the development of children when using the Papageno Music Therapy Program. On the total VISK and SRS scores, all children show progress in social behavior. The Reliable Change Index, which captures individual-level outcomes, confirmed positive improvement in more than 32 participants ($RCI > 1.96$). Since the RCI scores of the different groups of informants (music therapist, schoolteacher, parent and family member or babysitter) also show reliable progress, the observed improvement within music therapy sessions seems to generalize to situations outside of music therapy. This study, like the $N=10$ study, confirms previous research on the effects of music therapy on the social

behavior of children with ASD: improvements in social behavior are apparent over the course of therapy. We see this improvement not only within, but also outside the therapeutic setting.

Discussion

The aim of this dissertation was to investigate whether by offering music therapy through the PMTP program there is an improvement in the social behavior of children and adolescents with ASD. During the study, ‘The Papageno Music Therapy Program’ was developed. The PMTP appears to fit in well with the general essential components that an evidence-based treatment should contain, these are: good psycho-education, an integral approach, active involvement of the whole family, support tailored to the individual and structured and understandable interventions.

The present study shows promising results for the Papageno Music Therapy Program to improve the social behavior of children with ASD. However, there are some limitations that deserve more attention in future research.

During the study, we wanted to reduce the burden with the number of measurement times for the observers. Nevertheless, we found that it was difficult to get responses from all observers. In this study, we choose to include only the data of those cases that had all measurements from at least three observers (including parents and music therapist). To reduce missing data in the future, it would be beneficial to develop a shorter, validated questionnaire for measuring social behavior so that it takes less time to complete by observers.

We were only able to do this follow-up measurement in the single case study.

In the $N=10$ and $N=40$ study, we did not include a follow-up measurement. To see if the observed results are lasting it would be advisable to also include a follow-up measurement in the design right from the start.

The $N=40$ study also included participants who participated in the $N=10$ study. Although this data was good to use together it might be stronger if these studies were performed strictly separate from each other. The strength of two separate studies may be that the second study would be more convincing in the replication if it includes all new cases. In our case, however, including the subjects from the first study did not lead to an unfavorable design. We compared the results from the $N=10$ with $N=30$ and this showed no significant differences. Moreover, in the $N=40$ study we also looked at the degree to which the results within the therapeutic setting were also visible outside this setting.

Recommendation for practice

For further research into music therapy in children with ASD, systematic work with the PMTP protocol and good reporting is highly recommended. In doing so, it would be highly desirable if this reporting could be designed in such a way that it could directly serve as data collection for research. In this way, data can be collected from daily practice over a longer period of time and from a larger population. This helps to make music therapy more evidence-based in future practice.

Looking at this current study, the music therapy module PMTP shows good progress on the social behavior of children with ASD. There is initial evidence that this module can be used successfully to reduce social interaction problems. When the module is deployed, it is good that policy makers ask for outcome data so that they can see the results of the therapy and decide whether it should be considered the right help for children and adolescents with ASD.

In conclusion

This study has contributed in an innovative way to the further professionalization of music therapy for children and adolescents with ASD. An unified intervention manual was developed based on a literature review and practice research. This was then tested step by step to get indications of effectiveness and active elements. The evidence gathered provides insight into what is happening within music therapy and an initial working model was developed based on this. In addition, it provides clues to the effectiveness of the treatment and shows what the use of music therapy can do for an individual child. Most children show a favorable development in the area of social behavior when the PMTP is offered. Through the use of multiple informants, we saw a great involvement of the observers around the children. Therefore, the study serves as a good starting point to develop more parental involvement in a form of therapy such as music therapy. Because music therapy is an approachable form of treatment for parents, it can help them better understand their child. The PMTP is ready to be further applied in practice on the basis of which the module can be further substantiated and researched.