Effects of a Dyadic Music Therapy Intervention on Parent-Child Interaction, Parent Stress, and Parent-Child Relationship in Families with Emotionally Neglected Children: A Randomized Controlled Trial

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Background: Work with families and families at risk within the field of music therapy have been developing for the last decade. To diminish risk for unhealthy child development, families with emotionally neglected children need help to improve their emotional communication and develop healthy parent-child interactions. While some researchers have investigated the effect of music therapy on either the parent or the child, no study has investigated the effect of music therapy on the observed interaction between the parent and child within the field of child protection.

Objective: The purpose of this study was to investigate the effect of a dyadic music therapy intervention on observed parent-child interaction (mutual attunement, nonverbal communication, emotional parental response), self-reported parenting stress, and self-reported parent-child relationship in families at risk and families with emotionally neglected children, ages 5–12 years.

Method: This was a randomized controlled trial study conducted at a family care center in Denmark. Eighteen parent-child dyads were
randomly assigned to receive 10 weekly music therapy sessions with a credentialed music therapist \((n = 9)\) or treatment as usual \((n = 9)\). Observational measures for parent-child interaction, self-reported measures for parenting stress and parent-child relationship were completed at baseline and 4 months post-baseline assessment.

**Results:** Results of the study showed that dyads who received music therapy intervention significantly improved their nonverbal communication and mutual attunement. Similarly, parents who participated in dyadic music therapy reported themselves to be significantly less stressed by the mood of the child and to significantly improve their parent-child relationship in terms of being better at talking to and understanding their children than parents who did not receive music therapy. Both groups significantly improved in terms of increased positive and decreased negative emotional parental response, parenting stress and stress in general. There were no significant between group differences in self-perceived autonomy, attachment, and parental competence.

**Conclusions:** The dyadic music therapy intervention examined in this study improved emotional communication between parent and child and interaction after 6 to 10 sessions and can be considered as a viable treatment alternative or supplement for families at risk and families with emotionally neglected children.

**Keywords:** at-risk families, emotional neglect, parent-child interaction, parenting

Helping families to function better by improving emotional communication and parent-child interaction is a difficult and delicate task. Families with emotionally neglected children, where parents need to improve how they care for their child, are especially complex and can be ethically challenging. Primary tasks for therapists working with parents of emotionally neglected children include empowering parents, increasing their self-esteem, and improving parental competence particularly in the area of emotional communication (Wolf & Peregoy, 2003). Learning to communicate emotionally with a child is not easy, especially if the concept is foreign to the parent, which is often the case with families at risk (Killén, 2010; Shore & Shore, 2008). Highly stressed parents who have lost their sense of control are more likely to emotionally neglect and abuse their children. Moreover, parental stress is often linked with families at risk (Barth, 2009; Guterman, Lee, Taylor, & Rathouz, 2009;
Emotional neglect in this study is understood as a lack of emotional support from the parent, which occurs mainly due to different types of immaturity in parents, and is often based on a lack of support in the parents’ own childhood. Emotionally neglecting parents rarely intend to be neglectful and often their level of emotional insight and emotional communication skills are poor (Killén, 2010). Emotional neglect can lead to anxiety, stress, and depression in later life and severe cognitive and academic deficits, social withdrawal, and limited peer interaction in childhood (Carpenter, Tyrka, Ross, Khoury, Anderson, & Price, 2009; Elzinga et al., 2011; Young, Lennie, & Minnis, 2011). To stop the negative transgenerational spiral of neglected children becoming parents of neglected children, therapists and practitioners must address the core of the matter – improving actual parent-child interactions, diminishing parent stress, and improving the parent-child relationship – specifically in the area of emotional communication.

Music is a powerful medium for bringing parents and children together, because music can facilitate play and the communicative functions of play. Through musical play, interaction can arise naturally and spontaneously. In a carefully guided music therapy setting, the musical play can allow the parent and the child to replicate early forms of interaction between infant and parent in an age-appropriate and mutually satisfying way (Edwards, 2011). Musical interaction enhances interplay with turns, imitation, and affect attunement between the parent and the child (Holck, 2004, 2011). Parents’ ability to match their expression to the child’s expression is essential for the child’s social and emotional development. In situations where the early interactions between mother and infant have failed, music therapy can help restore the vital nonverbal affect attunement through an improvisational and playful focus (Trolldalen, 1997a). Using a music therapy approach focused on parent and child interaction, it is thus possible to create or recreate the experience of shared timing, rhythm, pulse, melody, and pitch, all of which are natural elements of the early attachment process (Davies, 2008; Drake, 2008; Salkeld, 2008; Trondalen & Skårderud, 2007).

Music therapy can support the development of reciprocity between parent and child by offering the opportunity to try out different ways of interaction and being together (Pasiali, 2012). Music is an effective medium for the parent. Music enables the parent to get in touch with the child in a new way, in which new interaction models are created.
and explored through musical activities such as improvisational exercises and singing games (Abad & Williams, 2007; Bull, 2008; Horvat & O’Neill, 2008; Howden, 2008; Oldfield, 2006a, b). Furthermore, joint musical activities can contribute to strengthening parent-child interaction, as improvisational interaction and songs create an opportunity for mutual recognition and understanding of each other’s musical expression (Trolldalen, 1997a). Recognition consists of affirmation, listening, acceptance, understanding, and tolerance and involves a genuine attempt to understand each other. The musical interaction has therapeutic potential because it takes place on a nonverbal level. Nonverbal interaction is essential for the child’s emotional development and understanding of the world (Stern, 2000). The family member’s individual musical expression amplifies the individual communication and intentions, which can facilitate good communication between parent and child. According to Trolldalen (1997b) musical interactions between parent and child can be understood as a reflection of the real-life interactions. Positive musical interaction can lead to strengthened and enhanced parent-child interaction in general.

Using music therapy with emotionally neglected children and families at risk is developing and carefully designed studies are rare. Nevertheless, more studies are present within the broad field of music therapy with families where the child has special needs and can be used to inform this emerging area of practice. Results from randomized studies show that music therapy positively affects infants’ and toddlers’ ability to engage in social play. Attachment improves between parent and child, and parents are more positively and less negatively engaged in interacting with their child (Thompson, 2012; Walworth, 2009). Results from other systematic studies with families with special needs children also indicate improvements in parental involvement, reduced stress in the parent, increased social interaction of the child, more appropriate demands from parents, and less evasive or avoidant behavior from the child following music therapy (Allgood, 2005; Müller & Warwick, 1993; Oldfield, 2006b). Sing & Grow is an Australian program in which children under 5 years of age and their parents participate in group musical activities. Several researchers investigating the effect of Sing & Grow, have found significantly improved parent-child interaction through improved parental satisfaction, parenting skills, and the overall development of the child especially in social skills (Abad, Berthelsen, Bradley, Nicholson, & Williams, 2008; Abad & Williams, 2007; Nicholson, Berthelsen, Williams, & Abad, 2010; Williams, Berthelsen, Nicholson, Walker, & Abad, 2012).
The purpose of this study was to investigate the effect of a dyadic music therapy intervention on observed parent-child interaction (mutual attunement, nonverbal communication, emotional parental response), self-reported parenting stress, and self-reported parent-child relationship in families with emotionally neglected children and families at risk. A unique feature of the study was the use of both observational and parent self-report measures, to potentially provide a more comprehensive evaluation of parent-child and parent outcomes. The research question was therefore formulated as follows: Can music therapy treatment with a parent and his/her emotionally neglected child improve parent-child interactions, diminish parent stress, and improve parent-child relationship?

Method

Participants

The 18 participating families were recruited to this study from a residential family care center in a medium-sized city in Denmark by the family care center staff based on inclusion and exclusion criteria. A participating family consisted of one child and one parent also referred to as the dyad. The sample size was based on dyad availability and almost met the expected 20 dyads within the 2-year data collection period. The care center is described as an alternative to removing the child from the parents, and all participating families were described by the social services as exhibiting signs of severe emotional neglect (e.g., socially dysfunctional, extensively withdrawn or acting out, falling behind in emotional and cognitive development). Eligibility criteria for study participation were as follows: (a) children 5–12 years old inclusive, with no severe developmental deficits or diagnoses (This child age range was chosen because studies reporting analysis of effect and assessment of observed parent-child interaction with verbal children are rare within the field of child protection. When children become verbal the observed interaction between parent and child becomes extremely complex and difficult to measure because each family has a different way of using language. The use of language has individual histories and personal narratives. Often interview, psychological tests, and self-report questionnaires are used for this age group. However, observed interaction is just as important for verbal
children as for nonverbal children when the aim is to improve emotional communication and healthy parent-child interaction); (b) parents currently exhibiting signs of severe emotional neglect (based on report from social services); (c) parents with minor mental concerns such as mild depression and stress were not excluded from study participation, as this is often part of the problem in such families; (d) no history of parent or child receiving previous music therapy treatment; (e) parents receiving other forms of therapy, such as Parent Management Training (Feldman & Kazdin, 1995), were excluded from study participation; (f) parents with reported substance abuse were excluded from study participation.

No participating family had reports of physical abuse. However, this might not have been known to social services and cannot be ruled out. All families voluntarily participated in the study and signed an informed consent statement. The welfare of all children and adults participating in the study was of utmost importance, and all participating families were treated with a high degree of respect. The study was approved by the Human Research Ethics Board at Aalborg University, Denmark.

**Procedure and Music Therapy Approach**

A blind randomization procedure assigned one of two music therapists to each of the 18 participating families. After approval from staff, the assigned music therapist invited the family to participate in the study at the beginning of their enrollment in the care center. A second blind randomization procedure assigned either the music therapy or treatment as usual condition to each of the 18 participant family dyads, resulting in nine dyads in the dyadic music therapy treatment condition and nine in the treatment as usual condition (see Figure 1).

Parent-child dyads in the experimental group and the treatment as usual group both received treatment as usual at the family care center, which mainly consisted of psychological and pedagogical support and guidance. Each family had a pedagogue contact person who gave extensive guidance on how to structure domestic tasks, how to talk to and affirm their child, how to set age appropriate demands, how to set boundaries, and so on. Each family also had a few conversations with a psychologist around the general development of their child and their own well-being as a parent.
All family dyads underwent two identical, video-recorded Assessment of Parenting Competences (APC; Jacobsen & McKinney, 2014) sessions approximately one week apart and both trained music therapists were certified APC therapists (Note: APC is further explained below). The parent completed self-report questionnaires within the same 2-week period assisted by an authorized psychologist. Participants in the experimental group received 6 to 10 music therapy sessions, which took place once a week and lasted around 45–50 min. Out of the nine family dyads in the experimental group, six received all 10 treatment sessions while two family dyads only received six and eight treatment sessions respectively because of cancellations due to child or parent illness. The last family was referred on in the system due to moving out of the district. Four months after completing the first APC assessment sessions, participants in the experimental and treatment as usual groups underwent the APC assessment sessions again and filled out questionnaires in the same manner as prior to treatment.
The music therapy approach for the experimental group was experience-oriented with a mix of client-centered and therapist-directed experiences. Client-centered activities were based on the family dyad’s wishes, expressions, and preferences and therapist-directed activities were based on initiatives and interaction-based foci from the therapist. There was an emphasis on a strong working alliance with the parent, supported by conversations outside the sessions, where aims and goals were agreed upon between therapist and parent. Changes were followed and much affirmation was given to the hardworking parent. Depending on the level of resistance and insight into the often-unintended emotional neglect, the goal or focus was based on the parent’s ability to be clear, to affirm the child, or to lead more or lead less. For parents with less insight and more resistance due to immaturity and low level of emotional insight, the goals were based on the child’s need for structure, affirmation, independence, and ability to give room. A focus on the child’s needs was considered more appropriate for parents who had difficulties looking at their own possible insufficiencies.

The music therapist functioned both as a role model providing structure and guidelines and as a facilitator for the parent-child relation. By showing the parent how to interact appropriately with the child in the musical activities, as well as all other part of the session, the parent could observe and model proper and dynamic interaction with the child. In verbal role modeling, there is often risk for overshadowing the parent’s relation to the child, but musical improvisations enabled the music therapist to both model and facilitate interaction to minimize this risk. Whenever possible, the initiatives from the family and especially the parent’s initiatives to interact with the child were enhanced, striving to let the relation between parent and child unfold. If the parent-child dyad needed support and guidance, the music therapist would provide it. When support and guidance was not or no longer needed, the parent-child dyad was encouraged to interact and relate on their own, thus helping them to build a stronger bond and develop a healthy emotional communication (Jacobsen, 2012). Several strategies were enacted to help ensure consistency of treatment delivery across therapists during the study. Prior to the study, the two music therapists formulated the main goals, process of choosing them, interventions, and techniques to be used with enrolled parent-child dyads. During treatment sessions, the two therapists had
joint supervision on a regular basis with a supervisor experienced in supervising family music therapy.

Measures

Assessment of Parenting Competencies (APC; Jacobsen & McKinney, 2014). The APC is an observational music therapy assessment tool measuring parent-child interactions in three areas: Mutual Attunement between parent and child (i.e., how well they interact in terms of matching each other), Nonverbal Communication Skills between parent and child (i.e., how they interact in terms of clearly communicating nonverbally with each other), and Emotional Parental Response from parent to the child (i.e., how the parent responds negatively and positively to the emotional needs of the child). The APC also has a total score; Parent-Child Interaction in Music. All four APC scores were selected for measures in the current study. The APC measures are based on in-depth observational analysis from two 25-min, video recorded APC music therapy assessment protocol sessions. Two sessions are needed for the family to get familiar with the music therapy setting, giving them a chance to show their potential strengths, as well as their weaknesses. Observations from the second session provided the primary data used to calculate scores. APC scores are based on frequency of autonomy events in both parent and child musical behavior; frequency of the gestural and musical turns of both parent and child; and musical, gestural, and verbal parental responses. The APC scores were developed by comparing observations from clinical and non-clinical groups of family dyads (Jacobsen, 2012; Jacobsen & Killén, 2014; Jacobsen & Wigram, 2007). Interrater reliability for the APC scores have been found to range from 0.73 to 0.89 and test-retest reliability from 0.70 to 0.89 with an internal consistency alpha level of .93. Correlations between APC scores range from .57 to .91. Validity analyses of APC have demonstrated its ability to distinguish between different groups of family dyads establishing the concurrent validity of the tool. Pearson correlation coefficients computed between APC scores and scores from PSI and PCRI show low to moderate correlations ranging from 0.26–0.56 (Jacobsen & McKinney, 2014).

Parenting Stress Index (PSI). The PSI is a clinical and research parent self-report questionnaire (Abidin, 1995). The instrument has 101 items that lead to a total parent stress score, three domain
scores (Parent Domain, Child Domain, & Total Stress), and 15 subscale scores. The domains measured are stressors related to child characteristics and parental characteristics. PSI is described as a screening and diagnostic assessment tool used to identify parent and child systems that are under stress. Furthermore, PSI can detect whether deviant development of the child is likely to take place, or if dysfunctional parenting is likely to occur. From PSI the following five subscales and subdomains were selected as measures for this study: Competence, Attachment, Parent Domain, Mood, Child Domain; we also used the Total Stress score. High scores in Competence indicate problems in multiple aspects of parenting competencies such as lack of knowledge, unmet expectations of parenthood, and lack of acceptance from the child’s other parent. High scores in Attachment suggest that the parent may not feel a sense of emotional closeness to the child and/or that the parent might not be able to observe and understand the child’s needs and feelings accurately. High scores in Parent Domain indicate that the sources of stress may be related to the dimensions of the parent’s functioning. Parent domain is a sum of all underlying subscales for that domain. High scores in Mood are associated with children whose affective functioning shows evidence of dysfunction to the parent. High scores in Child Domain indicate children who display qualities that make it difficult for parents to fulfil their parenting roles. Child Domain can also be interpreted as a measure of how much parents perceive their children to cause them stress and is a sum of all underlying subscales for that domain. High scores of Total Stress are associated with parent-child systems that are under stress, and at risk of developing dysfunctional parenting behaviour or behaviour problems in the child. The Total Stress is a sum of the Parent Domain and the Child Domain. Alpha reliability coefficients measuring the internal consistency of the PSI subscales, each domain, and the total score are reported to be high (0.70–0.95). Multiple test-retest reliability studies found the temporal stability of the test to range from 0.55 to 0.96. The PSI has shown significant correlations with multiple tests measuring the same construct (Heinze & Grisso, 1996).

Parent-Child Relationship Inventory (PCRI). PCRI consists of 78 items that examine how parents view the task of parenting and how they feel about their children (Gerard, 2005). It identifies specific areas in which problems may occur and covers seven
distinct subscales. The relevant selected subscales from PCRI were Communication and Autonomy. Low scores in Communication represent poor parental communication with the child, both in terms of the parent’s ability to talk to the child and the level of the parent’s empathy. Low scores in Autonomy indicate a relationship where the child is unhealthily dependent on the parent, or where the parent does not encourage a sense of independence in the child. The coefficient alpha values for the subscales ranges from 0.70–0.88, test-retest reliability ranges from 0.68–0.93 for various subscales (Heinze & Grisso, 1996).

**Design and Analyses**

We used a repeated measures with between groups design (specifically a split-plot factorial or mixed design with randomization to therapist and then to music therapy or treatment as usual) to explore effects of music therapy. It is a mixed design because there were both within and between factors included. The between groups variable had two levels: experimental group and treatment as usual group. The within-groups variable was time point with two levels: pre-treatment and post-treatment. An alpha level of .05 was used for all statistical tests, except in simple effects analyses where the alpha level was adjusted for the family-wise error rate, yielding an alpha level of .0375. Where necessary, missing observations were estimated according to the iterative estimation-minimization procedure described by Yates (1933, as cited in Kirk, 1982), and error degrees of freedom were adjusted downward accordingly. Our analyses did not control for the potential effects of the two therapists but assumed that the effects were the same.

A Mauchly test computed for each variable assured that the assumption of sphericity was not violated in any case, and histograms of scores revealed a normal distribution. A Box’s Test computed for each variable measured equality of covariance; for four variables (Mood, Child Domain, Competence, and Parent Domain from PSI) the assumption was violated. A nonparametric test of two related samples was performed, a Wilcoxon signed rank test for the within-groups measures for these two variables. Effect sizes were measured by computing Cohen’s $d$ using the average of the standard deviations from pretreatment and posttreatment and adjusting for the correlation between the two. For nonparametric analyses,
the researchers calculated the relative treatment effect based on the mean ranks as described by Erceg-Hurn and Mirosevich (2008).

**Results**

**Demographic Variables**

An analysis of four demographic variables compared similarities and differences between the experimental and treatment as usual groups. Independent samples t-tests showed that the groups were not statistically different in mean parent age or mean child age (see Table 1). Chi-square analyses determined that the groups were not significantly different in terms of parent or child gender (see Table 2).

**Dependent Variables**

Independent samples t-tests showed no statistically significant differences between groups prior to treatment in all dependent variables. Violation of the assumption of homogeneity of variance was corrected for PSI Mood scores by use of reciprocal transformation. A descriptive comparison of the mean scores for the experimental and treatment as usual groups in pre and posttreatment assessment sessions for the two therapists combined revealed that all changes were in the predicted direction. On average across both therapists, the families experienced positive improvement in all significant outcome measures as described below.

**Table 1**

Means and Standard Deviations for Parent and Child Age by Group

<table>
<thead>
<tr>
<th></th>
<th>Experimental (n = 9)</th>
<th>Control (n = 9)</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>F</td>
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<tr>
<td>Parent age</td>
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<td>6.708</td>
<td>37.44</td>
<td>6.54</td>
<td>1.22</td>
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<tr>
<td>Child age</td>
<td>6.78</td>
<td>2.386</td>
<td>8.44</td>
<td>2.56</td>
<td>2.05</td>
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</table>

**Table 2**

Frequencies and Counts on Gender by Group

<table>
<thead>
<tr>
<th></th>
<th>Experimental (n = 9)</th>
<th>Control (n = 9)</th>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>$X^2$</td>
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<tr>
<td>Child</td>
<td>56.6%</td>
<td>44.4%</td>
<td>56.6%</td>
<td>44.4%</td>
<td>0.00</td>
</tr>
<tr>
<td>Parent</td>
<td>77.8%</td>
<td>22.2%</td>
<td>100%</td>
<td>0%</td>
<td>2.25</td>
</tr>
</tbody>
</table>
Parent-Child Interaction. The ANOVA for Mutual Attunement score revealed a significant group by time interaction, $F(1, 12) = 11.592, p < .005$. Analysis of simple effects and an examination of group means showed that the experimental group experienced a significant increase in Mutual Attunement over time, $F(1, 12) = 23.44, p < .001$, $d = 1.60$, whereas the treatment as usual group showed no significant change, $F(1, 12) = 0.24, p = .633$ (see Table 3).

The ANOVA for Nonverbal Communication Skills revealed a significant group by time interaction, $F(1, 12) = 9.446, p < .009$. Simple effects analysis and an examination of group means showed that the experimental group experienced significant increase in Nonverbal Communication over time, $F(1, 12) = 10.46, p < .007$, $d = 1.25$, whereas the treatment as usual group showed no significant change over time, $F(1, 12) = 2.5, p = .139$ (see Table 3).

The ANOVA for Emotional Parental Response: Negative did not reveal a significant group by time interaction, $F(1, 12) = .154, p < .702$. An examination of main effects showed that both groups changed significantly over time $F(1, 12) = 12.46, p < .004$. Means and standard deviations are presented in Table 3. The ANOVA for Positive Response scores did not reveal a significant group by time interaction, $F(1, 12) = .352, p < .564$. An examination of main effects and group means showed that both groups increased their Positive Response scores significantly over time, $F(1, 12) = 14.54, p < .002$. Means and standard deviations are presented in Table 3.

The ANOVA for Parent-Child Interaction in Music (Total) scores revealed a significant group by time interaction, $F(1, 12) = 16.675, p < .002$. Simple effects analysis and an examination of group means showed that the experimental group experienced significant increase over time, $F(1, 12) = 41.45, p < .000$, $d = 1.77$, whereas the treatment as usual group showed no significant change over time, $F(1,12) = 0.44, p = .519$ (see Table 3). Means, standard deviations, and effect sizes for dependent APC variables of interest are presented in Table 3.

Parenting Stress. The assumption of homogeneity of variance was violated for Mood scores from PSI and could not be corrected by arithmetic transformation of data. Nonparametric Wilcoxon test showed that the 8 out of 9 families in the experimental group experienced a decrease (no ties) in Mood score change over time, $Z = -2.56, p < .001$, whereas only 1 out of 9 families in the treatment as usual group experienced a decrease in stressful Mood score over time (4 ties), $Z = -1.36, p > .176$, $r = .45$ (see Table 4).
Table 3

Means, Standard Deviations, and Effect Sizes for APC scores by Group

<table>
<thead>
<tr>
<th>Variable Group (n = 9)</th>
<th>Pretreatment</th>
<th></th>
<th>Posttreatment</th>
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<th>Cohen’s d</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Mutual attunement</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>74.11</td>
<td>9.39</td>
<td>90.59**</td>
<td>11.32</td>
<td>1.60</td>
</tr>
<tr>
<td>Treatment as usual</td>
<td>82.93</td>
<td>12.03</td>
<td>84.62**</td>
<td>11.42</td>
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<tr>
<td>Nonverbal communication</td>
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<td></td>
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<tr>
<td>Experimental</td>
<td>20.11</td>
<td>5.44</td>
<td>25.11**</td>
<td>3.86</td>
<td>1.25</td>
</tr>
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<td>Treatment as usual</td>
<td>23.67</td>
<td>6.50</td>
<td>21.22**</td>
<td>6.65</td>
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<tr>
<td>Emotional parental Response: Negative</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>28.11</td>
<td>2.52</td>
<td>29.78**</td>
<td>1.56</td>
<td>0.67</td>
</tr>
<tr>
<td>Treatment as usual</td>
<td>27.56</td>
<td>2.30</td>
<td>28.89**</td>
<td>1.62</td>
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<tr>
<td>Emotional parental Response: Positive</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Experimental</td>
<td>8.78</td>
<td>3.31</td>
<td>11.67**</td>
<td>2.12</td>
<td>1.20</td>
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<tr>
<td>Treatment as usual</td>
<td>7.22</td>
<td>3.60</td>
<td>9.33**</td>
<td>3.67</td>
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<tr>
<td>Parent-child interaction in music</td>
<td></td>
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<tr>
<td>Experimental</td>
<td>131.11</td>
<td>15.10</td>
<td>157.15**</td>
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<td>Treatment as usual</td>
<td>141.38</td>
<td>18.28</td>
<td>144.06**</td>
<td>17.40</td>
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</tr>
</tbody>
</table>

**p < .01.
The assumption of homogeneity of variance was violated for Child Domain scores from PSI and could not be corrected by arithmetic transformation of data. Nonparametric Wilcoxon test showed that the 9 out of 9 families in the experimental group experienced a decrease (no ties) in Child Domain score change over time, \( Z = -2.67, p < .008, r = .89 \), whereas 8 out of 9 families in the treatment as usual group experienced a decrease in Child Domain score over time (0 ties), \( Z = -1.61, p > .108, r = .54 \) (see Table 4). Medians, range, and relative effect are shown in Table 4. The ANOVA for Attachment scores did not reveal any significant group by time interaction (\( F(1, 8) = .430, p < .531 \) and non-significant main effect, \( F(1, 8) = .310, p < .593 \)). Means and standard deviations are presented in Table 5.

Additionally, scores for Total Stress and Parent Domain decreased significantly for family dyads in both the experimental and the treatment as usual group over time (see Tables 4 & 5). The assumption of homogeneity of variance was violated for Parent Domain scores from PSI and could not be corrected by arithmetic transformation of data. Nonparametric Wilcoxon test showed the 9 out of 9 families in the experimental group experienced a decrease (no ties) in Parent Domain score change over time \( Z = -2.666, p < .004 \), and 8 out of 9 families in the treatment as usual group experienced a decrease in Parent Domain score over time (1 tie), \( Z = -2.521, p > .006 \). Medians and ranges are listed in Table 4. The ANOVA for Total Stress did not reveal significant interaction between groups (group x time interaction, \( F(1, 8) = 3.576, p < .089 \)). An examination of main effects showed that both groups changed significantly over time \( F(1, 8) = 20.53, p < .002 \). Means and standard deviations are presented in Table 5.

**Parent-Child Relationship.** ANOVA for Communication scores from PCRI revealed a significant group by time interaction, \( F(1, 8) = 9.595, p = .014 \). Analysis of simple effects and an examination of group means showed that the experimental group experienced significant increase over time, \( F(1, 8) = 11.48, p < .005, d = 0.82 \), whereas the treatment as usual group showed no significant change over time, \( F(1, 8) = 0.99, p = .349 \) (see Table 5). The ANOVA for Autonomy score did not reveal any significant interaction between groups (Non-significant group x time interaction, \( F(1, 8) = .472, p < .512 \) and non-significant main effect \( F(1, 8) = .31, p < .593 \)). Means and standard deviations are presented in Table 5. Means, standard
**Table 4**

*Median and Range for Mood, Child Domain, Competence, and Parent Domain from the Parenting Stress Index by Groups*

<table>
<thead>
<tr>
<th>Variable group</th>
<th>Pretreatment (n = 9)</th>
<th>Posttreatment (n = 9)</th>
<th>Relative treatment effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Range</td>
<td>Median</td>
</tr>
<tr>
<td>Mood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>90.00</td>
<td>25.00 - 96.00</td>
<td>50.00**</td>
</tr>
<tr>
<td>TAU</td>
<td>98.00</td>
<td>75.00 - 99.00</td>
<td>99.00**</td>
</tr>
<tr>
<td>Child domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>85.33</td>
<td>25.00 - 96.85</td>
<td>71.30**</td>
</tr>
<tr>
<td>TAU</td>
<td>93.13</td>
<td>65.00 - 99.00</td>
<td>87.50**</td>
</tr>
<tr>
<td>Competence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>80.00</td>
<td>35.00 - 99.00</td>
<td>62.50**</td>
</tr>
<tr>
<td>TAU</td>
<td>98.50</td>
<td>45.00 - 99.00</td>
<td>89.60**</td>
</tr>
<tr>
<td>Parent domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>68.33</td>
<td>16.67 - 99.00</td>
<td>60.00**</td>
</tr>
<tr>
<td>TAU</td>
<td>92.81</td>
<td>58.33 - 98.38</td>
<td>78.00**</td>
</tr>
</tbody>
</table>

*Note.* *p* < 0.05; **p** < 0.01, TAU = Treatment as usual.
deviations and effect sizes for all dependent PSI and PCRI variables that were analyzed using ANOVA are presented in Table 5.

Discussion

Researchers in this study investigated the effect of music therapy on parent-child interaction, parent stress, and parent-child relationship in families where the child had experienced emotional neglect. Music therapy significantly improved parenting competencies and parent-child interaction in terms of Mutual Attunement between parent and child, Nonverbal Communication between parent and child, and the Parent-Child Interaction in Music as measured by APC. Music therapy significantly improved the parent’s perceived ability to talk to the child, including increasing the parent’s perceived level of empathy as measured by the Communication score from the PCRI. Music therapy also decreased the degree to which the parents perceived their children as stressful (Child Domain) and how stressful the child’s mood was to the parent as measured by the PSI.

The findings of positive effects of music therapy support earlier research findings of parents tending to view the child in a more positive light and parents being able to read the emotional state of the child more easily following music therapy (Abad et al., 2008;
Müller & Warwick, 1993; Oldfield, 2006a; Thompson, 2012; & Trolldalen, 1997a). The improvement in Mutual Attunement and Nonverbal Communication also supports earlier research findings demonstrating that parents and children improved their way of interacting through music therapy (Abad & Williams, 2007; Larsen, 2011; Oldfield, 2006b; Thompson, 2012; & Trolldalen, 1997a). Both groups improved significantly in terms of emotional parental response indicating that parents receiving treatment as usual also improved their response type toward their child on the same level that parents receiving dyadic music therapy, although they did not improve the musical interaction scores, Mutual Attunement, and Nonverbal Communication significantly over time. One might wonder whether the improvement in Mutual Attunement and Nonverbal Communication only were due to getting more familiar with the music therapy setting, and therefore question a generalization effect to other areas of the daily life of the families. However, the significant differences between groups in (stressful child) Mood and (parental) Communication as measured by PCRI and PSI seem to contradict the idea of a positive generalization effect.

There were no significant differences between groups in terms of autonomy, (parental) competence, and attachment. The Autonomy score is meant to pick up a child’s unhealthy dependence on the parent or lack of parental encouragement of independence in the child. The absence of between group differences for this measure indicates that the dyadic music therapy may not significantly affect these and may not be a relevant outcome measure for this study. The Competence measure is related to multiple aspects outside of the direct parent-child interaction such as lack of parental knowledge, unmet expectations of parenthood, and lack of equal acceptance from the child’s other parent indicating that dyadic music therapy may not significantly affect these aspects or differentiate between groups in treatment outcome. Likewise, the Attachment score is related to the parent’s sense of emotional closeness to the child and ability to observe and understand the child’s needs accurately. No significant difference between groups might indicate that more sessions are needed for music therapy to influence these core aspects of parenting significantly more than treatment as usual.

Whether or not the parent’s perception of how stressful the child was is related to any change in the child is not clear from this
The child improved his or her ability to effectively communicate with the parent in music therapy and developed a mutual attunement with the parent as the scores depend on both child and parent behaviour, but the actual carry-over effect for the child is not clearly addressed in this study. One might consider evaluating child feedback as described by Iwaniec (1995) and Crittenden (2006) by examining different aspects of interaction patterns such as level of cooperation, passiveness, and resistance. More information about the child would also inform the results of the Emotional Parental Response for parents and produce more in-depth and valuable information.

Both groups changed significantly over time in terms of how stressed the parents were due to both the parents’ general functioning and how stressful the parent-child systems were in general. This indicates that music therapy treatment is as equally effective as standard treatment protocols and suggests that music therapy can be a viable alternative or supplement. Furthermore, looking at the results from the treatment as usual group, there was an unexpected (non-significant) decrease only in Nonverbal Communication Score indicating that music therapy might address nonverbal communication issues in more effective ways than a more traditional approach within the field of child protection.

**Limitations**

In the study, the researcher was also one of the clinical music therapists, which increases the possibility of biases of the therapist. Being both a researcher and a clinical music therapist might have influenced clinical decisions in music therapy for one of the therapists. However, an examination of the mean scores for the experimental and treatment as usual groups revealed that family dyads from both therapists experienced a positive improvement in all primary dependent variables of the study. There were no significant differences between outcomes for family dyads from the two music therapists.

Out of the nine family dyads, three only received 6–8 music therapy treatment sessions thus making the family dyad less comparable in terms of “doses” of music therapy. Looking at the results, eight or six sessions might have been enough for change to take place in the family dyad, or there might have been significant differences
in Emotional Parental Response or/and other measures, if all nine families had received ten sessions.

**Recommendations for Further Research**

To validate the positive effect of dyadic music therapy interventions on parenting competencies and parent-child interaction, research comparing music therapy with a second condition is needed. Both groups should thus receive treatment as usual and a second condition. Study replication and larger sample sizes are necessary to confirm these results. Furthermore, long-term effect, effect on measures of the child, and effect on younger children is relevant especially considering the field of child protection.

Exploring the process of treatment within child protection is also relevant for this developing field. One might examine different aspects of improvisation or spontaneous turn-taking/turn-giving between therapist, parent, and child, or one might explore the experiences of the families and let their voices be heard. Future research that focuses on the connection between communicative musicality and trained musicality would contribute not only to the field of music therapy but also to related fields of musicology and musical training.

**Summary**

In families with children who had experienced emotional neglect, music therapy had a significant, positive effect on parenting competencies and parent-child interaction, in terms of level of mutual attunement between parent and child, nonverbal communication, and parent-child interaction. Music therapy had a significant effect on the parent’s ability to talk to the child including the parent’s level of empathy. Music therapy also significantly decreased how stressful parents perceived their children and in particular, how stressful the child’s mood was to the parent. Dyadic music therapy intervention with families at risk can improve the emotional communication between parent and child and interaction after only 6 to 10 sessions and should be considered as a viable alternative or supplement. Music therapy might address nonverbal communication issues in more effective ways than traditional approaches within the field of child protection. As a society, we are obligated to
provide the right kind of care for emotionally neglected children both to ensure their health but also to stop the negative spiral of history repeating itself.

References
physical child abuse and neglect. *Child Abuse and Neglect*, 33, 897–906. doi: S0145213409002233


