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Trust-Based Relational Intervention (TBRI) for Adopted Children
Receiving Therapy in an Outpatient Setting

Lauren E. Nielsen

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Abstract

We explored the relationship between Trust-Based Relational Intervention (TBRI) and treatment outcomes for adopted children participating in treatment services through the Adoption Preservation Program at a Midwest child welfare organization. Adopted children who have trauma histories may have their adoptions disrupted if they do not receive the proper therapy to improve their overall functioning (Purvis, Cross, & Pennings, 2009; Davis, 1999). We investigated a new intervention, TBRI, and its potential impact on children with trauma histories who are receiving outpatient therapy at a local child welfare center. Specifically, we examined whether family functioning and child functioning are improved after receiving the intervention in tandem with regular trauma-focused therapy for six months and whether family and child functioning are related to the level of TBRI each child received while in therapy. After analyzing the results, we found that all measures of child and family functioning, with the exception of discipline practices, increased from pre-treatment to post-treatment. Additionally, we found that the level of attachment was significantly correlated with the level of caregiver TBRI reported such that higher levels of TBRI were positively related to higher self-reported attachment levels between caregivers and their children. The clinical implications of findings are highlighted, and directions for future research are identified.

Keywords: Trust-Based Relational Intervention, TBRI, adopted children, trauma

Trust-Based Relational Intervention (TBRI) for Adopted Children Receiving Therapy in an Outpatient Setting

According to the Adoption and Foster Care Analysis and Reporting System (AFCARS), there are over 100,000 children in the child welfare system still waiting to be adopted (2012). This number makes up about 25% of the total number of children who are a part of the child welfare system in the U.S. (AFCARS, 2012). Twenty-one percent of foster care alumni are diagnosed with Post-Traumatic Stress Disorder (PTSD), increasing the likelihood of behavioral problems later in life (Pecora et al., 2005). Some of these children have problems so severe that, when left untreated, place the child in danger of having their adoptions disrupted. In fact, according to the Child Welfare Information Gateway, between 10 and 25% of all adoptions in the United States are disrupted or terminated (2012). Given the pain and angst of those disruptions, more needs to be done to help increase the likelihood that the adoptions for high-risk children succeed.

Disrupted adoptions cause several problems. First and foremost, adoptions that are terminated mean that children lose another home setting and have their lives interrupted once again. Additionally, these children are placed back into the child welfare system. This is problematic because the government is spending more money on these children and on paying the necessary social workers and child advocacy personnel to treat the children and find them permanent homes for a second time. When children who have severe behavioral problems are placed back into the child welfare system, they often do not get the proper treatment they need and end up having worse overall behavioral outcomes (Oswald, Heil, & Goldbeck, 2010). However, even if the children's adoptions remain intact, they generally still suffer these behavioral consequences.

There are several services available to adoptive parents who are having difficulties with their children, such as inpatient and outpatient therapy for the children, family therapy, and various types of trauma treatment (Purvis et al., 2009). However, since so many adoptions are still being terminated, more effective practices are needed. One such potential approach is called Trust-Based Relational Intervention (TBRI), although it has not yet been implemented in an adoption preservation context (Purvis et al., 2009). This intervention was designed to help adopted children with trauma histories. The purpose of this study is to see if TBRI is successful in preserving adoptions, lowering parental stress and decreasing maladaptive behaviors in children receiving services at a local child welfare agency. To provide a background for this research, I will first give an overview of young adopted children who have histories of trauma. After briefly overviewing some of the current methods of treating children with complex trauma histories, I will discuss the need for adjusted treatment approaches. Finally, I will outline the underlying principles of TBRI before describing more detail about the present study.

Symptoms of Young Adopted Children with Trauma Histories

Regardless of the type of trauma to which they were exposed, children who have trauma histories have several commonalities. They generally have disrupted attachment styles and trouble forming healthy relationships, physical health problems with regards to both the body and the brain, the tendency to constantly go into fight-or-flight mode, non-normative emotional responses, inappropriate behavioral responses, and, if untreated, several long-term consequences that may result in an early death when compared to adults with no history of trauma (Gaon, Kaplan, Dwolatzky, Perry, & Witztum, 2013; Luke & Banerjee, 2012; Oswald et al., 2010).

The first area that is damaged when children are traumatized are their attachment styles and personal relationships. According to attachment theory, the interactions a child has with his

or her caregivers shapes his or her development of future relationships (Luke & Banerjee, 2013). Children who have been exposed to severe or chronic trauma often have disrupted attachment styles and because of this, it is rare that these children have securely attached to their caregivers (Lester et al., 2008). A large percentage of traumatized children in foster care are diagnosed with Reactive Attachment Disorder or display significant attachment problems. Typically, they behave in developmentally inappropriate ways in social situations and can become wary of others, isolated, and can be overly clingy and often lack boundaries in new relationships (Oswald et al., 2010). Attachment is particularly important when treating traumatized children because secure attachments to caregivers and the caregiver's use of effective caregiving practices have been linked to positive family functioning, ultimately protecting a child's mental health over time (Lester et al., 2008).

In addition to attachment and relationships, the brain and physical health are also impacted when children suffer from complex trauma. In traumatized children, there is an alteration of the hypothalamic-pituitary-adrenal axis such that cortisol levels are atypical (Oswald et al., 2010). Cortisol levels may still not be completely regulated after five years of living in a safe, adopted home, creating exacerbated effects on the children such as an increased resting heart rate, inability to concentrate, memory loss or amnesia, and an over alert mind (Davis, 1999). Prolonged over activation of the amygdala due to children being constantly on guard and hyper-vigilant during the period of time when they were abused or neglected, which can lead to long-term dysregulation of the body's internal chemistry (Purvis, Cross, & Pennings, 2007). Children who have been traumatized may suffer from body dysregulation due to brain changes. Hypersensitivity to sounds, smells, touch, or light and chronic pain or inability to feel pain are not uncommon symptoms in these children (Gaon et al., 2013). Even the immune

system of the child may be compromised; this can lead to fewer micro-organism-fighting lymphocytes, disrupted sleeping patterns, and changed eating habits (Davis, 1999). In addition to worse immune systems, children who experience complex trauma at young ages unfortunately may suffer long-term health consequences from their abuse. Some of the long-term effects are related to the child's nutrition; if a child is neglected, he or she is prone to chronic dehydration (Purvis et al., 2009). Neglected children might always be in a perpetual state of hunger and may hoard food to make sure that they always have some stored (Purvis et al., 2009). They may also be anemic and have an overall small stature as well (Purvis et al., 2007).

Children who have been traumatized may over generalize emotions and misinterpret social cues (Luke & Banerjee, 2013). Studies have shown that abused children pay less attention to certain social cues and interpret interaction scenarios in aggressive manners in comparison to children who have not been abused (Luke & Banerjee, 2013). Similarly, children who have been abused or neglected tend to have faster response times when identifying angry faces when compared to non-traumatized children, suggesting these children display hyper-responsivity to anger cues (Luke & Banerjee, 2013). Because many of these children were not exposed to anything but abusive social situations when they were young, they adapt a hostile attribution bias and act in maladaptive ways in social situations (Luke & Banerjee, 2013). For instance, if a child is not aware that an adult is about to touch him or her, the child may misinterpret the touch as abusive or aggressive and respond in an aggressive way towards the adult (Purvis et al., 2009). In this case, the anger and defiance is the child's way of masking his or her fear or anxiety because he or she did not learn the proper ways to express those feelings at a younger age (Purvis et al., 2009).

While traumatized children tend to over generalize emotions and have inappropriate emotional responses, they also tend to act in behaviorally inappropriate ways. Children suffering from traumatic stress symptoms generally can exhibit any of the following behavioral responses: excessive temper or aggressiveness, regressive behaviors, acting out in social situations, startling easily, becoming verbally abusive, screaming and crying excessively, acting withdrawn or lacking self-confidence, fearing adults but also fearing separation from them, and demonstrating excessive irritability (Purvis et al., 2007). Additionally, these children may tend to imitate the kind of negative social behaviors they were exposed to during the traumatic period (Luke & Banerjee, 2013). Finally, due to prolonged over activation of the amygdala, children with trauma histories enter “fight-or-flight mode” very easily which can cause several behavioral and emotional problems of its own. Children who are hyperaroused have trouble concentrating and processing and retaining new information, which can lead to diagnoses of Attention Deficit Hyperactivity Disorder (ADHD) and behavioral consequences in school settings (Davis, 1999). Constant dissociation can also be taxing on the child and diagnoses of dissociative disorders may arise later in life (Gaon et al., 2013). Finally, children with trauma histories are significantly more likely to be diagnosed with depression, eating disorders, substance abuse disorders, and bipolar disorder later in life than children who were not exposed to any trauma at young ages (Oswald et al., 2010). Ultimately, children with histories of trauma or abuse grow up and may end up dying earlier than adults who have not been exposed to this abuse as children (Felitti et al., 1998). Most of the aforementioned symptoms can be seen in the children and families being examined in the present study so as much as possible needs to be done in order to ensure that these children live long and healthy lives.

Current Trauma Treatment Practices

Although the aforementioned deficits seem severe, there are ways to address them in treatment due to the plasticity of the brain which grows and changes due to both genetics and the environment. However, when an infant is born, he or she has all of the neurons that he or she will ever have; if neurons are killed off at young ages, they will never grow back (Davis, 1999). There is a “sensitive period” during development where it is very easy for young children to learn certain abilities, so when children’s brains change from the trauma they are exposed to, there is a small window of time that they have before this sensitive period ends and they will experience additional difficulty in learning certain skills (Davis, 1999). Since the deficits that occur from trauma are so severe, there is no doubt that more needs to be done to help treat these children. These lasting effects are not easily ameliorated. The percentage of broken adoptions mentioned earlier demonstrates that there is a need for a new approach to treating these children so that they can learn as much as possible before the sensitive periods are over. Three of the most widely-accepted treatment methods for traumatized children are outlined below. They are considered to have some of the best evidence-basis by the National Child Traumatic Stress Network (2012).

Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT). This treatment method combines cognitive, behavioral, interpersonal, and family therapy to treat traumatized children on several levels (Dowd & McGuire, 2011). It treats PTSD-related symptoms such as victim self-blame and depression through psychoeducation, parenting skills, relaxation, trauma narratives, and desensitization (Dowd & McGuire, 2011). It is widely considered to be an evidence-based treatment practice for childhood PTSD (Siegel, Benton, Lynch, & Kramer, 2013). A limitation with this method is that it has not been studied in comparison to other

treatment types. Existing studies look at TF-CBT in comparison with control groups who receive no treatment (Stricker, 2012). Given this method of testing the efficacy, the intervention where therapy is received will almost always outweigh situations where no therapy is received (Stricker, 2012). Additionally, the therapy type is sometimes seen as “manualized” in that practitioners have a script to follow for each child client they have, preventing the use of individualized treatment to fit the needs of unique children (Stricker, 2012).

Parent-Child Interaction Therapy. This intervention uses play therapy and discipline skills teaching to improve the relationship between caregiver and child (Kinsey & Schlosser, 2013). Created to improve behavioral problems in young children, it is a two-stage treatment model that teaches parents to shape their child’s behavior and how to properly praise and punish their child when the maladaptive behavior continues (Querido, Bearss, & Eyberg, 2002). Studies have shown that it is effective in changing parental interactions with their children such that the parents learn to demonstrate reflective listening, decreased criticism, and significant decreases on self-reported personal stress (Querido et al., 2002). It is widely considered an evidence-based treatment practice for behavioral parent training (Niester, Thornberry, & Brestan-Knight, 2013). Its main limitation is that it is not suitable for parents who have limited contact with their child, serious mental health problems, hearing impairments, language impairments, or are physically or sexually abusive (Child Welfare Information Gateway, 2013).

Child-Parent Psychotherapy. This method also uses play therapy, but is structured differently (Kinsey & Schlosser, 2013). It is based in attachment theory but integrates psychodynamic, developmental, trauma, social learning, and cognitive-behavioral therapies as well and focuses on safety, affect regulation and normalization of traumatic experiences to aim to return the child to a normal developmental trajectory (Kinsey & Schlosser, 2013). Like

trauma-focused cognitive-behavioral therapy and parent-child interaction therapy, it is considered an evidence-based dyadic intervention that is used widely across the country (Willheim, 2013). This approach is complicated to teach therapists and to implement in a therapy setting which is a major limitation (Van Horn et al., 2012). It is expensive to implement and therapist fidelity is also an issue (Van Horn et al., 2012).

While all of these methods are considered evidence-based, each has limitations with respect to treating adopted children. While about 25% of adopted children have been diagnosed with PTSD, these methods do not specifically address the unique cluster of issues faced by adopted children (AFCARS, 2012). Trust-Based Relational Intervention is a recently developed method that helps bridge the gap between aspects of these evidence-based practices and adopted children; it is described below.

Trust-Based Relational Intervention

Trust-Based Relational Intervention (TBRI) is a technique that has been in development for a decade (Purvis et al., 2009). The intervention is based the three main principles (connecting, empowering, and correcting) that were developed specifically for adopted children with extensive trauma histories. However, the intervention has not been implemented in many child welfare agencies due to its novelty (Purvis et al., 2009). It is a family-based treatment model that has several components: therapists model the TBRI principles for the children and their caregivers after attending training on the intervention, caregivers watch Trust-Based Parenting videos and attend TBRI classes, and the caregivers and therapist work together to ensure the principles of TBRI are being implemented as much as possible both during- and post-treatment (Purvis & Cross, 2006). The set of intervention principles and settings in which it has been implemented on a preliminary basis are outlined below.

Connecting principle. The first TBRI principle, *the connecting principle*, states that in order to establish healthy relationships between adopted children and their new caregivers, secure attachment must be formed (Purvis et al., 2009). Since children who have been abused or neglected in their previous home environments have a tendency to hyperarouse or dissociate in response to even mild triggers, establishing healthy relationships where caregivers are attuned to their adoptive children is absolutely vital (Purvis et al., 2009). The connecting principle has two subcomponents within it: awareness and engagement (Purvis et al., 2009). The awareness component focuses on observing the child, recognizing negative behaviors and the feelings behind them, teaching the child to make and maintain safe eye contact, matching the physical position of the child to connect with them more deeply, keeping appropriate voice and inflection levels so the child understand what the caregiver means, and encouraging the child to process his or her feelings in the safest way possible (Purvis et al., 2009). Similarly, the engagement component focuses on actively listening to what the child has to say so he or she can form his or her own voice, forming nurturing interactions with the child so he or she can learn stable relationships for later in life, and using playful engagement to encourage trust and learning in the child (Purvis et al., 2009).

Empowering principle. The *empowering principle* follows the connecting principle and focuses on addressing the physical and physiological needs of the child after initial attachment has been established (Purvis et al., 2009). The two subcomponents are ecology and physiology, with ecology focusing on ensuring the child is in a safe environment and physiology focusing on keeping the child's internal functioning as balanced as possible (Purvis et al., 2009). Specifically, ecology looks at establishing felt safety (when the child actually knows that he or she is safe in his or her environment), ensuring the child has predictability in his or her environment at all

times, and making sure that the child is given advance warning when transitioning between various activities (Purvis et al., 2007). The focus of the physiology subcomponent is on using safe touch so the child can learn proper adult-child interactions, keeping the child properly hydrated, and making sure he or she receives the proper nutrition in his or her diet to reduce the persistence of hyperarousal responses (Purvis et al., 2009).

Correcting principle. The last of the three TBRI principles is the *correcting principle*, which aims to reduce the number of maladaptive behaviors displayed by the children and to correct them in a positive way when they do arise (Purvis et al., 2009). Its two subcomponents are proactive strategies and re-directive strategies (Purvis et al., 2009). Proactive strategies concentrate on the emotional regulation of the child, verbally encouraging and praising the child as much as possible, teaching the child various “life value terms” in the form of short phrases (such as “with respect” or “be gentle and kind”) to help him or her learn the core values of healthy relationships, and giving the children small choices whenever possible to help them learn the value of their own “voice” (i.e., expressing their needs and wants; Purvis et al., 2009). Re-directive strategies are used when the maladaptive behavior has already begun and emphasize giving the child choices for his or her discipline, giving the child “redos,” or chances to act out certain situations again in a more positive way, helping the child develop a natural sense of the consequences of his or her actions, using a voice of “gentle, but firm authority” when a child does not listen, being aware of the nonverbal body language that the child is seeing in the caregiver, and giving the child gentle reminders to help him or her complete tasks in a timely fashion (Purvis et al., 2009). Each of the three principles come together to form TBRI, which is the approach that was implemented in the current study.

Existing studies using TBRI. As previously mentioned, TBRI is a relatively new intervention and because of that, it has not yet been implemented in many child welfare agencies. However, preliminary studies suggest that this intervention is successful in treating children in the foster care system (Purvis & Cross, 2006; Purvis, McKenzie, Cross, & Razuri, 2013; Purvis, Cross, Jones, & Buff, 2012; Parris, Milton, Harlow, Cross, & Purvis, 2013, in press; Purvis, McKenzie, & Cross, under review; Razuri, Howard, Pennings, Call, Purvis, & Cross, in preparation).

One study examined 12 adopted children who participated in a five-week therapeutic day camp where TBRI was implemented by the creators of the method, doctoral students, and professional specialists from the community (Purvis & Cross, 2006). The Child Depression Inventory, the Family Drawings Assessment, and salivary cortisol levels were used to assess outcome measures (Purvis & Cross, 2006). At the end of the intervention, they found reduced levels of salivary cortisol, reductions in child depression, and healthier family attachment representations, suggesting that TBRI is effective in improving child functioning and has implications for improving overall family functioning as well (Purvis & Cross, 2006). However, there was a lack of a control group and random assignment was not used in this study so further research needs to be done to expand upon the knowledge of TBRI's efficacy.

A similar study also occurred in the setting of a day camp with 18 adopted children with histories of early deprivation and abuse (Purvis et al., 2013). The children were separated into two groups (aged 3-9 and 10-14) and attended a three week camp program in which the principles of TBRI were modeled and taught to them (Purvis et al., 2013). The following measures were collected: Beech Brook Attachment Disorder Checklist, Child Behavior Checklist, Randolph Attachment Disorder Questionnaire, Sensorimotor History Questionnaire

for Parents, a professional sensory screening, and an exit interview conducted with parents (Purvis et al., 2013). At the end of the program, parents reported increased spontaneous attachment behaviors, proximity seeking, improved eye contact, and spontaneous affection from their children (Purvis et al., 2013). Additionally, the children made significant advances in language and attachment and a decrease in overall sensory deficits (Purvis et al., 2013). These findings suggest that child functioning may improve with TBRI implementation and because the parents also seemed satisfied with the results, it would seem that TBRI also helps improve family functioning (Purvis et al., 2013). However, the sample size was small and there was not a control group, so there was a lack of an experimental design; therefore, it could not be concluded that TBRI was the cause of the observed changes. Additionally, it was conducted in a camp setting so it is still not known whether TBRI is effective in an outpatient therapy setting.

Another study was performed by the creators of the intervention and involved the transformation of the caregiving culture of a social service program that treats up to ten children at a time (Purvis et al., 2012). The experimenters taught the TBRI principles to the staff members of the program and tracked the frequency of serious incidents involving imminent risk of physical aggression by the children in the program, frequency of containments, and frequency of “other incidents” (verbal aggression, for instance) by the children (Purvis et al., 2012). They found that after implementing the TBRI principles within the program for two years, physical aggression incidents and frequency of containments significantly decreased and “other incident” frequency remained about the same (Purvis et al., 2012). These findings suggest that child functioning improves upon implementation of TBRI, which can extend to improvements in family functioning if the caregivers properly implement the TBRI principles as well (Purvis et al., 2012). However, as with the previous studies, a non-experimental research design was used

so research in a larger setting needs to occur to continue to judge the effectiveness of this intervention.

In addition to the previous three studies, there are also three studies that are either in press or under review that imply efficacy of TBRI. However, only the abstracts were available to review so less information is currently known about them. The first study examined complex trauma in school children and implemented TBRI in a school setting. The authors said that TBRI resulted in a reduced number and severity of behavioral problems in this population (Parris et al., 2013, in press). Another study, a case study, demonstrated the efficacy of TBRI in a home-based setting (Purvis et al., under review). Finally, TBRI was implemented with a pre-post intervention design on 105 adopted children and the results were that the percentage of scores in the clinical/borderline range decreased significantly among children in the intervention group but did not change in the control group (Razuri et al., in preparation). Two of these studies were not tested in adopted children receiving outpatient therapy, and none of the studies looked at the impact TBRI had on overall family function, so this study serves to fill this lack of literature.

The Current Study

The population of interest for this study was children who received TBRI during their treatment in the Keeping the Promise (Adoption Preservation) Program at a multi-service child welfare agency in Normal, Illinois. We examined data obtained from children who received TBRI through the Adoption Preservation program over the past two years. As this was one of the first treatment programs to implement TBRI in an outpatient setting, the goal of this study was to examine whether or not TBRI was an effective technique in preserving adoptions and reducing maladaptive behaviors in children with trauma histories. The main variable that was examined was the amount of TBRI-specific interventions that each family received. Clinical records of

amount and type of treatment received were used to determine the level of TBRI that each child received. We looked at whether the level of TBRI received was associated with overall family functioning (e.g. parental stress, relational frustration, discipline practices and attachment) and overall child functioning (e.g. global and psychiatric functioning).

There were four main sets of hypotheses that were tested. The first two sets of hypotheses had to do with child functioning. *The first main hypothesis was that overall child functioning would increase from pre- to post-treatment.* Specifically, hypothesis 1A (H1_A) was that children's assessment of functioning post-treatment would be significantly higher than pre-treatment. Hypothesis 1B (H1_B) stated that children's pre-treatment level of psychiatric problems would be significantly higher than their post-treatment levels. These predictions were based on preliminary data that suggested TBRI helps improve overall functioning in children (Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012; Parris et al., 2013, in press; Purvis et al., under review; Razuri et al., in preparation).

The second hypothesis was that receiving higher levels of TBRI would be related to higher levels of overall child functioning. Specifically, hypothesis 2A (H2_A) was that receiving high levels of TBRI would be significantly related to fewer psychiatric symptoms. Hypothesis 2B (H2_B) stated higher levels of TBRI would be significantly related to higher global functioning scores. These predictions were also based on preliminary data that suggested TBRI helps improve overall functioning in children (Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012; Parris et al., 2013, in press; Purvis et al., under review; Razuri et al., in preparation).

The third hypothesis was that overall family functioning would increase from pre- to post-treatment. Hypothesis 3A (H3_A) stated that pre-treatment parental stress levels would be significantly higher than post-treatment stress levels. Hypothesis 3B (H3_B) was that caregiver

relational frustration levels would be significantly higher pre-treatment than post-treatment. Hypothesis 3C (H3_C) was that post-treatment caregiver-reported attachment levels would be significantly higher than pre-treatment levels. Finally, hypothesis 3D (H3_D) stated that the discipline practices of caregivers would significantly improve from pre-treatment to post-treatment. These predictions were based on preliminary studies by the TBRI developers that suggested TBRI would help reduce caregiver stress over time (Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012).

The fourth hypothesis was that receiving higher levels of TBRI would be related to higher overall family functioning. Specifically, hypothesis 4A (H4_A) was that high levels of TBRI would be related significantly to lower parental stress levels by caregivers. Second, hypothesis 4B (H4_B) was that high levels of TBRI would be related to low levels of relational frustration. Third, hypothesis 4C (H4_C) was high levels of TBRI would be related to significantly higher attachment scores. Finally, hypothesis 4D (H4_D) was that high levels of TBRI would be significantly related to better caregiver discipline practices after treatment. All of these predictions were also based on preliminary studies by TBRI developers that suggested TBRI would help reduce caregiver stress over time (Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012).

Method

Participants

This study examined 167 children receiving outpatient services from the Adoption Preservation Program at The Baby Fold, a child welfare agency in Normal, IL. The purpose of the Adoption Preservation program is to “reduce the risk of out-of-home placement and to increase family stability through the provision of individual and family therapy” (The Baby Fold,

2011). Each client goes through an initial intake session and mental health assessment before an individual treatment plan is formed. Therapy then consists of weekly or bi-weekly in-home therapy sessions for an hour or two hours at a time; family and group sessions also occur throughout the treatment process. Cases are closed when the client and therapist both agree that the treatment goals are reached and no further issues need to be resolved. Data are collected throughout the treatment process.

Specifically, this study examined cases opened from July 2011 to July 2013. This time frame allowed us to capture all of the cases where some degree of TBRI had been implemented and for the cases opening towards the latter end of the time period, allowed at least six months' time to collect data. Out of the 167 cases that were potential participants in this study, 57.6% were boys and 42.4% were girls. The children ranged from 4 to 19 years old ($M = 11.93$, $SD = 3.63$). Of the 142 cases with pre-treatment child functioning data, 42.25% were considered below the general clinical cutoff point, suggesting moderate to significant interference in functioning ($M = 52.64$, $SD = 8.75$).

Even though 167 cases were examined in this study, some were excluded from analysis because data files were incomplete. This was due to the lack of post-treatment data from therapists and caregivers. Out of the 81 cases with complete therapist pre- and post-treatment data, 62.5% were boys and 37.5% were girls, and their ages ranged from 4 to 19 years old ($M = 12.23$, $SD = 3.98$). Of the 53 cases with complete caregiver-reported pre- and post-treatment data, 49.1% were boys and 50.9% were girls, and their ages ranged from 4 to 18 years old ($M = 11.83$, $SD = 3.78$). While the subsample of participants for each measure is different based on the available data, the overall demographics are reflective of the larger sample. The specific number of participants for each measure is mentioned in the results section.

Measures

We monitored the effectiveness of the TBRI by assessing child and family functioning levels at the start of treatment and six months into treatment. Specifically, we chose the Brief Psychiatric Rating Scale for Children (BPRS-C) and Child's Global Assessment Scale (CGAS) to assess children's levels of functioning, and the Parental Stress Scale (PSS) and the Relational Frustration, Attachment, and Discipline Practices scales of the Parenting Relationship Questionnaire (PRQ-CA) to assess the level of family functioning. These measures are routinely collected by therapists and staff members at the Baby Fold. Additionally, a TBRI involvement scale was used to determine whether each child received a high or low level of TBRI involvement in their therapy program.

Brief Psychiatric Rating Scale for Children (BPRS-C). The BPRS-C is comprised of 21 items that are rated on a scale ranging from 0 being "not present" and 6 being "extremely severe" (Overall & Pfefferbaum, 1982). It was developed to assess various psychiatric problems in children and adolescents and is designed for use by mental health professionals who are experienced in working with emotionally disturbed children and adolescents (Overall & Pfefferbaum, 1982). Inter-rater reliability correlations of ratings of 48 patients by 3 raters ranged from .46 to .89 (Overall & Pfefferbaum, 1982). Additionally, studies have found that it is valid and reliable as part of a routine intake and discharge processes in child psychiatry systems (Gold et al., 2009).

Child's Global Assessment Scale (CGAS). The CGAS is a numeric scale, ranging from 1 through 100, that is used by mental health clinicians to rate the general functioning levels of children (Gold et al., 2009). Studies have found that it is valid and reliable as part of a routine intake and discharge processes in large child psychiatry systems (Gold et al., 2009). A score

ranging from 100 down to 51 indicates adequate overall functioning, with the lower scores suggesting sporadic difficulties in some social areas; a score of 50 or below suggests moderate to significant interference in functioning and is considered the general clinical cutoff point (Schaffer et al., 1983).

Parenting Relationship Questionnaire (PRQ-CA). The PRQ-CA assesses a caregiver's perspective of the caregiver-child relationship (Kamphaus & Reynolds, 2006). It includes seven different clinical scales: Attachment, Communication, Discipline Practices, Involvement, Parenting Confidence, Satisfaction with School, and Relational Frustration (Kamphaus & Reynolds, 2006). The four responses for each item are "never," "sometimes," "often," and "almost always." Scale inter-rater reliabilities are high, with median values for each norm group ranging from .82 to .87, and the median test-retest reliability correlation is .79; it has satisfactory validity as well (Kamphaus & Reynolds, 2006). The subscales that will be used in the present study are Attachment, Discipline Practices, and Relational Frustration. These were chosen because the experimenter and program supervisor determined that they were the three that matched up most closely with the principles of TBRI.

Parental Stress Scale (PSS). The PSS is a self-report scale containing 18 items that represent both positive (e.g. emotional benefits) and negative (e.g. demands on resources) themes of parenthood (Berry & Jones, 1995). Items are rated 1 through 5, with 1 being "strongly disagree" and 5 being "strongly agree," with five of the items being reverse scored. It has Cronbach's alpha level of .83 and a test-retest reliability correlation of .81, and has demonstrated satisfactory validity as well (Berry & Jones, 1995).

Level of TBRI

The independent variable for our study was the amount of TBRI received and it was determined from the results of a scale completed by therapists. This scale was created specifically for this study by the experimenter and program supervisor based on previous research identifying relevant factors of TBRI (Purvis & Cross, 2006; Purvis et al., 2012). Within the scale, items that were identified are whether the primary caregiver watched the assigned TBRI videos alone, watched them with a therapist in a group or in individual sessions and the number of videos watched, the number of classes (if any) the primary caregiver attended, the degree to which the therapist believes the primary caregiver has embraced the three principles of TBRI, to what extent the TBRI concepts were modeled by a therapist to the caregiver, whether the therapist attended TBRI training, and therapist buy-in of the TBRI principles.

Some response formats were yes or no questions and others were a scale from 1 to 4 or 1 to 5, depending on the question. For instance, the degree to which the therapist modeled TBRI in sessions was scored on a 1 to 5 scale, with 1 being very little modeling and 5 being modeled nearly every session. Questions pertaining to the TBRI classes were scored on a 1 to 4 scale, with 1 being no attendance and 4 being received a completion certificate.

For data analysis purposes, separate scores were calculated for each child based on these collected surveys such that a score for just therapist-related TBRI questions was calculated and a score for just caregiver-related TBRI questions was calculated, leading to two level of TBRI scores per child.

Procedure

First, IRB approval was obtained and a list of every child whose cases were opened from July 2011 to July 2013 in the Adoption Preservation Program was compiled. Next, TBRI

involvement scales were given to the therapists who worked with those children and they filled them out for each child they worked with during that time. They were collected back from the therapists two weeks later and TBRI scores were calculated for each case. Then, pre- and post-test data from each of those cases were pulled from both the individual physical files and electronic files and compiled into a single document. In general, child functioning measures are determined by the therapists when cases are first opened and upon closure of cases, and family functioning measures are determined by self-report data filled out by the caregivers before and after treatment. The difference scores were calculated for each child and family functioning measure and added to the collective data document. Finally, the data were analyzed to determine significance.

Results

Dependent t-tests: Pre-post changes in child and family functioning

Dependent paired samples t-tests were first conducted to determine whether pre- and post-test data were significantly different. In support of hypothesis 1 ($H1_A$ and $H1_B$), both variables representing child functioning significantly improved from pre- to post-treatment, regardless of the level of TBRI received. Specifically, children's global functioning was rated significantly higher post-treatment than pre-treatment, $t(76) = 7.06, p < .001$. Children's psychiatric symptom levels significantly decreased from pre-treatment to post-treatment, $t(58) = 5.18, p < .001$. Similarly, in support of hypothesis 3 ($H3_A, H3_B,$ and $H3_C$), almost all variables representing family functioning significantly improved from pre- to post-treatment. Specifically, caregiver's stress levels significantly decreased from pre-treatment to post-treatment, $t(46) = 2.33, p = .024$. Caregiver frustration levels also significantly decreased, $t(23) = 2.82, p = .010$. Caregiver self-reported attachment ratings significantly increased, $t(23) = 3.66, p = .001$. Finally,

the study was inconclusive about caregiver discipline practices, $t(23) = 0.12, p = ns$. The descriptive statistics from these tests can be found in Table 1.

Correlational analyses: TBRI intensity and child and family functioning

Correlational analyses were conducted to determine which child functioning (hypothesis 2) and family functioning (hypothesis 4) variables were significantly related to the received level of therapist-related TBRI and caregiver-related TBRI. The results of these analyses can be found in Table 2. These analyses indicated that attachment difference scores were the only variable significantly related to caregiver-related TBRI levels, and no variables were related to therapist-related TBRI levels. There was a relatively large, positive correlation between the caregiver-reported TBRI scales and the difference in attachment after treatment such that higher levels of TBRI were related to higher attachment ratings for the subset of clients with both measures available, $r = .52, N = 21, p = .016$.

Table 1
Descriptive statistics for pre- and post-treatment scales

Scale	Pre-treatment		Post-treatment			<i>d</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>N</i>		
CGAS	53.26	8.82	59.60	11.23	77	7.06**	0.80
BPRS-C	32.92	16.68	23.86	14.16	59	5.18**	0.67
PSS	47.77	13.14	44.81	12.42	47	2.33*	0.34
PRQ Frustration	69.38	13.02	63.13	12.12	24	2.82*	0.58
PRQ Attachment	33.83	8.83	41.17	12.70	24	3.66**	0.75
PRQ Discipline	46.71	10.23	46.96	10.22	24	0.12	0.02

Note. CGAS = Child Global Assessment Scale, BPRS-C = Brief Psychiatric Rating Scale for Children, PSS = Parental Stress Scale, PRQ = Parenting Relationship Questionnaire.

* $p < 0.05$, ** $p < 0.001$.

Table 2.

Pearson correlation matrix for TBRI, child functioning, and family functioning variables

Scale	TBRI		Therapist Report		Caregiver Report			
	1	2	3	4	5	6	7	8
TBRI								
1. Therapist								
2. Caregiver		.54** (146)						
Child Outcomes (Therapist Report)								
3. CGAS	.12 (70)	.13 (70)						
4. BPRS-C	.06 (53)	-.19 (53)	-.39** (53)					
Family Outcomes (Caregiver Report)								
5. PSS	.06 (43)	0.18 (43)	.21 (27)	.22 (16)				
6. PRQ Frus.	-.05 (24)	-.20 (21)	-.15 (16)	.00 (14)	.30 (17)			
7. PRQ Attach.	.22 (24)	.56** (21)	.04 (16)	-.12 (14)	-.32 (17)	-.46* (24)		
8. PRQ Discip.	.21 (24)	0.35 (21)	-.12 (16)	.01 (14)	.06 (17)	.06 (24)	.03 (24)	

Note. CGAS = Child Global Assessment Scale, BPRS-C = Brief Psychiatric Rating Scale for Children, PSS = Parental Stress Scale, PRQ Frus. = Parenting Relationship Questionnaire, PRQ Attach. = Parenting Relationship Questionnaire Attachment, PRQ Discip. = Parenting Relationship Questionnaire Discipline Practices. The number of participants in each analysis is denoted in parentheses after each *r* value.

* $p < .05$, ** $p < .01$

Discussion

This study investigated whether TBRI was an effective method of treating traumatized children who have been adopted. Since current trauma treatment practices have not been entirely effective at treating all emotional and behavioral symptoms these children exhibit and reducing the number of disrupted adoptions, TBRI seemed like a promising new intervention (Oswald et al., 2010; Luke & Banerjee, 2013; Dowd & McGuire, 2011; Querido et al., 2002; Kinsey & Schlosser, 2013). Based on previous studies, we expected that child and family functioning would improve when TBRI was used in tandem with regular treatment in outpatient therapy

(Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012; Parris et al., 2013, in press; Razuri et al., in preparation).

The results of this study supported the first hypothesis that overall child functioning would improve from pre-treatment to post-treatment. Specifically, child functioning measures significantly increased and child psychiatric symptoms significantly decreased. However, the results of this study did not support the second hypothesis that the level of TBRI received would be related to child functioning variables; on the contrary, none of the child functioning variables were related significantly to either therapist- or caregiver-rated TBRI levels. The third hypothesis that family functioning would significantly increase from pre-treatment to post-treatment was supported in that caregiver stress and frustration levels significantly decreased and attachment significantly increased, although the study was inconclusive about discipline practices. Finally, the results of this study provided mixed evidence for the fourth hypothesis that caregiver-rated TBRI levels would be related to family functioning variables. Specifically, received caregiver-rated TBRI levels were significantly correlated with attachment scores as self-reported by caregivers; but, TBRI was not significantly associated with caregiver stress levels, frustration levels, or discipline practices.

Results of earlier research indicate that TBRI treatment and child functioning may be related (Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012; Parris et al., 2013, in press; Purvis et al., under review; Razuri et al., in preparation). One study implemented TBRI in a day-camp setting and found that children's levels of depression were significantly reduced after the intervention (Purvis & Cross, 2006). Another implementation of TBRI in a day-camp setting revealed a link between TBRI and advances in language and decreases in sensory deficits (Purvis et al., 2013). Finally, a decrease in physical aggression incidents has also been shown (Purvis et

al., 2012). Similar to these prior studies, overall child functioning significantly improved from pre- to post-treatment when TBRI was used with regular therapy services. The results of the present study, however, indicated that the level of TBRI and overall child functioning were not significantly correlated, which seems contrary to current literature findings. Overall, since TBRI is a relatively new technique and has only been implemented in non-experimental settings, definitive conclusions about whether TBRI is related to improved child functioning or if the improvement was due to other therapy services cannot be drawn. This apparent conflict and the implications of these results will be explored further later on.

Previous literature has indicated that overall family functioning and TBRI are related (Purvis & Cross, 2006; Purvis et al., 2013; Purvis et al., 2012). Spontaneous attachment behaviors as self-reported by caregivers have been documented (Purvis et al., 2013), as well as healthier family attachment representations by the children (Purvis & Cross, 2006). Additionally, TBRI has shown to be effective in a home-based setting (Purvis, McKenzie, & Cross, under review). The present study found that in general, the change in attachment scores as rated by the child's caregivers had a large, positive correlation with the level of caregiver-rated TBRI received. This is consistent with the aforementioned studies suggesting that attachment in improved after TBRI is implemented. This is significant because the essence of TBRI is a focus on the need for traumatized children to securely attach to their caregivers in order to function properly. The *connecting principle* of TBRI is the foundation of the entire intervention (Purvis et al., 2009), and this study is consistent with the hypothesis that TBRI promotes increased attachment between child and caregiver. However, given the nature of the correlational research design, causal conclusions cannot be drawn.

Even though attachment significantly correlated with the level of TBRI received, both child functioning measures, caregiver discipline practices and stress and frustration levels did not significantly correlate with TBRI engagement. We propose two potential reasons for this finding. First, while TBRI is supposed to help reduce behavioral problems in the long run, it may take some time to lay the foundation for this to occur. TBRI focuses on attachment as the base of its intervention; after attachment is established, behaviors can begin to be shaped by the caregivers (Purvis et al., 2012). Since post-test data were collected right after cases were closed, it seems logical that only attachment significantly correlated with level of TBRI. If data were collected again a year after treatment ended, it is possible that child functioning and the other variables would significantly correlate with the level of TBRI received. Second, there may have been other important variables not examined in this study that are more related to improvements in overall child and family functioning. Some of the variables that had higher weight in the TBRI scale we developed (i.e., therapist TBRI buy-in) may not have been as important as other variables such as the amount of time spent with the therapist on things other than TBRI therapy. As TBRI has never been implemented in an outpatient adoption preservation therapy setting such as in the present study, it may be that these other, unaccounted for variables impacted the relationship between TBRI and improved behavior. Additionally, since we developed the TBRI scale used, its validity is unknown.

Despite the lack of significant correlational data, there were still some interesting findings from the analyses that were performed. Since every child in this study received some degree of TBRI, analyses were conducted on just pre- and post-treatment data to determine if there was a significant difference between them. We found that all of the measures except caregiver discipline practices showed a significant difference between pre- and post-test data,

indicating that to some degree, the treatment package for traumatized children that included TBRI as a major component was effective overall. Child functioning had the largest effect size, while caregiver attachment and frustration levels and child psychiatric symptoms also had medium effect sizes. While therapy sessions for every child consisted of more than just modeling TBRI techniques to the children, TBRI was a large component of the caregiver's involvement in treatment. These findings are significant because they indicate that TBRI may be an effective technique to the treatment of traumatized children. More importantly, they demonstrate that traumatized children can show positive and meaningful responses to treatment which may help the number of disrupted adoptions decrease over time.

There were a few main limitations of this study. The first was the lack of a true experimental design with random assignment to treatment levels. Since this is ethically challenging to achieve in a real-world treatment setting, this study was quasi-experimental in nature which could have contributed to some of the lack of consistency in results. The second main limitation was that the lack of post-treatment data from both the therapists and caregivers led to smaller sample sizes than anticipated for analyses and low overall power of the results. This could be corrected in the future by stressing the importance of collecting post-treatment data, and using a wider range of cases to increase the likelihood of having cases with both pre- and post-treatment data available. One final limitation had to do with the TBRI scale that therapists completed to determine the level of TBRI that each child received. Since the scale was retrospective in nature, therapists had to recall very specific details about the treatment experience of children from up to two years ago. Additionally, it was a self-report scale and although it was stressed that no one would have access to it except the experimenter and program supervisor, some of the therapists may not have been completely honest with questions about

their “buy-in” to the TBRI principles due to the fear of being reported to their supervisors. Finally, the integrity of the measure was unknown because of the lack of inter-rater reliability tests and the fact that the scale we developed was more subjective than objective in nature so it was difficult to properly scale some of the items. A more effective way of measuring the level of TBRI received should be developed for future studies.

As mentioned before, the exact relationship between TBRI and overall functioning levels is still unknown. Due to the lack of TBRI implementation in many clinical settings, there is a lack of consistent literature that leads to generalizable conclusions. The present study shed light on two areas that warrant further investigation – the results found that TBRI in addition to regular therapy may help increase child and family functioning and that attachment specifically maybe the aspect that is most significantly impacted by the implementation of TBRI. Future studies should be conducted in a more controlled, experimental setting if possible to better establish the efficacy of TBRI. A specific study that could be done would be to split the children receiving TBRI into three groups: a high TBRI treatment setting, a low TBRI treatment setting, and a no TBRI treatment setting. This scenario could not be done in the present study due to the continuous nature of the TBRI scale we developed. One final study that could be done in the future to expand upon the present study should involve more cases and use a regression analysis to determine whether TBRI levels are significant predictors of overall child and family functioning.

The goal of this correlational analysis was to contribute to the understanding of TBRI and its effectiveness in an outpatient treatment setting. The findings lead to the conclusion that higher caregiver-related TBRI levels are related to higher attachment ratings and that when packaged with other forms of trauma treatment, TBRI contributes to better child and family functioning.

More importantly, these results suggest that TBRI with further research and implementation, TBRI, when packaged with other forms of trauma treatment practices, has the potential to be an effective treatment modality to help traumatized children and maybe even help the number of disrupted adoptions in the United States start to decrease.

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