# MULTI-INFORMANT PTSD SYMPTOM AGREEMENT ACROSS DEVELOPMENT AND PARENT-CHILD RELATIONSHIP QUALITY

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by

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# MULTI-INFORMANT PTSD SYMPTOM AGREEMENT ACROSS DEVELOPMENT AND PARENT-CHILD RELATIONSHIP QUALITY

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## DEDICATION

To my son and husband, Declan and Sean. Without their love, support, and encouragement, none of this would be possible. A special thanks to Morgan, for believing in me.

## ABSTRACT

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Childhood trauma is highly prevalent and is often associated with higher rates of substance use, depression, and suicide. Accurate diagnosis and symptom identification of posttraumatic stress is crucial when determining treatment, however clinicians must combine and integrate reports from both the primary caregiver and child/adolescent's perspective. Historically, examination of these two perspectives has led to a pattern of low concordance rates across multiple disorders, leading clinicians to rely on clinical judgment to reconcile the differences and allowing for deleterious clinical implications. When considering factors contributing to symptom concordance, age of the child and the relationship quality between a primary caregiver and child have been explored, yet mixed results have resulted. In this study, data from three hundred and seventy-seven at risk or maltreated children from the Longitudinal Studies in Child Abuse and Neglect (LONGSCAN) study were analyzed in a secondary data analysis. Results demonstrated high agreement between reporters (parent and child/adolescent) on PTSD symptoms, regardless of age and relationship quality. Results mirror findings within the extant literature, which largely report low to moderate PTSD symptom concordance rates between reporters. Clinical implications and study limitations were discussed.



KEY WORDS: PTSD symptom agreement, multi-informant, children, adolescents, quality of relationship, age

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# CHAPTER I

## Introduction

Children's exposure to trauma within the United States is highly prevalent, with 26% of children witnessing or experiencing a traumatic event before the age of 4 ("Childhood Trauma and Its Effect," 2012). In 2015, four million referrals for suspected child abuse or neglect (a total of 7.2 million children) were reported to child protective services, an increase of 9% from 2011 (U.S. Department of Health & Human Services, 2017). Of those reported, 18% of the cases were substantiated, which translates to roughly 683,000 children who had experienced abuse and/or neglect. The residual effects of traumas often include long-term ramifications, with most individuals experiencing some posttraumatic symptomology (PTS). Children exposed to a traumatic event are considered to be at a higher risk for the development of posttraumatic stress disorder (PTSD), with 5% of children being diagnosed with PTSD within their lifetime (Merikangas et al., 2010). Additionally, elevated risk for depression (Anna, Antje, Jens, & Thomas, 2016; Mandelli, Petrelli, & Serretti, 2015), substance use (Wardell, Strang, & Hendershot, 2016), and suicide attempts (Hoertel et al., 2015) has been associated with trauma exposure.

Due to the potential for negative effects that result from trauma exposure, accurate diagnosis and symptom identification of posttraumatic stress is crucial when determining treatment for any person, regardless of age or disorder. When assessing children or adolescents, clinicians are met with the unique challenge of assimilating reports from at least two different sources: the primary caregiver's and the child/adolescent's perspective. Combining these two perspectives can be difficult due to

disagreement between reporters. In a study conducted by Jensen at el. (1999), parent-child agreement was low for both internalizing and externalizing disorders. Indeed, agreement between reporters is low across diagnostic categories. For example, agreement between the parent and the child or adolescent is typically low for diagnoses of anxiety related disorders, ranging from weak agreement (Comer & Kendall, 2004) to parental symptom over-reporting (Dibartolo, Albano, Barlow, & Heimberg, 1998). However, this literature is mixed; several anxiety disorders, such as separation anxiety disorder (SAD), social phobia, and specific phobia, were found to have statistically significant parent-child agreement (Hamblin et al., 2016; Meiser at el., 2007). Parent-child consensus for depressive symptoms follows a similar pattern to anxiety disorders, with low agreement between children and parents (Fraser et al., 2017) to parents accurately reporting and predicting the onset of a depressive disorder (Lewis et al., 2012b).

The bulk of existing literature on parent-child symptom agreement in the context of trauma centers on concordance in exposure to trauma and the primary caregiver's ability to estimate the potential psychological distress/impact of the trauma on the child. In a study by Stover, Hahn, Im, and Berkowitz (2010), agreement between the parent and child regarding the type of traumatic event experienced ranged from poor to moderate, with the highest agreement rates for trauma exposure being the death of someone close, the child being a witness or victim of sexual activities, or a family member arrested or in jail. Additionally, previous research has shown high parent-child disagreement in ratings of the physical severity and the psychological intensity of the traumatic event (Taylor & Weems, 2009), as well as parents' tendency to underreport their children's feelings of psychological distress following a trauma (Ceballo, Dahl, Aretakis, & Ramirez, 2001;

Stover, Hahn, Im, & Berkowitz, 2010). Consistent with other research findings (Hill & Jones, 1997; Kuo, Mohler, Raudenbush, & Earls, 2000; Lewis et al., 2010), Lewis et al. (2012a) found that youth reported more trauma symptoms and reported witnessing violence more than their caregivers reported on their behalf.

Incongruence between parent- and child-reported symptoms can have deleterious clinical implications, particularly for two fundamental reasons. First, in the aftermath of a traumatic event early invention is often regarded as ideal. Across all age groups, early intervention strategies for those exposed to trauma have shown promise in reducing symptoms (Agazzi et al., 2019; Kramer & Landolt, 2011), as well as decreasing the likelihood of later development of PTSD (Berkowitz, Stover, & Marans, 2011). As caregivers are the primary seekers of treatment for their children after a traumatic event, disagreement between the parent and child on the presence of symptoms may impact the child's ability to receive treatment at a critical period of time. Researchers within the field have theorized as to why parents might disagree with their children's self-reported symptomology, suggesting parents are failing to detect of symptoms of distress, parental biases, children's deliberate concealment of symptoms, or the quality of the parent-child relationship (Bidaut-Russel et al., 1995). The unfortunate consequence of parent-child symptom discordance not only places the child at risk for not receiving early access to treatment but, in situations in which treatment is sought, it might also impact the level of parental involvement in therapy (Israel, Thomsen, Langeveld, & Stormark, 2007). Given the importance of parents involved in treatment early on, it is not surprising parental involvement is also associated with better long-term outcomes, such as greater treatment

gains and higher remission rates (Bambrah, Mastorakos, Cordeiro, Thornback, & Muller, 2018).

A second problematic clinical implication for incongruent reporting relates to the clinician's ability to determine the most appropriate treatment options. A common practice within the field is for a clinician to rely heavily on collateral information from the parents in order to determine the presence, frequency, and intensity of any symptomology (Cantwell, Lewinsohn, Rohde, & Seeley, 1997). Primary caregivers are deemed vital sources of information on not only the occurrence of potential symptoms but also on the overall functioning of the child (i.e., levels of impairment and distress). The information gathered from all sources is then used by the clinician to determine appropriate treatment options. However, if a large enough discrepancy exists between two essential reporters, the parent and the child, then the clinician is forced to rely on clinical judgement to reconcile the differences (Jensen et al., 1999). This could lead to the clinician identifying, focusing, and ultimately treating symptoms based on an inaccurate depiction of the problem(s), possibly providing insufficient or inappropriate care.

Despite the literature suggesting that discordance in parent-child reports is a problem in clinical practice, much less attention has been directed towards parent- and child-reported PTSD symptom agreement. Of the studies that have looked at the concordance of PTSD symptom reporting, the majority of results find at least some discordance in symptomology between parent and child reports. For example, Stover, Hahn, Im, and Berkowitz (2010) found concordance between parent and child/adolescent reporting to be high for re-experiencing cluster symptoms but low for the avoidance cluster and the hyperarousal cluster. In a study by Scheeringa, Wright, Hunt, and Zeanah

(2006), parents underestimated PTSD symptoms experienced by their children, and the concordance between the type of symptoms reported was low. Furthermore, several studies have identified children and adolescents as significantly better predictors of a trauma-related diagnosis when compared to their primary caregivers (Kassam-Adams, Garcia-Espana, Miller, & Winston, 2006; Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2007; Shemesh et al., 2005). Finally, some studies present conflicting results, such that parents underreport symptomology immediately following the traumatic event, yet over time the concordance between child and parent reports converged (Schreier, Ladakakos, Morabito, Chapman, & Knudson, 2005). Similarly, Dyb, Holen, Braenne, Indredavik, and Aarseth (2003) found significant discrepancies between parent and child on posttraumatic symptoms at 5 weeks following a motor vehicle accident, yet at the 6 months follow up there was no difference in the reports.

Considering the developmental stage (i.e., childhood versus adolescence) of the child adds further complexity. Indeed, results on the effects of age on agreement have been mixed. For instance, a study that examined depression symptom reporting from the primary caregiver and child found that age was significantly related to a caregiver's predictive abilities (Lewis et al., 2012b); parents could predict future diagnosis of a depressive disorder if their child was 12 years and younger but not for adolescents. Still, other research has yielded different results. In a study by Hamblin et al. (2016), age was a significant moderator for social phobia, with older children demonstrating higher agreement with their parents. Other findings are consistent with this research, suggesting higher agreement rates between older children and caregivers than between children and caregivers (Dyb, Holen, Braenne, Indredavik, & Aarseth, 2003; Jensen et al., 1999;

Lewis et al., 2012a). Finally, some studies have found no difference in reporting across age groups. Stover, Hahn, Im, and Berkowitz (2010) determined the age of the child (school-age children v. adolescents) did not predict traumatic experience agreement between reporters. No difference or non-significant differences between age groups is well represented in the literature (Choudhury, Pimentel, & Kendall, 2003; Grills & Ollendick, 2003; Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2007).

One possible explanation for the inconsistent results noted in child/adolescent and caregiver trauma symptom reporting is the effect of the parent-child relationship. In a study conducted by Grills and Ollendick (2003), high family conflict yielded lower symptom agreement across multiple disorders. Kolko and Kazdin (1993) found that lower family stress and higher child acceptance both yielded higher agreement rates between parent and child symptom reporting. Additional studies found that both parental engagement and more frequent communication between the parent and the child increased symptom agreement (Jackson, Bijstra, Oostra, & Bosma, 1998; Treutler & Epkins, 2003). All of these aspects of the parent-child relationship could conceivably play a role in symptom observation by parents, symptom disclosure by children/adolescents, and thus, concordance between raters. Further, considering the parent-child relationship may help explain extant literature documenting differences in concordance (albeit inconsistently) across developmental stages. To date, there has not been a study looking at the quality of the relationship between the parent and the child as a moderating variable. Although, several studies have found that family environment, like family conflict (Morris, Lee, & Delahanty, 2013) and parental distress after the trauma

(Schreier, Ladakakos, Morabito, Chapman, & Knudson, 2005) seem to play a role in parental recognition of symptoms in their child.

The current study, a secondary data analysis, attempted to further the limited knowledge base on the factors that explain concordance between parents and children when reporting PTSD symptomology. Specifically, we proposed exploring the following research question: does agreement in caregiver v. youth report of PTSD symptoms depend on the quality of the dyadic relationship as well as the youth's age? First, we hypothesized that the concordance between the parent- and child-reported PTSD symptoms would be moderated by parent-youth relationship quality. Specifically, we expected that the relation between symptom reports would be stronger in the presence of a stronger relationship between parent and child. Second, we hypothesized a moderation effect for child's age wherein concordance between reporters would be stronger in older children. Finally, we also expected that the effect of the parent-child relationship would depend upon the child's age. Therefore, we hypothesized a significant three-way interaction effect for parent-reported child PTSD symptoms, age, and the quality of parent-child relationship would predict child-reported PTSD symptoms such that the effect of the parent-child relationship on concordance between reporters would be stronger in older children.

# CHAPTER II

## Methodology

### Participants

Participants were 377 children and adolescents (189 females and 188 males) from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) study. All participants included in the sample were identified as children at risk for or those already exposed to maltreatment. Descriptions of LONGSCAN sites and participants recruited at each site is detailed below. The LONGSCAN sample consisted of 1,354 children and adolescents; however, the current study included 377 children from four recruiting sites. One recruiting site, South (SO), did not collect data on the parent-child relationship, therefore participants ($N$ = 243) recruited from this site were excluded. Addition participants excluded from the final analysis were individuals with data missing from any time point ($N$ = 711), as well as those registered as outliers ($N$ = 23); therefore, a total of 977 children from the original LONGSCAN sample were excluded due to missing or abnormal data. A summary of the method used to identify outliers is detailed in the Results section. There was no significant difference in child-reported PTSD symptoms, $t(1051) = -.39$, $p = .52$, for those excluded ($M$ = 53.03, $SD$ = 12.79) for missing data from individuals included ($M$ = 52.72, $SD$ = 12.48) in the analyses, suggesting that exclusion was unrelated to the dependent variable in the present study. Participant median age was 12, and they described themselves as Caucasian (19.6%), African-American (51.7%), Hispanic (0.8%), American Indian or Native American (0.8%), Asian or Asian-American (< 0.1%), and Mixed (0.1%). Eligible participant demographics, as well as selective demographics on caregivers, are presented in Table 1.

**Procedures**

The Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) dataset was used in this study, a secondary data analysis. The LONGSCAN study is a consortium of research studies with the unified goal of following maltreated and at-risk children and adolescents from childhood through young adulthood. Data collection on the participants began at the age of four, with additional data collected at the following time points (by age) 4, 6, 8, 12, 14, 16, and 18. For this study, data from ages 8, 12, and 16 were used, based on the measures selected for inclusion. The LONGSCAN study contained of five recruiting sites across the United States consisting of three primarily urban sites, East (EA), Midwest (MW), and Northwest (NW), one primarily suburban site in the Southwest (SW) and one statewide site in the South (SO); however, the present study did not include participants from the South (SO) due to the site selecting to not collect data on the parent-child's relationship quality. All sites were linked through the coordinating site at The University of North Carolina at Chapel Hill, which did not collect participant data. Each independent site operated on common by-laws and procedures, with identical data collection forms and measures. Study design and details for each recruiting site have been previously reported by Runyan et al. (1998) and additional details on site samples is outlined in the following section. The LONGSCAN dataset used in this report was obtained through the National Data Archive on Child Abuse and Neglect (NDACAN). IRB approval from Sam Houston State University was obtained prior to data analyses and hypotheses were preregistered (osf.io/fhsrc).

**LONGSCAN Site Descriptions**

The LONGSCAN consortium consisted of community samples that presented various levels of risk for, and in some cases, documented levels of maltreatment (Hunter, Knight, & National Center on Child Abuse and Neglect, 1998). The East (EA) site was located in Baltimore, MD, and recruited 237 participants with backgrounds considered to be at an elevated risk for maltreatment. One-third of the sample of children recruited were diagnosed with non-organic failure-to-thrive within the first 2 years of life. The remaining two-thirds of children recruited consisted of children from low socio-economic backgrounds and were recruited for participation from various clinics within Baltimore. One of the primary clinics referred children from families in which the mother was either HIV-infected or at high risk for contracting HIV. Another group of children were recruited from primary care clinics across Baltimore. Those identified at primary care clinics were considered to be at an elevated risk for maltreatment due to a low-socio-economic background but did not have a history of CPS investigations or medical/mental health concerns elevating their risk.

The Midwest (MW) site was located in Chicago, IL, and recruited 317 eligible children (Hunter, Knight, & National Center on Child Abuse and Neglect, 1998). The MW sample was comprised of two subgroups, one with a history of maltreatment, as defined as a substantiated child abuse or neglect report within the prior 12 months of study entry, and one group with no substantiated maltreatment reports within 12 months of the child's entry to the study. The maltreated sample were identified by social service agencies and by State CPS workers, whereas the non-maltreating sample were identified as eligible by local, community-based health and social service agencies. The southwest

(SW) site was located in San Diego, CA, and was comprised of 330 children removed from their home, by CPS, prior to 3.5 years of age.

The northwest (NW) site was located in Seattle, WA, and was comprised of 261 children referred to CPS due to allegations of maltreatment (Hunter, Knight, & National Center on Child Abuse and Neglect, 1998). Children were assessed, per the Washington Risk Assessment Model, to be moderately likely to be re-referred to CPS absent intervention. Children recruited for participation in the study were contacted following the CPS report, however may or may not have been substantiated for abuse. Children identified as study eligible were referred by CPS case workers or by LONGSCAN staff identifying potential participants through CPS file review.

## Measures

### *LONGSCAN Child Demographics Form*

This form was specifically designed for the LONGSCAN study to collect participant demographic information and was completed by the parent at each study visit. Variables of interest on this form were age of the child at the time of reporting and child and parent demographic information.

### *Self-Report Family Inventory (SFI)*

The Self-Report Family Inventory (SFI) is a self-report instrument based on the Beavers Model of Family Functioning and designed to assess five areas of family functioning: family health/competence, conflict, cohesion, emotional expressiveness, and leadership (Beavers and Hampson, 2000). The measure is comprised of 36 items, with each item set on a 5-point scale ranging from 1 (fits our household very well) to 5 (doesn't fit our household at all). The SFI was normed on clinical and non-clinical

families and reported high internal consistency reliability (ranging from .84 and .93) and good test-retest reliability ($r$ = .85) (Beavers and Hampson, 2000). In regards to construct validity for the five scales on the SFI, moderate correlations have been demonstrated when compared to the FACES III and the Bloom's Family Functioning Scales (Hampson, Hulgus, and Beavers, 1991), as well as the Beavers Interactional Competence Scale ($r$ = .62) and the general functioning subscale of the McMaster Family Assessment Device ($r$ = .68) (Beavers and Hampson, 2000). For LONGSCAN data collection, the SFI was administered by an interviewer to the maternal caregiver for ages 8 and 12 and the maternal caregiver completed the measure online at the age 16 time point. An overall family functioning score was created by LONGSCAN researchers, including items from all five scales, with higher values indicative of better family functioning. Within the LONGSCAN sample, internal consistency for the overall score of family functioning ranged from poor to excellent for ages 8 ($\alpha$ = .68), 12 ($\alpha$ = .91), and 16 ($\alpha$ = .91).

***Trauma Symptom Checklist for Children (TSCC)***

The Trauma Symptom Checklist for Children (TSCC) checklist was designed to measure PTSD symptoms in children ages 8-16 who have experienced a traumatic event(s) (Briere, 1996). The questionnaire is comprised of 54 self-reported items and measures symptom severity across two validity scales (Under-response and Hyper-response) and six clinical scales (Anxiety, Depression, Post-traumatic Stress, Dissociation, Anger, and Sexual Concerns). Higher scores reflect greater symptomology and t-scores of 65 or higher on the any of the clinical scales are considered clinically significant. Previous research has demonstrated good concurrent validity with the Child Behavioral Checklist (Achenbach, 1991). The TSCC was normed on more than 3,000

children and adolescents and is reported to have high internal consistency ($\alpha$ = .83) and test-retest ($r$ = .81) reliability. Convergent validity is good when compared to The Trauma Symptom Checklist for Young Children (TSCYC), a measure designed to be completed by primary caregivers (Lanktree et al., 2008), as well as good concurrent validity ($r$ = .75) and criterion validity (Nilsson, Wadsby, and Svedin, 2008). For the current analysis, the Post-traumatic Stress (PTS) subscale t-scores were used as the child-report of posttraumatic stress—the dependent variable in the hypothesized model. The PTS subscale has demonstrated good concurrent validity (Kretschmar, Butcher, Tossone, and Beale, 2018), high convergent validity when compared to the Children's Impact of Traumatic Events Scale – Revised (Crouch, Smith, Ezzell, and Saunders, 1999), as well as predictive validity within a clinical adolescent sample (Sadowski and Friedrich, 2000). Within the LONGSCAN sample, the TSCC was collected only at ages 8, 12, and 16. Internal consistency for the PTS subscale was good for age 8 ($\alpha$ = .82), age 12 ($\alpha$ = .84), and for age 16 ($\alpha$ = .85).

***Child Behavioral Checklist (CBCL)***

The Child Behavioral Checklist (CBCL) questionnaire is a measure designed to assess problem areas and possible dysfunctional behaviors or syndromes in children and adolescents (Achenbach, 1991). It is comprised of 8 unique scales assessing different DSM syndromes and constructs: social withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. Additionally, the CBCL yields scores on internalizing, externalizing, and total problems scales. The CBCL is intended to be completed by the parent or primary caregiver that is most familiar with the child/adolescent of which the

questionnaire is being completed on. The CBCL is comprised of 118 items, with each item scored on a 3-point scale ranging from 0 to 2. There are a total of 20 items reflecting PTSD symptomology within the CBCL, each item as part of one of the 8 problem scales previously mentioned. In a study by Dehon and Scheeringa (2006), the CBCL-PTSD subscale had adequate internal consistency ($\alpha$ = .87), good incremental validity, and good discriminant validity. For the purposes of this analysis, the PTSD items were used as a metric of parent-reported child posttraumatic stress—the independent variable in hypothesized model. Internal consistency within the LONGSCAN data set was good for age 8 ($\alpha$ = .83), age 12 ($\alpha$ = .85), and age 16 ($\alpha$ = .86).

**Data Analytic Plan**

Descriptive statistics (i.e., mean, SD, range, skewness, kurtosis) on each study variable were computed. Bivariate correlations were computed. To evaluate the research question a moderated moderation model was conducted to examine the concordance of parent-reported and child-reported PTSD symptoms dependent upon the quality of parent-child relationship and the age of the child. Specifically, we used PROCESS Macro (Hayes, 2013) to examine relations between parent-reported child PTSD symptoms (independent variable or *X*), the quality of the parent-child relationship (primary moderator or *M*), age of the child (secondary moderator or *W*), and child-reported PTSD symptoms (dependent variable or *Y*); see Figure 1. We tested for the main effects (X → Y), two-way interactions (X*M → Y and X * W → Y), and the three-way interaction of parent-reported child PTSD symptoms (*X*), the parent-child relationship quality (*M*), and the age of the child (*W*) on predicting the child-reported PTSD symptoms (*Y*).

# CHAPTER III

## Results

In order to facilitate results interpretation, the independent variable (i.e., parent-reported child PTSD symptoms or the CBCL total score) and both moderators (i.e., age and child-reported PTSD symptoms or the TSCC total) were mean centered prior to analyses. The results from normality tests on centered variables showed the overall mean score for parent-child relationship to have a skewness of -.85 and a kurtosis of .80, age of the child had a skewness of 0 and a kurtosis of -1.5, and lastly, parent-reported child PTSD symptoms had a skewness of .98 and a kurtosis of .85. Because skewness and kurtosis values were close to 1, no transformations were undertaken. To assess for outliers, Mahalanobis, Cook's, and Leverage values were computed. Any values that registered as an outlier ($N$ = 23) on two out of three of the statistical tests were excluded. In addition, participants with missing ($N$ = 954) or outlier data ($N$ = 23) at any time point (ages 8, 12, and 16) were excluded ($N$ = 977). Of the 1,354 eligible children in the LONGSCAN sample, a total of 377 participants were included in the final analyses. The means, standard deviations, and zero-order correlations among key variables are shown in Table 2. Correlations for parent-reported child PTSD symptoms and child-reported PTSD symptoms were calculated by age and site and shown in Tables 3 and 4. As for congruence of symptoms between reporters by age, there was a statistically significant positive correlation between parent- and child-reported PTSD symptoms for ages 12 [$r(376) = .10$, $p < .05$] and 16 [$r(376) = .25$, $p < .01$], and a non-significant relationship for age 8. As for correlation by site, there was a statistically significant positive

correlation for the sites MW [$r(242) = .15$, $p < .05$] and NW [$r(341) = .13$, $p < .05$], however not for the EA and SW sites.

Our model included one independent variable, parent-reported child PTSD symptomology (CBCL PTSD subscale total scores), with the dependent variable being child-reported PTSD symptoms (TSCC PTS subscale total score). In addition, two moderators were included to examine interaction effects on overall parent- and child-reported PTSD symptoms: parent-child relationship quality (SFI total family functioning score) and age of the child at the time of reporting (Age). The concordance between both reporters (parent and child) produced a significant main effect [$b = .198$, $t(1123) = 2.78$, $p < .01$], meaning, the parent-reported child PTSD symptoms significantly predicted child-reported PTSD symptomology within our model.

According to our first hypothesis the concordance between parent- and child-reported PTSD symptomology was expected to be greater in the presence of a stronger relationship between the parent and child; meaning, we predicted we would find a significant two-way interaction term of CBCL PTSD subscale score (i.e., parent-reported child symptoms) x SFI total family functioning score. The results obtained by this moderation analysis indicated that the quality of the parent-child relationship was not significantly predictive [$b = -.002$, $t(1123) = -.43$, $p = .7$] of agreement between parent- and child-reported PTSD symptoms. Second, we hypothesized that child age would moderate concordance between reporters. The results obtained by this moderation analysis indicated that child age was not significantly predictive [$b = .004$, $t(1123) = .21$, $p = .8$] of agreement between parent- and child-reported PTSD symptoms. Finally, we hypothesized the effect of the relationship would be moderated by the child's age;

meaning, we expected the three-way interaction term of CBCL PTSD subscale scores x SFI total family functioning score x child's age to be significant. The results obtained by a three-way interaction indicated a non-significant effect of this three-way interaction term [$b = .002$, $t(1123) = 1.18$, $p = .24$] on concordance between reporters. Therefore, results from the moderated moderation analysis did not support a predictive relationship of the child's age and the relationship quality between parent and child in estimating the concordance between parent- and child-reported symptomology.

# CHAPTER IV

## Discussion

This study examined main and interaction effects between parent- and child-reported child PTSD symptom concordance, the relationship quality between the parent and child, and the age of the child at the time of trauma symptom reporting. A moderated moderation model was performed utilizing archival data from 377 LONGSCAN sample participants. Key findings are summarized below.

Results from analyses showed general agreement in trauma reporting from the parent and the child. This main effect compared the agreement between reports on CBCL PTSD subscale, the parent-reported measure used for child's trauma symptomology, and the TSCC PTS subscale, the child's report on PTSD symptoms. In this particular sample, based on our results, it would appear that parents were aware of level of PTSD symptoms within their children, regardless of the child's age or the quality of relationship. These results mirror similar findings within the extant literature, which largely report fair to moderate PTSD symptom concordance rates between reporters (Kassam-Adams, Garcia-Espana, Miller, & Winston, 2006; Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2007; Scheeringa, Wright, Hunt, & Zeanah, 2006; Stover, Hahn, Im, & Berkowitz, 2010), as well as a pattern of low to moderate agreement rates within mood and anxiety disorders (Comer & Kendall, 2004; Dibartolo, Albano, Barlow, & Heimberg, 1998; Fraser et al., 2017; Jensen at el. 1999; Lewis et al., 2012b). Overall, these studies document correlations between parent and child reports of symptomology for PTSD, depression, and anxiety, comparable to the relation documented in this study.

Our hypothesis that higher concordance in self-reported PTSD symptomology would be observed in the presence of strong parent-child relationships, was based on findings in the literature suggesting that factors within the parent-child relationship were likely moderating agreement rate effects. However, this was not reflected in our analysis. Results demonstrated that overall family functioning did not moderate concordance between the parent and child on the presence of PTSD symptoms. Meaning, in this particular sample, that the primary caregivers to the children and adolescents were able to accurately identify the presence or absence of posttraumatic symptoms, regardless of the quality of their relationship. The results were surprising due to prior research that has suggested parent-child dyads with stronger bonds would display better communication patterns, thus increasing a parent's ability to identify symptoms within the child, as well as a greater likelihood of child acceptance and validation in distressed reactions to traumatic events. Indeed, previous studies have determined that factors such as low family conflict (Grills and Ollendick, 2003) and parental engagement (Treutler & Epkins, 2003) have shown promise in stronger reporter concordance. Theoretically, a strong relationship, as determined by openness of communication and acceptance, among other things, should have resulted in the reduction of disagreement on overt and covert symptoms, when present. In this study, the absence of a moderating effect is likely explained by the overall significant level of concordance among reporters.

Regarding the hypothesized moderating effect of age, results demonstrated a non-significant moderating effect for age of the child, indicating that higher agreement rates in reported PTSD symptoms is not depended on the age of the child. This outcome mirrors findings that have been observed in other samples (Choudhury, Pimentel, &

Kendall, 2003; Grills & Ollendick, 2003; Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2007; Stover, Hahn, Im, & Berkowitz, 2010), however falls in contrast to research findings that found age to be significantly predictive of agreement rates within children (Lewis et al., 2012b) or adolescents (Dyb, Holen, Braenne, Indredavik, & Aarseth, 2003; Hamblin et al., 2016; Jensen et al., 1999; Lewis et al., 2012a). Again, the absence of significant moderation by age may be a reflection of the overall concordance rate in the current sample. Finally, we hypothesized that age would further moderate the effect on parent- and child-reported PTSD symptoms agreement rates and the quality of the relationship between the dyad. However, this three-way interaction effect was also not supported in our analysis. Yet, there was a statistically significant positive correlation between parent- and child-reported PTSD symptoms for ages 12 and 16; suggesting this tread of correlation increasing in strength across child development might have an effect on agreement rates between reporters, albeit weak, as age increases from childhood to adolescence.

The results of the present study must be interpreted in light of relevant limitations. The sample used for analysis was a secondary analysis in which authors held no control over the measures used for trauma symptoms or in how the measures were collected. Furthermore, the questionnaire designed to measure the quality of relationship between the caregiver and the child or adolescent, the SFI, was completed solely by the parent at each time point, meaning, the quality of relationship was represented from the parent's perspective and likely a biased depiction of the relationship. Perhaps measurement of relationship quality from the child's standpoint would have proven more statistically powerful. In addition, the LONGSCAN sample was designed to recruit children and

adolescents that were at-risk of experiencing a trauma or had a history of maltreatment. Still, the overall rate of symptoms, per child report, were low with an average t-score of approximately 45, far below the clinical cut-off score of 65 for the measure utilized. Therefore, the results could be skewed in an overrepresentation of those without symptoms in which to agree or disagree upon, potentially boosting higher agreement rates and/or lower the effects of age or relationship quality; thus, limiting the predictive validity on factors such as age or parent-child relationship quality in children and adolescent with trauma histories. Furthermore, a large proportion of the original LONGSCAN sample ($N$ = 977) was excluded from the current analysis, approximately 72%. Exclusions were based on missing data of any of the measures (SFI, CBCL, and TSCC), at any time point (8, 12, and 16 years). While the loss of potential participants most certainly limits the predictive validity of a research study, the number of participants that remained in the analysis ($N$ = 377) was larger than the majority of previous research on PTSD symptom concordance between a primary caregiver and child/adolescent.

Future research is needed on the agreement between reporters on not only the existence of PTSD symptoms within children and adolescents but also on the specific symptomology clusters, such as hypervigilance or avoidance. In addition, some research has been conducted on the predictive validity of either reporter, caregiver or child, on a future PTSD diagnosis yet findings are insufficient to draw any conclusions. As the accuracy of symptom identification is crucial in treatment for childhood PTSD, exploration of factors that correlate with higher agreement rates could have profound implications for clinical practice. Results from our analyses highlight that parents and

children or adolescents do agree on the presence or absence of trauma symptoms, regardless of the relationship quality or age of the child. While it is still unknown what factors elevate concordance rates, our study suggests that it is possible for a parent to use a self-reported measure to accurately communicate symptomology present in their child or adolescent to a clinician, at least in this sample. This implication might have a profound impact within clinical practice as trauma-focused measures could be implemented as screening tools or provide the clinician with a richer picture of symptoms.

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# APPENDIX A

Table 1

*Demographics of Study Sample*

| | | Site | | | |
|---|---|---|---|---|---|
| | Total | EA | MW | NW | SW |
| *Child's Gender* | | | | | |
| Male | 188 | 50 | 41 | 58 | 39 |
| Female | 189 | 40 | 40 | 56 | 53 |
| *Child's Race* | | | | | |
| Caucasian | 74 | 4 | 5 | 38 | 27 |
| African American | 195 | 79 | 51 | 28 | 37 |
| Hispanic | 30 | 0 | 9 | 7 | 14 |
| American Indian or Native American | 29 | 4 | 4 | 16 | 5 |
| Asian; Asian-American | 4 | 0 | 1 | 1 | 2 |
| Mixed | 40 | 3 | 11 | 22 | 4 |
| *Caregiver Income* | | | | | |
| $14,999 or less | 43 | 15 | 13 | 9 | 6 |
| $15,000 to $24,999 | 66 | 15 | 25 | 13 | 13 |
| $25,000 to $39,999 | 102 | 25 | 25 | 35 | 17 |
| $40,000 to $49,999 | 60 | 16 | 7 | 23 | 14 |
| $50,000 or more | 99 | 14 | 11 | 34 | 40 |
| Unknown | 7 | 5 | 0 | 0 | 2 |
| *Caregiver Education Level* | | | | | |
| 11 years or less | 78 | 26 | 22 | 17 | 13 |
| 12 years | 109 | 38 | 24 | 24 | 23 |
| Greater than 12 years | 190 | 26 | 35 | 73 | 56 |

Table 2

| Variables | *M* | *SD* | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| (1) Parent-report PTSD symptoms (CBCL) | 5.72 | 4.51 | | | | |
| (2) Child-report PTSD symptoms (TSCC) | 45.51 | 10.89 | 0.12** | | | |
| (3) Quality of Relationship (SFI) | 142.25 | 17.16 | -0.23** | 0.12 | | |
| (4) Child's Age | 12.00 | 3.27 | -0.08** | -0.35** | -0.10** | |

**p < 0.01

Table 3

*Correlations by Age*

| | | Independent Variable | | | |
|---|---|---|---|---|---|
| | Dependent Variable | Child-reported PTSD Symptoms | | | |
| | Parent-reported PTSD Symptoms | Across Ages | Age 8 | Age 12 | Age 16 |
| Parent-reported PTSD Symptoms | 1 | 0.12** | 0.06 | 0.10* | 0.25** |
| *p < 0.05; **p < 0.01 | | | | | |

Table 4

*Correlations by Site*

| | Independent Variable | | | | |
|---|---|---|---|---|---|
| | Child-reported PTSD Symptoms | | | | |
| | All Sites | East (EA) | Midwest (MW) | Northwest (NW) | Southwest (SW) |
| Parent-reported PTSD Symptoms | 0.12** | 0.08 | 0.15* | 0.13* | 0.05 |
| *p < 0.05; **p < 0.01 | | | | | |

## APPENDIX B

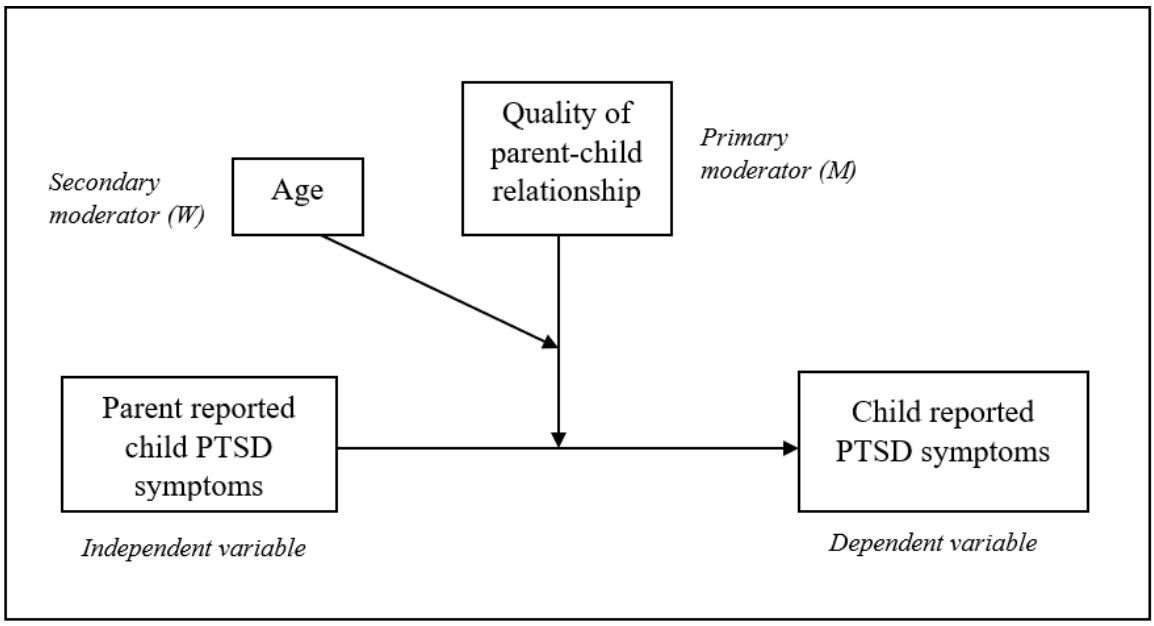


Figure 1. The moderated moderation model depicted in the form of a conceptual diagram.

# VITA

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## EDUCATION & TRAINING

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| In progress | **Ph.D. in Clinical Psychology**, *Sam Houston State University, Huntsville*<br>Advisor: Amanda C. Venta, PhD |
| 2014-2015 | **Therapy Intern**, *Dallas Children's Advocacy Center, Dallas* |
| 2015 | **M.S. in Counseling**, *Southern Methodist University, Dallas* |
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## PUBLICATIONS

1. Delaparte, L., Yeh, F., Adams, P., **Malchow, A.**, Trivedi, M. H., Oquendo, M. A., Deckersbach, T., Ogden, T., Pizzagalli, D.A., Fava, M., Cooper, C., McInnis, M., Kurian, B.T., Weissman, M.M., McGrath, P.J., Klein, D.N., Parsey, R.V., & DeLorenzo, C. (2017). A comparison of structural connectivity in anxious depression versus non-anxious depression. *Journal Of Psychiatric Research, 89,* 38-47. doi:10.1016/j.jpsychires.2017.01.012

2. Perlman, G., DeLorenzo, C., Weissman, M., McGrath, P., Ogden, T., Jin, T., Adams, P., Trivedi, M.H., Kurian, B., Oquendo, M., McInnis, M., Weyandt, S., Fava, M., Cooper, C., **Malchow, A.**, & Parsey, R. (2017) Cortical thickness is not associated with current depression in a clinical treatment study. *Human Brain Mapping, 38*(9), 4370-4385. doi:10.1002/hbm.23664

3. Trombello, J., Pizzagalli, D.A., Weissman, M.M., Grannemann, B.D., Cooper, C.M., Greer, T., **Malchow, A.**, Jha, M., Carmody, T., Kurian, B.T., Webb, C., Dillon, D., McGrath, P.J., Bruder, G., Fava, M., Parsey, P.V., McInnis, M.G., Adams, P., & Trivedi, M.H. (2018). Characterizing anxiety subtypes and the relationship to behavioral phenotyping in major depression. *Journal of Psychiatric Research, 102,* 207-215. doi.org/10.1016/j.jpsychires.2018.04.003

4. Bartlett, E.A., DeLorenzo, C., Sharma, P., Yang, J., Zhang, M., Petkova, E., Weissman, M., McGrath, P.J., Fava, M., Ogden, R.T., Kurian, B.T., **Malchow, A.**, Cooper, C.M., Trombello, J.M., McInnis, M., Adams, P., Oquendo, M.A., Pizzagalli, D.A., Trivedi, M., & Parsey, R.V. (2018). Pretreatment and early-treatment cortical

thickness is associated with SSRI treatment response in major depressive disorder. *Neuropsychopharmacology*. doi: 10.1038/s41386-018-0122-9

5. Jha, M.K., **Malchow, A.L.**, Grannemann, B.D., Rush, A.J., Trivedi, M.H. (2018). Do baseline sub-threshold hypomanic symptoms affect acute-phase antidepressant outcome in outpatients with major depressive disorder? Preliminary findings from the randomized CO-MED Trial. *Neuropsychopharmacology*, *43*(11), 2197-2203. doi: 10.1038/s41386-018-0180-z

## PRESENTATIONS

1. Ball Cooper, E., Abate, A., Waymire, K., Galicia, B., **Malchow, A.**, & Venta, A. (2018). *The longitudinal impact of parental hostility and exposure to violence on borderline personality features among justice-involved youth*. Paper submitted to the 2018 American Psychology-Law Society Annual Meeting, Memphis, TN.

2. Gomez, W., Brown, A. S., Fields, L. M., **Malchow, A.,** & Pinzas, L. A. (2017) *Inhibition in phonemic word production: A quantitative analysis of the Controlled Oral Word Association Test (COWAT).* Poster presented at the 29th Annual Conference of the Association for Psychological Science, Boston, MA.

3. Trombello, J. M., Grannemann, B., **Malchow, A.**, Cooper, C., McGrath, P., Fava, M., Jha, M., Parsey, R., McInnis, M., Carmody, T., Weissman, M., Kurian, B., Adams, P., Pizzagalli, D., & Trivedi, M. (2016). *The identification of anxiety constructs among depressed outpatients: Results from the EMBARC study*. Poster presented at the ABCT 50th Annual Convention, New York, NY.

## TEACHING EXPERIENCE

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|---|---|
| Spring 2019 | Instructor of Record<br>History of Psychology, *Online Distant Learning Course*<br>Sam Houston State University |
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## PROFESSIONAL ORGANIZATIONS

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| 2017-present | American Psychological Association |
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