

# ***Real Life Heroes* Pilot Study: Evaluation of a Treatment Model for Children with Traumatic Stress<sup>12</sup>**

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## **Abstract**

*Real Life Heroes* (RLH) was developed for use in child and family agencies with children with traumatic stress who may lack a safe home and a caring, non-offending parent or guardian. An activity-based workbook and manual assists practitioners to promote safety, understanding of the impact of traumas, attachments, affect modulation, coping skills, and trauma processing. This pilot study included 41 children, caregivers and clinicians. Results from data collected after a four month interval indicated significant reduction in child self-reports of trauma symptoms and reduced problem behaviors on caregiver checklists. Results from data collected after a twelve month interval included a reduction in parent reports of trauma symptoms for children who received more of the RLH intervention and increased security/attachment to caregivers over time. Keywords: Traumatic Stress, Neglect, Abuse, Attachment, Home-based family counseling, Foster family care, Residential treatment

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## ***Real Life Heroes Pilot Study: Evaluation of a Treatment Model for Children with Traumatic Stress***

Traumatic stress reactions have been recognized as a serious concern for practitioners working in child and family services, mental health and juvenile justice programs. In a survey conducted by National Child Traumatic Stress Network (NCTSN) regarding almost 1700 children served by 25 community service centers (Cook et al., 2003), 78% of the children were reported to have experienced multiple or prolonged traumas, including emotional abuse or neglect, traumatic losses, impaired parenting due to mental illness or drug abuse, domestic violence, sexual maltreatment/assault, neglect, physical abuse, or war/terrorism/political violence with a mode of three forms of trauma exposure reported. In this survey, half of the children were reported to have significant problems with affect regulation, concentration and attention, negative self-identity, impulse control, and aggression or risk taking. Approximately a third of the sample demonstrated significant problems with attachment, dissociation, somatization, conduct or oppositional defiant disorders, and sexual interests, behaviors or avoidance.

Children with traumatic stress reactions and symptoms of ‘complex trauma’ have often experienced the breakdown of attachments along with multiple exposures to trauma (Cook et al., 2003; Lieberman & Amaya-Jackson, 2005). Perceptions by children of their parents availability and ability to protect them have been related to the impact of traumas on children’s development (Ainsworth, Blehar & Waters, 1978; Pynoos & Steinberg, 2004). Children living with repeated family violence and neglect often demonstrate characteristics of chaotic and disorganized attachments, especially when primary caretakers are active participants in creating traumatic events. Disorganized attachments (Schore, 2001) have been found to be associated with severe orbital frontal pruning and the lack of critical neural connections required for learning how to manage and cope with stress.

Practitioners in child and family services are often challenged to ameliorate the trauma-behavior cycles that have typically led to dangerous behaviors, including interrupting a cycle of serial traumas, impoverishment and inadequate resources. At the same time, practitioners need to help children repair or develop the safe, nurturing, attachments with committed caretakers necessary for these children to heal and develop into adults who can themselves foster secure attachments for the next generation.

### ***Real Life Heroes Pilot Study***

This study focused on evaluating *Real Life Heroes* (RLH; Kagan, In Press, 2004a, 2004b), an integrated attachment and trauma therapy for children in child and family service programs. RLH was identified as one of the National Child Traumatic Stress Network “Promising Practices” and utilizes an activity-based workbook and manualized protocols to help children with traumatic stress to build the skills and interpersonal resources needed to re-integrate painful memories and reduce affect dysregulation after abuse, neglect, family violence, severe illness, abandonment, or losses. Workbook pages and session protocols provide a structured curriculum for creative arts and life story activities designed to engage children and caring adults to work step by step on rebuilding (or building) positive, enduring relationships between hurt (and often hurting)

children and adults committed to guiding children into adulthood. When abused or neglected children lack parents or guardians who provide validation, guidance, and protection, RLH can be used to search for and build attachments to safe, caring adults who are committed to raising children to maturity.

*RLH* was based on cognitive behavioral therapy models for treating PTSD and focuses on rebuilding attachments and restoring hope through nonverbal creative arts, narrative interventions, and gradual exposure to help process traumatic memories and bolster adaptive individual and interpersonal coping strategies. Components integrated into the *Real Life Heroes* protocol included safety planning, trauma psychoeducation adapted from TARGET (Ford & Russo, In Press; Ford, Mahoney, & Russo, 2003), skill building in affect regulation and problem solving, cognitive restructuring of beliefs, nonverbal processing of events, and enhanced social support. The workbook is organized into an Introduction, a Pledge, and eight chapters: (1.) *A Little About Me*; (2.) *Heroes and Heroines*; (3.) *Looking Back*; (4.) *People in My Life*; (5.) *Good Times*; (6.) *Making Things Better*; (7.) *Through the Tough Times*; and (8.) *Into the Future*. The Pledge marks the beginning of the adventure and initiates a contract to strengthen or find caring, committed adults who will validate and protect the child.

Chapter One introduces the child to the format of this book. The heading at the top of the page directs the child to visualize a memory or a fantasy and then picture it below with a drawing or a photograph, to imagine how it would sound as a song, or to show how it would look through movement as a dance or a movie. A question at the bottom of the page directs the child to write a brief note about something special in their picture. Questions were designed to build up a child's sense of being valued and a child's sense of competence in different situations. Completed pages typically contain both a child's visual memory and a short narrative .

Chapter One also provides opportunities for children to learn to recognize and express a range of feelings in a safe way. The manual includes guidelines for helping children learn to calm themselves with deep breathing, progressive muscle relaxation, 'safe place' imagery, thought-stopping, and other affect regulation skills.

Each session follows a set structure beginning with welcoming messages, safety assurances including limits and permission for children to ask to stop work on any issues that were too stressful, self-ratings on thermometers of stress and self-control , focusing/centering exercises, and a magical moment before drawing in response to workbook page instructions. After drawing pictures, children are asked to nonverbally express what they've drawn with rhythm, notes or chords on a xylophone, an action movement, and later verbal responses to questions. Sessions end with repetition of the thermometer self-ratings, safety planning and reassurance (as needed), and plans for the next session.

Caring adults are encouraged to work on a parallel track. Children share their work with caring adults who meet safety criteria. After the first few pages, children are invited to draw a little about themselves and later to share this with safe, caring adults who are helping them write this book, and by so doing, to confirm that caring adults accept that it is normal to have a wide range of feelings.

Chapter Two helps children identify people from their families, ethnic group, community, and broader culture who have struggled to build strengths and overcome adversity as a means of rekindling hope and modeling mastery over traumas. Heroes in

the workbook refer to women and men; boys and girls. Children are invited to draw, act out, or write a brief story of someone in their lives who has acted like a hero. This chapter also provides a place for children to remember how they have helped others and to envision what they could do in the future. Chapter Two emphasizes the courage to help others as an integral part of the making of a hero.

Chapter Three provides a chronicle for a child's multiple moves between different locations or homes. Chapter Three also provides a framework to help children to diagram the roots of their family tree, highlighting ties to family members, friends, caring adults, pets, mentors, and other sources of support. Children can also use this section to share a time line of good and bad events. The time line helps to identify positive events in children's lives and to help children learn lessons about who helped them succeed, how they helped themselves, and how they and important people in their lives overcame problems.

Chapter Four helps a child to remember people who cared for the child day by day, through sickness and health. This chapter provides an opportunity to expand children's awareness of people who have helped, even in small ways, and to highlight resources in their lives including their own talents. The child can also bring in images of heroes and heroines from stories, music, movies, fantasy, and real life.

Chapter Five helps a child to remember and build upon the strengths, skills, beliefs, and supportive relationships that helped them to enjoy "good times." Therapists can use the desires for relationships with important people identified by the child in Chapter Five to guide work on building or rebuilding supports for the child.

Chapter Six encourages a child to look beyond magical wishes and develop the skills the child needs to make things better in his or her life. Chapter Six includes opportunities for a child to strengthen calming and self-soothing skills and develop positive beliefs in his or her own capacity to cope and overcome adversity. Children explore *The ABC's of Trauma and the Hero's Challenge*. This worksheet module integrates psycho-education on trauma and cognitive behavioral therapy exercises to help children replace dysfunctional beliefs with positive self-statements.

In Chapter Seven, children are encouraged to remember and enlist the skills and resources that helped them in the past in order to learn from difficult times in their lives and desensitize a series of progressively more difficult *Tough Times*. The chapter includes an opportunity for children to think about what they could do to make up for mistakes they have made. For children who have experienced a significant trauma, Chapter Seven provides an opportunity to write a story about what helped them get through your 'toughest time ever.'

Chapter Eight provides a chance for children to develop images of themselves becoming successful in the future. This can easily lead to planning activities and educational programs to help children achieve their goals.

After finishing Chapters One through Eight of *Real Life Heroes*, children are encouraged to put their memories together into a narrative story of their life. The completed narrative can then be inserted into the end of the workbook.

### ***Narrative Interventions and the Heroic Quest***

Life story work has been utilized to help children with insecure attachments develop more secure and enduring connections with a safe adult who cares for and about the child (e.g. Jewett, 1978; Kagan, 1996; Kliman & Zelman, 1996; Wheeler, 1978). Autobiographical storytelling helps children make sense of what has happened, grieve losses, and share their experiences. From a neurological perspective, developing a coherent narrative has been linked with integration of the left prefrontal cortex's ability to use verbal reasoning and the right prefrontal cortex emphasis on nonverbal reasoning Siegel (1999). However, this integration appears to require a safe, nurturing relationship. Children, parents, grandparents, as well as practitioners, often avoid sharing life stories because their lives are experienced as too painful and too vulnerable to reminders that could lead to renewed violence, abandonment, or losses.

*RLH* highlights and preserves moments in which important people in a child's family and community showed they cared and moments in a child's life that signify how the child was valued. Even when children initially present as having no one who cared for them, it is usually possible to use *RLH* to uncover and reinforce memories of caring. The intent is to build a story of people who cared for a child based on strength, courage, and belonging and to help children transform themselves from victims into heroes (Kagan, 2004b).

## **Methods**

### *Research Design*

Hypotheses tested in this study included significant changes predicted from baseline measures including: (1.) reduction of trauma symptoms on child self-report and parent rating scales, (2.) reduction of behavior problems on a parent rating scale, (3.) increased feelings and perceptions by children of closeness towards primary caretakers, (4.) increased self control of anger, (5.) increased child reports of social support, (6.) increased child report of therapeutic alliance; (7.) decreased children's ratings of hopelessness and (8.) improved skills for self soothing and expression of emotions. Children and their families were required to be engaged in services at Parsons Child and Family Center for at least 30 days and have had no prior experience with *Real Life Heroes* interventions. Due to a four month delay in getting state IRB approval following selection of children, interventions did not begin until most of the children had already received several months (and in some cases, more than a year) of therapeutic services provided by agency practitioners. *RLH* interventions were further delayed several more weeks in order to obtain informed consent and assent from children, legal guardians, required government bodies involved in the supervision of the child, and other invested caregivers (e.g. noncustodial biological parents) followed by time needed to obtain baseline measurements. As a result, the effect of *Real Life Heroes* interventions was hypothesized to have been above and beyond the predictable impact of several months of normal therapeutic services including development of a working relationship between a therapist and support to caretakers.

### *Study Recruitment and Sample*

To participate in the pilot study, children had to be enrolled in Parsons Child and Family Center Residential Treatment, Foster Family, Prevention (High Risk, Home-based Family Counseling), or Outpatient Mental Health Clinic programs. Children enrolled ranged in cognitive and developmental age between 8 and 12 years as assessed by their clinicians based on reviews of educational testing, psychological evaluations, and social and emotional behaviors leading to referral. The chronological age range of children enrolled in the study was between 8 and 15 at baseline and came from mixed urban-rural and mixed, although primarily low socio-economic backgrounds. Table 1 illustrates the demographic information of the children enrolled in the pilot study.

All children identified by their primary clinician had trauma histories of some kind (e.g., child abuse, witnessing violence, natural disaster). At study enrollment, clinicians completed the UCLA PTSD Checklist (Pynoos, Rodriguez, Steinberg, Stuber & Frederick, 1998) based on reports from caregivers, children, Departments of Social Services, and teachers and twenty-five % of the sample were found to have experienced 1-2 traumatic events; 47.5% had experienced 3-4 traumatic events; and 27.3% had experienced 5-6 traumatic events. At baseline, primary caretakers for children completed the Parent Report of Post-traumatic Symptoms (PROPS) (Greenwald & Allen, 1999) to assess PTSD symptoms. The PROPS has a range of 0-60 with higher scores indicating greater distress and a recommended cut-off of 16 to determine PTSD level symptoms. For the RLH sample, the average score was 24 with a range of 4 to 47. 75.6% of the sample (31 children) had scores on the PROPS of 16 or higher as shown below:

<b>PROPS Scores</b>	<b># of Children in Sample</b>
<b>4-15</b>	<b>10</b>
<b>16-24</b>	<b>10</b>
<b>25-32</b>	<b>10</b>
<b>33-47</b>	<b>11</b>

Clinical staff in the study typically managed caseloads of 11 children and families including the children and families participating in the study. Practitioners were agency-employed master's level social workers and psychologists as well as two bachelor's level counselors working with biological and foster parents and child care staff. Five practitioners left the project for unforeseen reasons during the project period; three before completion of work with children. Families also left the study for a wide range of reasons including moving out of the area or when children left programs. In short, this was an application study of a therapeutic model in the everyday world of child and family mental health and social services.

**Table 1: Child Demographics (41 children enrolled in the study)**

Age (mean)		10.5 (at baseline)
Gender		
	Male	59%
	Female	41%
Race		
	African American	26%
	Biracial	9%
	European American	65%
	Hispanic or Latino	22%
PCFC Program		

	Prevention (at home outpatient services)	67%
	Child Guidance (Outpatient)	7%
	Foster Care	7%
	Residential Services	19%
Home Composition		
	Single Parent	62%
	Two Parent	19%
	Group Home/Residential Services	19%
Education		
	Mean Grade	4.9
	City Elementary Schools	81%
	Therapeutic School	19%
Educational Placement		
	Special Education	50%

### *Child Interviews*

Children were interviewed at four different time points during the study. Interviews were conducted by a trained member of the research team and lasted between 75 and 105 minutes. Children were able and encouraged to take breaks as often as necessary. The majority of the interviews took place at the child's home; parents or caregivers were in the house or apartment with privacy provided to the child and interviewer. The majority of the homes and apartments where children reside were small however, and interviews were frequently disrupted by family members needing to enter the room for one reason or another. The interviewer did her best to make sure the child felt comfortable answering questions and skipped questions or sections at the child's request. Occasionally, the interviewer would skip sections to return to them later to ensure a child's full attention, or increased privacy. Once started, all children completed the interviews. There were no adverse events reported that was associated with a child's participation in the research interviews.

The beginning of each interview consisted of a sentence completion task. There were 5 sentences that children were asked to complete; they could ask the interviewer to complete one of these sentences, as well. This task served as non-threatening introduction to the interview process. Children were also asked about their involvement in co-curricular activities such as theater, dance, sports, and music.

Child Perceived Self Control (CPSC). The CPSC (Humphrey, 1982) was administered to assess children's perceptions of their ability to control their own anger. The CPSC consists of 11 items which children are asked to rate as "usually yes" or "usually no" and yields three subscales of Interpersonal Self Control, Personal Self Control, and Self Evaluation in addition to a total score. The total scale score has test-retest reliability than the subscales and was used in these analyses (Humphrey, 1982). Humphrey found a total scale mean score of 5.82 using a sample of fourth and fifth graders; this score is comparable to the baseline mean found within this sample. The total scale internal reliability for this study was fair: .58 (Cronbach's alpha) at baseline. A sample item is: "When the teacher is busy I talk to my friends". Higher scores on this measure reflect greater self control.

Hopelessness Scale (HS). The Hopelessness Scale (Kazdin, French, Unig, Esveldt, Dawson & Sherick, 1983) was administered to assess children's feelings of depression and hopefulness. It consists of 17 items that children rate as "true" or "false". For example, a sample item from this scale is: "I want to grow up because things will be better". For the purposes of this study, we included two additional items that asked children about their belief in "heroes": "I think I will become a hero in my own life"; and, "I believe in everyday heroes." These items were not included in the calculation of a total score. Higher scores on this scale are indicative of greater hopelessness. Original validation of this instrument utilized an inpatient population with an average age of 10.5 with mean total score of 5.2. In the current study the internal reliability of this instrument was .79 (Cronbach) at baseline which was slightly higher than .71 reported by Kazdin and colleagues (1983).

Multidimensional Social Support Scale (MDSS). Social support was assessed using a modified version of the Multidimensional Social Support Scale (Winefield, Winefield & Tiggemann, 1992). The scale contains sections that examine child's perception of support received from friends and family members. We modified the scale to specify specific people that offered social support. For example, children were asked whether they felt that they experienced support from specific groups of people, either family or friends, and then were asked to identify the persons by name and relationship to them. Children were then asked to rate the extent to which they felt supported using a 1 "little extent" to 3 "great extent" scale. This scale is traditionally used with adults and language was adapted to ensure that children understood the questions and concepts being assessed. At baseline, the six items that assessed family social support had an internal reliability of .85 while the 5 items that assessed social support provided by friends had an alpha of .91 (Cronbach).

Trauma Symptom Checklist for Children (TSCC). Trauma symptoms were assessed using the Trauma Symptom Checklist (Briere, 1996). The TSCC consists of 54-items describing experiences or feelings. Children are asked to rate these statements reflecting how often they experience a particular emotion or event. The scale contains one practice item. Ratings range from never "0" to almost all the time "3". A total scale score was used in the current analyses. The baseline internal reliability in the current study was very good at .92.

Security Scale (SS). The Security Scale (Kerns, Klepac & Cole, 1996) was used to assess children's attachment relationship to primary caregivers. The scale consists of 15-items and uses the "Some kids" and "Other kids" format; children were read statements that describe one type of children comparing them to another type of children they first asked to identify which kids are more like them and then to what extent they are like these children. The SS has been demonstrated to have good internal consistency and reliability coefficients generally exceeding .80 although sometimes lower for children in 8-10 year-old range. For this sample the baseline internal reliability was comparable at .82. Child security scores have been significantly correlated with rating derived from the SAT and a doll play interview measure of attachment. Norms suggest that the mean for fifth grade children in an educational setting is 3.24.

Working Alliance Inventory (WAI). Therapeutic alliance was assessed using a shortened version of the Working Alliance Inventory (Horvath & Greenberg, 1989). Items were selected based on our perceptions of what would be easily understood by

children. A total of 17 items were administered. Children rated the extent to how true a statement was for them with 1 indicating that a statement was “not at all true” and 4 corresponding to a “very true” statement. The baseline reliability for this instrument in the present study was fair at .53 (Cronbach).

### ***Parent/Caregiver Interview***

The parent or caregiver interview occurred directly following the child interview. The interview took approximately fifteen to twenty minutes to complete. The amount of time to complete this interview varied depending on the interruptions or digressions from the interview. Again, a private space was sought for this portion of the interview to ensure accurate response. Despite this, however, caregivers did not appear hesitant in responding to the questions at hand.

Conners Parent Rating Scale (CPRC-R). Caregivers completed the Revised Conner’s Parent Rating Scale (Conners, 1970). The CPRC-R consists of 80 items and contains subscales for anxiety, attention deficit, and externalizing behaviors. The questions focus on the past month. A total score was used for the current analyses. Respondents are asked to rate how true specific statements are about their child. The total scale had a internal reliability of .96 (Cronbach)

Parent Report of Posttraumatic Symptoms (PROPS). The PROPS (Greenwald & Rubin, 1999a, 1999b) was administered to assess caregiver’s observations of trauma symptoms. The PROPS consists of 18-items that caregivers rate a child as demonstrating never, “some” or “lots” in the past month. Test – retest reliability was found to be .80/.79 with a correlation to history of exposure to trauma of .60 and a correlation to children’s self-reports of trauma symptoms on the CROPS of .60 (Greenwald & Rubin, 1999a). In the present study the baseline Cronbach alpha for this scale was .90.

Caregivers were also asked a series of questions about medications that their child may or may not be prescribed.

### ***Clinician Reports***

Clinicians provided baseline information regarding traumatic history as well as on-going process information regarding *Real Life Heroes*’ model fidelity. Upon study enrollment, clinicians completed a battery of tools assessing traumatic events (UCLA PTSD Checklist; Pynoos, Rodriguez, Steinberg, Stuber, Frederick, 1998) and demographic information (e.g., school, grade), and diagnostic information. Clinicians were also asked to rate their therapeutic alliance with children on a 12-item Likert scale including items assessing therapist-client agreement over objectives, trust, and client understanding of goals every four months from baseline interviews to coincide with participants’ completion of research interviews. Clinicians were also asked to complete process and chapter checklists to assess the progress in the RLH treatment and model fidelity. The chapter checklists assess the children’s proficiency in specific skills that were components of the RLH intervention. The chapter checklists were designed to assess a child’s progress in skill acquisition and to be used in treatment planning to help identify additional areas that could be targeted in subsequent sessions.

## RESULTS

### *Study Attrition*

Forty-one children and a primary caregiver who were initially enrolled in the Real Life Heroes research study completed the baseline interview. At the four month interview, 88% of the children and their caregivers completed the interview (N=36). Sixty-eight percent of the children and their caregivers completed the eight month interview (N=28) and 61% (N=25) completed the 12 month interview. Only 12 children and their caregivers completed all four research interviews (29%).

### **Four Month Evaluation**

From baseline to four months, children demonstrated reduced trauma symptoms on child self-reports on the Trauma Symptom Checklist for Children ( $p<.05$ ) and fewer problem behaviors on the Conners Behavior Rating Scale--Parent-Long Version ( $p<.05$ ).

**Table 3**

	BASELINE (MEAN SCORE)	TOTAL	4-MONTH	T-TEST (DEGREES OF FREEDOM)
Conners Behavior Rating Scale (Parent-Long Version)	90.8		69.1	t(35)=3.3 ( $p<.05$ )
Trauma Symptom Checklist for Children (TSCC)	34.8		26.3	t(35)=2.5 ( $p<.05$ )

### *Hierarchical Linear Modeling*

Hierarchical Linear Modeling (HLM; Hedeker & Gibbons, 1997; also called mixed regression, random-effects models, or Bayesian Estimation for Linear Models) was used to examine the changes in dependent measures of treatment effectiveness over time. Because of the study attrition typically found within longitudinal research designs, HLM has several advantages over traditional methods (e.g., MANOVA), and repeated measures linear model (e.g. ANOVA) in analyzing data. Specifically, HLM enables that all available data be used rather than requiring an equal number of observations for each participant. The model assumes that missing data are missing at random which is a justified assumption given the research design and sampling method. This statistical approach enables time to be evaluated as a continuous variable while using varying or constant covariates. Finally, HLM examines change over time by calculating individual based growth curve and does not assume equality across subjects (Frisman, Lin, Sturges, Levinson, Baranoski & Pollard, in press; Hedeker & Gibbons, 1997).

### *Variables included in the Regression Model*

As described above, HLM is a particularly advantageous statistic for research designs which collect data over a period of time. The model allowed for exact dates to be calculated between the data collections and factor this into the regression equation.

Analyses of the UCLA PTSD Checklists indicated baseline differences in two groups within the sample on several dependent measures such that children who had experienced child abuse (sexual, physical or neglect) as compared to those children who

had not experienced child abuse scored higher on the trauma symptom dependent measures (e.g, TSCC); this group variable was also included in the HLM analyses. To examine the impact of the intervention of particular outcome variables, the total amount of the intervention that a child received was entered into the equation in terms of number of chapters completed.

Tables 4 and 5 illustrate the results for the HLM analyses performed. The results illustrated in Table 4 reflect the analysis with each time, trauma type and number of chapters completed entered as independent variables; the analysis tests for main effects and interaction effects. In Table 5, amount of intervention is entered into the regression equation as a covariate. The results are complementary and consistent and provide more confidence in our findings and the detection of possible trends in the data.

**Table 4:HLM Regression Equation<sup>3</sup>**

Outcome Variable	Variables Entered into Model							
	Main Effects			Two-way Interactions			Three-Way Interaction	
	Time	Trauma (Abuse or not)	Type present	Number of Chapters Completed	RLH	Time x Trauma	Time x Chapters	Time x Trauma x Chapters
<b>Trauma Symptoms</b>								
PROPS	1.2	.768		3.58***		2.23*	-.833	1.28
TSCC	1.77 <sup>†</sup>	-.620		- 1.11		1.21	.483	-.478
<b>Attachment &amp; Relationship</b>								
SS	2.74 <sup>†</sup>	.567		1.23		- 2.07	- 1.65,	1.56,
WAI	1.01	-.523,		.425		1.13	-1.98*	z = 1.829 <sup>†</sup>
<b>Mental Health &amp; Behavior</b>								
HS	1.01	-1.106		.360		-.517	-.899	.891
CPSC	1.67 <sup>†</sup>	.660		.141		-.936	-.849	.506
CPR	1.08	-1.41		- 1.06		-1.01	- 1.24	1.13
<b>Social Support</b>								
MDSS-Family	.092	.378		1.397		-.165	-.134	.073
MDSS-Friend	.087	-.235		-.920		-.135	.129	-.075

**Table 5: HLM Regression Analysis with Covariate of Treatment Intervention**

<sup>3</sup> This analysis utilizes z scores. Significant p values and those which approach significance are reported; all other values are not significant  
<sup>†</sup> p<.1; \*p<.05; \*\*p<.01; \*\*\*p<.001

	Variables Entered into Model			
	Main Effects Time	Group	Covariate	Two-way Interactions Time x Group
<u>Outcome Variable</u>				
<u>Trauma Symptoms</u>				
PROPS	.535	.591	- 3.824***	-1.664
TSCC	- 2.173*	-.629	1.439	1.494
<u>Attachment &amp; Relationship</u>				
SS	2.29, *	.661	1.14	-1.579
WAI	-.835	-.325	-.203	.225
<u>Mental Health &amp; Behavior</u>				
HS	.501	-1.072	.296	.133
CPSC	1.726 <sup>†</sup>	.910	-.477	-1.245
CPR	.227	-1.351	-1.618	-.413

### *Trauma Symptoms*

As illustrated in Table 4, there is a main effect of the amount of intervention received ( $z=3.58$ ,  $p<.001$ ) on caregiver ratings of traumatic stress (PROPS). However, a two-way interaction was also observed between time and trauma type (child abuse or no child abuse history) indicating that there is a significant difference in parental report of trauma symptoms for children by group over time ( $z=2.23$ ,  $p<.05$ ). Examination of the predicted means indicates that for each group, there is a decrease in parental reports of symptoms. However the pattern of the relationship differs by group over time. For children with child abuse histories, parent ratings follow a curvilinear relationship (see Table 7 for means) while for the other children, parental reports appear to follow a linear pattern. Examining trauma symptom reports for children (TSCC) reveals a main effect for time that approaches significance ( $z= -2.74$ ,  $p=.083$ ). Confirmatory HLM analysis (see Table 5) suggests that when statistically controlling for the amount of RLH intervention there was a decrease in children's ratings of traumatic stress over time ( $z= -2.17$ ,  $p<.05$ ). Examination of the predicted means suggests that there is a decrease in reports of symptoms over time with the exception of an increase in reports at the eight month interview (see Table 6). There were no main effects or interaction effects for the child reports of traumatic stress symptoms.

**Table 6: Predicted Means from HLM Equation**

		Predicted Mean	Hypothesized Increase or Decrease of Scores
<b>Outcome Variable</b>			
<b>Trauma Symptoms</b>			
<b>PROPS</b>			
	Baseline	24.59	↓
	4Months	21.33	
	8Months	19.39	
	12Months	16.85	
<b>TSCC</b>			
	Baseline	35.87	↓
	4Months	31.71	
	8Months	28.95	
	12Months	25.84	
<b>Attachment &amp; Relationship</b>			
<b>Security Scale (Caregiver Attachment)</b>			
	Baseline	38.22	↑
	4Months	42.05	
	8Months	45.39	
	12Months	48.06	
<b>Working Alliance</b>			
	Baseline	54.67	↑
	4Months	52.76	
	8Months	51.38	
	12Months	49.95	
<b>Mental Health &amp; Behavior</b>			
<b>Hopelessness (DEPRESSION)</b>			
	Baseline	4.86	↓
	4Months	5.60	
	8Months	6.11	
	12Months	6.61	
<b>Perception of Self Control (ANGER)</b>			
	Baseline	5.35	↑
	4Months	6.06	
	8Months	6.68	
	12Months	7.25	
<b>Conners (PARENT REPORT BEHAVIORAL RATING SCALE)</b>			
	Baseline	105.30	↓
	4Months	101.57	
	8Months	98.92	
	12Months	92.98	
<b>Social Support</b>			
<b>Family</b>	Baseline	2.26	↑
	4Months	2.17	
	8Months	2.3	
	12Months	2.27	
<b>Friend</b>	Baseline	2.08	↑
	4Month	2.24	
	8Month	1.95	
	12Month	2.09	

**Table 7: Predicted Means on PROPS by trauma type**

Group	Child Abuse	No Child Abuse
Interview Time		
Baseline	23.61	19.77
4 Months	21.09	17.97
8Months	26.01	16.30
12 Months	23.05	16.90

*Interpersonal relatedness*

Similar to reports of the TSCC, there is a main effect of time on the Security Scale that approaches significance indicating that there is a trend toward improved attachment with a primary caregiver over time (see Table 4 and 5). This finding is supported by the results of covariate analysis which also indicates a main effect of time when controlling for the amount of the RLH intervention ( $z = 2.29, p < .05$ ). There are no main effects for group or amount of intervention nor are there two- or three- way interactions.

The results for the child's report of working alliance with their therapist suggest an unpredicted trend. There is a significant two-way interaction between time, and amount of intervention ( $z = -1.98, p < .05$ ) and a three-way interaction that approaches significance ( $z = -1.829, p = .073$ ) suggesting an inverse relationship between time and intervention on therapeutic alliance. However, the relative shift in ratings is small and the overall mean on this particular rating scale is high suggesting an overall satisfaction and strong alliance between children and their clinicians.

*Behavioral and Mental Health Indicators*

The results from the first HLM analysis suggests that over time children's perceptions of self control or anger management increases ( $z = 1.67, p = .098$ ). In the second set of the analyses with amount of intervention entered as a covariate, the trend is present although less robust ( $z = 1.726, p = .101$ ). There were no other significant main or interaction effects for behavioral or mental health outcome variables.

*Social Support*

No significant findings for social support were found.

**DISCUSSION**

Results at four months (Kagan, Hornik & Douglas, 2004) included significant levels ( $p < .05$ ) of improvement reported on child self-reports of trauma symptoms and fewer problem behaviors reported on caregiver checklists. At twelve months, significant

levels of improvement were found correlating the decrease in parent reports of child trauma symptoms with the number of workbook chapters completed and also for child reports of increased security with caring adults. These results support three of the hypotheses regarding effectiveness of implementation of the model: reduction of trauma symptoms on child self-report and parent rating scales, reduction of behavior problems on a parent rating scale, and increased feelings and perceptions by children of closeness towards primary caretakers. However, the lack of a comparison group, the small size of the sample, and the difficulty separating the shared variance between time and the intervention, limit the scope of conclusions regarding the effectiveness of RLH on improved clinical outcomes.

Changes in a positive and expected direction were found for hypotheses for increased child reports of self control of anger, increased social support, and improved skills for self soothing and expression of emotions; however these did not reach significance. Predicted increases in child reports of therapeutic alliance and decreases in hopelessness were also not significant but were found to be in the opposite direction than expected. Working relationships with staff began at a high level captured at baseline measures with later assessments of therapeutic alliance likely reflecting children's expectations of termination or actual termination of services to families. Children's perceptions of therapeutic alliance were also likely reduced by three staff leaving the project in the middle of work with clients and findings may have been affected by the relatively low reliability of this measure. Decreases in children's reports of feeling hopeful about the future may have been affected similarly by the sensitivity of these children to disruption in relationships as families ended services, moved away, or children lost practitioners.

The weakening of significant main effects from four months to 12 months was likely a result of the drop from 36 children completing outcome measures at four months to 25 children at 12 months. Much of the attrition was likely due to the delayed start of the project, since completion of the RLH protocol would have meant longer than normal participation in these programs, or participation beyond placement for children in foster family care or residential treatment. In addition, the consistency and quality of implementation appeared variable over time, which may have resulted in a weaker effect. For example, staff working in residential treatment reported the greatest difficulty in beginning RLH work, carrying out the weekly protocols, and maintaining services over the length of a youth's placement. These staff also carried combined roles as case managers and therapists leading to their involvement in day-to-day crisis management which often interfered with therapy sessions. Attrition also increased the impact of variance of a few individual children and staff, especially with some families moving away and loss of three practitioners.

The diminution of main effects from four to 12 months was also affected by the interactive effect found for children for whom clinicians reported child physical and sexual abuse at baseline. Parents and guardians of these children may very likely may have been less sensitive to their children's trauma symptoms before the RLH intervention. This study included children who lacked a safe home and a validating parent or guardian committed to raising the child and primarily mandated clients. Parents and guardians were often grappling with the stress of repeated family violence and other traumas. Over the course of RLH work, the child's level of trust and security increased,

a primary objective of RLH interventions, supporting the emphasis on activities designed to rebuild the child's sense of being cared for and eliciting caring adult messages of protection and support for the child. This likely helped abused children to share or continue to disclose painful experiences to practitioners and caring adults from 4-8 months in the study report period. It is possible that the increase in symptoms reported at 8 months reflected the adult's increased recognition of trauma symptoms and/or the child's increased security to share previously hidden traumas, following past physical or sexual abuse. This would support a primary objective of RLH work, to help caring adults rebuild trust and safety and, in short, an increase in attunement especially for children and primary caretakers who had experienced abuse and neglect.

A longer study period or resources to provide more intensive and consistent services, may have led to stronger main effects, especially for children with suspected physical and sexual abuse. Children involved in the programs studied are often placed or referred because of behavioral problems and disclose significant physical and sexual abuse and neglect only after therapeutic services have begun. Extended or more intensive services would have helped these children to: (1.) become safe enough to process traumatic memories; (2.) disclose and address 'tough times;' and (3.) reduce trauma symptoms with the continued development of safety, support, affect regulation skills, and trust generated by the attachment and trauma-centered interventions. This is supported by the significant finding of this study that the more chapters, and presumably phases of attachment and trauma centered therapy were accomplished, the greater the drop in child trauma symptoms as reported by parents and guardians. Moreover, the longer the children and families worked with RLH therapists the greater the increase in child reports of security and attachments, another significant finding.

Further research is needed to fully evaluate the effectiveness of the RLH model. It would be important to assess how practitioners' success in involving primary caretakers in the weekly therapy affects outcomes and whether effectiveness would be increased with individualized supervision of therapists, rather than the biweekly group consultation, and use of the more detailed fidelity checklists<sup>4</sup> which were developed over the course of this study. A larger study with a comparison group and random assignment would be important to differentiate factors influencing children's improvement.

## CONCLUSIONS

Results support the efficacy of applying components of trauma and attachment-centered therapies in child and family services. The model tested included cognitive behavioral interventions designed for children with traumatic stress, especially Complex PTSD, including children and families who have experienced physical and sexual abuse, severe neglect, and may lack a safe, non-offending parent and a secure home. The results also support the tenet in desensitization therapies that enabling children to remain safe with a trusted therapist during prolonged exposures can lead to reduction in traumatic stress symptoms. The *Real Life Heroes* model facilitated skill-building and

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<sup>4</sup> To increase fidelity and consistency the *Real Life Heroes* Practitioner Manual was expanded to highlight essential elements with bulleted *Checkpoints*, *Pitfalls*, expanded *Troubleshooting* sections for each chapter a *Brief Assessment Guide for Attachment and Trauma-centered Service Planning*, and a check-off session report for implementing the structured session format.

trauma processing through use of a structured workbook and non verbal creative arts activities that, in turn, facilitated opportunities for sharing and attunement between children and therapists, and also between children and caring adults.

Results also supported the hypothesized relationship between children's increased perception of security with caring adults and a reduction in trauma symptoms over time. Specifically, the 'doing with' activities appeared to enhance children's perception that they were not alone and could count on support from important people in their lives. Working with therapists and safe adults on opening up and recovering memories of children being nurtured, valued, and doing good things appeared to foster the strengths needed for children and parents or guardians to reduce traumatic stress reactions.

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