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EXAMINING THE IMPACT OF PARENTING BEHAVIORS ON THE TRAJECTORY OF CHILD OUTCOMES FOLLOWING TRAUMATIC INJURY (50 PP.)

Thesis Advisor: Douglas L. Delahanty

Following pediatric injury, children are at risk for experiencing functional impairment and psychological distress. The current study examined the trajectory of health-related quality of life (HRQoL), as well as posttraumatic stress disorder (PTSD) symptoms (PTSS) and depression symptoms in child injury victims up to six-months post-injury. Given the role that parents have on a child's psychological and physical health outcomes, we also examined the influence of child-reported parenting behaviors on HRQoL, PTSS, and depression symptoms. A sample of 143 children were recruited from an emergency department following an acute injury. Analyses revealed a significant increase in HRQoL (B=.074, *SE*=.007, 95% CI [.060, .088], $p<.001$), decrease in PTSS (B=-.024, *SE*=.005, 95% CI [-.033, -.014], $p<.001$), and decrease in depression symptoms (B=-.012, *SE*=.004, 95% CI [-.020, -.004], $p=.004$) from one-week to six-months post-injury. Although baseline differences in use of corporal punishment were associated with lower levels of HRQoL (B=-2.59, *SE*=.739, $p<.001$), and higher levels of PTSS (B=1.56, *SE*=.611, $p=.011$), and depression symptoms (B=1.47, *SE*=.468, $p=.002$), use of corporal punishment was not related to the trajectory of child outcomes over time. Parental supervision significantly predicted the trajectory of HRQoL (B=.004, *SE*=.002, $p=.012$) and depression (B=-.002, *SE*=.001, $p=.032$), but not PTSS. Children who reported frequent parental supervision had lower HRQoL and higher depression symptoms than children who reported less frequent

supervision. Results support the potential use of psychoeducation regarding effective parenting practices in order to benefit a child's mental and physical health post-injury.

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Marielle Remy Samii

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Thesis written by

Marielle Remy Samii

B.A., Marquette University, 2018

M.A., Kent State University, 2022

Approved by

_____, Advisor
Douglas L. Delahanty, Ph.D.

_____, Chair, Department of Psychological Sciences
Maria Zaragoza, Ph.D.

_____Dean, College of Arts and Sciences
Mandy Munro-Stasiuk, Ph.D.

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Introduction

Unintentional injuries are the leading cause of death among children and adolescents in the United States (Centers for Disease Control and Prevention (CDC), 2021). In the United States alone, the CDC estimated more than two million nonfatal emergency department visits per year for children ages 10-19 due to unintentional injuries (CDC, 2020). Following an injury, many children experience functional impairment, reduced quality of life, and psychological distress (Burd et al., 2021; Martin-Herz et al., 2021). It is estimated that about 19% of children will experience post-traumatic stress following an injury (Kassam-Adams et al., 2013). Psychological distress following pediatric injury is associated with reduced physical, social, and behavioral functioning (Zatzick et al., 2008; Winthrop, 2010). Therefore, understanding the trajectory of these symptoms in the months following an injury may help differentiate children who will recover compared to those who will experience chronic distress and possibly benefit from clinical intervention. Poor family functioning has been consistently identified as an important risk factor for child mental health issues including increased likelihood for persistent posttraumatic stress disorder (PTSD) symptoms (PTSS) following an injury (Schreier et al., 2005; Trickey et al., 2012). Because family functioning shapes parent-child interactions and influences a child's social, emotional, and behavioral development (Cobham et al., 2016), poor family functioning, such as engagement in negative parenting behaviors, may predispose children to higher baseline symptomatology which in turn increases the likelihood of long-term difficulties. In addition to baseline risk, parenting behaviors may also impact the trajectory of child outcomes over time. While several studies have examined parenting behaviors as predictors of child PTSS following a traumatic event (Cobham et al., 2016; Williamson et al., 2017), the extent to which specific parenting behaviors impact other child outcomes following an injury is

unclear. The current study was designed to 1. Examine the general trajectory of health-related quality of life (HRQoL), PTSS, and depression symptoms up to six-months after a child's injury; 2. Examine baseline differences in parenting behaviors and the extent to which they are associated with initial PTSS, depression symptoms, and HRQoL; and 3. Examine the influence of each parenting behavior on the trajectory of child outcomes up to six-months post-injury.

PTSS and Depression symptoms in Children Following Unintentional Injury

Following an injury, many children experience traumatic stress reactions ranging from temporary mood and behavioral disturbances to more chronic responses such as PTSD (Kassam-Adams et al., 2015; Langeland & Olff, 2008). PTSD is characterized by symptoms of re-experiencing the traumatic event, avoiding stimuli or reminders of the event, negative alterations in mood and cognitions, and marked alterations in arousal or reactivity (American Psychiatric Association (APA), 2013); a diagnosis of PTSD is assigned when symptoms are present for at least one month following the traumatic event (American Psychiatric Association, 2013). While most children will recover from acute post-traumatic stress, about 19% of children will develop significant persistent PTSS after an injury (Kassam-Adams et al., 2015). Further, early PTSS may increase impairment in other domains of functioning (Kassam-Adams et al., 2013). Depression, a disorder characterized by symptoms of low mood most of the day, increased irritability, diminished interest, weight loss/gain, insomnia/ hypersomnia, fatigue, feelings of worthlessness, difficulties concentrating, and recurrent suicidal ideation (APA, 2013) is highly comorbid with PTSD; about 52% of individuals who meet diagnostic criteria for PTSD also meet criteria for major depressive disorder in adult populations (Rytwinski et al., 2013). Although there is less research on the comorbidity of PTSD and depression in child populations, it is estimated that about 24% of trauma-exposed children also have clinically significant depression

symptoms (Vibhakar et al., 2019). In pediatric injury patients, there appears to be a moderate association between PTSS and depression symptoms with evidence suggesting the two constructs are clinically distinct, despite underlying similarities in symptom presentation such as increased irritability, difficulties concentrating, and trouble sleeping (Kassam-Adams et al., 2015; Jovanovic et al., 2010; Zhang et al., 2022).

Most studies have examined post-traumatic symptoms at singular points following a traumatic event, without considering patterns or trajectories of symptoms over time. A trajectory study examining PTSS up two years after a traumatic event found that about 57% of children will be categorized as resilient, meaning that symptoms of PTSS remain low following their injury (Le Brocque et al., 2010). In contrast, 33% will be categorized as recovering, operationalized as children who initially experience high levels of PTSS in the initial months following their injury, but go on to experience full recovery, and 10% will experience chronic PTSS and long-term impairment (Le Brocque et al., 2010). Few studies have examined trajectories of depression symptoms in children following a traumatic event. However, one study found that depression symptoms were more severe and persistent than PTSS up to nine-months following the traumatic event (Zhang et al., 2022). Although it appears that most children will recover from the initial distress they experience following an injury, determining factors that impact the trajectory of long-term outcomes is important for informing early interventions for the subset of individuals who will experience persistent PTSS and depression symptoms.

Health-Related Quality of Life in Children Following Unintentional Injury

The World Health Organization defines health-related quality of life (HRQoL) as a multi-dimensional concept consisting of subjective aspects of well-being in domains such as physical, mental, emotional, and social health functioning (WHOQOL, 1995). Existent research examining

changes in HRQoL from soon after injury to more distal time points has found that HRQoL improves over time (Burd et al., 2021; Gabbe et al., 2011). One longitudinal study collected HRQoL data 1-, 3-, 6-, 12-, and 24- months post-injury from multiple cohort studies and found that HRQoL was lowest one-month post-injury with levels rising at four-months and plateauing between six-months and two-years post-injury (Dipnall et al., 2021). Notably, no participant reached full-health status (defined as pre-injury levels) two-years following their injury (Dipnall et al., 2021). However, other studies have found that HRQoL in injured children is higher than levels in healthy non-injured children one-year following their unintentional injury (Landlolt et al., 2009; Martin-Herz et al., 2021). Specifically, one study compared HRQoL outcomes in children injured from a motor vehicle accident to non-injured healthy children. Findings suggested that children in the injury group reported higher HRQoL one-year following their motor vehicle accident (Landlolt et al., 2009).

Factors associated with increased risk for lower HRQoL following unintentional pediatric injury include older age (i.e., adolescents compared to younger children), female gender, lower functional status at discharge, polytrauma, and length of hospital stay (Burd et al., 2021; Curtis et al., 2022; Dipnall et al., 2021; Holbrook et al., 2007). Further, studies have found that PTSS predict short- and long-term impairment in quality of life post-injury over and above other demographic and hospital-related risk factors (Holbrook et al., 2005, 2007; Landolt et al., 2009; Martin-Herz et al., 2017; Zatzick et al., 2008). For example, children who report more symptoms of PTSS experienced greater ongoing physical impairment from their injury compared to children with low PTSS (Kassam-Adams et al., 2015; Meijel et al., 2019). Similarly, injured children with acute stress disorder had significantly lower HRQoL 3-, 6-, 18-, and 24-months post-injury compared to injured participants who did not meet criteria for acute stress disorder

(Holbrook et al., 2005). Studies assessing depression symptoms also suggest that higher levels of depression post-injury predict lower HRQoL up to two years post-injury (Han et al., 2011; Martin-Herz et al., 2021; Zatzick et al., 2008). Family functioning (both pre- and post-injury) has also been found to affect HRQoL outcomes (Winthrop, 2010; Zatzick et al., 2008). Although poor family functioning appears to predict lower HRQoL following an injury, it is unclear the extent to which specific parenting behaviors impact HRQoL.

Parenting Behaviors Following Pediatric Injury

Children in families with poor family functioning are more likely to struggle with internalizing and externalizing problems (Jozefiak & Wallander, 2015). Although children in families with poor functioning are more likely to have higher baseline levels of distress (Trickey et al., 2012), few studies have examined the influence of parenting behaviors on levels of distress following an injury. Because initial levels of distress are predictive of long-term outcomes, it is useful to identify factors associated with higher baseline levels of distress (Aaron et al., 1999; Kassam-Adams & Winston, 2004). However, as many children will experience initial distress following an injury followed by a decrease in symptoms over time (Kassam-Adams et al., 2015, Le Brocque et al., 2010, Zhang et al., 2022), it is also important to identify which risk factors impact the trajectory of symptoms in those who will experience persistent distress. Further, parenting is a broad construct, encompassing many forms of both positive and negative parenting behaviors. Thus, in order to identify specific types of parenting that may be amenable to intervention it is important to assess the impact of specific positive (i.e., positive discipline techniques, involvement) and negative parenting behaviors (i.e., inconsistent discipline, corporal punishment, supervision), and their impact on child outcomes following an injury.

Studies examining positive parenting behaviors following a traumatic event have largely examined their impact on PTSS specifically (Williamson et al., 2017). Initially, it appears that warmth and involvement may help with a child's use of adaptive coping such as seeking social support from their parents (Marsac et al., 2013; Williamson et al., 2017), which may lead to greater personal adjustment (i.e., self-reliance, self-esteem) in the child following an injury (Valentino et al., 2010). However, few studies have examined the longitudinal relationship between positive parenting behaviors and child outcomes with one study finding no significant relationship between caregiver warmth and child PTSS and depression symptoms up to two years following a traumatic event (Gil-Rivas & Kilmer, 2013). One possible explanation for these mixed findings is that positive parenting behaviors may affect levels of distress acutely, but not longitudinally.

In contrast to research on positive parenting, harsh and inconsistent parental disciplinary practices have been associated with poor outcomes (Valentino et al., 2010, Williamson et al., 2017). Initial negative parenting behaviors such as hostile/coercive parenting have predicted greater PTSS and internalizing symptoms 30 days following a traumatic event (Valentino et al., 2010). However, there is also evidence that use of hostile parenting, specifically corporal punishment, is a risk factor for PTSS longitudinally (Kelley et al., 2010). Specifically, parents who used maladaptive coping strategies to handle their distress were more likely to use corporal punishment, thereby increasing risk for child PTSS 3-17 months following a natural disaster (Kelley et al., 2010).

Studies that have examined anxious parenting practices have hypothesized that overprotection may serve as a risk factor for adolescent internalizing problems following a traumatic event (McFarlane, 1987). Parents who maintain a balance of protective behaviors

while allowing their child to engage in autonomous decision-making tend to promote positive child adjustment, including lower levels of depression symptoms in healthy adolescents (Jacobson & Crockett, 2010). In contrast, anxious parenting behaviors characterized by increased supervision and restrictive behaviors have been associated with child internalizing and PTSS following natural disasters (Bokszczanin, 2008; Cobham & McDermott, 2014; McFarlane, 1987; Williamson et al., 2017). Although parental supervision may serve as a risk factor for child distress following a traumatic event, less is known about how these behaviors affect levels of distress acutely and longitudinally.

While there is evidence suggesting that specific parenting behaviors may impact child PTSS following a traumatic event, prior findings are largely limited to natural disaster populations examining PTSS only (Bokszczanin, 2008; Cobham & McDermott, 2014; Kelley et al., 2010; McFarlane, 1987). Further, it is unclear whether these parenting behaviors are a risk factor for initial distress only, or if they affect the trajectory of symptoms over time. Thus, the current study seeks to confirm and extend these findings by examining how different parenting behaviors impact initial levels of HRQoL, PTSS, and depression symptoms, and how they impact the trajectory of these child outcomes over time.

Current Study

The current study investigated the trajectory of PTSS, depression symptoms, and HRQoL outcomes up to six-months following an unintentional pediatric injury. Our second aim was to examine the cross-sectional association between baseline levels of parental involvement, positive parenting behaviors, supervision, inconsistent discipline, and use of corporal punishment and HRQoL, PTSS, and depression symptoms. Finally, our third aim examined the influence of each

of these parenting behaviors on the trajectory of child outcomes up to six-months post-injury. Specific study hypotheses include:

Hypothesis 1: HRQoL, PTSS, and depression symptoms will significantly improve up to six-months post-injury.

Hypothesis 2: There will be significant baseline differences in HRQOL, PTSS and depression symptoms based on specific parenting behaviors. Specifically, higher parental support and involvement will be associated with higher baseline HRQoL lower levels of PTSS and lower depression symptoms. High use of supervision, inconsistent discipline, and corporal punishment will be cross-sectionally associated with worse HRQoL, and higher levels of PTSS and depression symptoms.

Hypothesis 3: Parenting behaviors will affect the trajectory of HRQoL, PTSS, and depression symptoms over time. Specifically, parental involvement and positive parenting will be related to higher HRQoL, lower PTSS and lower depression symptoms over time, while lower levels of parental involvement and positive parenting will be related to worse outcomes over time. Higher levels of supervision, inconsistent discipline, and corporal punishment will be related to lower HRQoL, and higher PTSS and depression symptoms over time while lower levels of supervision, inconsistent discipline, and corporal punishment will be related to higher HRQoL, lower PTSS, and lower depression symptoms over time.

Methods

Participants

A sample of 143 child participants aged 10-15 years old was recruited from the Emergency Department of a Level 2 trauma center in a midwestern children's hospital after seeking treatment for acute, non-abuse, non-self-harm related injuries. In total, 361 children and their legal guardians were approached; of these, 233 families provided informed consent. However, 82 children never participated following consent. Of the remaining participants, 151 (84%) provided baseline data; eight participants were excluded due to missing greater than 20% of at least one questionnaire across timepoints. 125 participants were retained at one-month, 119 participants were retained at three-months, and 108 were retained at the six-month follow-up.

Procedures

The current study is part of a larger ongoing prospective longitudinal study investigating emotion processing deficits and risk for impairment in child injury victims. All research procedures were approved by Akron Children's Hospital Institutional Review Board (ID: 1257345). The current sample includes participants recruited from November 2018 through March 2021. To be eligible for the study, participants had to (a) sustain an acute, accidental injury, (b) be between the ages of 10 and 15, (c) have a legal guardian willing to participate in the study, and (d) be able to communicate fluently in English. Exclusion criteria included the following: evidence of brain damage or severe intellectual disability, a Glasgow Coma Score less than 14, loss of consciousness for more than 30 minutes following the injury, evidence of alcohol or drug use related to the injury, and suspected abuse-related or self-inflicted injury. Potential participants were approached and recruited by trained research personnel who explained the purpose and procedures of the study. Written consent was obtained from the parent(s) or legal

guardian(s), and written or verbal assent (depending on age) was obtained from children. Children and their participating parent were given surveys administered via RedCap to complete within a week following the child's injury; however, most children completed their survey within the first two weeks following their injury (*M*=10.5 days, *SD*= 8.8). Follow-up assessments occurred one-, three-, and six-months post-injury. Families were compensated $25 in gift cards for participating at each timepoint.

Measures

Demographics. A review of medical charts and child self-report data provided information about the child's injury acuity rating, whether the child was admitted to the hospital or not, injury type, and diagnosis. Together, these variables provided insight into the severity of the child's injury. Acuity ratings are initial ratings of injury severity based on a 4-point scale in which lower scores represent greater injury severity. Demographic variables such as child age, race, and sex were obtained via child self-report. Given that the sample was predominately White (75%), race/ethnicity was coded as a dichotomous variable to represent "White" and "Non-White" participants. As part of the demographic survey, children were also asked to rate 1) how severe they perceived their injury, and 2) their initial levels of distress following their hospitalization on a 7-point Likert scale (0=*not at all*, 7= *extremely*).

Parenting-Behaviors. The Alabama Parenting Questionnaire-Child Form (APQ) assesses five dimensions of parenting including involvement, positive parenting (e.g., use of positive discipline techniques), supervision, inconsistent discipline, and corporal punishment (Frick, 1991). The 42-item questionnaire assesses child perceptions of parenting behavior on a 5-point Likert scale (1=*never,* 5=*always).* Items were summed to create a total score for each subscale. Children were administered the APQ one-week after their injury. In the current study, the APQ

demonstrated excellent internal consistency (α=.92). For ease of interpretation, supervision behaviors were assessed so that higher scores reflected poor supervision practices (i.e., "Your parents get so busy they forget where you are and what you are doing").

Child PTSD Symptoms. The UCLA PTSD Reaction Index (PTSD-RI) assesses exposure to traumatic events and PTSS in children and adolescents (Steinberg et al., 2004). The measure includes 17-items that correspond with PTSD symptom Criterion B, C, and D (intrusion, avoidance, and arousal symptoms, respectively), along with two additional items assessing fear of reoccurrence and related guilt (Steinberg et al., 2013). Children were administered the PTSI-RI one-week, and one-, three-, and six-months after their injury to assess PTSS. Respondents were instructed to complete the measure with reference to the child's injury. The scale assesses the frequency of occurrence of symptoms during the past month on a 5-point Likert scale (0=*none of the time*, 4= *most of the time*). Items were summed to create a total score in which higher scores were indicative of greater PTSS. In the current study, the PTSD-RI demonstrated excellent internal consistency at one-week (α=.92) and at one- (α=.92), three- (α=.93), and six-months (α=.92) post-injury.

Child Depression Symptoms. The Center for Epidemiological Studies-Depression Scale for Children (CES-DC) is a 20-item self-report depression inventory for children and adolescents. The inventory uses a 4-point Likert scale (0=*not at all*, 3=*a lot*) with possible sum scores ranging from 0-60 (Faulstich et al., 1986). Children were administered the CES-DC one-week, and one-, three-, and six-months after their injury. In the current study, the CES-DC demonstrated good internal consistency at one-week (α=.87) and one-month (α=.89), and excellent internal consistency at three-(α=.92), and six-months (α=.91) post-injury.

HRQoL. The Pediatric Quality of Life (PedsQL 4.0 Generic Core Scales) is a 23-item inventory measuring HRQoL and includes four subscales measuring physical, emotional, social, and school functioning on a 5-point scale (0=*never,* 4=*almost always*). The PedsQL total score sums the four subscales to assess core dimensions of health as defined by the World Health Organization in addition to school functioning (Varni et al., 2001). Consistent with scoring guidelines, items were reverse scored and linearly transformed on a 0-100 scale with higher scores indicating better functioning (Varni,1998). In the current study, the PedsQL demonstrated excellent internal consistency at one-week (α=.93), and at one- (α=.93), three- (α=.94) and six-months (α=.95) post-injury.

Data Analysis

Missing Data. Missing data were handled in two ways. When measures were missing greater than 20% of items, data were excluded from analyses. For scales missing less than 20% of items, the mean of the completed items for that particular scale or subscale were imputed for each participant. Items were imputed for the APQ, UCLA PTSD-RI, CES-DC, and PedsQL. In total, 118 individual items were imputed. There were no differences in the results of main analyses between the dataset with versus without imputed values; thus, analyses were completed on the dataset including imputed values.

Preliminary Analyses. Preliminary analyses were conducted using Stata (Version 17.0; StataCorp, 2021). Participants who dropped out early were compared to participants who fully completed study surveys using ANOVAS, Chi-square analyses, Fisher's Exact tests, and t-tests. As data collection occurred both before and during the COVID-19 pandemic, group differences were also examined for the 40 participants who completed surveys at some timepoint during the pandemic (i.e., surveys completed after March 1st, 2020). Injury acuity, age, sex, and

dichotomized race were used as covariates in the main analyses due to their association with HRQoL, PTSS, and depression symptoms.

Primary Analyses. Analyses included participants who completed surveys one-week post-injury in addition to at least one follow-up survey at one-, three-, and/or six-months post-injury. As a result, analyses included 143 participants. For each aim, time was treated as a continuous variable and measured as days since injury. Aim one was tested with a random-intercepts only model predicting HRQoL, PTSS, and depression symptoms from the centered time variable, controlling for participant age, sex, dichotomized race, and injury acuity. For aim two, a random-intercepts only model was repeated including parental involvement, positive parenting behaviors, supervision, inconsistent discipline, and corporal punishment. For aim three, a random-intercepts only model predicted HRQoL, PTSS, and depression symptoms from the interaction between each specific parenting behavior and the effect of time, while controlling for covariates. Secondary analyses included the examination of random effects using the deviance Chi Square statistic when a parenting behavior significantly impacted the trajectory of an outcome. By examining the random effect, analyses determined whether or not the slopes of each outcome varied systematically on the basis of the parenting behavior.

Results

Preliminary Analyses

Demographic Information

Detailed child demographic and injury information is reported in Tables 1 and 2. Of the 143 participants, the majority were male (63%) and White (75%). The average age of the sample was 12.41 years (*SD*=1.62). The average injury acuity was three, and 21% percent of participants were hospitalized following their emergency department admission. Most participants experienced a sports-related injury (34%), followed by falls (33%), miscellaneous injuries (i.e., animal bites, recreational activities) (20%), and motor vehicle accidents (8%) with the most common type of injury diagnosis being bone fractures (44%).

Retention

Only participants who provided complete baseline data were eligible for follow-up; thus, 143 provided usable data at baseline to investigate study aims. Out of the 143 participants who provided usable data, 101 (70%) completed all four surveys (one-week, one-month, three-month, and six-month surveys), 17 (12%) completed three of the four surveys, 15 (11%) participants completed two of the four surveys, and ten (7%) completed baseline surveys only. Overall, 29 participants were considered lost to follow-up due to providing baseline and one-month surveys only (See Table 3).

Completer Analyses

Completer analyses revealed no significant differences in injury or demographic characteristics between participants who never participated in the study compared to the 143 participants who did. Specifically, participants did not differ in terms of injury acuity ($F(1,224)=.30$, $p=.59$), hospital admission status $\chi^2(1)=.15$, $p=.74$), age ($t(231)=.07$, $p=.94$),

dichotomized race ($\chi^2(1)=.28$, $p=.69$), or sex ($\chi^2(1)=.03$, $p=1.0$). Analyses revealed no significant injury or demographic differences between participants who completed all surveys prior to the COVID-19 pandemic and for the 40 participants who completed at least one survey during the COVID-19 pandemic in terms of injury acuity ($F(1,137)=.000$, $p=.99$), hospital admission status $\chi^2(1)=1.5$, $p=.34$), age ($t(231)=-1.95$, $p=.07$), dichotomized race ($\chi^2(1)=1.2$, $p=.28$), or sex ($\chi^2(1)=.18$, $p=.71$). Similarly, independent samples t-tests revealed no significant group differences in the means for child HRQoL at one-week $t(141)=-.09$, $p=.25$), one-month $t(121)=-1.42$, $p=.18$), three-months $t(115)=-.65$, $p=.70$), or six-months $t(104)=-.59$, $p=.44$), PTSS at one-week $t(134)=1.39$, $p=.436$), one-month $t(113)=1.93$, $p=.193$), three-months $t(115)=1.98$, $p=.10$), or six-months $t(104)=.197$, $p=.132$), and depression symptoms one-week $t(137)=.346$, $p=.94$), one-month $t(120)=.952$, $p=.63$), three-months ($t(113)=.816$, $p=.21$), or six-months $t(104)=.663$, $p=.10$).

Covariates

Bivariate correlations revealed a significant association between lower injury acuity and higher HRQoL at baseline ($r = .18$, $p = .03$), but not at any other timepoint. Further, there was no significant association between age and HRQoL, PTSS, or depression symptoms at any timepoint. Independent samples t-test revealed White participants had significantly higher HRQoL than Non-White participants at three-months ($t(125) = 2.02$, $p<.008$), but not at any other timepoint. For PTSS, Non-White participants had significantly higher PTSS at one-week ($t(143)=-.99$, $p<.001$) and three-months ($t(122)=-3.01$, $p<.001$), but not at one- or six-months. For depression symptoms, Non-White participants had significantly higher depression symptoms at three-months ($t(122)=-.1.97$, $p<.001$), and White participants had significantly higher depression symptoms at six-months ($t(112)=-1.90$, $p=.007$), but there were no symptoms

differences by participant race at one-week or one-month. No significant group differences were found between child sex and HRQoL and PTSS at any time point. However, Females had higher depression symptoms at one-month (t (130) = 2.80, p =.003) and six-months (t (112) =1.49, p =.047), and trending group differences at one week (t (143) = 2.53, p =.059), but not at three-months. Participant age, race, sex, and injury acuity were all retained as covariates for primary analyses.

Primary Analyses

Hypothesis 1: HRQoL, PTSS, and depression symptoms will improve over time.

After controlling for child age, sex, dichotomized race, and injury acuity, longitudinal analyses revealed that children's HRQoL significantly improved from baseline to 6-months post-injury (B=.074, *SE*=.007, 95% CI [.060, .088], p<.001). There was also significant improvement in PTSS (B=-.024, *SE*=.005, 95% CI [-.033, -.014], p<.001), and depression (B=-.012, *SE*=.004, 95% CI [-.020, -.004], p=.002; See Tables 4 & 5).

Hypothesis 2: There will be significant baseline differences in HRQOL, PTSS and depression symptoms based on specific parenting behaviors.

HRQoL. Controlling for other parenting behaviors and covariates, there was a positive association between parental involvement and HRQoL since the time of injury (B=.493, *SE*=.216, 95% CI [.069, .917], p=.023), and greater use of corporal punishment was significantly associated with lower levels of HRQoL (B=-2.59, *SE*=.739, 95% CI [-4.05, -1.15], p<.001). However, HRQoL was not related to positive parenting behaviors (B=-.572, *SE*=.390, 95% CI [-1.34, .191], p=.142), supervision (B=.218, *SE*=.288, 95% CI [-.346, .782], p=.448), or inconsistent discipline (B=-.089, *SE*=.391, 95% CI [-.856, .678], p=.820; see Table 6).

PTSS. Controlling for other parenting behaviors and covariates, greater use of corporal punishment was significantly associated with higher levels of PTSS since the time of injury (B=1.56, *SE*=.611, 95% CI [.356, 2.75], *p*=.011). However, levels of PTSS were not significantly related to baseline differences in parental involvement (B=-.124, *SE*=.178, 95% CI [-.475, .227], *p*=.488), positive parenting behaviors (B=.202, *SE*=.325, 95% CI [-.436, .839], *p*=.535), supervision (B=-.025, *SE*=.236, 95% CI [-.488, .437], *p*=.914), or inconsistent discipline (B=.142, *SE*=.322, 95% CI [-.490, .775], *p*=.659; see Table 6).

Depression Symptoms. Controlling for other parenting behaviors and covariates, greater use of corporal punishment was positively associated with higher depression symptoms since the time of injury (B=1.47, *SE*=.468, 95% CI [.554, 2.39], *p*=.002). However, depression symptoms were not significantly related to differences in parental involvement (B=-.102, *SE*=.137, 95% CI [-.370, .169], *p*=.456), positive parenting behaviors (B=.166, *SE*=.249, 95% CI [-.321, .654], *p*=.504), supervision (B=-.036, *SE*=.181, 95% CI [-.391, .318], *p*=.841), or inconsistent discipline (B=-.025, *SE*=.248, 95% CI [-.511, .461], *p*=.921; see Table 6).

Hypothesis 3: Parenting behaviors will affect the trajectory of HRQoL, PTSS, and depression symptoms over time.

HRQoL. Controlling for covariates, analyses examined the individual impact of parental involvement, positive parenting, supervision, inconsistent discipline, and corporal punishment on the trajectory of HRQoL one-week, and one-, three-, and six-months after the child's injury date. There was no significant impact on the trajectory of HRQoL for parental involvement (B=.001, *SE*=.001, 95% CI [-.002, .001], *p*=.488), positive parenting (B=-.002, *SE*=.001, 95% CI [-.004, .001], *p*=.229), inconsistent discipline (B=.001, *SE*=.002, 95% CI [-.003, .005], *p*=.795), or corporal punishment (B=-.002, *SE*=.004, 95% CI [-.010, .005], *p*=.571). However, supervision

negatively impacted the trajectory of HRQoL (B=-.004, *SE*=.001, 95% CI [.001, .007], *p*=.007; see Tables 7 & 8). These results indicated a significant difference in slopes for HRQoL depending on a child's perceived degree of parental supervision practices one-week after their injury. A second model testing the random effect of supervision using deviance chi-square statistics revealed that a random effect on the slope of the interaction term was significant (Deviance Statistic=173.67, *df*=3), suggesting that there were significant individual differences in the interaction between supervision and change in HRQoL over time (B=.004, *SE*=.002, 95% CI [-.001, .007], *p*=.012; see Figure 1).

PTSS. Controlling for covariates, analyses examined the individual impact of parenting behaviors on the trajectory of PTSS up to six-months after the child's injury date. None of the parenting behaviors were related to the trajectory of PTSS [parental involvement (B=.001, *SE*=.001, 95% CI [-.000, .002], *p*=.123), positive parenting (B=.001, *SE*=.001, 95% CI [-.001, .003], *p*=.436), supervision (B=-.002, *SE*=.001, 95% CI [-.004, .000], *p*=.080), inconsistent discipline (B=-.000, *SE*=.001, 95% CI [-.000, .001], *p*=.941), or corporal punishment (B=-.002, *SE*=.003, 95% CI [-.007, .004], *p*=.554; see Table 7)].

Depression. Controlling for covariates, analyses examined the individual impact of parenting behaviors on the trajectory of depression symptoms up to six-months post-injury. Parental involvement revealed a trending but non-significant impact on the trajectory of depression symptoms (B=.001, *SE*=.000, 95% CI [-.000, .002], *p*=.059). There was also no significant impact on the trajectory of depression symptoms for positive parenting (B=.001, *SE*=.001, 95% CI [-.001, .002], *p*=.300), inconsistent discipline (B=.001, *SE*=.001, 95% CI [-.002, .003], *p*=.600), and corporal punishment (B=-.001, *SE*=.002, 95% CI [-.006, .003], *p*=.540). However, as with HRQoL, supervision negatively impacted the trajectory of depression

symptoms (B=-.002, *SE*=.001, 95% CI [-.003, -.000], *p*=.019; see Tables 7 and 8). A second model testing the random effect of supervision using deviance chi-square statistics revealed that a random effect on the slope of the interaction term was significant for supervision (Deviance=155.80, *df*=3) suggesting that the slope of depression symptoms systematically varied over time depending on the child's perception of parental supervision (B=-.002, *SE*=.001, 95% CI [-.004,.-.000], *p*=.032; see Figure 2).

Discussion

The present study adds to prior findings by modeling trajectories of HRQoL, PTSS, and depression symptoms in children over six-months post-injury. Additionally, our study explored the impact of a variety of types of parenting behaviors on HRQoL, PTSS, and depression symptom outcomes. Results from the current study suggest that, not unexpectedly, symptom trajectories in HRQoL, PTSS, and depression symptoms significantly improve over time following injury. Further, while use of corporal punishment was associated with lower baseline levels of HRQoL, higher levels of PTSS, and higher levels of depression symptoms, corporal punishment did not significantly impact the trajectory of child outcomes over time. However, varying levels of supervision significantly impacted symptom trajectories for HRQoL and depression symptoms, but not PTSS up to six-months post-injury.

Our findings confirm hypothesis one suggesting HRQoL, PTSS, and depression symptoms significantly improve over time (Gabbe et al., 2011; Landolt et al., 2009; Winthrop, 2010). Prior studies examining the trajectory of PTSS have categorized participants into resilient, recovering, and chronic groups following a child's traumatic injury (Le Brocque et al., 2010). Our findings are consistent with the trend that most individuals experience acute stress in the early months following their injury, followed by a decline in symptoms and improvement in quality of life months later (Hong et al., 2014; Le Brocque et al., 2010; Zhang et al., 2022).

Hypothesis two was partially supported. Only corporal punishment and parental involvement were significantly associated with child outcomes, while positive parenting, supervision, and inconsistent discipline were not significantly associated with child outcomes. Specifically, corporal punishment significantly predicted lower levels of HRQoL and higher levels of PTSS, and depression symptoms after controlling for age, sex, dichotomized race,

injury acuity, and other parenting behaviors. Additionally, parental involvement predicted higher levels of HRQoL after controlling for covariates and other parenting behaviors. Consistent with our results on corporal punishment, prior research has found hostile parenting behaviors to predict PTSS in the first 30 days following a traumatic event (Valentino et al., 2010). Although the results of the current study do not provide support for the longitudinal relationship between harsh parenting and PTSS, it appears that corporal punishment is associated with initial levels of child distress following their injury. Lastly, our findings also revealed a significant association between higher levels of parental involvement and higher levels of HRQoL since the time of injury. To our knowledge, no other study has reported a relationship between increased parental involvement and HRQoL following traumatic injury. More broadly, prior literature examining HRQoL in school-aged populations have found an association between higher parental involvement and higher levels of HRQoL (Mansour et al., 2003). However, more research is needed to examine how parental involvement specifically impacts HRQoL following an injury.

Hypothesis three was also partially supported although supervision was the only parenting behavior to significantly affect the trajectory of child outcomes. These results are consistent with prior literature suggesting anxious parenting practices may increase child distress following a traumatic event (Williamson et al., 2017). Our findings suggest that children who reported frequent parental supervision demonstrated less improvement in their HRQoL trajectory than children who reported less frequent parental supervision up to six-months post-injury. Results revealed a similar trend for depressive symptoms. Children who reported frequent parental supervision demonstrated less improvement in their depressive symptom trajectory than children who reported less frequent parental supervision up to six-months post-injury. Although prior research has suggested that increases in parental supervision after a traumatic event were

associated with higher child PTSS (Bokszczanin, 2008; Henry et al., 2004), our results revealed no significant relationship between parental supervision and PTSS. Although prior studies have identified that parental distress was associated with restrictive parenting practices and subsequent PTSS symptoms (Cobham & McDermott, 2014), it may be that the injuries we included were not severe enough to illicit high levels of parental distress.

Although the current findings provide important evidence about the trajectory of HRQoL, PTSS, and depression symptoms following an injury, this study is not without limitations. Notably, the current study examined normative trajectories in children with mild to moderate injuries; the majority of injury diagnoses were bone fractures, and the majority of injury types were sports injuries. Thus, present findings may not generalize to more severely injured individuals. The current study was also limited by examining HRQoL, PTSS, and depression symptoms separately. Other studies have suggested the importance of investigating how these variables interact to inform longitudinal recovery. Specifically, prior studies have suggested that high levels of PTSS and depression symptoms in the early months following an injury predict lower HRQoL over time (Holbrook et al., 2005; Landolt et al., 2009; Zatzick et al., 2008).

Although findings provide important evidence about the impact of specific parenting behaviors on a child's initial and longitudinal levels of distress, the current study is limited to assessing parenting behaviors at one timepoint. Future studies would benefit from assessing parenting behaviors at multiple time-points to better assess behaviors prior to the injury and longitudinally post-injury in general injury populations. Finally, the current study may be limited due to employing a parenting measure that is sensitive to child externalizing difficulties, rather

than internalizing problems (Frick, 1991). Future studies should employ measures sensitive to assessing functional impairment and emotional distress following a traumatic event.

Despite these limitations, our study is one of the first to examine the impact of specific parenting behaviors on children's initial responses and long-term symptom trajectories following pediatric injury. Based on our findings that frequent supervision affects child outcomes over time, the current study provides support for the potential use of psychoeducation about effective parenting practices that may benefit a child's mental and physical health following their injury.

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Table 1. Demographics (*n*=143)

Participant Characteristics	*n*	%
Sex		
Male	90	62.9
Female	53	37.1
Age		
10	23	16.1
11	22	15.4
12	28	19.6
13	26	18.2
14	27	18.9
15	17	11.9
Mean Age	150	*M*=12.41
Race		
Caucasian	119	83.2
African American	26	18.2
Asian	1	.7
Bi-Racial	8	5.3
Native American/Pacific Islander	5	3.5
Other	5	3.5
Ethnicity		
Non-Hispanic	128	89.5
Hispanic	9	6.3
Missing	6	4.2
Dichotomized Race		
White	107	74.8
Non-White	36	25.2
Number of People in Household	134	*M*=4.60 Range: 2-10
Missing	16	10.7

Table 2. Injury Characteristics

	n	%
Injury Acuity		
1	0	0.0
2	38	26.6
3	52	36.4
4	49	34.3
Missing	4	2.8
Hospital Admission		
ED discharge	113	79.0
Admitted to main hospital	30	21.0
Injury Type		
Sports Injury	49	34.3
Fall	47	32.9
MVC		
Driver/Passenger	9	6.3
Pedestrian	2	1.4
Physical Assault	7	4.8
Miscellaneous (e.g., animal bite, non-sports related recreational activity)	28	20.0
Injury Diagnosis		
Bone Fracture	63	44.1
Head Injury	31	21.7
Laceration	17	11.9
Miscellaneous (e.g., abrasions, amputation, contusion, sprain, dislocation, sprain)	32	22.4

Table 3. Participant Retention

	1-week post-injury	1-month post-injury	3-months post-injury	6-months post-injury
Participated	143	125	119	108
Missing Data	90	18	24	35
Total Eligible	233	143	143	143
Percent retained	61	87	83	76

Table 4. Descriptive Statistics for APQ, HRQoL, PTSS, and Depression Across Study Timepoints.

Scale	*n*	Mean	SD
APQ 1-week post-injury			
Parental Involvement	143	28.39	8.35
Positive Parenting	143	18.00	4.90
Supervision	142	6.60	5.25
Inconsistent Discipline	143	7.82	3.56
Corporal Punishment	141	2.39	1.84
HRQoL Total Score			
1-week	143	69.19	18.31
1-month	125	73.19	17.66
3-months	119	81.65	16.63
6-months	108	84.68	16.59
PTSS			
1-week	143	15.79	13.89
1-month	125	16.18	13.63
3-months	119	12.16	12.99
6-months	108	11.13	12.69
Depression			
1-week	139	15.91	10.55
1-month	122	14.12	9.97
3-months	117	14.00	11.16
6-months	108	12.69	10.15

Table 5. Changes in Symptoms for HRQOL, PTSS, and Depression Post-Injury.

Outcome	**HRQoL**			**PTSS**			**Depression**		
	Fixed Effects								
	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time	0.07	0.01	10.65***	-0.02	0.05	-4.75***	-0.01	.004	-2.85**
Intercept	70.58	11.87	5.95***	17.43	9.44	1.85	18.15	7.19	2.53*
Age	-0.75	0.75	-1.01	0.34	0.60	0.57	0.63	.45	1.40
Sex	1.79	2.51	0.71	-3.05	2.00	-1.52	-4.40	1.52	-2.89**
Race	-2.00	2.80	-0.71	2.98	2.23	1.34	0.37	1.70	0.22
Acuity	2.82	1.52	1.86	-1.45	1.21	-1.20	-1.24	0.92	-1.35
	Random Effects								
	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	135.44	10.08	117.06-156.71	68.33	5.11	59.02-79.12	47.29	3.58	40.77-54.85
Intercept (person-level)	162.18	24.11	121.18-217.04	107.89	15.41	81.55-142.74	59.48	9.02	44.19-80.06

*$p \leq .05$ **$p \leq .01$ ***$p \leq .001$

Table 6. Impact of Parenting Behaviors on HRQoL, PTSS, and Depression from Number of Days Since Injury

Outcome	**HRQoL**			**PTSS**			**Depression**		
Fixed Effects									
	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time	0.07	0.01	10.40***	-0.02	0.05	-4.64***	-0.01	.004	-2.52*
Intercept	71.21	13.62	5.23***	14.77	11.36	1.30	16.36	8.72	1.88
Age	-0.49	0.78	-0.63	0.04	0.64	0.07	0.42	.49	0.85
Sex	1.79	2.51	0.31	-2.51	1.97	-1.27	-4.17	1.52	-2.75*
Race	-2.00	2.80	-0.50	3.05	2.23	1.37	0.49	1.70	0.29
Acuity	2.82	1.52	1.80	-1.42	1.20	-1.18	-1.11	0.92	-1.21
IN	0.50	.22	2.28*	-0.12	0.18	-0.69	-0.10	0.14	-0.75
PP	-0.56	.39	-1.47	0.20	0.33	0.62	0.17	0.25	0.67
S	0.22	.29	0.76	-0.03	0.24	-0.11	-0.04	0.18	-0.20
ID	-0.09	.39	-0.23	0.14	0.32	0.44	-0.02	0.25	-0.10
CP	-2.54	.74	-3.51***	1.55	0.61	2.54*	1.47	0.49	3.14**
Random Effects									
	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	136.75	10.40	117.82-158.73	65.45	5.08	56.22-76.20	45.96	3.56	39.49-53.59
Intercept (person-level)	135.73	22.03	98.74-186.59	103.61	15.56	77.19-139.08	56.80	9.02	41.61-77.54

Notes. *$p \leq .05$ **$p \leq .01$ ***$p \leq .001$. IN=Involvement, PP=Positive Parenting, S=Supervision, ID= Inconsistent Discipline CP=Corporal Punishment.

Table 7: Impact of Parenting Behaviors on Longitudinal Trajectories of HRQoL, PTSS, and Depression.

Outcome	HRQoL			PTSS			Depression		
Fixed Effects for Involvement									
	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time Intercept	0.86	0.02	3.89***	-0.50	0.16	-3.11**	-0.36	0.13	-2.77**
Age	-0.19	0.77	-0.24	-0.35	0.63	-0.06	0.39	0.47	0.83
Sex	1.49	2.50	0.60	-2.83	2.05	-1.38	-4.14	1.54	-2.68**
Race	-3.19	2.80	-1.14	3.79	2.29	1.65	0.82	1.73	0.47
Acuity	2.48	1.52	1.64	-1.06	1.24	-0.85	-1.09	0.94	-1.16
IN	0.42	0.16	2.72**	-0.25	0.13	-1.97*	-0.19	0.96	-1.98*
Time x IN	-0.001	0.001	-0.69	0.001	0.001	1.54	0.001	.000	1.85
Random Effects for Involvement									
	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	135.02	10.15	116.52-156.45	67.21	5.16	57.82-78.12	46.32	3.56	39.86-53.82
Intercept (person-level)	155.02	22.69	114.89-209.17	109.63	15.99	82.38-145.89	59.75	9.19	44.20-80.78
Fixed Effects for Positive Parenting									
	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time Intercept	0.10	0.02	4.04***	-0.03	0.18	-1.96	-0.26	0.01	-1.80
Age	-0.34	0.81	-0.41	0.01	0.66	0.01	-.39	0.50	0.79
Sex	1.81	2.54	0.71	-2.94	2.06	-1.43	-4.22	1.55	-2.72**
Race	-3.10	2.87	-1.08	3.71	2.32	1.60	0.82	1.74	0.47
Acuity	2.78	1.54	1.81	-1.20	1.25	-0.96	-1.19	0.94	-1.27
PP	0.44	0.28	1.56	-0.20	0.23	-0.89	-0.19	0.17	-1.11
Time x PP	-0.002	0.001	-1.20	0.001	0.001	0.78	0.001	.001	1.04
Random Effects for Positive Parenting									
	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	135.07	10.16	116.55-156.53	67.67	5.20	58.21-78.65	46.69	3.57	40.18-54.26

Intercept (person-level)	162.38	24.62	120.63-218.57	111.07	16.20	83.46-147.83	60.18	9.27	44.50-81.39

Fixed Effects for Supervision

	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time	0.05	0.12	4.16***	-0.01	0.01	-1.57	0.001	0.01	0.08
Intercept									
Age	-0.45	0.79	-0.56	-0.05	0.63	-0.08	0.379	0.48	0.79
Sex	2.21	2.52	0.88	-3.31	2.02	-1.64	-4.35	1.54	-2.83**
Race	-2.91	2.82	-1.03	3.77	2.25	1.67	0.76	1.71	0.44
Acuity	3.14	1.54	2.04*	-1.59	1.23	-1.30	-1.37	0.94	-1.47
Supervision	-0.60	0.27	-2.22*	0.39	0.21	1.73	0.33	0.16	2.02*
Time x S	0.004	0.001	2.71**	-0.002	0.001	-1.75	-0.002	.001	-2.18*

Random Effects for Supervision

	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	133.25	10.06	114.92-154.50	67.33	5.19	57.88-78.31	46.35	3.56	39.87-53.89
Intercept (person-level)	158.84	24.06	117.89-214.02	105.43	15.55	78.97-140.78	58.96	9.12	43.56-79.81

Fixed Effects for Inconsistent Discipline

	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time	0.07	0.02	3.87***	-0.02	0.01	-1.74	-0.02	0.01	-1.60
Intercept									
Age	-0.61	0.75	-0.81	0.11	0.61	0.19	0.50	0.46	1.09
Sex	1.71	2.51	0.68	-2.81	2.04	-1.38	-4.17	1.54	-2.70
Race	-2.66	2.81	-0.95	3.56	2.28	1.57	0.67	1.72	0.39
Acuity	2.55	1.53	1.67	-1.07	1.23	-0.87	-1.12	0.94	-1.19
ID	-0.88	0.38	-2.35*	0.57	0.30	1.91	0.26	0.23	1.16
Time x ID	0.001	0.002	0.26	-0.000	0.001	-0.07	0.001	.001	.60

Random Effects for Inconsistent Discipline

	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	135.01	10.15	116.515-156.45	67.59	5.18	58.16-78.55	46.70	3.58	40.19-54.27

Intercept (person-level)	157.89	24.06	117.13-212.83	108.42	15.82	81.45-144.33	59.72	9.21	44.15-80.78
Fixed Effects for Corporal Punishment									
	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time	0.08	0.01	6.65***	-0.02	0.01	-2.38*	-0.01	0.01	-1.17
Intercept									
Age	-0.27	0.73	-0.37	-0.08	0.60	-0.13	0.32	0.45	0.71
Sex	0.83	2.43	0.34	-2.40	2.02	-1.19	-3.90	1.51	-2.59**
Race	-1.51	2.73	-0.55	3.01	2.26	1.33	0.47	1.69	0.28
Acuity	2.87	1.47	1.95*	-1.23	1.22	-1.01	-1.15	0.91	-1.26
CP	-2.51	0.70	-3.57***	1.84	0.57	3.25***	1.54	0.43	3.62***
Time x CP	-0.002	0.004	-0.57	-0.002	0.003	0.55	-0.001	.002	-.52
Random Effects for Corporal Punishment									
	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Residual	136.52	10.34	117.68-158.38	65.66	5.08	56.43-76.41	45.90	3.54	39.46-53.39
Intercept (person-level)	141.87	22.31	104.23-193.08	104.68	15.39	78.47-139.65	55.13	8.63	40.57-74.91

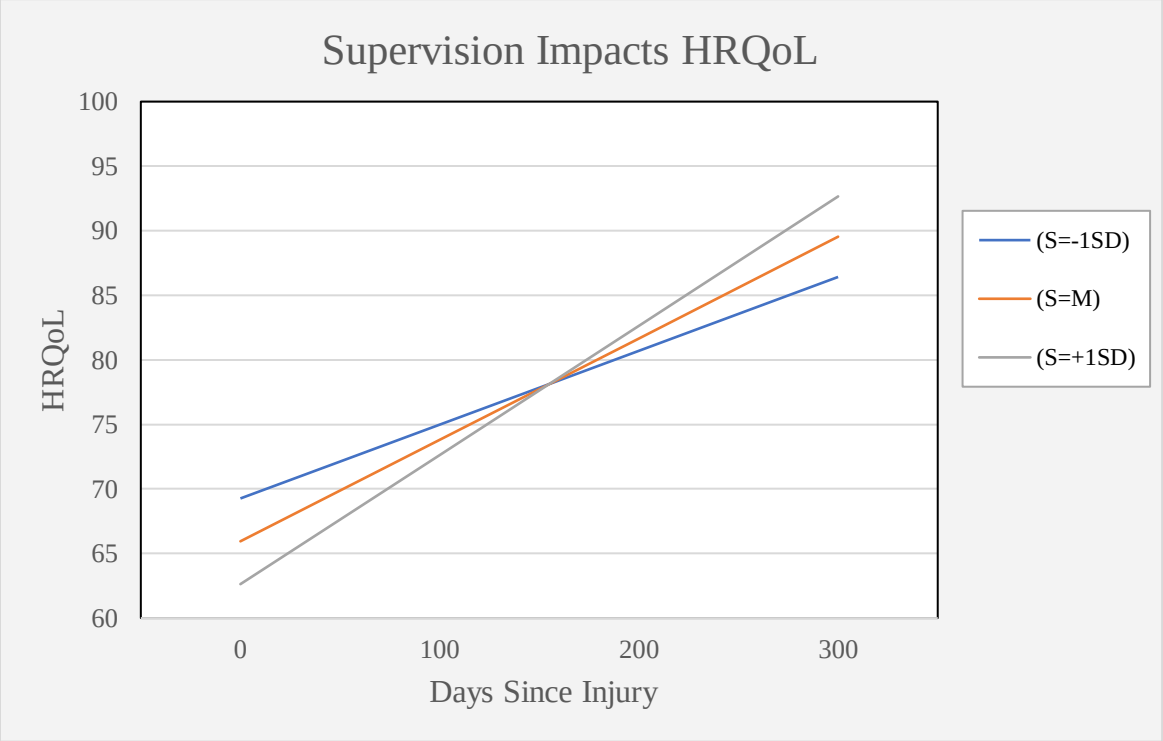
Notes: *$p \leq .05$ **$p \leq .01$ ***$p \leq .001$. IN=Involvement, PP=Positive Parenting, S= Supervision, ID= Inconsistent Discipline CP=Corporal Punishment

Table 8: Impact of Supervision on HRQoL and Depression Symptoms

Outcome	HRQoL			Depression		
			Fixed Effects			
	Coefficient	S.E.	*z*	Coefficient	S.E.	*z*
Time Intercept	0.05	0.01	3.78***	0.000	0.01	0.05
Age	-0.43	0.78	-0.55	0.38	0.48	0.78
Sex	2.20	2.50	0.88	-4.33	1.54	-2.82**
Race	-3.10	2.80	-1.11	0.79	1.71	0.46
Acuity	3.10	1.52	2.04*	-1.36	0.94	-1.46
Supervision	-0.63	0.27	-2.31*	0.33	0.17	2.01*
Time x S	-0.004	0.002	2.51**	-0.002	0.001	-2.14*
			Random Effects			
	Variance Component	S.E.	C.I.	Variance Component	S.E.	C.I.
Intercept (time-level)	0.03	0.001	0.001-0.006	0.001	0.000	0.000-0.002
Intercept (person-level)	175.16	30.96	123.88-247.68	64.28	11.83	44.82-92.19
Covariance (Time x S)	-0.20	0.15	-0.49-0.09	-0.49	0.05	-0.15-0.05
Residual	111.37	10.06	93.30-132.95	42.46	4.00	35.31-51.06

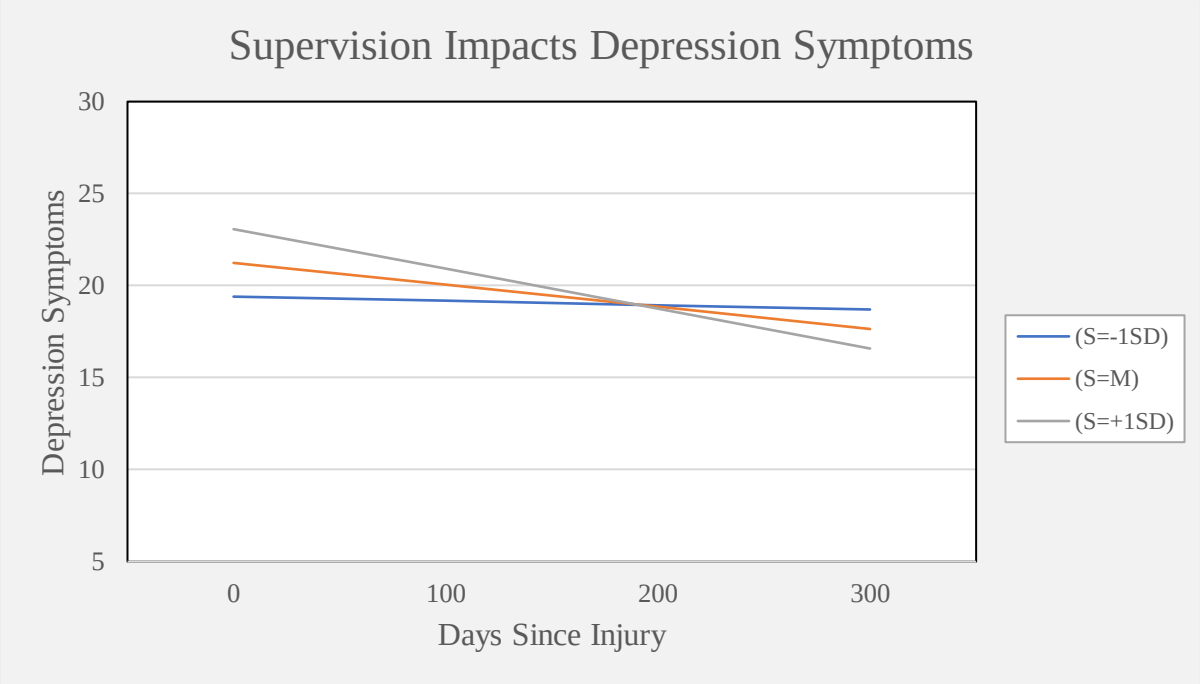
*Notes: *p*≤.05 ***p*≤.01 ****p*≤.001, S= Supervision

Figure 1: Simple Slopes Analysis for The Impact of Supervision on the Trajectory of HRQoL



Notes. S=Supervision

Figure 2: Simple Slopes Analysis for The Impact of Supervision on the Trajectory of Depression Symptoms



Notes. S=Supervision