


8-2016

Cross Validation of the Caregiving Helplessness Questionnaire: Associations with Maternal History of Maltreatment and Intimate Partner Violence

Maegan Calvert

University of Arkansas, Fayetteville

Follow this and additional works at: <http://scholarworks.uark.edu/etd>

 Part of the [Clinical Psychology Commons](#), and the [Personality and Social Contexts Commons](#)

Recommended Citation

Calvert, Maegan, "Cross Validation of the Caregiving Helplessness Questionnaire: Associations with Maternal History of Maltreatment and Intimate Partner Violence" (2016). *Theses and Dissertations*. 1760.

<http://scholarworks.uark.edu/etd/1760>

This Thesis is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, ccmiddle@uark.edu.

Cross Validation of the Caregiving Helplessness Questionnaire: Associations with
Maternal History of Maltreatment and Intimate Partner Violence

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts in Psychology

by

Maegan Calvert
Eastern Michigan University
Bachelor of Science in Psychology, 2010
Eastern Michigan University
Master of Science in General Clinical Psychology, 2012

August 2016
University of Arkansas

This thesis is approved for recommendation to the Graduate Council.

Dr. Patricia Petretic
Thesis Director

Dr. Ana Bridges
Committee Member

Dr. Ellen Leen-Feldner
Committee Member

Abstract

Disorganized caregiving has been associated with both maternal childhood history and current experiences of trauma. However, the methods by which disorganized caregiving has been studied have been time intensive and costly. The current study aimed to extend previous research with the Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011), which is a self-report measure designed to assess aspects of disorganized caregiving such as caregiving helplessness, role reversal, and frightened/frightening caregiving experiences. Participants ($N = 156$) were a community sample of mothers of children ages 5 to 10 who were primarily white and who reported a range of traumatic experiences. It was hypothesized that: 1) the factor structure (i.e. five factors) of the CHQ validation study would be reproduced with this sample; 2) the CHQ would demonstrate convergent and divergent validity, and 3) maternal history of child maltreatment would have a unique contribution to caregiving helplessness when controlling for salient demographic (e.g. economic hardship, young maternal age) and current risk (e.g. intimate partner violence, depression, and current trauma symptoms) factors. Factor analytic, correlation, and multiple regression analyses are presented. Factor analytic findings indicated a four factor structure that was similar to the original CHQ subscales. The CHQ demonstrated moderate convergent (e.g., associations with parental stress) and divergent validity (e.g. no association with life stress). The CHQ was weakly associated with childhood maltreatment experiences, and in regression analyses, history of child maltreatment was not significant when accounting for covariates (i.e., economic hardship, intimate partner violence, depression, and current trauma symptoms).

© 2016 by Maegan Calvert
All Rights Reserved

Acknowledgments

Thank you to Dr. Alissa Huth-Bocks who provided continued support throughout the preparation of this manuscript.

Table of Contents

I.	Introduction	1
	Behavioral Systems	3
	Caregiving Systems	5
	Caregiving Helplessness Questionnaire	16
	Hypotheses	23
II.	Method	24
	Participants	24
	Recruitment	26
	Measures	27
	Procedures	31
	Data Analysis	32
	Power Analysis	34
III.	Results	34
	Descriptive Statistics	34
	Factor Structure	38
	CHQ Associations with Demographic Variables	42
	CHQ Associations with Independent Variables and Covariates	48
	Validity	52
	Regression Analyses	55
IV.	Discussion	58
V.	References	66
VI.	Appendix	79

List of Figures

1.	Summary of Study Design from Huth-Bocks and colleagues (2016)	26
2.	Demographic Characteristics of the Sample	30
3.	Conceptual Model	38
4.	Psychometric Properties of Study Variables	42
5a.	Factor Weights Obtained with Principle Components with Varimax Rotation for CHQ Items in the Current Study	44
5b.	Item Factor Loadings and Weights Comparison between Current Study and George and Solomon (2011) Study	45
6.	Summary of Maternal Age and Child Age Associations with CHQ Scales and Current Study Derived Factors	47
7.	Summary of Ethnicity Associations with CHQ Scales and Current Study Derived Factors	48
8.	Summary of Latina Status Associations with CHQ Scales and Current Study Derived Factors	49
9.	Summary of Education Associations with CHQ Scales and Current Study Derived Factors	50
10.	Summary of Child Gender Associations with CHQ Scales and Current Study Derived Factors	51
11.	Summary of Associations Among Key Study Variables	55
12.	Summary of Associations Among Validity Variables	58
13.	Hierarchical Multiple Regression Analyses Predicting Disorganized Caregiving from Original George and Solomon (2011) CHQ Scales	60
14.	Hierarchical Multiple Regression Analyses Predicting Disorganized Caregiving from Factors Obtained from the CHQ in the Current Study	61

I. Introduction

Recently, the attachment literature has focused on problematic caregiving in the context of disrupted mother-child attachment relationships. Researchers termed this construct disorganized caregiving (George & Solomon, 1996, 2008; Lyons-Ruth, Bronfman, & Parsons, 1999; Main & Hesse, 1990; Solomon & George, 1996). Disorganized caregiving is likely detrimental for both the mother and the child. Children whose caregivers interact with them in contradictory and frightening ways are likely to develop a disorganized attachment to that caregiver. Research regarding children classified as having a disorganized attachment to a caregiver indicates these children are more likely to have adverse outcomes in childhood (e.g. externalizing and internalizing behaviors; see Lyons-Ruth & Jacobvitz, 2008 for review) and adulthood (e.g. anxiety disorders and borderline personality disorder; Buchheim & Benecke, 2007; Bakermans-Kranenburg & van IJzendoorn, 2009). Additionally, mothers who are disorganized in their caregiving strategies, as measured by both behavioral and attitudinal measures, may be at risk to abuse their children (e.g., neglect, overly controlling, overly punitive parenting; George & Solomon, 2011; Lyons-Ruth & Jacobvitz, 2008; Madigan et al., 2006). It is hypothesized that when a mother's caregiving system is disorganized she may experience distressing feelings such as helplessness or fright in relation to parenting her child (George & Solomon, 2011). These feelings may not only affect the way the mother interacts with her child, but may also affect the way she views herself as a mother. Her view of herself as a mother has implications for her mental health as well as the dyadic attachment relationship.

Currently, the methodology for assessing disorganized caregiving is time intensive, and it may be beneficial to have a different way to measure this construct. Methods measuring disorganized caregiving include examining the mother's view of herself as a mother and the

mother's view of her child through extensive interviews (Caregiving Interview, George & Solomon, 1989; WMCI, Zeneah, Benoit, Hirshberg, Barton, & Regan, 1994; Crawford & Benoit, 2009) or investigating behaviors through time consuming behavioral observations (Atypical Maternal Behavior Instrument for Assessment and Classification, AMBIANCE, Lyons-Ruth et al., 1999). These measures are both lengthy and costly to learn and implement which prevents widespread use of these measures. Due to the negative consequences of disorganized caregiving, a self-report measure may be useful. A self-report questionnaire could be used in research, pediatric offices, and clinician offices, and it may allow for more efficient identification of problematic parenting and referrals for interventions/services.

The Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011) is a recent self-report measure that has been developed to assess important aspects of disorganized caregiving (i.e. helplessness, fear in the mother-child relationship, and role reversal). The CHQ was validated by the authors with a middle class, low-risk sample of mothers of children in preschool and early childhood. The purpose of the current study is cross validation of the CHQ with a demographically different maternal population (e.g. economically diverse, diverse trauma histories). In addition to cross validating the CHQ with a different population, it is also important to evaluate an association between the CHQ and maternal child maltreatment history. This is important as the link between maternal child maltreatment and other measures of caregiving disorganization has previously been established (Lyons-Ruth & Block, 1996; Schechter et al., 2008). A link between the CHQ and maternal maltreatment history would further support the validity of the CHQ as a screener for disorganized caregiving.

In efforts to provide background information for the CHQ, this paper outlines behavioral systems from an ethology perspective, and the purpose, maintenance, and development of the

caregiving system, specifically. I will also discuss organization of the caregiving system and the relation between disorganized caregiving and the CHQ. Additionally, the two published studies using the CHQ (George & Solomon, 2011; Huth-Bocks, Guyon-Harris, Calvert, Scott & Alfs-Dunn, 2016) will be described and limitations of those studies will be addressed.

Behavioral Systems

As outlined in both ethology and systems perspectives, a behavioral system is a set of behaviors that work towards a specific goal and have an outcome that is predictable (Bowlby, 1969). These systems include observable behavior, cognitions, and emotions (Marvin & Britner, 2008). A behavioral system is activated and terminated based on an individual's internal state and the environmental context (Bowlby, 1969). There are different levels of complexity and balance among different behavioral systems which allow the organism to develop fully.

Observable behaviors may be simple or reflexive. They may also be more complex like a fixed action pattern (Bowlby, 1969). Thinking of attachment behaviors as fixed action patterns allow researchers to not infer intentionality of the infants when executing the behaviors of the attachment system (e.g., reaching, crying, and cooing as they all elicit caregiving behaviors).

The most complex behaviors of a behavioral system are goal corrected behaviors (Bowlby, 1969). Goal corrected behaviors achieve the desired outcome but the process is more sophisticated as the organism can choose from a behavioral repertoire. Goal corrected behaviors are interactive processes that incorporate feedback from the environment and continues based on the end state or the status of goal achievement. Goal corrected behaviors terminate once the discrepancy between the goal and internal state is terminated. This discrepancy reduction is considered a set-point. As behaviors are organized around this set-point, cognitions and emotions also start to organize creating a parallel between behaviors and representations (also

called schemas; Bowlby, 1969). Aligned with the conceptual framework from information processing theory, cognitions and emotions may be either inside or outside of awareness.

Representations are more likely to be outside awareness once they become automatic (much like core beliefs or automatic thoughts; Marvin & Britner, 2008).

Development of behavioral systems. When behavioral systems are developing, they are often different from mature behavioral systems (Marvin & Britner, 2008). The early forms of a behavioral system can be incomplete where behavior is prematurely terminated before the set-point is reached. For example, a child who is playing with a doll may feed the doll for only a few moments and then move on to another activity with or without the doll. The caregiving behavior that the child displayed would have been incomplete, as a few moments with a bottle would have not satisfied the set-point of satiation for a real infant. Early forms of a behavioral system may be used toward an object or an organism that is different from that of a mature behavioral system (Marvin & Britner, 2008). In the example of caregiving, children often play with dolls or animals as if they are providing care to the organism or object. Once the system is mature, humans often use caregiving towards a person or organism for whom they are responsible. In addition, early forms of behavior may start out simple and get more complex through the course of development. Once a behavioral system has been organized, it shows some stability over time (Thelen, Ulrich, & Wolff, 1991).

Balance of behavioral systems. There are thought to be many behavioral systems within an organism that interact (Hinde, 1982; Marvin & Britner, 2008). Examples of these systems are feeding, reproduction, caregiving, attachment, fear, exploration, and sociability. Bowlby (1969) hypothesized that these systems adapted through the course of time because they increase an organism's likelihood to reproduce. At any given time, there may be tensions among the different

behavioral systems, and the organism has to prioritize among the systems (Bowlby, 1969; Solomon & George, 1996; Stevenson-Hinde, 1994). For example, a child may be hungry and also want to play with his friends. In this case, the behavioral system for feeding and the behavioral system for sociability are active at once. To resolve the tension, the child must determine if he/she will eat or play with his/her friends. The choice will satisfy one set-point and terminate one system, allowing the child to engage in other goal-directed behaviors. Choosing which behavioral system to satisfy is dependent upon the urgency of the system and other developmental, environmental, and cultural factors (Bowlby, 1969; Cassidy, 2000; Hrdy & Hawkes, 1999; Simpson & Belsky, 2008; Solomon & George, 1996). However, flexibility is the most adaptive way to balance these competing systems and accomplish these tasks in a healthy way (George & Solomon, 2008).

Caregiving System

In 1969, Bowlby introduced his seminal work on attachment theory. Since then researchers have worked to describe behaviors, mechanisms, consequences, and correlates of attachment in infants, children, and adults. However, Bowlby also introduced the notion of a separate and reciprocal system related to the attachment system called the caregiving system (Bowlby, 1969). Although the caregiving system has been investigated less often, it is critical to the understanding of attachment theory and to child development. Understanding the caregiving system is important because a child develops within a caregiving context.

Purpose and maintenance of the caregiving system. As explained by Solomon and George (1996), the caregiving system can be defined as a coordinated network within the mother. This network consists of representations and behaviors that are directed towards the goal of protecting the child. The caregiving system is thought to be “instinctual” (pg. 186) and evolutionarily adaptive. The term “system” indicates that behaviors are organized around

achieving a goal and contribute to the adaptation of the organism (i.e. the survival of the child). It is theorized that the primary goal of the caregiving system is to protect the child and promote survival (Solomon & George, 1996). Correspondingly, protective caregiving is considered to be reinforcing, as the mother often feels enjoyment when she is with her child and anxiety when the safety of her child is threatened. Therefore, the behavior of providing care to a child typically increases positive and decreases negative affect on the part of the mother, further increasing the likelihood care will be given to the child (Solomon & George, 1996).

Development and organization of the caregiving system. As much of the research regarding attachment theory has been focused on the infant, the data regarding the development of the caregiving system is in the early stages. Due to this fact, much of the following information is theoretical in nature and is in need of empirical support. Development of the caregiving system is thought to start in childhood as the child pretends to be the mother of dolls and animals. It continues to develop through adolescence as the individual begins to think about the future and possibilities of someday becoming a parent (Solomon & George, 1996). Although an immature form of the caregiving system is thought to be present in childhood and adolescence, it is hypothesized that the time of the most growth is during the perinatal period when the mother is transitioning into parenthood for the first time. During this time, the mother is making the fundamental cognitive shift between the one who receives care and protection to the one who provides care and protection to her child (Solomon & George, 2011).

Factors influencing the developing caregiving system. There are many factors that affect the developing caregiving system. The caregiving system is influenced by biology such as hormones and brain activation. It is also influenced by environmental factors and culture. After the child is born, the child will also have an impact on how the caregiving system continues to

develop over time. Although all of these factors are important in the development of the caregiving system, cognitions or representations will be most detailed as the CHQ intends to measure cognitions.

Biology. Caregiving is an important function to mammalian species, especially humans who have a relatively long developmental period to reach adulthood. Given the assumption that caregiving is a) evolutionarily adaptive and b) a behavioral system, it is important to understand how this system would have evolved in a biological sense. Mammalian caregiving behaviors are hypothesized to be adaptations to non-mammalian behavioral systems via the development of oxytocin and vasopressin (Bell, 2001). The stranger rejection system of an organism works to keep the organism safe from danger by using the sense of smell. It is hypothesized that this stranger rejection system was altered by modified amino sequences (i.e., oxytocin and vasopressin) which consequently, inhibited the stranger rejection system (Bell, 2001). Specifically, it is thought that vasopressin and oxytocin work to inhibit the ventromedial nucleus of the hypothalamus and septum from sending messages related to defensive and offensive aggression. Research consistently indicates oxytocin reduces infanticide in male, female, and primiparous rats (see Bell, 2001 for review). After the stranger rejection system was inhibited, the preference for dyadic relationships such as the caregiving system evolved (Bell, 2001). Oxytocin not only reduces infanticide it also increases the preference for the infant (Keverne, Nevison, & Martel, 1999; Maestripieri, 1999; Panksepp, 1998 as cited in Bell, 2001), modulates maternal care and aggression (Sabihi, Dong, Durosko, and Leuner, 2014) and activates the reward system of the brain (Gingrich, Liu, Cascio, Wang, & Insel, 2000). In humans, oxytocin is related to a reduction in fear and avoidance and an increase in positive emotion states (Carter, 1998). For mothers, oxytocin is related to a decrease in stress reactivity and an increase in

maternal flexibility and positive parenting behaviors (Carter & Altemus, 1997; Michalska et al., 2014; Zhang & Meaney, 2010).

Neurotransmitters such as norepinephrine, dopamine, and serotonin may also play a large role in caregiving behaviors. Norepinephrine may promote the formation of positive social memories of the bond (Nelson & Panksepp, 1998) and dopamine, released by the reward system of the brain, likely serves as a reinforcer (Gingrich et al., 2000). Serotonin is thought to have both indirect and direct effects on caregiving behaviors. Indirectly, serotonin modulates other maternal hormones such as oxytocin, vasopressin, and prolactin (Barofsky, Taylor, Tizabi, Kumar, Jones-Quartey, 1983; Jorgensen, Riis, Knigge, Kjaer, & Warberg, 2003). Directly, serotonin promotes caregiving behaviors that increase the likelihood of survival, and depletion of serotonin leads to increased mortality for offspring via harmful caregiver behaviors (Angoa-Perez et al., 2014; Alenina, 2009; Lerch-Haner, 2010).

There are also specific brain regions that have been associated with caregiving behaviors. The medial preoptic area seems to be a control center for maternal behavior as it holds the receptors for oxytocin, vasopressin, and leptin. Additionally, when the medial preoptic area is activated, rats are more likely to display caregiving behaviors (Kuroda, Tachikawa, Yoshida, Tsuneoka, & Numan, 2011). Alternatively, when the medial preoptic area is lesioned, maternal behaviors are disrupted (Gammie, 2005). The bed nucleus of the stria terminalis and amygdala affect caregiving behaviors as lesions to this area also disrupt maternal behaviors (Bosch, 2011; Kuroda et al., 2011). Finally, the nucleus accumbens and the ventral tegmental area are involved in caregiving behaviors such as attraction to infants and infant retrieval (Kuroda et al., 2011; Gammie, 2005). This link is likely due to the high number of serotonin receptors in these two areas (Zhao & Li, 2009). In fMRI studies: a) the amygdala, insula, anterior paracingulate cortex,

and posterior superior temporal sulcus are activated when a human mother views her child (Leibenluft, Gobbini, Harrision, & Haxby, (2004), b) the anterior cingulate cortex and right medial prefrontal cortex are activated when a mother listens to her own child's cries (Lorberbaum et al., 1999), and c) the orbitofrontal cortex, anterior cingulate cortex, and hippocampus are activated when a mother imagines engaging in positive parenting behaviors (Michalska et al., 2014).

Representations and behaviors. The construct of a mental representation is roughly equivalent to the construct of a schema in cognitive psychology (Bretherton & Munholland, 2008). It is hypothesized that the developing caregiving system is also guided by unconscious internal representations, and in turn those representations guide behavior. Representations are a store of historical information that guide expectations of how significant others will interact with an individual and how the individual is expected to respond to others (Bowlby, 1969/1982). Representations and caregiving behaviors are shaped by many factors including sociocontextual factors, culture, and the care providers' own attachment and trauma experiences.

Sociocontextual factors. Socioeconomic status and parenting status are factors that may impact the way the mother talks about and interacts with her child. Mothers who are single parents and mothers who reported lower incomes were more likely to talk about their developing fetus and infant in ways that were devaluing of the mother's role, indifferent to the infant, or preoccupied with fears about the infant (Huth-Bocks, Theran, Levendosky, & Bogot, 2011). Additionally, these mothers were also less likely to be emotionally available to their infant (Mingo & Easterbrooks, 2015). Maternal education was also related to the way mothers talk about their past attachment experiences (Tarabulsy et al., 2005), and related to the way the mothers talk about their current pregnancy and infant (Arnott & Brown, 2013; Huth-Bocks et al.,

2011); specifically, higher educational attainment was related to more organized, coherent, and balanced views of past attachment experiences, the current pregnancy, and the infant. Maternal social support was also related to the way a mother talked about her attachment experiences and her child such that increased support was related to more organized, coherent, and balanced views of those experiences (Huth-Bocks et al., 2011; Pajulo, Savonlahti, Sourander, Piha, & Helenius, 2001; Raby, Steele, Carlson, & Sroufe, 2015; Tarabulsy et al., 2005). In addition, many children in the home and home stability have been related to negative perceptions of the target child (Glascoe & Leew, 2010; Pajulo, Helenius, & Mayes, 2006). Finally, more stressors in the life of mothers were related to more insensitivity in parent-child interactions (Meyers, 1999).

Culture. The impact of culture on parenting cognitions and behaviors were incongruous as some studies indicate culture is a significant predictor of maternal cognitions and behavior and other studies suggest culture is not a significant predictor. For example, English as a second language was a risk factor for negative perceptions of the child (Glascoe & Leew, 2010) and recent immigration was associated with less maternal responsiveness (Van IJzendoorn, 1990). In studies comparing self and other reported parenting beliefs and attitudes, parents' values of the social and didactic aspects of the mother-child relationship (Senese, Bornstein, Haynes, Rossi, & Venuti, 2012) and the perceived warmth and control within the mother-child relationship differed by culture (Deater-Deckard et al., 2011). By contrast, in an observational study of two disparate cultures (i.e., American and Columbian), there was no difference between sensitive responding, accessibility, and acceptance. Furthermore, the relation between sensitive responding, accessibility, and acceptance was important for developing secure attachments in both cultures (Posada et al., 2002). This supports an earlier meta-analysis that in observational

studies there is more within culture variability than between culture variability in mother-attachment relationships (Van IJzendoorn & Kroonenberg, 1988). Additionally, observational evidence regarding differences in parenting behaviors (i.e. maternal sensitivity) among ethnic minorities is often a function of economic stress due to disadvantage (Emmen, Malda, Mesman, Ekmekci, & van IJzendoorn, 2012; Mesman, van IJzendoorn, Bakermans-Kranenburg, 2012). However, the relation between culture and beliefs and how beliefs translate into parenting behaviors needs more investigation (Ekmekci et al., 2016).

Past attachment experiences. Mothers who talked about their own attachment experiences in a coherent, balanced (e.g., able to speak of positive and negatives of the relationship with her mother) way were more sensitive in their interactions with their infants (Hawkins, Madigan, Moran, & Pederson, 2015). Conversely, mothers who talked about their own childhood attachment experiences in ways that were cognitively disorganized (e.g., have difficulties tracking the conversation and monitoring her own discourse) and inconsistent were more likely to: a) talk about their children in ways that were role-reversed or disorienting, b) interact with their children in atypical ways, and c) were more likely to have insecure attachment relationships with their children (George, Kaplan, & Main, 1984, 1985, 1996; Goldberg, Benoit, Blokland, & Madigan, 2003; Crawford & Benoit, 2009; Madigan, Moran, Schuengel, Pederson, & Otten, 2007). In addition, mothers who talked about their childhood attachment experiences in hostile or helpless ways were more likely to abuse their infants than mothers who did not talk about their attachment experiences in hostile or helpless ways (Frigerio, Costantino, Ceppi, & Barone, 2013).

Trauma experiences. Both distal and proximal interpersonal trauma experiences also affect representations. Representations are hypothesized to be one mechanism by which

traumatic experiences affect the caregiving system, whereby the unresolved traumatic experiences change the underlying view of the self. This is consistent with the current conception of PTSD where trauma negatively affects cognitions. Consequently, alterations in negative cognitions are now a symptom of PTSD (American Psychological Association, 2013). These negative representations can directly interfere with the mother's view of herself as a mother and/or her view of her child. Distally, mothers who had a history of physical abuse, sexual abuse, and adverse childhood experiences were more likely to talk about attachment relationships in disorganized and inconsistent ways (Berthelot et al., 2016; Madigan, Vaillancourt, McKibbin, & Benoit, 2012; Madigan, Vaillancourt, Plamondon, McKibbin, & Benoit, 2016; Murphy et al., 2014) and were more likely to talk about their developing fetus in ways that were preoccupied with fears about the infant (Malone, Levendosky, Dayton, & Bogat, 2010). Furthermore, mothers who endorsed childhood physical abuse experiences were less likely to be emotionally available (Mingo & Easterbrooks, 2015) and more likely to interact with their children in withdrawn or intrusive ways (Lyons-Ruth & Block, 1999). Proximally, mothers who experienced intimate partner violence were more likely to talk about their children in ways that were devaluing, indifferent, or preoccupied with fears about the infant (Huth-Bocks, Levendosky, Bogat, & von Eye, 2004; Huth-Bocks, Levendosky, Theran, & Bogat, 2004; Huth-Bocks et al., 2011), and were also less likely to be emotionally available to their infant (Mingo & Easterbrooks, 2015). Finally, mothers' PTSD symptoms were positively related to withdrawal behaviors during interactions with their infants; specifically, as the number of PTSD symptoms increased the amount of withdrawal increased (Schechter et al., 2008).

Bi-directional effects of representations and behaviors on mothers and children. Before the infant is born, representations guide how the mother thinks about herself as a caregiver and

how she views her child. Once the child is born, both representations and actual experiences with the infant impact the mother's views of her child and herself as a caregiver, as well as influences the mother's behavior towards her child. For example, mothers who talked about their infants in a coherent, balanced (e.g., able to speak about the negatives and positives of pregnancy) way during pregnancy were more likely to have infants who showed less negative affect and more exploratory behavior during free play activities with the mother at 1-year (Huth-Bocks et al., 2011). Additionally, mothers who talked about their children in a balanced way during pregnancy were more likely to have a secure attachment relationship with their child when the child was 1-year-old (Huth-Bocks et al., 2011; Theran, Levendosky, Bogat, & Huth-Bocks, 2005). Conversely, mothers who talked about their children in ways that were, helpless, hostile, role-reversed, mocking of the infant, or inappropriately negative during pregnancy were more likely to have children who were classified as disorganized at 1-year (Crawford & Benoit, 2009; George & Solomon, 2011) and were also more likely to interact with their infants in more negative ways (e.g., inappropriate responding to cues, being intrusive or withdrawn; Schechter et al., 2008). Furthermore, mothers' perceptions of self-efficacy before the birth of an infant predicted maternal perceptions of infant negative temperament after birth (Verhage, Oosterman, & Schuengel, 2013).

Although the aforementioned studies explored the relation between prenatal representations and child behavior, as the child grows older, the child is also likely to have an effect on how the mother views herself and her child. In a study about infant temperament, researchers found that infant negative temperament was related to a decrease in concurrent parenting self-efficacy, but infant negative temperament was not predictive of parenting self-efficacy over time (Verhage, Oosterman, & Schuengel, 2013). Conversely, data also suggested

the child can affect parenting behaviors overtime. In a study of mothers and toddlers, child responsiveness predicted supportive maternal behaviors where an increase in child responsiveness during free play predicted more supportive maternal behaviors in a second free play scenario (Smith, 2010). In studies regarding early childhood externalizing disorders, parenting quality predicted child externalizing behaviors (Pearl, French, Dumas, Moreland, & Prinz, 2014; Reitz, Dekovic, & Meijer, 2006) and child externalizing behaviors predicted parenting quality over time (Pearl, French, Dumas, Moreland, & Prinz, 2014; Reitz, Dekovic, & Meijer, 2006; Verhoeven, Junger, van Aken, Dekovic, & van Aken, 2010). In another study, parenting behaviors predicted both internalizing and externalizing symptoms in children who were high in negative emotionality, suggesting child effects are important as a moderator of child outcomes (Hartz & Williford, 2015). These studies are consistent with both Belsky's (1984) transactional model of child development and Patterson's (1982) model of coercive parent-child cycles where parenting affects child outcomes and child characteristics affect parenting.

Considering the biological, cultural, environmental, historical and child contributions of representations and parenting behaviors, there are many different ways for a caregiving system to develop. However, many of these individual differences can be classified as organized or disorganized.

Organized caregiving systems. An organized caregiving system initiates and terminates caregiving behaviors that will support a mother's coordinated efforts to protect and care for her infant - the goals of the caregiving system (George & Solomon, 2011). An organized caregiving system allows the mother the flexibility to attend to and move between other behavioral systems such as her own attachment system or exploratory system. An organized system can also

flexibly adjust to different environments that require more or less monitoring and support of the child.

Organized caregiving behaviors often times correspond to the three organized infant attachment classifications of secure, ambivalent, and avoidant attachment (Main, 1990; Solomon & George, 1996). The organized-secure caregiving behavioral strategy is associated with secure infant attachment. It is flexible and involves the mother's attentive and sensitive responses to infant cues during the first year (Ainsworth et al., 1978; Belsky & Isabella, 1988). Avoidant and ambivalent caregiving behavioral strategies are associated with insecure infant attachment (i.e. avoidant and ambivalent). The mother may protect her child from a distance and require the child to be more autonomous (avoidant). Alternatively, the mother may protect her child by keeping him/her close and promote child dependency (ambivalent; Main, 1990). Again, any of the organized styles of caregiving offer a flexible, organized approach to protecting the child.

Disorganized Caregiving Systems. While a majority of mothers develop an organized caregiving system, it is hypothesized that a smaller proportion of mothers will develop a disorganized caregiving system. When the caregiving system is disorganized, the initiation and termination of caregiving behaviors are inconsistent or contradictory and the system often times impedes the goal of caregiving. Disorganized caregiving behavior is hypothesized to result from the mother's "psychological abdication" of the caregiver role or her inability to "maintain control and provide protection" to the child (Solomon & George, 1996, p. 192) due to contextual factors and/or cognitions. It is conceptualized that disorganized caregiving develops out of a complex interplay of past and current experiences. Distal traumatic experiences include unresolved loss or abuse (Hesse & Main, 2006), and unpredictable parental rage or behavior (Solomon &

George, 2006). More proximal experiences include miscarriage or death of a child (Slade et al., 1995 as cited in Solomon & George, 1996), high economic and social risk, and experiences of intimate partner violence (Almqvist & Broberg, 2003).

In the previous studies investigating caregiving representations, many of the studies used lengthy interviews. These interviews required many hours of initial training, establishing reliability criteria, and coding time. Consequently, not all researchers or clinicians have the ability to engage in these tasks. The CHQ may present a less costly and time consuming measure of disorganized caregiving that could benefit both researchers and interventionists.

Caregiving Helplessness Questionnaire

George and Solomon (2011) developed the Caregiving Helplessness Questionnaire (CHQ), a parental self-report questionnaire to assess disorganized caregiving. The CHQ measures important aspects of disorganized caregiving such as helplessness, role-reversal, and fear in the parent-child relationship. While these are not the only markers of disorganized caregiving, the authors of the CHQ identified the content of these items as critical to the construct (for other behaviors associated with disorganized caregiving see Lyons-Ruth, 1996). The CHQ was developed from the Caregiving Interview (George & Solomon, 1989), as items from the CHQ were based on common responses made by mothers during the Caregiving Interview. The CHQ assesses different aspects of disorganized caregiving representations that were commonly identified using the Caregiving Interview. The four different aspects of disorganized caregiving measured in the CHQ are helplessness, frightened caregiving, frightening caregiving and role reversal.

George and Solomon (2011) believe caregiving helplessness is characterized when the mother describes herself as ineffectual or her child or circumstances are out of her control

(George & Solomon, 2011). Items on the CHQ representing caregiving helplessness include “When I am with my child, I often feel out of control,” “I often feel there is nothing I can do to discipline my child,” and “I feel that I am a failure as a mother.” Fear in the parent-child relationship is assessed through frightened caregiving and frightening caregiving. Frightened caregiving is demonstrated when the mother characterizes her child as bad or evil and chronicles situations where the child is hitting, kicking or biting the mother. Items reflecting frightened caregiving include, “I am frightened of my child” and “My child hits, kicks, or bites me.” Frightening caregiving is identified when the mother recounts instances when the mother has punished her child too harshly or reports her child is frightened of her (George & Solomon, 2011). Items include “Sometimes my child acts as if he/she is afraid of me” and “I feel I punish my child more harshly than I should.” The final aspect of disorganized caregiving that is assessed using the CHQ is role-reversal. Role-reversal is illustrated when the mother portrays the child as a caregiver (George & Solomon, 2011). Items reflecting role-reversal on the CHQ include “My child is good at tending to and caring for others” and “My child is very sensitive to the feelings and needs of others.”

The normative development sample for the CHQ included 59 predominantly middle class mothers with children who ranged in age from 3 to 11 years (George & Solomon, 2011). The objectives of the study included scale development and investigations of discriminant, convergent, and predictive validity. As noted earlier, items were developed from parental responses to the Caregiving Interview (George & Solomon, 1989). Eigenvalues of greater than 1.5 (George & Solomon, 2011). Items were then selected if factor loadings were greater than .5. Factor analytic analyses yielded a five-factor solution that accounted for 42% of the variance using principle components and varimax rotation. The first factor represented caregiving

helplessness; consequently, this factor was considered a scale and labeled Mother Helpless (internal consistency $\alpha = .85$). The other four factors represented fear and role-reversal. The items representing fear in the parent-child relationship were combined to create the second scale labeled Mother-Child Frightened ($\alpha = .65$). The items associated with role-reversal were combined to create the final scale labeled Child-Caregiving ($\alpha = .64$; George & Solomon, 2011). The combinations of factors resulted in a total of three factors. Analysis of variance results suggested there were no significant differences in scale scores as a function of maternal age, child age, and child gender.

After factor analyses were conducted, validity investigations were conducted. Convergent validity was assessed by correlating the Caregiving Interview (George & Solomon, 1989) helplessness rating with the CHQ scales. Moderate correlations were found with Mother Helpless ($r = .45, p < .01$) and Mother-Child Frightened ($r = .30, p < .05$); however, Child-Caregiving was not associated with the Caregiving Interview helplessness rating (George & Solomon, 2011). To evaluate discriminant validity, subscales not related to caregiving on the Parenting Stress Index (PSI; Abidin, 1995) were utilized. Maternal isolation, spousal relationship, and health were not significantly correlated with any of the scales on the CHQ (i.e. Mother Helpless, Mother-Child Frightened, and Child Caregiving; George & Solomon, 2011). Predictive validity was analyzed using the Beck Depression Inventory (BDI; Beck et al., 1996), parenting subscales on the Parenting Stress Index, Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) and attachment life events. Mother Helpless was significantly correlated with depression symptoms ($r = .58, p < .001$), mother stress ($r = .64, p < .001$), and number of attachment related life events ($r = .43, p < .01$), as well as child stress ($r = .73, p < .000$) and child externalizing problems ($r = .41, p < .05$). Mother-Child Frightened was significantly

correlated with depression symptoms ($r = .56, p < .001$), mother stress ($r = .63, p < .01$), and number of attachment life events ($r = .32, p < .05$), as well as child stress ($r = .69, p < .001$), and child externalizing problems ($r = .36, p < .05$). Child Caregiving was significantly associated with depression symptoms ($r = .28, p < .05$).

While trauma has been conceptualized as an important predictor of disorganized caregiving (Main & Hesse, 1990; Lyons-Ruth & Block, 1996; Schechter et al., 2008), George and Solomon (2011) did not test an association between trauma and the CHQ. To extend the work of George and Solomon, Huth-Bocks and colleagues (2016) administered the CHQ in a sample of largely economically disadvantaged mothers ($N = 120$) reporting varied trauma histories.

Huth-Bocks and colleagues (2016) sought to replicate the validity findings of associations between parenting stress, depression, and child social emotional problems with the subscales of the CHQ (see Figure 1 for study design). They also sought to extend the validation study by hypothesizing an association between current interpersonal violence experience and PTSD with the subscales of the CHQ. To measure maternal depression during pregnancy the Edinburgh Prenatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987; Wisner, Perry, & Piontek, 2002) was administered to the participants. Additionally, when the children turned 1-year, the mothers were again assessed for depression using the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). Also included at the 1-year interview, parenting stress was measured by the Parenting Stress Index – Short Form (PSI-SF; Abidin, 1995) and infant social-emotional problems were measured using the Brief Infant-Toddler Social and Emotional Assessment (BITSEA; Briggs-Gowan & Carter, 2006). During pregnancy and 1-year postpartum, the Posttraumatic Stress Disorder Checklist Civilian Version (PCL-C; Weathers,

Litz, Herman, Huska, & Keane, 1993) was used to assess for PTSD symptoms, and the Conflict Tactics Scale-2 (CTS-2; Straus, Hamby, & Warren, 2003) was used to assess for participants' experiences of intimate partner violence during the first year after the target child's birth (Huth-Bocks et al., 2016).

Figure 1

Summary of Study Design from Huth-Bocks and Colleagues (2016)

Construct	Prenatal	1-Year Postpartum	2-year Postpartum
Depression	EPDS	BDI-II	
Parenting Stress		PSI-SF	
Child Social- Emotional Problems		BITSEA	
PTSD Symptoms	PCL-C	PCL-C	
Intimate Partner Violence	CTS-2	CTS-2	
Disorganized Caregiving			CHQ

Results provided further support for the CHQ's validity and provided evidence of an association between the CHQ and trauma experiences. In regards to validity, depression, parenting stress, and child social-emotional problems were moderately associated with the Mother Helpless and Mother-Child Frightened scales, and Child Caregiving was weakly associated with child social-emotional problems. Results from investigations regarding associations between trauma and the CHQ indicated that Mother Helpless and Mother-Child Frightened were predicted by current trauma symptoms.

The two existing studies using the CHQ to measure disorganized caregiving included two very specific samples of mothers and children. The George and Solomon (2011) study used middle class mothers who were at low-risk for detrimental outcomes. The children's ages ranged from 3 to 11-years (mean = 6-years). The study by Huth-Bocks and colleagues (2016) used largely economically disadvantaged mothers with children from 1 to 3 years of age, but some items may not have been appropriate for infants and toddlers. For example, the scale Child Caregiving includes items such as "child is caregiving" and "puts others at ease." These items are hypothesized to reflect role-reversed behavior of the child which is thought to be a significant indicator of disorganized attachment in children. However, these behaviors are not evident in children until preschool (Main & Cassidy, 1988; Moss, Cyr & Dubois-Comtois, 2004; Wartner, Grossmann, Fremmer-Bombik & Suess, 1994). The present study aims to address the limitation of specific sample demographics and age appropriate questions by using mothers of children from ages 5 to 10 who are demographically diverse.

Although research regarding disorganized caregiving has indicated an association between maternal history of trauma and disorganized caregiving interviews and behavioral observations (see Lyons-Ruth & Jacobvitz, 2008 for review), no study to date has examined the

association between the mother's history of childhood maltreatment and the CHQ (a self-report measure conceptualized as equivocal to interview measurement) and as suggested in the literature review, experiences of childhood trauma maybe important for the development of representations regarding caregiving. Since the CHQ was developed to be a self-report screening behavioral measure for disorganized caregiving, this association is important to empirically test. Although, Huth-Bocks and colleagues (2016) found that trauma symptoms fully mediated the association between recent traumatic experiences (i.e., intimate partner violence) and Mother Helplessness in mothers of 1-year-olds.

Child maltreatment is conceptualized as different from violence that is experienced as an adult as childhood maltreatment has been hypothesized to alter the brain and subsequent ability to form social bonds (Charuvastra & Cloitre, 2008; Perry, 2008). Maltreatment experiences in childhood may significantly alter representations of the self and other which may increase the likelihood of disorganization in the caregiving role (see Charuvastra & Cloire, 2008 for review, Schechter et al., 2008, see Shaver & Fraley, 2008 for review). Therefore, the effects of child maltreatment may be more pervasive than current trauma symptomology alone or may increase risk for subsequent mental health symptoms (Cloitre et al., 2008; King et al., 1999). Consequently, the current study seeks to identify an association between childhood maltreatment and the different aspects of disorganized caregiving measured using the CHQ.

Hypotheses

Hypotheses of the current study include the following: 1) Data from the current study with mothers of children who are within a developmentally similar range and for which behaviors within the scales are age appropriate will yield the same factor analytic solution as the validation study. 2) The CHQ will demonstrate both divergent and convergent validity. 3)

Severity of maternal history of child maltreatment (e.g. emotional, physical, sexual abuse, and neglect) will have a significant association with higher levels of Maternal Helplessness, Mother-Child Frightened, and Child Caregiving and will account for unique variance when controlling for other factors (i.e., SES, current trauma symptoms, current domestic violence, and parenting stress).

II. Method

Participants

Mothers ($N = 156$) of children ages 5 to 10 were recruited from Amazon Mechanical Turk and lived in the United States. Participants' ages ranged from 22 to 50 ($M = 34$, $SD = 5.91$; see Figure 2). They were primarily white (84%), well-educated (i.e., 37% some college, 43% 4-year degree, and 7% graduate level degree), and married (67%). A majority of the women indicated they were employed (53% full time, 17% part-time) and reported little financial strain ($M = 1.24$, $SD = .65$, Range = 1 - 5) and few difficulties making ends meet ($M = 3.33$, $SD = 4.64$, Range = 1 - 5). The children's ages ranged from 5 to 10 ($M = 7$, $SD = 1.81$) and child gender distribution was roughly equivalent (53% female).

Figure 2

Demographic Characteristics of the Sample

Variable	Percent
Asian	4.5%
African American	5.8%
Multi-Racial	5.8%
Mexican, Latina, or Hispanic Origin	12.2%
White	84%
Employment	
Full time	53.2%
Part-time	17.5%
Not employed outside home	29.2%
Relationship Status	
Married	66.7%
Living with partner	17.3%
Not living with partner	3.2%
Divorced	4.5%
Never married	7%
Education	
High school education	11.7%
Some college	37.7%
4-year college graduate	43.5%
Graduate level education	7.1%

Recruitment

Mothers of 5 to 10 year olds were recruited from Amazon Mechanical Turk (MTurk). Mechanical Turk is an online labor market used by social scientists to collect data. In studies evaluating the characteristics of MTurk workers, data indicate MTurk workers have a variety of motivations (e.g., monetary, intrinsic) to participate in studies (Paolacci, Chandler, & Ipeirotis, 2010). In addition, workers from MTurk are ethnically diverse as there are individuals from 190 different countries participating in the workforce (Paolacci & Chandler, 2014). However, the MTurk workers may not be representative of their respective countries in regards to resources, education, employment, religiosity, and personality characteristics (Berinsky, Huber, & Lenz, 2012; Paolacci et al., 2010; Shapiro, Chandler, & Mueller, 2013). Consequently, sampling restrictions were added to the study requirements to ensure minimal integrity of the sample. The restrictions imposed on the sampling methods included: a) female gender, b) United States resident, and c) 95% approval rating from other “employers.”

In addition to sample restrictions, a thorough investigation of participant responses was conducted. All responses were checked for reliability by: a) assessing similar responses to overlapping constructs and b) assessing similar responses to the same question posed multiple times. Participants who did not meet reliability criteria for each reliability check were discarded. Responses were also checked for validity in multiple ways: a) review of IP addresses to ensure unique and valid responders (i.e., removing repeaters and removing participants who were previously disqualified), b) review of start and end time stamps to ensure adequate time was spent on the survey, and c) review of responses for response biases. Participants who did not meet validity criteria were discarded. Specifically, over 300 responses were received from MTurk workers, and after engaging in significant data cleaning to identify respondents who were

not eligible due to validity checks, the final sample was reduced to 156. All valid and reliable responders were paid \$15 for a completed questionnaire.

Measures

Participants completed measures that assessed demographics, maternal history of child maltreatment experiences, and current symptoms of PTSD, depression, experiences of violence, economic hardship, parenting stress, and disorganized caregiving (see Appendix for measures packet).

Predictor variable. History of maltreatment experiences was assessed using the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994). The CTQ is a 56 item likert-type self-report measure that assesses for history of child abuse and neglect. This measure contains five subscales (physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect), as well as a validity scale which assesses for minimization/denial. Item responses are *never true*, *rarely true*, *sometimes true*, *often true*, and *very often true*. The emotional neglect items are reverse scored. Factor analytic findings for the CTQ indicate a four factor orthogonal solution corresponding to physical and emotional abuse, emotional neglect, sexual abuse, and physical neglect (Bernstein et al., 1994). The CTQ has demonstrated high internal consistency ($\alpha = .95$) and good test-retest reliability ($r = .88$). Additionally, the CTQ was correlated with the Childhood Trauma Interview, indicating convergent validity (Berstein et al., 1994). Internal consistency for this study was $\alpha = .83$. Only the total score was used in the current study.

Covariates. Demographic variables were measured by an author-generated demographic questionnaire. Variables assessed in this questionnaire were maternal age, educational

attainment, ethnicity, and Latina status. Additionally, the demographic questionnaire asked participants about the target child's age and sex.

Economic hardship was assessed using the Psychological Sense of Economic Hardship Questionnaire (EHQ; Barrera, Caples, & Tein, 2001). This measure uses a 20-item likert and dichotomous scale to assess economic hardship by evaluating degree of financial strain, perceived inability to make ends meet, amount of economic adjustments made by the family, and not enough money for necessities. The EHQ has four subscales (inability to make ends meet, not enough money for necessities, economic adjustments/cutbacks, and financial strain). Each subscale has its own rating scale. The *Inability to Make Ends Meet* subscale ranges from 1 to 5 where 1 = *a great deal of difficulty* and 5 = *no difficulty at all*. The *Not Enough Money for Necessities* subscale ranges from 1 to 5 where 1 = *strongly agree* to 5 = *strongly disagree*. The *Economic Adjustments/Cutbacks* subscale is dichotomously scored where 1 = *yes* and 2 = *no*. Finally, the *Financial Strain* subscale ranges from 1 to 5 where 1 = *almost never* to 5 = *almost always*. Validity results indicated the EHQ was related to per capita family income, experience of loss of wages, and number of hours worked per week. Additionally, this measure has been validated across ethnic groups (i.e., white, African American, and Mexican American; Barrera et al., 2001). Internal consistency for this study was $\alpha = .60$. Total economic hardship was used in the analyses of this study.

Current trauma symptoms were assessed using the PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). This measure uses a 20-item likert scale to assess symptoms of PTSD according the DSM-5 (Diagnostic and Statistical Manual 5th Edition; APA, 2013). The rating scale ranges from 0 to 4 where 0 = *Not at all* to 4 = *Extremely*. There are four subscales that correspond with DSM-5 symptom clusters (i.e., intrusion, avoidance, negative alterations in

cognitions and mood, and alterations in arousal and reactivity). A total severity score is obtained by summing each item. A cut-point of 38 for a diagnosis of PTSD is recommended (Weathers et al., 2013). The PCL-5 has demonstrated high test-retest reliability ($r = .82 - .86$), and acceptable convergent and discriminant validity (Bovin et al., 2015). Internal consistency for this study was $\alpha = .90$.

Current depression symptoms were assessed using the Center for Epidemiologic Studies Depression Scale Revised (CESD-R; Eaton, Muntaner, Smith, Tien, & Ybarra, 2004). The CESD-R is a 20 item likert scale ranging from 0 to 3 where 0 = *Not at all or less than one day* to 3 = *Nearly every day for two weeks*. Scores range from 0 to 60 where higher scores indicate more depression symptoms. The CESD-R has demonstrated high internal consistency ($\alpha = .93$) and adequate convergent and divergent validity (Van Dam & Earleywine, 2011). In this study, internal consistency was $\alpha = .94$.

Current experiences of interpersonal violence were assessed using a modified version of the Abusive Behavior Inventory (ABI; Shepard & Campbell, 1992). The ABI is used to assess the type and severity of domestic violence between partners. This measure uses a 30 item scale. The current author modified the original scale in which responses ranged from 1 to 5 where 1 = *never* and 5 = *very frequently*. The current items range from 0 to 6 where lower scores indicate less violence. However, there is a score of 7 which indicates the item occurred in the past but not within the last year was added. Item ratings include the following: 0 = *once in the past year*, 2 = *twice in the past year*, 3 = *3-5 times in the past year*, 4 = *6-10 times in the past year*, 5 = *11-20 times in the past year*, 6 = *more than 20 times in the past year*, 7 = *not in the past year, but it did happen before*, 0 = *this has never happened*. There are two subscales (physical abuse and psychological abuse) and a total scale. Internal consistency ranges from .70 to .92 using the

original scoring range (Shepard & Campbell, 1992). Criterion validity was demonstrated as participants who were identified as abusing a partner scored significantly different than those who were not identified as abusing a partner (Shepard & Campbell, 1992). Finally, the ABI was correlated with a clinical assessment of abuse, previous arrest for domestic violence, and the Conflict Tactics Scale-2 and was not correlated with age and household size, demonstrating good construct validity (Shepard & Campbell, 1992; Zink et al., 2007). In this study, the total scale was used. Internal consistency for the total scale was $\alpha = .51$.

Validity. Parenting stress was measured using the Parenting Stress Index – Fourth Edition (PSI-4; Abidin, 2012). The PSI-4 is 120-item self-report questionnaire designed to assess the parenting system, specifically stress in the parenting role that may lead to behavior problems with the child or parent. There are three domains (i.e., parent, child, and life stress). The Parent Domain has six subscales (i.e., competence, isolation, attachment, health, role restriction, spouse/parenting partner relationship). The Child Domain has six subscales (i.e., distractibility/hyperactivity, adaptability, reinforces parent, demandingness, mood, acceptability). Test-retest reliability is acceptable ranging from .55 to .82 where lower values occurred at after one year and higher values occurred at after three weeks. Internal consistency ranged $\alpha = .98$ for the Total Stress Scale to $\alpha = .96$ for the Parent and Child Domains. Validity results indicate that the PSI-4 is largely valid across many areas of study including child anxiety, maternal anxiety, children at risk for developing psychopathology, attachment, trauma, and families (Abidin, 2012). The Child Domain and Parent Domain was used to test convergent validity. The Life Stress Domain, health, and spouse relationship subscales was used to test divergent validity. For this study, the Child Domain, Parent Domain, health subscale, and spouse relationship subscale

were internally consistent $\alpha = .82$ – $\alpha = .91$. The Life Stress Domain's internal consistency was poor $\alpha = .59$.

Outcome variable. The Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011) measures four aspects of disorganized caregiving. This is a 25-item self-report measure that utilizes three scales (helpless, frightened/frightening, role-reversal) that correspond with helpless caregiving, fear in the parent-child relationship, and child caregiving. Items are scored on a likert-type scale, with a range of 1= *not at all characteristic* to 5= *very characteristic*, where lower scores indicate less disorganized caregiving. The CHQ demonstrates overall good internal consistency ($\alpha = .64 - .85$). Test-retest reliability data are not available. Initial factor analytic results suggested a five factor solution. However, due to high intercorrelations, factors were combined, resulting in the three factors noted above. Convergent validity was demonstrated as the CHQ was significantly correlated with an interview for caregiving helplessness. Divergent validity was also demonstrated: the CHQ scales were not significantly related to maternal isolation, spousal relationship, and health. Predictive validity was demonstrated as CHQ scores were positively correlated with distress in parenting. In this study, Maternal Helpless demonstrated good internal consistency ($\alpha = .89$), and Mother-Child Fright and Child Caregiving demonstrated questionable internal consistency ($\alpha = .65$, $\alpha = .66$, respectively).

Procedures

Prior to starting the survey, participants reviewed a written informed consent document that contained the description of the study and a reminder that the participants could discontinue the study at any time without penalty. Participants were required to provide an electronic signature before completing the survey. When completing questionnaires regarding their current

children, participants were instructed to consider any children they have between the ages of 5 and 10. If the participant has more than one child in that age group, the participant was asked to consider the youngest child. At the completion of the survey there was a debriefing form that provided contact information for the principal investigator and gave information about community resources in the event participants experienced negative reactions due to completing the survey. Completion of the survey took approximately 75 minutes.

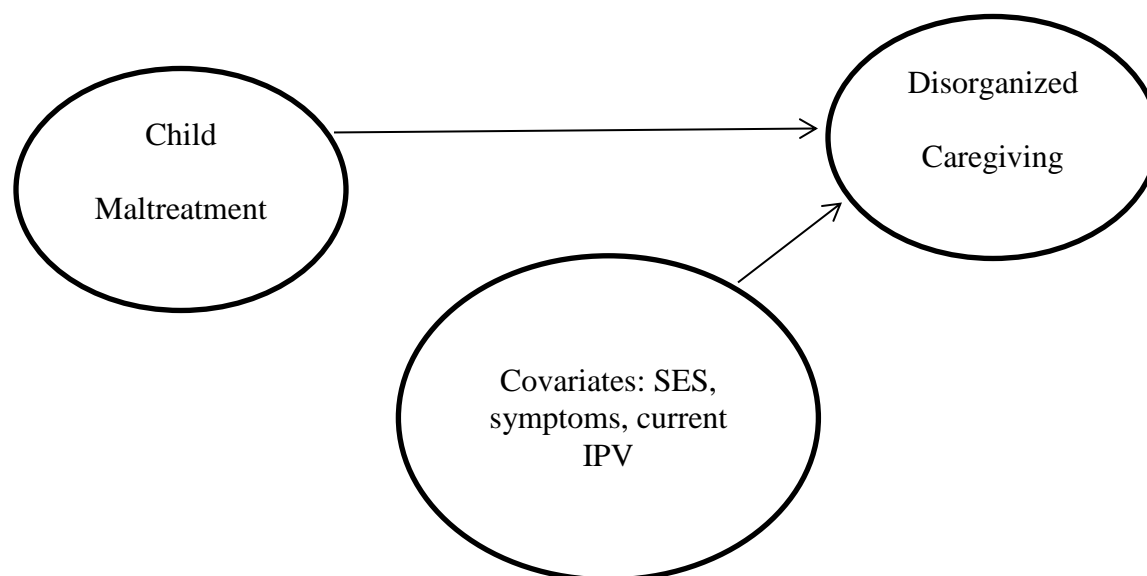
Data Analysis

To address hypothesis number one, a principle component factor analysis with varimax rotation was conducted. Eigenvalues of 1.5 and loadings of .5 or greater were used. The aforementioned parameters were used because those were the analyses that the George and Solomon (2011) used in their initial study. This aided in comparisons between the current study and the validation study. In regards to the factor analysis, missing data was handled by using listwise deletion. To address validity, both convergent and divergent validity was assessed. Convergent validity was addressed by conducting correlation analyses with parenting stress and child stress. Divergent validity was assessed by conducting correlation analyses with stress not related to the parenting role (i.e., life stress, spousal relationship, health). To address hypothesis three a hierarchical regression was conducted: covariates including Economic Hardship, depression, current trauma, and trauma symptoms were entered into step one and the child maltreatment composite variable was entered into step two to address the unique variance maltreatment experiences contributed to disorganized caregiving, specifically Maternal Helpless, Mother-Child Frightened, and Child Caregiving (see Figure 3).

Missing data was handled using multiple imputation as variability is preserved and regression methods can easily implement this method (Tabachnick & Fidell, 2013). All results

will be reported from the pooled sample unless otherwise stated. Data transformations were conducted on many of the study variables (i.e., CTQ, CESD-R, ABI, PCL, Mother-Child Frightened, Mother Helplessness, and Factor 1/ Disorganized Caregiving) due to non-normality of the data. However, when analyses were conducted with the transformed data and the non-transformed data, the conclusions were the same. Consequently, results from the non-transformed data will be presented as these results are more easily interpreted.

Figure 3
Conceptual Model



Power Analysis

To determine the sample size needed to detect a relation if one is present, a power analysis using G-Power 3 (Erdfelder, Faul, & Buchner, 1996) was conducted. An a priori effect size of .15 was determined based on prior findings where domestic violence was associated with caregiving helplessness (Huth-Bocks et al., 2016). This effect size of .15, power level of .95,

number of predictors (7), and probability level of .05 was entered into the power analysis on an a priori basis. This calculation determined a sample size of 200 was needed. Due to data cleaning methods, the final sample size for this study was 156 which is smaller than the intended sample.

III. Results

Descriptive Statistics of Study Variables

Women ($N = 156$) in the current study as a whole reported experiencing limited amounts of trauma (i.e., history of childhood abuse and intimate partner violence) and experiencing few trauma symptoms and moderate depression symptoms (see Figure 4). Specifically, for the Childhood Trauma Questionnaire (CTQ), the mean for the sample was 39.33 (range: 25-98), which classifies the sample as experiencing from “No” to “Low Amounts” of childhood abuse according to criteria reported in validation studies (Bernstein & Fink, 1998). Further analysis indicated: a) approximately 13% ($n = 20$) met criteria for severe emotional abuse (score ≥ 16), b) approximately, 5% ($n = 8$) met criteria for severe physical abuse (score ≥ 13), c) approximately, 9% ($n = 14$) met criteria for severe sexual abuse (score ≥ 13), d) approximately, 11% ($n = 17$) met criteria for severe emotional neglect (score ≥ 18), and e) approximately, 10% ($n = 15$) met criteria for severe physical neglect (score ≥ 13). For the Abusive Behavior Inventory (ABI), the mean for the sample was 14.81 (range: 0-115), which suggests the sample on average experienced about one non-optimal relational experience per month that could range from raised voices to physical assault. The mean for this sample is lower than in other community samples (Straus, Hamby, McCoy, & Sugarman, 1996).

The participants in this sample reported a mean of 9.32 (range: 20-72) PTSD symptoms on the PCL-5. A cut point of 38 was suggested for a possible diagnosis of PTSD with 38 or more symptoms indicative of a PTSD diagnosis (Weathers et al., 2013). Approximately 4% ($n =$

6) of the sample had a total of 38 or more on the PCL-5. The mean of the sample suggests that most participants did not meet clinical criteria for a diagnosis of PTSD. Additionally, respondents reported a mean of 9.17 depression symptoms (CESD-R), which is below the suggested cut point of 16 for subthreshold depression symptoms (Eaton, Muntaner, Smith, Tien, & Ybarra, 2004). This suggests that the sample as a whole experienced a low to no amounts of depression symptoms. More specifically, approximately 21% ($n = 32$) of the sample experienced at least subclinical depression symptoms (score ≥ 16).

In regards to parenting, respondents reported few parenting and child stressors as well as low amounts of helplessness and fear in the parenting role. Mothers reported a mean of 95.68 for child stress (PSI-4). The mean child stress score in this sample is equivalent to the 48th percentile, which suggests that the women were reporting an average amount of child stressors. The mean parenting stress score was 116.52 which is equivalent to the 48th percentile. The mean parenting stress scores suggests that, as a whole, the sample experienced average amounts of parenting stress.

Additionally, participants reported a mean of 10.38 for helplessness (Maternal Helpless) which is approximately equivalent to the original George & Solomon (2011) sample ($M = 9.67$) and a mean of 7.94 for fear in the caregiving role (Mother-Child Frightened) which is also approximately equivalent to the original sample ($M = 8.71$). Both means were within a few points of the minimum score which suggests that the sample as a whole experienced little fear and helplessness in the parenting role. However, they reported moderate amounts of role-reversal with their children (i.e., Child Caregiving) as the sample mean was 19.64, in the middle of the range for the scale. This study's mean score was similar to the George & Solomon (2011) sample mean ($M = 18.62$). The mean scores on Maternal Helpless ($M = 9.66$), Mother-Child

Frightened ($M = 8.75$), and Child Caregiving ($M = 18.22$) were also approximately equivalent to the Huth-Bocks and colleagues (2016) study.

Figure 4

Psychometric Properties of Study Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	α	Range
CTQ	139	39.33	15.89	.83	25.00 - 98.00
EH	156	0	2.69	.60	-6.22 - 10.73
PCL-5	147	9.32	13.25	.90	0.00 – 70.00
CESD-R	144	9.17	12.07	.94	0.00 – 58.00
ABI	156	14.81	19.96	.51	0.00 – 115.00
CHQ					
Maternal Helpless	153	10.38	4.59	.89	7.00 – 34.00
Mother-Child Fright	154	7.94	2.47	.65	6.00 – 17.00
Child Caregiving	150	19.64	3.97	.66	9.00 – 30.00
PSI-4					
Child Domain	135	95.68	25.85	.89	54.00 – 176.00
Parent Domain	132	116.52	34.79	.91	57.00 – 235.00
Life Stress	152	36.37	1.80	.59	27.00 – 38.00
Health	152	10.74	4.39	.82	5.00 – 24.00
Spousal relationship	151	16.70	7.24	.89	7.00 – 35.00

Note: CTQ = Childhood Trauma questionnaire; EH = Economic Hardship; PCL-5 = PTSD symptoms, CESD-R = Depression symptoms, ABI = intimate partner violence, CHQ = Caregiving Helplessness Questionnaire, PSI-4 = Parenting Stress Index-4th Edition.

Factor Structure

Principle component analysis was conducted on the current sample ($N = 152$) using listwise deletion. This analysis resulted in a four factor solution (see Figure 5a) that accounted for approximately 49% of the variance. Factor 1, which accounted for approximately 25% of the variance, included items 1, 5, 7, 10, 12, 13, 15, 18, 20 and 22. These items combined the Maternal Helpless and the Mother-Child Frightened scales from the George and Solomon (2011) study. This factor was labeled Disorganized Caregiving. Factor 2 included items 19, 23, 24, 25, and 26. These items were not retained in the George and Solomon (2011) factor solution. For this study, this factor is labeled Positive Maternal Attitudes. Factor 3 included items 2, 6, 9. These items were a subset from George and Solomon's (2011) Child Caregiving scale that did not include the items regarding the child "being funny." Thus, for this study Factor 3 is termed Child Caregiving Without Funny. Factor 4 included items 11 and 17. These items were also items from the Child Caregiving scale; however, they were the items referring to the child being funny. Factor 4 was not included as an independent factor as a factor with two items is unstable.

In this sample, items 3, 4, 8, 14, 16, and 21 were not retained in the factor solution as they did not load highly onto any one factor. Items 3, 4, and 14 were originally part of George and Solomon's (2011) Mother-Child Frightened scale. Item 8, which was originally part George and Solomon's (2011) Child Caregiving scale, were not retained in the factor solution in this sample. Finally, items 16 and 21 were not retained in the George and Solomon (2011) solution. For analyses, both the George and Solomon (2011) generated scales (Maternal Helpless, Mother-Child Fright, and Child Caregiving) and the study factors (Disorganized Caregiving, Positive

Maternal Attitudes, Child Caregiving Without) were used. See Figure 5b for comparisons of item factor loadings between the current study and George and Solomon's (2011) study.

Figure 5a

Factor Weights Obtained with Principle Components with Varimax Rotation for CHQ Items in the Current Study

Item No.	Factor 1 Disorganized Caregiving	Factor 2 Maternal Attitudes	Factor 3 Child Caregiving Without	Factor 4 Child Caregiving With Funny
1. Mother is out of control	.66			
5. Mother cannot discipline child	.58			
7. Child is out of control	.72			
10. Mother feels she is a failure	.78			
12. Mother punishes too harshly	.72			
13. Mother cannot soothe child	.75			
15. Child is afraid of mother	.59			
18. Mother is helpless to make change	.61			
20. Mother feels life is chaotic	.58			
22. Child is rude	.57			
19. Mother as reliable		.69		
23. Mother happy with self		.65		
24. Mother rarely feels guilty		.52		
25. Mother can easily express self		.67		
26. Mother frequently talks of child		.68		
2. Child is caregiving			.84	
6. Child puts others at ease			.80	
9. Child is sensitive to others			.76	
11. Child is a clown				.84
17. Child makes others laugh				.81

Figure 5b

Item Factor Loadings and Weights Comparison between Current Study and George and Solomon (2011) Study Solution

Item No.	Factor 1	Factor 2	Factor 3	Factor 4	G & S MH	G & S MC	G & S CC
1. Mother is out of control	.66				.68		
3. Mother is frightened of her child						.71	
4. Child hits, kicks, bites mother						.72	
5. Mother cannot discipline child	.58				.76		
7. Child is out of control	.72				.75		
10. Mother feels she is a failure	.78				.62		
12. Mother punishes too harshly	.72					.72	
13. Mother cannot soothe child	.75					.51	
14. Child loses it when separated						.57	
15. Child is afraid of mother	.59					.65	
18. Mother is helpless to make change	.61				.67		
20. Mother feels life is chaotic	.58				.59		
22. Child is rude	.57				.60		
19. Mother as reliable		.69					
23. Mother happy with self		.65					
24. Mother rarely feels guilty		.52					
25. Mother can easily express self		.67					
26. Mother frequently talks of child		.68					
2. Child is caregiving			.84				.76
6. Child puts others at ease			.80				.67
8. Child is a great actor							.56
9. Child is sensitive to others			.76				.77
11. Child is a clown				.84			.83
17. Child makes others laugh				.81			.84

Note: Factor 1 = Disorganized Caregiving Factor in current study, Factor 2 = Maternal Attitudes Factor in current study, Factor 3 = Child Caregiving Without, Factor in current study, Factor 4 = Child Caregiving With Funny Factor in current study, MH = George & Solomon's Maternal Helpless Scale, CF = George & Solomon's Child Frightened Scale, CC = George & Solomon's Child Caregiving Scale.

CHQ Associations with Demographic Variables

Maternal age and child age were not related to any of the CHQ scales or the factors derived from the current study with the exception of Child Caregiving, where younger maternal age was weakly associated with an increase in child caregiving ($r = -.18, p < .05$; see Figure 6). Additionally, ANOVA analyses indicated maternal ethnicity, Latina status, and maternal education were not related to any of the CHQ scales or factors (see Figure 7, 8, and 9). Child sex was associated with the Child Caregiving Without factor ($F = 5.29, p < .05$), but was not associated with any of the other CHQ scales or factors (see Figure 10). Specifically, female children were more likely to be described as caregiving.

Figure 6

Summary of Maternal Age and Child Age Associations with CHQ

Measure	1	2	3	4	5	6	7	8
1. Maternal Age	1.00							
2. Child Age	.34**	1.00						
3. Mother Helpless	-.12	.07	1.00					
4. M-C Frightened	-.14	.01	.67**	1.00				
5. Child Caregiving	-.18*	.08	-.04	-.01	1.00			
6. Disorg. Care (Factor 1)	-.14	.05	.97**	.80**	-.03	1.00		
7. C. C. W. (Factor 3)	-.10	-.01	-.23**	-.11	.75**	-.21*	1.00	
8. Maternal Att (Factor 2)	.10	-.06	-.54**	-.40**	.09	-.53**	.17*	1.00

* $p < .05$ ** $p < .01$ Note: M-C Frightened = Mother Child Frightened on CHQ subscale;
 Disorg. Care = Disorganized Caregiving (Factor 1); C. C. W. = Child Caregiving Without (Factor 3);
 Maternal Att = Maternal Attitudes (Factor 2).

Figure 7

Summary of Ethnicity Associations with CHQ Scales and Study Derived Factors

Factors	Asian (n = 7)		White (n = 131)		African American (n = 9)		Multi-Racial (n = 9)		F Value	p
	M	SD	M	SD	M	SD	M	SD		
Maternal Helpless	11.14	7.73	10.49	4.56	9.78	8.78	10.38	4.59	.50	.68
M-C Frightened Child Caregiver	7.29	1.38	8.04	2.60	7.50	1.69	7.44	1.67	.42	.73
Disorg. Care (F 1)	18.43	4.79	19.55	4.03	20.44	3.47	21.00	2.83	.71	.54
C. C. W. (F 3)	14.29	7.65	14.76	6.15	13.33	4.44	13.00	4.44	.37	.77
Maternal Att (F 2)	9.71	2.06	10.47	2.61	10.33	2.35	10.56	2.79	.20	.90
	17.29	4.82	19.27	3.42	18.44	4.33	19.56	4.03	.84	.47

Note: M-C Frightened = Mother Child Frightened on CHQ subscale; Disorg. Care = Disorganized Caregiving (Factor 1); C. C. W. = Child Caregiving Without (Factor 3); Maternal Att = Maternal Attitudes (Factor 2).

Figure 8

Summary of Latina Status Associations with CHQ Scales and Study Derived Factors

Factors	Latina Status				F Value	p
	Yes (n = 19)		No (n = 137)			
	M	SD	M	SD		
Maternal Helpless	9.79	4.54	10.46	4.61	.36	.55
M-C Frightened	7.33	1.18	8.02	2.58	1.24	.27
Child Caregiver	19.89	2.42	19.60	4.15	.09	.77
Disorg. Care (F 1)	13.79	5.55	14.66	6.10	.34	.56
C. C. W. (F 3)	10.32	2.45	10.45	2.59	.05	.83
Maternal Att (F 2)	19.74	3.07	19.07	3.63	.59	.44

Note: M-C Frightened =
Mother Child Frightened on

CHQ subscale;

Disorg. Care = Disorganized Caregiving (Factor 1); C. C. W. = Child Caregiving Without (Factor 3);

Maternal Att = Maternal Attitudes (Factor 2).

Figure 9

Summary of Education Associations with CHQ Scales and Study Derived Factors

Factors	High School (n = 18)		Some College (n = 57)		College grad (n = 66)		Graduate Ed (n = 10)		F Value	p
	M	SD	M	SD	M	SD	M	SD		
Maternal Helpless	10.29	5.03	11.47	5.11	9.54	3.97	10.20	4.61	1.50	.21
M-C Frightened	7.50	1.630	8.64	3.03	7.45	2.01	8.10	2.47	2.178	.07
Child Caregiver	21.12	3.67	19.81	4.41	19.23	3.69	19.10	4.15	.827	.51
Disorg. Care (F 1)	14.41	6.21	16.19	6.92	13.31	4.89	14.09	6.22	1.97	.10
C. C. W. (F 3)	11.52	1.81	10.21	2.87	10.48	2.49	10.27	2.20	.98	.42
Maternal Att (F 2)	18.65	3.55	18.43	3.86	19.94	3.42	19.09	2.63	1.53	.20

Note: M-C Frightened = Mother Child Frightened on CHQ subscale; Disorg. Care = Disorganized Caregiving (Factor 1); C. C. W. = Child Caregiving Without (Factor 3); Maternal Att = Maternal Attitudes (Factor 2).

Figure 10

Summary of Child Gender Associations with CHQ Scales and Current Study Derived Factors

Factors	Female (<i>n</i> = 81)		Male (<i>n</i> = 74)		<i>F</i> Value	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Maternal Helpless	10.33	4.79	10.43	4.39	.02	.90
M-C Frightened	7.84	2.31	8.06	2.64	.29	.59
Child Caregiver	19.94	3.94	19.30	4.00	.96	.33
Disorg. Care (F 1)	14.51	6.09	14.59	5.99	.01	.93
C. C. W. (F 3)	10.87	2.50	9.95	2.56	5.29	.02
Maternal Att (F 2)	18.87	3.72	19.46	3.38	1.08	.30

Note: M-C Frightened = Mother Child Frightened on CHQ subscale;

Disorg. Care = Disorganized Caregiving (Factor 1); C. C. W. = Child Caregiving Without (Factor 3);

Maternal Att = Maternal Attitudes (Factor 2).

CHQ Associations with Independent Variables and Covariates

There were correlations within the original CHQ scales. Maternal Helpless was largely correlated ($r = .69$) with fear in the mother-child relationship (CHQ scale: Mother-Child Frightened) and was not related to Child Caregiving (CHQ scale; see Figure 11). The Mother-Child Frightened scale was not associated with the CHQ Child Caregiving scale.

There were also strong correlations among the original CHQ scales and the current study factors. Maternal Helpless was highly correlated with Disorganized Caregiving (Factor 1; $r = .97$) and negatively correlated with Maternal Attitudes (Factor 2; $r = -.53$) and Child Caregiving Without (Factor 3). The Mother-Child Frightened scale was not associated with Child Caregiving Without (Factor 3). However, Mother-Child Frightened was highly correlated with Disorganized Caregiving (Factor 1; $r = .81$) and negatively correlated with Maternal Attitudes (Factor 2; $r = .41$). Finally, Child Caregiving was not associated with Disorganized Caregiving (Factor 1) or Maternal Attitudes (Factor 2), but was highly associated with Child Caregiving Without (Factor 3; $r = .75$).

Among the study derived factors Disorganized Caregiving (Factor 1) was weakly, negatively correlated with Child Caregiving Without (Factor 3; $r = -.21$). Disorganized Caregiving (Factor 1) was moderately, negatively correlated with Maternal Attitudes (Factor 2; $r = -.53$). Maternal Attitudes (Factor 2) was weakly, positively correlated with Child Caregiving Without (Factor 3; $r = .20$).

There were also relations among the CHQ and other study variables, Maternal Helpless was associated with the covariates in the expected direction. Specifically, Maternal Helpless had moderate to large positive correlations with PTSD symptoms (PCL; $r = .47$) and depression symptoms (CESD-R; $r = .51$; see Figure 11). Additionally, Maternal Helpless had weak to

moderate positive correlations with history of childhood maltreatment (CTQ; $r = .23$), economic hardship (EH; $r = .29$), and current intimate partner violence (ABI; $r = .33$). Similarly, Mother-Child Frightened were associated with covariates in the expected direction. Mother-Child Frightened had moderate positive correlations with PTSD symptoms ($r = .49$), depression symptoms ($r = .41$) and weak positive correlations with intimate partner violence ($r = .22$), economic hardship ($r = .23$), and childhood maltreatment history ($r = .26$). Child Caregiving had moderate positive correlations with current intimate partner violence ($r = .22$), but there were no other significant correlations with other study variables.

The CHQ factors identified for this sample had similar relations to the Maternal Helpless and Mother-Child Frightened. Disorganized Caregiving (Factor 1) had strong, positive correlations with PTSD symptoms ($r = .52$) and depression symptoms ($r = .52$; see Figure 11). There were also moderate to weak positive correlations between Disorganized Caregiving and intimate partner violence ($r = .33$), economic hardship ($r = .31$), and childhood history of maltreatment ($r = .26$). Maternal Attitudes (Factor 2) were moderate negatively correlated with child maltreatment history ($r = -.39$). There were also large to moderate negative correlations between Maternal Attitudes (Factor 2) and PTSD symptoms ($r = .50$), economic hardship ($r = -.37$), depression ($r = -.53$) and intimate partner violence ($r = -.39$). The Child Caregiving Without (Factor 3) had a weak negative correlation with depression ($r = -.16$).

In summary, the correlational findings among the George and Solomon (2011) subscales for the CHQ (Maternal Helpless, Mother-Child Frightened, and Child Caregiving) and the analytic factors derived from the current study (Disorganized Caregiving, Maternal Attitudes, and Child Caregiving Without) had similar relations among variables. To highlight the similarities and differences between the original CHQ scales and the factors derived from the

current study, both sets of variables were discussed together. The CHQ scales of Maternal Helpless and Mother-Child Frightened and Factor 1, Disorganized Caregiving, all had positive relations with PTSD, depression, child history of maltreatment, and economic hardship. Conversely, the Child Caregiving subscale and the Child Caregiving Without Factor had divergent relations with Maternal Attitudes, depression, and intimate partner violence. The subscale Child Caregiving was positively related to intimate partner violence, but the Child Caregiving Without Factor was not related to intimate partner violence. Furthermore, the Child Caregiving Without Factor was moderately correlated with Maternal Attitudes and negatively associated with depression, but the Child Caregiving scale was not related to either variable. These divergent findings between the Child Caregiving scale and Child Caregiving Without Factor suggest that the Child Caregiving subscale is qualitatively different from the Child Caregiving Without Factor.

Figure 11

Summary of Associations Among Key Study Variables

Measure	1	2	3	4	5	6	7	8	9	10	11
1. M H	1.00										
2. M-C F	.69**	1.00									
3. CCare	-.15	-.07	1.00								
4. DCare	.97**	.81**	-.14	1.00							
5. CCW	-.23**	-.11	.75**	-.21*	1.00						
6. M Att.	-.53**	-.41**	.13	-.53**	.20*	1.00					
7. PCL	.47**	.49**	.03	.52**	-.01	-.50**	1.00				
8. CTQ	.23**	.26**	.09	.26**	.50**	-.28**	.37**	1.00			
9. EH	.29**	.23**	-.03	.31**	-.13	-.37**	.5**	.34**	1.00		
10. DEP	.51**	.41**	-.05	.52**	-.16*	-.53**	.80**	.30**	.46**	1.00	
11. ABI	.33**	.22**	.22**	.32**	.09	-.39**	.50**	.42**	.34**	.36**	1.00

* $p < .05$ ** $p < .01$ Note: M H = Mother Helplessness on CHQ subscale; M-C F = Mother Child Frightened on CHQ subscale; CCare = Child Caregiving on CHQ subscale; DCare = Disorganized Caregiving (Factor 1); CCW = Child Caregiving Without (Factor 3); M Att = Maternal Attitudes (Factor 2); PCL = PTSD Symptoms; CTQ = History of Child Maltreatment; EH = Economic Hardship; DEP = Depression Symptoms from the CESD-R; ABI = Intimate Partner Violence.

Convergent Validity

Maternal Helpless, Mother-Child Frightened, and Disorganized Caregiving (Factor 1) all had moderate positive correlations with child characteristics that cause stress (PSI CD; $r = .55 - .61$) and parent characteristics that cause stress in the parenting role (PSI PD; $r = .54 - .67$) see Figure 12). However, the Child Caregiving scale and Child Caregiving Without (Factor 3) factors did not yield the same results. There were no strong associations between these variables and child and parent characteristics that cause distress. Maternal Attitudes (Factor 2) were negatively correlated with child characteristics that cause stress ($r = -.43$) and parenting stress ($r = -.61$).

Discriminant Validity

Life Stress was not associated with Maternal Helpless, Mother-Child Frightened, Child Caregiving, and Disorganized Caregiving (Factor 1) and Maternal Attitudes (Factor 2; See Figure 12). However, there was a weak negative correlation between Life Stress and the factor Child Caregiving Without (Factor 3; $r = -.17$). Contrary to predictions, Maternal Helpless, Mother-Child Frightened, and Disorganized Caregiving (Factor 1) were all moderately positively correlated with the stress in the spousal/coparenting relationship ($r = .40 - .50$) and maternal health ($r = .37 - .41$). Child Caregiving Without (Factor 3) was weakly negatively correlated with the spousal relationship ($r = -.23$). Maternal Attitudes (Factor 2) was moderately negatively correlated with both the spousal relationship ($r = -.48$) and maternal health ($r = -.48$). These findings suggest that the CHQ scales and study derived factors do not have good discriminant validity.

Postdictive Validity

Important for this study, Mother Helpless ($r = .23$), Mother-Child Frightened ($r = .30$), and Disorganized Caregiving ($r = .27$) all had positive correlations with a history of child maltreatment; however, they were weak to moderate associations (see Figure 12). Conversely, the Child Caregiving scale and Child Caregiving Without (Factor 3) did not have any significant associations with a history of child maltreatment. Maternal Attitudes (Factor 2) were negatively associated with a history of child maltreatment ($r = -.29$).

Figure 12

Summary of Associations Among Validity Variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1. M H	1.00											
2. M-C F	.69**	1.00										
3. CCare	-.15	-.07	1.00									
4. DCare	.97**	.81**	-.14	1.00								
5. CCW	-.23**	-.11	.75**	-.21*	1.00							
6. M Att.	-.53**	-.41**	.13	-.53**	.20*	1.00						
7. PSICD	.58**	.55**	-.14	.61**	-.31**	-.43**	1.00					
8. PSIPD	.65**	.54**	-.12	.67**	-.25**	-.61**	.76**	1.00				
9. PSILS	-.10	-.11	-.12	-.12	-.17*	.16	-.12	-.21*	1.00			
10. PSIhe	.41**	.37**	-.03	.43**	-.13	-.48**	.41**	.71**	-.24**	1.00		
11. PSISP	.49**	.40**	-.03	.50**	-.23**	-.48**	.61**	.80**	-.20*	.50**	1.00	
12. CTQ	.23**	.30**	.15	.27**	.06	-.29**	.19*	.25**	-.24**	.30**	.19*	1.00

* $p < .05$ ** $p < .01$ Note: M H = Mother Helplessness on CHQ subscale; M-C F = Mother Child Frightened on CHQ subscale; CCare = Child Caregiving on CHQ subscale; DCare = Disorganized Caregiving (Factor 1); CCW = Child Caregiving Without (Factor 3); M Att = Maternal Attitudes (Factor 2); PSICD = Child Domain from PSI-4; PSIPD = Parent Domain from PSI-4; PSILS = Life Stress from PSI-4; PSIhe = Maternal health from PSI-4; PSISP = Coparenting/spousal relationship PSI-4; CTQ = History of Child Maltreatment.

Regression Analyses

Six separate regression analyses were conducted as each of the three original CHQ scales and the three current study generated factors were dependent variables. In each regression analysis, covariates (i.e., intimate partner violence, economic hardship, depression, and PTSD symptoms) were entered into step one of the regression equation and history of childhood maltreatment was entered into step two to determine how much unique variance history of childhood maltreatment contributed after accounting for more proximal variables. For the Child Caregiving Scale and Child Caregiving Factor, maternal age and child sex, respectively, were included in the covariates as they were significant in previous analyses. For all regression analyses, childhood maltreatment was not significant after accounting for variance contributed by the covariates (see Figures 13 & 14). Change in R^2 is not available for the pooled sample; therefore, the range for R^2 is presented. Furthermore, standardized β coefficients are not available for the pooled sample; therefore, the unstandardized β coefficients are presented.

Figure 13

Hierarchical Multiple Regression Analyses Predicting Disorganized Caregiving from Original George and Solomon (2011) CHQ Scales

Predictor	Mother Helpless		M-C Frightened		Child Caregiving	
	R^2	β	R^2	β	R^2	β
Step 1						
Covariates	.28 – .29		.20 – .24		.07 – .08	
Economic Hardship		.02		-.01		-.13
Depression Symptoms		.14**		.02		-.06
PTSD Symptoms		.03		.08**		.02
IPV		.03		.00		.06**
Step 2						
CTQ		.01		.02		.01

Note: * $p < .05$ ** $p < .01$

Figure 14

Hierarchical Multiple Regression Analyses Predicting Disorganized Caregiving from Factors Obtained from the CHQ in Current Study

Predictor	Disorganized Caregiving (Factor 1)		Maternal Attitudes (Factor 2)		Child Caregiving Without (Factor 3)	
	R^2	β	R^2	β	R^2	β
Step 1						
Covariates	.27-.31		.32-.35		.06-.08	
Economic Hardship		.06		-.12		-.12
Depression Symptoms		.14*		-.11**		-.06*
PTSD Symptoms		.11		-.02		.03
IPV		.03		-.04*		.02
Step 2						
CTQ		.02		-.01		.01

Note: * $p < .05$ ** $p < .01$

IV. Discussion

In this study, I aimed to provide further validation for the CHQ. First, I aimed to reproduce George and Solomon's (2011) factor structure of the CHQ. The factor structure analysis did not support the structure obtained from George and Solomon (2011) standardization sample, although, the two factor structures were conceptually related. I also aimed to provide convergent, divergent, and postdictive validity for this measure. Although some of the correlational findings suggested good convergent validity, other correlations indicated questionable postdictive and divergent validity. Finally, I aimed to find a predictive association between a history of childhood maltreatment and the CHQ when accounting for salient proximal variables. However, when accounting for important proximal variables, childhood maltreatment was not an important unique predictor of the 2011 CHQ scales or the current study derived factors. The implications of these findings are further discussed.

The George and Solomon (2011) factor structure of the CHQ was not replicated in this study. George and Solomon (2011) factor analytic findings were indicative of a five factor solution; however, the current study results suggested a four factor solution. The current study factors were highly correlated with the George and Solomon (2011) CHQ scales. In the current study, two of George and Solomon's (2011) factors collapsed into one factor (Disorganized Caregiving) and the Child Caregiving scale yielded two factors. Additionally, with the present sample a new factor was identified from filler items of the CHQ item pool. These findings suggest that the multi-factor structure of the CHQ may not be stable in a demographically similar study.

Although the factor structure does not appear to be stable, certain items of the CHQ may have utility in detecting disorganized caregiving. In the present study there were four factors.

The first factor most closely resembled fear and helplessness in the caregiving role which corresponds well with the broad construct of disorganized caregiving (Main & Hesse, 1990; Solomon & George, 1996). This factor was associated with trauma, mental health symptoms, child stress and parenting stress in the expected directions. The second factor corresponded with positive maternal attitudes about herself. This theoretically would be negatively related to fear and helplessness in the parenting role, and may indicate positive adjustment in the parenting role. Maternal Attitudes was associated with fear and helplessness in the parenting role, trauma, mental health symptoms, child stress, and parenting stress in the expected directions.

The third factor (Child Care Without) corresponded with the child being seen as a caregiver (i.e., role-reversal) which theoretically should be related to disorganized caregiving due to the “psychological abdication of the caregiving role” (Solomon & George, 1996; George & Solomon, 2011). In this study, child caregiving was negatively associated with child stress and parenting stress. Specifically, mothers who rated their child high on caregiving reported less parental stress and less child stress. These findings correspond with the conceptualization of role-reversal where the child is seen as competent and capable thereby reducing the mother’s distress (Moss, Thibaudeau, Cyr, & Rousseau, 2001 as cited in Moss, Bureau, St-Laurent, & Tarabulsky, 2011). However, the items of Child Caregiving do not seem to reflect role-reversal in a meaningful way. Consequently, Child Caregiving Without may be a construct that the mother and the child are actually competent.

The fourth factor (Child Care With Funny) cannot be interpreted because it was not used in any analyses. Of note, however, the women in this study responded to child caregiving items and child as a clown items differently, suggesting the women interpreted these questions differently than the authors intended.

It is recommended that future use of the CHQ be contingent upon comparison of factor analytic findings. Specifically, if factor analytic findings replicate the George and Solomon (2011) study, there may be utility in continuing to use the original scales. However, if factor analytic results replicate the current study, it will be important to consider revising the scales accordingly. Moreover, high correlations between Maternal Helpless and Mother-Child Frightened strongly suggests that they may be a single construct. Given the correlations between the child caregiving construct and other important study variables, it will be important to determine if the CHQ can adequately capture role-reversal as role-reversal is only thought to negatively impact the child if the mother relies on the child for significant emotional support over a long period time (Hetherington, 2006).

When exploring the relation among demographic variables, analyses determined there were no associations among the CHQ scales and factors with demographic factors such as ethnicity and education. This finding also coincides with research that suggests some demographic variables are a proxy variable for low socioeconomic status and resource availability (Emmen, Malda, Mesman, Ekmekci, & van IJzendoorn, 2012; Mesman, van IJzendoorn, Bakermans-Kranenburg, 2012). In this study, many of the mothers did not report having significant economic hardship. Thus, no relation between ethnicity and the CHQ may be due to the relative economic advantage of the sample. There was also a restriction in variability of ethnicities that may explain the finding of no association between the CHQ and ethnicity.

In the correlational analyses, the CHQ indicated convergent validity. The associations among the CHQ scales, current study derived factors, and stress occurred as expected. There were moderate correlations between parenting stress and child stress which is consistent with both George and Solomon's (2011) and Huth-Bocks and colleagues' (2016) findings. The

associations between child stress and parent stress were expected. This study cannot determine whether the child causes the mother to feel helpless or if the mother's helpless feelings cause child stress as this is not an experimental design. However, many studies indicate there is a transaction between children and parents that affect the parenting relationship overtime. (Pearl, French, Dumas, Moreland, & Prinz, 2014; Reitz, Dekovic, & Meijer, 2010; Smith, 2010; Verhoeven, Junger, van Aken, Dekovic, & van Aken, 2010). Thus, more research is needed to elucidate the relation between child stress, parent stress, and the CHQ.

Alternatively, it is possible the CHQ measures a dimension of cognitions reflecting high maternal stress rather than disorganization. The CHQ scales of Maternal Helpless and Mother-Child Frightened had moderate correlations with both parenting stress and child stress. However, it also had moderate correlations with stress in the co-parenting relationship and maternal health. These findings suggest that mothers who are highly stressed are more likely to respond in ways that elevate the CHQ. If this is the case, then the CHQ may be measuring parenting stress or global stress and may not add more information above and beyond a typical parenting stress measure such as the PSI-4. However, the correlations between the PSI-4 and CHQ were not above .8 - .9. This suggests that they are measuring related but separate constructs.

The original CHQ scale factors and factors in the current study also demonstrated convergent validity as they were associated weakly to moderately with intimate partner violence. The finding that the CHQ scales are associated with intimate partner violence is consistent with results of the Huth-Bocks and colleagues (2016) study. The literature regarding the impact of intimate partner violence on maternal cognitions and behaviors suggests that the experience of intimate partner violence can impact the way the mother thinks about herself and her child and

the way she interacts with her child (Huth-Bocks, Levendosky, Bogat, & von Eye, 2004; Huth-Bocks, Levendosky, Theran, & Bogat, 2004; Huth-Bocks, Theran, Levendosky, & Bogot, 2011; Mingo & Easterbrooks, 2015; Schechter et al., 2008). Although the effect sizes range from small to moderate, this is important as the sample as a whole experienced very little chronic intimate partner violence (i.e., one negative experience per month that may include yelling). If the participants had been dichotomized into upper and lower quartiles or if the sample had experienced a greater range of intimate partner violence as a whole, the effect sizes could be larger.

Postdictive validity findings suggested that the CHQ scales and current study factors were weakly associated with a history of childhood maltreatment. The association with abuse history is important as it is the first study to identify this association with the CHQ. This finding replicates many other studies that have indicated that early trauma histories of mothers are associated with the mother-child attachment relationship (Berthelot et al., 2016; Lyons-Ruth & Block, 1999; Madigan, Vaillancourt, McKibbon, & Benoit, 2012; Madigan, Vaillancourt, Plamondon, McKibbon, & Benoit, 2016; Malone, Levendosky, Dayton, & Bogat, 2010; Mingo & Easterbrooks, 2015; Murphy et al., 2014). Importantly, even though the effect sizes are small, these effects were found in a sample who reported relatively limited abuse experiences (i.e., no to low amounts of childhood abuse). It is possible that if participants were dichotomized into lower and upper quartiles that the effect size would be larger. Additionally, if the sample included a larger traumatized subsample the effect sizes could have been larger.

Furthermore, the CHQ demonstrated convergent validity with other contextual variables. The relations among Mother Helpless, Mother-Child Frightened, Factor 1 (Disorganized Caregiving), PTSD symptoms, depression symptoms, and economic hardship are

understandable. Previous research indicates proximal variables such as mental health symptoms and socioeconomic factors impact the way a mother views her child and the parenting role (Arnott & Brown, 2013; Huth-Bocks et al., 2011; Huth-Bocks, Theran, Levendosky, & Bogot, 2011; Mingo & Easterbrooks, 2015; Tarabulsy et al., 2005).

In regards to divergent validity, life stress was not related to the original CHQ factors or the study derived Factors. This is puzzling as many of the other variables related to context were significant. Given the low alpha on the life stress subscale for this sample, it is possible that this scale for this sample is not reliable.

The associations among the Mother Helpless scale, Mother-Child Frightened scale, and Factor 1 (Disorganized Caregiving), spouse relationship, and maternal health were not expected as George and Solomon's (2011) study indicated no relationships among these variables. An explanation for this finding is that the CHQ is tapping parental distress above and beyond the intended construct of disorganized caregiving and it is measuring overall life distress. However, another explanation is that context affects parenting, and that maternal health and spousal relationship may just contribute to an environment where the mother has more helpless thoughts about her role as a mother. Again, research supports the hypotheses that context affects maternal representations (Arnott & Brown, 2013; Huth-Bocks et al., 2011; Huth-Bocks, Theran, Levendosky, & Bogot, 2011; Mingo & Easterbrooks, 2015; Tarabulsy et al., 2005).

Finally, a history of childhood maltreatment did not predict unique variance in Mother Helpless, Mother-Child Frightened, Child Caregiving, Disorganized Caregiving (Factor 1), Maternal Attitudes (Factor 2), or Child Caregiving Without (Factor 3). These findings suggest that more proximal variables are more salient to the mother than distal variables like history of child maltreatment. This can be understood in the context of Belsky's (1984) determinants of

parenting behavior which suggest maternal personality, history, and contextual factors impact parenting outcomes. Belsky (1984) suggested that many times there is an additive effect of stressors and history that interact to promote stressed parenting, and that not only one domain alone can account for parenting outcomes.

However, the finding that maternal history of child abuse did not uniquely predict disorganized caregiving, can also be understood in the context of the analyses that were chosen. The analyses that were used met stringent criteria for determining unique variance. The covariates were added at step one of the hierarchical regression. Adding the covariates at step one, accounted for almost 30% of the variance in both the original CHQ scales and the factors derived in the current study. This analytic strategy may have impeded further portioning of variance during step two for history of childhood maltreatment. In addition to the stringent criteria used, many of the covariates (depression, PTSD symptoms, intimate partner violence) have been identified with a history of childhood maltreatment in numerous studies (Charuvastra & Cloitre, 2008; Cloitre et al., 2009; Webster-Stratton & Hammond, 1988). Thus, the impact of childhood maltreatment may have already been accounted for, particularly in cases of subsequent intimate partner violence.

Despite factor analytic and divergent validity findings, the current study added to the attachment and caregiving literature in many ways. First, the current study added further support for the utility of the Caregiving Helplessness Questionnaire. Much like the George and Solomon (2011) study and the Huth-Bocks and colleagues (2016) study, the CHQ was associated with parenting stress, child characteristics, and depression. Additionally, the current study was the first study to demonstrate a relationship between the CHQ and a history of childhood maltreatment which was an important association as disorganized caregiving is often associated

with a history of childhood trauma. Although there was limited intimate partner violence in this sample, the current study also provided additional support to the Huth-Bocks and colleagues (2016) finding that the CHQ is associated with intimate partner violence.

This study also provides support for the use of the CHQ in a geographically diverse sample. The George and Solomon (2011) and Huth-Bocks and colleagues (2016) were both regional samples that were close in proximity to research institutions. Because this study was conducted on Amazon Turk, participants reported living in 45 out of 50 states in the United States of America. Also, this study provides the first electronic use of the CHQ, which indicated valid results without an in-person interview format.

Future studies should establish a direct relationship between the CHQ and infant/child disorganized attachment as all the studies to date on the CHQ have looked at the association among the CHQ and correlates of disorganized attachment. Research should continue to examine the factor structure of the CHQ and determine if Maternal Helpless is a different construct from Mother-Child Frightened or if they both represent a broad disorganized caregiving classification. Future studies should also try to reword the child caregiving items to better reflect role-reversal. In addition, prospective longitudinal studies using the CHQ, parenting stress, and child outcomes should look at the contribution of the CHQ above and beyond parenting stress measures. Prospective longitudinal studies should also explore differential outcomes among the CHQ scales and parenting stress to further provide support for the CHQ's utility. Finally, to aid in validation, studies using both representational and behavioral methods should determine the associations between well-established methods of assessing disorganized caregiving and this newer self-report method.

V. References

- Abidin, R. R. (1995) *Parental Stress Index* (3rd ed.) Odessa, FL: Psychological Assessment Resources.
- Abidin, R. R. (2012). *Parenting Stress Index* (4th ed.) Lutz, FL: Psychological Assessment Resources.
- Achenbach, T., & Edelbrock, C. (1991). Manual for the CBCL and 1991 Profile. *Burlington, VT: University of Vermont.*
- Ainsworth, M.D.S., Blehar, M.C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation.* Hillsdale, NJ: Lawrence Erlbaum.
- Alenina, N., Kikic, D., Todiras, M., Mosienko, V., Qadri, F., Plehm, R., ... & Hörtnagl, H. (2009). Growth retardation and altered autonomic control in mice lacking brain serotonin. *Proceedings of the National Academy of Sciences, 106*(25), 10332-10337. doi: 10.1073/pnas.0810793106
- Almqvist, K., & Broberg, A.G. (2003). Young children traumatized by organized violence together with their mothers: The critical effects of damaged internal representations. *Attachment and Human Development, 5*, 367-380. doi:10.1080/14616730310001633447
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5.* Washington, D.C.: American Psychiatric Association.
- Angoa-Pérez, M., Kane, M. J., Sykes, C. E., Perrine, S. A., Church, M. W., & Kuhn, D. M. (2014). Brain serotonin determines maternal behavior and offspring survival. *Genes, Brain and Behavior, 13*(7), 579-591. doi: 10.1111/gbb.12159
- Arnott, B., & Brown, A. (2013). An exploration of parenting behaviours and attitudes during early infancy: Association with maternal and infant characteristics. *Infant and Child Development, 22*(4), 349-361. doi: 10.1002/icd.1794
- Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2009). The first 10,000 Adult Attachment Interviews: Distributions of adult attachment representations in clinical and non-clinical groups. *Attachment & Human Development, 11*(3), 223-263. doi:10.1080/14616730902814762
- Barofsky, A. L., Taylor, J., Tizabi, Y., Kumar, R., & Jones-Quartey, K. W. (1983). Specific Neurotoxin Lesions of Median Raphe Serotonergic Neurons Disrupt Maternal Behavior in the Lactating Rat. *Endocrinology, 113*(5), 1884-1893.

- Barrera, M., Caples, H., & Tein, J. Y. (2001). The psychological sense of economic hardship: Measurement models, validity, and cross-ethnic equivalence for urban families. *American Journal of Community Psychology*, 29 (3), 493 – 517. Retrieved from <http://0-search.proquest.com.library.uark.edu/docview/205347070/fulltextPDF?accountid=8361>
- Beck A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Bell, D. C. (2001). Evolution of parental caregiving. *Personality and Social Psychology Review*, 5, 216-229. doi: http://dx.doi.org/10.1207/S15327957PSPR0503_3.
- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, 83-96.
- Belsky, J., & Isabella, R. (1988). Maternal, infant, and social contextual determinants of attachment security. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 41-94). Hillsdale, NJ: Lawrence Erlbaum. doi:10.2307/1130397
- Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon. com's Mechanical Turk. *Political Analysis*, 20(3), 351-368. doi: 10.1093/pan/mpr057
- Bernstein, D. P., & Fink, L. (1998). *Childhood Trauma Questionnaire: A retrospective self-report manual*. Bloomington, MN: Pearson.
- Bernstein, D. P., Fink, L., Handelsman, L., & Foote, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *The American Journal of Psychiatry*, 151(8), 1132-1136.
- Berthelot, N., Ensink, K., Bernazzani, O., Normandin, L., Luyten, P., & Fonagy, P. (2015). Intergenerational transmission of attachment in abused and neglected mothers: The role of trauma-specific reflective functioning. *Infant Mental Health Journal*, 36(2), 200-212. doi: 10.1002/imhj.21499
- Bigras, M., LaFreniere, P. J., & Dumas, J. E. (1996). Discriminant validity of the parent and child scales of the parenting stress index. *Early Education and Development*, 7(2), 167-178. doi:10.1207/s15566935eed0702_5
- Bosch, O. J. (2011). Maternal nurturing is dependent on her innate anxiety: the behavioral roles of brain oxytocin and vasopressin. *Hormones and Behavior*, 59(2), 202-212. doi:10.1016/j.yhbeh.2010.11.012
- Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2015). Psychometric Properties of the PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (PCL-5) in Veterans. *Psychological Assessment*. Retrieved from <http://dx.doi.org/10.1037/pas0000254>

- Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1 attachment*. New York, NY: Basic Books.
- Bretherton, I., & Munholland, K. A. (2008) Internal working models in attachment relationships: Elaborating a central construct in attachment theory. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 102-127). New York, NY: Guilford Press.
- Briggs-Gowan, M. J., & Carter, A. S. (2006). *Manual for the brief infant-toddler social & emotional assessment (BITSEA) Version 2*. San Antonio, TX: Psychological Corporation, Harcourt Press.
- Buchheim, A., & Benecke, C. (2007). Affective facial behavior of patients with anxiety disorders during the Adult Attachment Interview: A pilot study. *Psychotherapie, Psychosomatik, Medizinische Psychologie*, 57, 343-347.
- Carter, C. S. (1998). Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology*, 23(8), 779-818. doi: 10.1126/science.280.5364.747
- Carter, C., & Altemus, M. (1997). Integrative Functions of Lactational Hormones in Social Behavior and Stress Management. *Annals of the New York Academy of Sciences*, 807(1), 164-174. doi: 10.1111/j.1749-6632.1997.tb51918.x
- Cassidy, J. (2000). The complexity of the caregiving system: A perspective from attachment theory. *Psychological inquiry*, 11(2), 86-91.
- Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, 59, 301-328. doi:10.1146/annurev.psych.58.110405.085650
- Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. V. D., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399-408. doi: 10.1002/jts.20444
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh postnatal depression scale. *British Journal of Psychiatry*, 150, 782-286.
- Crawford, A., & Benoit, D. (2009). Caregivers' disrupted representations of the unborn child predict later infant-caregiver disorganized attachment and disrupted interactions. *Infant Mental Health Journal*, 30(2), 124-144. doi:10.1002/imhj.20207
- Deater-Deckard, K., Lansford, J. E., Malone, P. S., Alampay, L. P., Sorbring, E., Bacchini, D., ... & Dodge, K. A. (2011). The association between parental warmth and control in thirteen cultural groups. *Journal of Family Psychology*, 25(5), 790-794. doi.org/10.1037/a0025120

- Eaton, W. W., Smith, C., Ybarra, M., Muntaner, C., & Tien, A. (2004). Center for Epidemiologic Studies Depression Scale: review and revision (CESD and CESD-R). In E. Mark (Ed.), *The use of psychological testing for treatment planning and outcomes assessment: Volume 3: Instruments for adults* (3rd ed., pp. 363-377). Mahwah, NJ: Lawrence Erlbaum Associate Publishers.
- Ekmekci, H., Malda, M., Yagmur, S., van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Mesman, J. (2016). The discrepancy between sensitivity beliefs and sensitive parenting behaviors of ethnic majority and ethnic minority mothers. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement*, 48(1), 60-67. doi.org/10.1037/cbs0000032
- Emmen, R. A., Malda, M., Mesman, J., Ekmekci, H., & van IJzendoorn, M. H. (2012). Sensitive parenting as a cross-cultural ideal: sensitivity beliefs of Dutch, Moroccan, and Turkish mothers in the Netherlands. *Attachment & Human Development*, 14(6), 601-619. doi: 10.1080/14616734.2012.727258
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments & Computers*, 28, 1-11. doi:10.3758/BF03203630
- Frigerio, A., Costantino, E., Ceppi, E., & Barone, L. (2013). Adult attachment interviews of women from low-risk, poverty, and maltreatment risk samples: comparisons between the hostile/helpless and traditional AAI coding systems. *Attachment & Human Development*, 15(4), 424-442. doi: 10.1080/14616734.2013.797266
- Gammie, S. C. (2005). Current models and future directions for understanding the neural circuitries of maternal behaviors in rodents. *Behavioral and Cognitive Neuroscience Reviews*, 4(2), 119-135. doi: 10.1177/1534582305281086
- George, C., Kaplan, N., & Main, M. (1984). *Adult Attachment Interview protocol*. Unpublished manuscript, University of California at Berkeley.
- George, C., Kaplan, N., & Main, M. (1985). *Adult Attachment Interview protocol* (2nd ed.). Unpublished manuscript, University of California at Berkeley.
- George, C., Kaplan, N., & Main, M. (1996). *Adult Attachment Interview protocol* (3rd ed.). Unpublished manuscript, University of California at Berkeley.
- George, C., & Solomon, J. (1989). Internal working models of caregiving and security of attachment at age six. *Infant Mental Health Journal*, 10(3), 222-237. doi: 10.1002/1097-
- George, C., & Solomon, J. (1996). Representational models of relationships: Links between caregiving and attachment. *Infant Mental Health Journal*, 17(3), 198-216. doi:10.1002/(SICI)1097-0355(199623)17:3<198::AID-IMHJ2>3.0.CO;2-L

- George, C., & Solomon, J. (2008). The caregiving system: A behavioral systems approach to parenting. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 833-856). New York, NY: Guilford Press.
- George, C., & Solomon, J. (2011). Caregiving Helplessness Questionnaire. New York, NY: Guilford Press.
- George, C., & Solomon, J. (2011). Caregiving Helplessness: The development of a screening measure for disorganized maternal caregiving. In J. Solomon & C. George (Eds.), *Disorganized attachments and caregiving* (2nd ed., pp. 133-166). New York, NY: Guilford Press.
- Gingrich, B., Liu, Y., Cascio, C., Wang, Z., & Insel, T. R. (2000). Dopamine D2 receptors in the nucleus accumbens are important for social attachment in female prairie voles (*Microtus ochrogaster*). *Behavioral Neuroscience*, *114*(1), 173-183. doi: 10.1037/0735-7044.114.1.173
- Glascoe, F. P., & Leew, S. (2010). Parenting behaviors, perceptions, and psychosocial risk: impacts on young children's development. *Pediatrics*, *125*(2), 313-319.
- Goldberg, S., Benoit, D., Blokland, K., & Madigan, S. (2003). Atypical maternal behavior, maternal representations, and infant disorganized attachment. *Development and Psychopathology*, *15*(02), 239-257. doi: 10.1017/S0954579403000130
- Hartz, K., & Williford, A. (2015). Child Negative Emotionality and Caregiver Sensitivity Across Context: Links with Children's Kindergarten Behaviour Problems. *Infant and Child Development*, *24*(2), 107-129. doi: 10.1002/icd.1887
- Hawkins, E., Madigan, S., Moran, G., & Pederson, D. R. (2015). Mediating and moderating processes underlying the association between maternal cognition and infant attachment. *Journal of Applied Developmental Psychology*, *39*, 24-33. doi:10.1016/j.appdev.2015.04.001
- Hetherington, E. M. (2006). The influence of conflict, marital problem solving and parenting on children's adjustment in non-divorced, divorced and remarried families. In A. Clarke-Stewart & J. Dunn (Eds.) *Families count: Effects on child and adolescent development. The Jacobs Foundation series on adolescence*. New York: Cambridge University Press.
- Hesse, E., & Main, M. (2006). Frightened, threatening, and dissociative parental behavior in low-risk samples: Description, discussion, and interpretations. *Development and Psychopathology*, *18*, 309-343. doi:10.1017/S0954579406060172
- Herman, J. L., Perry, J., & Van der Kolk, B. A. (1989). Childhood trauma in borderline personality disorder. *The American Journal of Psychiatry*, *146*(4), 490-495.

- Hinde, R. A. (1982). Attachment: Some conceptual and biological issues. In J. Stevenson-Hinde & C. Murry Parkes (Eds.), *The place of attachment in human behavior* (pp. 60-76). New York, NY: New York Basic
- Huth-Bocks, A., Guyon-Harris, K., Calvert, M., Scott, S., & Ahlfs-Dunn, S. (2016). The Caregiving Helplessness Questionnaire: Evidence for validity and utility with mothers of infants. *Infant Mental Health Journal, 0* (0), 1-14. doi: 10.1002/imhj.21559
- Huth-Bocks, A. C., Levendosky, A. A., Bogat, G. A., & Von Eye, A. (2004). The impact of maternal characteristics and contextual variables on infant–mother attachment. *Child Development, 75*(2), 480-496. doi: 10.1111/j.1467-8624.2004.00688.x
- Huth-Bocks, A. C., Levendosky, A. A., Theran, S. A., & Bogat, G. A. (2004). The impact of domestic violence on mothers' prenatal representations of their infants. *Infant Mental Health Journal, 25*(2), 79-98. doi: 10.1002/imhj.10094
- Huth-Bocks, A. C., Theran, S. A., Levendosky, A. A., & Bogat, G. A. (2011). A social-contextual understanding of concordance and discordance between maternal prenatal representations of the infant and infant–mother attachment. *Infant Mental Health Journal, 32*(4), 405-426. doi: 10.1002/imhj.20304
- Hrdy, S., & Hawkes, K. (1999). Mother nature: A history of mothers, infants and natural selection. *Nature, 402*(6758), 120-120.
- Jørgensen, H., Riis, M., Knigge, U., Kjaer, A., & Warberg, J. (2003). Serotonin receptors involved in vasopressin and oxytocin secretion. *Journal of Neuroendocrinology, 15*(3), 242-249. doi: 10.1046/j.1365-2826.2003.00978.x
- Keverne, E. B., Nevison, C. M., & Martel, F. L. (1999). Early learning and the social bond. In C. S. Carter, I. Lederhendler, B. Kirkpatrick (Eds.), *The integrative neurobiology of affiliation*, (pp. 263-273). Cambridge, MA: MIT Press.
- King, D. W., King, L. A., Foy, D. W., Keane, T. M., & Fairbank, J. A. (1999). Posttraumatic stress disorder in a national sample of female and male Vietnam veterans: Risk factors, war-zone stressors, and resilience-recovery variables. *Journal of Abnormal Psychology, 108*(1), 164-170. doi:10.1037/0021-843X.108.1.164
- Kuroda, K. O., Tachikawa, K., Yoshida, S., Tsuneoka, Y., & Numan, M. (2011). Neuromolecular basis of parental behavior in laboratory mice and rats: with special emphasis on technical issues of using mouse genetics. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 35*(5), 1205-1231. doi:10.1016/j.pnpbp.2011.02.008
- Leibenluft, E., Gobbin, M. I., Harrison, T., & Haxby, J. V. (2004). Mothers' neural activation in response to pictures of their children and other children. *Biological psychiatry, 56*(4), 225-232. doi:10.1016/j.biopsych.2004.05.017

- Lorberbaum, J. P., Newman, J. D., Dubno, J. R., Horwitz, A. R., Nahas, Z., Teneback, C. C., ... & Emmanuel, N. (1999). Feasibility of using fMRI to study mothers responding to infant cries. *Depression and Anxiety*, *10*(3), 99-104. doi: 10.1002/(SICI)1520-6394(1999)10:3<99::AID-DA2>3.0.CO;2-#
- Loyd, B.H., & Abidin, R.R. (1985). Revision of the Parenting Stress Index. *Journal of Pediatric Psychiatry*, *10*(2), 169-177. doi:10.1093/jpepsy/10.2.169
- Lyons-Ruth, K., & Block, D. (1996). The disturbed caregiving system: Relations among childhood trauma, maternal caregiving, and infant affect and attachment. *Infant Mental Health Journal*, *17*(3), 257-275. doi:10.1002/(SICI)1097-0355(199623)17:3<257::AID-IMHJ5>3.0.CO;2-L
- Lyons-Ruth, K., Bronfman, E., & Parsons, E. (1999). Maternal frightened, frightening, or atypical behavior and disorganized infant attachment patterns. *Monographs of the Society for Research in Child Development*, *64*(3), 67-96. doi:10.1111/1540-5834.00034
- Lyons-Ruth, K., & Jacobvitz, D. (2008). Attachment disorganization: Genetic factors, parenting contexts, and developmental transformation from infancy to adulthood. In J. Cassidy, P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications (2nd ed.)* (pp. 666-697). New York, NY: Guilford Press.
- Madigan, S., Bakermans-Kranenburg, M. J., Van Ijzendoorn, M. H., Moran, G., Pederson, D. R., & Benoit, D. (2006). Unresolved states of mind, anomalous parental behavior, and disorganized attachment: A review and meta-analysis of a transmission gap. *Attachment & Human Development*, *8*(2), 89-111. doi:10.1080/14616730600774458
- Madigan, S., Moran, G., Schuengel, C., Pederson, D. R., & Otten, R. (2007). Unresolved maternal attachment representations, disrupted maternal behavior and disorganized attachment in infancy: Links to toddler behavior problems. *Journal of Child Psychology and Psychiatry*, *48*(10), 1042-1050. doi: 10.1111/j.1469-7610.2007.01805.x
- Madigan, S., Vaillancourt, K., McKibbin, A., & Benoit, D. (2012). The reporting of maltreatment experiences during the Adult Attachment Interview in a sample of pregnant adolescents. *Attachment & Human Development*, *14*(2), 119-143. doi: 10.1080/14616734.2012.661230
- Madigan, S., Vaillancourt, K., Plamondon, A., McKibbin, A., & Benoit, D. (2016). The developmental course of unresolved/disorganized states of mind in a sample of adolescents transitioning into parenthood. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement*, *48*(1), 19-31. doi: 10.1037/cbs0000037
- Main, M. (1990). Cross-cultural studies of attachment organization: Recent studies, changing methodologies, and the concept of conditional strategies. *Human Development*, *33*, 48-61. doi:10.1159/000276502

- Main, M., & Cassidy, J. (1988). Categories of response to reunion with the parent at age 6: Predictable from infant attachment classifications and stable over a 1-month period. *Developmental Psychology*, 24(3), 415-426. doi:10.1037/0012-1649.24.3.415
- Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism?. In M. T. Greenberg, D. Cicchetti, E. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 161-182). Chicago, IL: University of Chicago Press.
- Malone, J. C., Levendosky, A. A., Dayton, C. J., & Bogat, G. A. (2010). Understanding the “ghosts in the nursery” of pregnant women experiencing domestic violence: Prenatal maternal representations and histories of childhood maltreatment. *Infant Mental Health Journal*, 31(4), 432-454. doi: 10.1002/imhj.20264
- Marvin, R., & Britner, M. (2008). Normative development: The ontogeny of attachment. In J. Cassidy, P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications (2nd ed.)* (pp. 269-295). New York, NY: Guilford Press.
- Maestriperi, D. (1999). The biology of human parenting: insights from nonhuman primates. *Neuroscience & Biobehavioral Reviews*, 23(3), 411-422. doi: 10.1016/S0149-7634(98)00042-6
- Mesman, J., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2012). Unequal in opportunity, equal in process: Parental sensitivity promotes positive child development in ethnic minority families. *Child Development Perspectives*, 6(3), 239-250. doi: 10.1111/j.1750-8606.2011.00223.x
- Meyers, S. A. (1999). Mothering in context: Ecological determinants of parent behavior. *Merrill-Palmer Quarterly (1982-)*, 332-357.
- Michalska, K. J., Decety, J., Liu, C., Chen, Q., Martz, M. E., Jacob, S., ... & Lahey, B. B. (2014). Genetic imaging of the association of oxytocin receptor gene (OXTR) polymorphisms with positive maternal parenting. *Frontiers in behavioral neuroscience*, 8, 21. Retrieved from: http://www.frontiersin.org/Journal/Abstract.aspx?s=99&name=behavioral%20neuroscience&ART_Doi=10.3389/fnbeh.2014.00021
- Mingo, M. V., & Easterbrooks, M. (2015). Patterns of emotional availability in mother–infant dyads: associations with multiple levels of context. *Infant Mental Health Journal*, 36(5), 469-482. doi: 10.1002/imhj.21529
- Moss, E., Bureau, J. F., St-Laurent, D., & Tarabulsky, G. M. (2011). Understanding disorganized attachment at preschool and school age: Examining divergent pathways of disorganized and controlling children. In J. Solomon & C. George (Eds.), *Disorganized attachment and caregiving*, (pp. 52-79). New York, NY: The Guilford Press.

- Moss, E., Cyr, C., & Dubois-Comtois, K. (2004). Attachment at Early School Age and Developmental Risk: Examining Family Contexts and Behavior Problems of Controlling-Caregiving, Controlling-Punitive, and Behaviorally Disorganized Children. *Developmental Psychology*, 40(4), 519-532. doi:10.1037/0012-1649.40.4.519
- Moss, E., Thibaudeau, P., Cyr, C., & Rousseau, D. (2001). Controlling attachment and child management of parental emotions. Symposium conducted at the biennial meeting of the Society for Research in Child Development, Minneapolis, MN.
- Murphy, A., Steele, M., Dube, S. R., Bate, J., Bonuck, K., Meissner, P., ... & Steele, H. (2014). Adverse childhood experiences (ACEs) questionnaire and adult attachment interview (AAI): Implications for parent child relationships. *Child Abuse & Neglect*, 38(2), 224-233. doi: 10.1016/j.chiabu.2013.09.004
- Nelson, E. E., & Panksepp, J. (1998). Brain substrates of infant–mother attachment: contributions of opioids, oxytocin, and norepinephrine. *Neuroscience & Biobehavioral Reviews*, 22(3), 437-452.
- Orsillo, S. (2001). Measures for acute stress disorder and posttraumatic stress disorder. In M. Antony, S. Orsillo, & L. Roemer (Eds.), *Practitioner's guide to empirically based measures of anxiety*. (pp. 255-307). Netherlands: Kluwer Academic Publishers.
- Paolacci, G., & Chandler, J. (2014). Inside the turk understanding mechanical turk as a participant pool. *Current Directions in Psychological Science*, 23(3), 184-188. doi: 10.1177/0963721414531598
- Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on amazon mechanical turk. *Judgment and Decision making*, 5(5), 411-419.
- Pajulo, M., Helenius, H., & Mayes, L. (2006). Prenatal views of baby and parenthood: Association with sociodemographic and pregnancy factors. *Infant Mental Health Journal*, 27(3), 229-250. doi: 10.1002/imhj.20090
- Pajulo, M., Savonlahti, E., Sourander, A., Piha, J., & Helenius, H. (2001). Prenatal maternal representations: Mothers at psychosocial risk. *Infant Mental Health Journal*, 22(5), 529-544. doi: 10.1002/imhj.1016
- Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. Oxford university press.
- Patterson, G. R. (1982). *Coercive family process* (Vol. 3). Castalia Publishing Company.
- Pearl, A. M., French, B. F., Dumas, J. E., Moreland, A. D., & Prinz, R. (2014). Bidirectional effects of parenting quality and child externalizing behavior in predominantly single parent, under-resourced African American families. *Journal of Child and Family Studies*, 23(2), 177-188.

- Perry, B. (2008). Child maltreatment: A neurodevelopmental perspective on the role of trauma and neglect in psychopathology. In T. Beauchaine & S. Hinshaw (Eds.), *Child and Adolescent Psychopathology*. (pp. 93-128). Hoboken, NJ: John Wiley & Sons.
- Posada, G., Jacobs, A., Richmond, M. K., Carbonell, O. A., Alzate, G., Bustamante, M. R., & Quiceno, J. (2002). Maternal caregiving and infant security in two cultures. *Developmental Psychology*, *38*(1), 67-78. doi.org/10.1037/0012-1649.38.1.67
- Raby, K. L., Steele, R. D., Carlson, E. A., & Sroufe, L. A. (2015). Continuities and changes in infant attachment patterns across two generations. *Attachment & Human Development*, *17*(4), 414-428. doi: 10.1080/14616734.2015.1067824
- Reitz, E., Deković, M., & Meijer, A. M. (2006). Relations between parenting and externalizing and internalizing problem behaviour in early adolescence: Child behaviour as moderator and predictor. *Journal of Adolescence*, *29*(3), 419-436. doi:10.1016/j.adolescence.2005.08.003
- Sabihi, S., Durosko, N. E., Dong, S. M., & Leuner, B. (2014). Oxytocin in the prelimbic medial prefrontal cortex reduces anxiety-like behavior in female and male rats. *Psychoneuroendocrinology*, *45*, 31-42. doi: 10.1016/j.psyneuen.2014.03.009
- Schechter, D., Coates, S., Kaminer, T., Coots, T., Zeanah, C., Davies, M., ... Myers, M. (2008). Distorted maternal mental representations and atypical behavior in a clinical sample of violence-exposed mothers and their toddlers. *Journal of Trauma & Dissociation*, *9*(2), 123-147. doi:10.1080/15299730802045666.
- Senese, V. P., Bornstein, M. H., Haynes, O. M., Rossi, G., & Venuti, P. (2012). A cross-cultural comparison of mothers' beliefs about their parenting very young children. *Infant Behavior and Development*, *35*(3), 479-488. doi:10.1016/j.infbeh.2012.02.006
- Simpson, J. A., & Belsky, J. (2008). Attachment theory within a modern evolutionary framework. In J. Cassidy, P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications (2nd ed.)* (pp. 131-157). New York, NY US: Guilford Press.
- Shapiro, D. N., Chandler, J., & Mueller, P. A. (2013). Using Mechanical Turk to study clinical populations. *Clinical Psychological Science*, *2*, 167-176. doi:10.1177/2167702612469015
- Shaver, P. R., & Fraley, R. (2008). Attachment, loss, and grief: Bowlby's views and current controversies. In J. Cassidy, P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications (2nd ed.)* (pp. 48-77). New York, NY US: Guilford Press.

- Shepard, M. F., & Campbell, J. A. (1992). The Abusive Behavior Inventory: A measure of psychological and physical abuse. *Journal of Interpersonal Violence*, 7(3), 291-305. doi:10.1177/088626092007003001
- Slade, A., Denner, M., Gerber, J., Gibson, L., Grat., Siegal, N. & Fobras, K., (1995, March) *Prenatal representation, dyadic interaction and quality of attachment*. Paper presented at the biennial meetings of the Society for Research in Child Development, Indianapolis, Indiana.
- Smith, C. L. (2010). Multiple determinants of parenting: Predicting individual differences in maternal parenting behavior with toddlers. *Parenting: Science and Practice*, 10(1), 1-17. doi: 10.1080/15295190903014588
- Smith, R. P., Lerch-Haner, J. K., Pardinas, J. R., Buchser, W. J., Bixby, J. L., & Lemmon, V. P. (2011). Transcriptional profiling of intrinsic PNS factors in the postnatal mouse. *Molecular and Cellular Neuroscience*, 46(1), 32-44. doi: doi:10.1016/j.mcn.2010.07.015
- Solomon, J., & George, C. (1996). Defining the caregiving system: Toward a theory of caregiving. *Infant Mental Health Journal*, 17(3), 183-197. doi:10.1002/(SICI)1097-0355(199623)17:3<183::AID-IMHJ1>3.0.CO;2-Q
- Solomon, J., & George, C. (2011). The disorganized attachment-caregiving system: Dysregulation of adaptive processes at multiple levels. In J. Solomon & C. George (Eds.), *Disorganized attachment and caregiving* (pp. 3-24). New York, NY: The Guilford Press.
- Stevenson-Hinde, J. (1994). An ethological perspective. *Psychological Inquiry*, 5(1), 62-65.
- Straus, M. (1996). *Conflict Tactics Scale-2*. Los Angeles, CA: Western Psychological Services.
- Straus, M. S., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The Revised Conflict Tactics Scales: Development and preliminary psychometric data. *Journal of Family Issues*, 17 (3), 283-316.
- Straus, M. A., Hamby, S. L., & Warren, W. L. (2003). *The Conflict Tactics Scales Handbook: Revised Conflict Tactics Scale (CTS2) and CTS: Parent-Child Version (CTSPC)* Western Psychological Services. Los Angeles, CA, USA.
- Tarabulsky, G. M., Bernier, A., Provost, M. A., Maranda, J., Larose, S., Moss, E., ... & Tessier, R. (2005). Another look inside the gap: ecological contributions to the transmission of attachment in a sample of adolescent mother-infant dyads. *Developmental Psychology*, 41(1), 212. doi.org/10.1037/0012-1649.41.1.212

- Thelen, E., Ulrich, B. D., & Wolff, P. H. (1991). Hidden skills: A dynamic systems analysis of treadmill stepping during the first year. *Monographs of the Society for Research in Child Development*, *i*-103. doi: 10.2307/1166099
- Theran, S. A., Levendosky, A. A., Anne Bogat, G., & Huth-Bocks, A. C. (2005). Stability and change in mothers' internal representations of their infants over time. *Attachment & Human Development*, *7*(3), 253-268. doi: 10.1080/14616730500245609
- Van Dam, N. T. & Earleywine, M. (2011). Validation of the Center for Epidemiologic Studies Depression Scale-Revised (CESD-R): Pragmatic depression assessment in the general population. *Psychiatry Research*, *186*, 128-132. doi: 10.1016/j.psychres.2010.08.018
- Van IJzendoorn, M. H. (1990). Developments in cross-cultural research on attachment: Some methodological notes. *Human Development*, *33*(1), 3-9.
- Van IJzendoorn, M. H., & Kroonenberg, P. M. (1988). Cross-cultural patterns of attachment: A meta-analysis of the strange situation. *Child Development*, 147-156.
- Verhage, M. L., Oosterman, M., & Schuengel, C. (2013). Parenting self-efficacy predicts perceptions of infant negative temperament characteristics, not vice versa. *Journal of Family Psychology*, *27* (5), 844-849. doi: 10.1037/a0034263
- Verhoeven, M., Junger, M., van Aken, C., Deković, M., & van Aken, M. A. (2010). Parenting and children's externalizing behavior: Bidirectionality during toddlerhood. *Journal of Applied Developmental Psychology*, *31*(1), 93-105. doi:10.1016/j.appdev.2009.09.002
- Wartner, U. G., Grossmann, K., Fremmer-Bombik, E., & Suess, G. (1994). Attachment patterns at age six in south Germany: Predictability from infancy and implications for preschool behavior. *Child Development*, *65*(4), 1014-1027. doi:10.2307/1131301
- Weathers, F., Litz, B., Herman, D., Huska, J., & Keane, T. (October, 1993). *The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility*. Paper presented at the Annual Convention of the International Society for Traumatic Stress Studies, San Antonio, TX.
- Weathers, F.W., Litz, B.T., Keane, T.M., Palmieri, P.A., Marx, B.P., & Schnurr, P.P. (2013). *The PTSD Checklist for DSM-5 (PCL-5)*. Scale available from the National Center for PTSD at www.ptsd.va.gov
- Webster-Stratton, C., & Hammond, M. (1988). Maternal depression and its relationship to life stress, perceptions of child behavior problems, parenting behaviors, and child conduct problems. *Journal of Abnormal Child Psychology*, *16*(3), 299-315.
- Wisner K.L., Parry, B.L. & Piontek, C.M. (2002). Postpartum depression. *New England Journal of Medicine*, *347*, 194-199.

- Zeanah, C. H., Benoit, D., Hirshberg, L., Barton, M. L., & Regan, C. (1994). Mothers' representations of their infants are concordant with infant attachment classifications. *Developmental Issues in Psychiatry and Psychology, 1*, 9-18.
- Zhang, T. Y., & Meaney, M. J. (2010). Epigenetics and the environmental regulation of the genome and its function. *Annual Review of Psychology, 61*, 439-466. doi: 10.1146/annurev.psych.60.110707.163625
- Zhao, C., & Li, M. (2009). The receptor mechanisms underlying the disruptive effects of haloperidol and clozapine on rat maternal behavior: A double dissociation between dopamine D 2 and 5-HT 2A/2C receptors. *Pharmacology Biochemistry and Behavior, 93*(4), 433-442. doi:10.1016/j.pbb.2009.06.005
- Zink, T., Klesges, L. M., Levin, L., & Putnam, F. (2007). Abuse Behavior Inventory: Cutpoint, validity, and characterization of discrepancies. *Journal of Interpersonal Violence, 22*(7), 921-931. doi:10.1177/0886260507301228

VI. Appendix



UNIVERSITY OF ARKANSAS

Office of Research Compliance
Institutional Review Board

February 28, 2014

MEMORANDUM

TO: Maegan Calvert
Patricia Petretic

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 13-11-322

Protocol Title: *Cross Validation of the Caregiving Helplessness Questionnaire:
Associations with Maternal History of Maltreatment and Intimate
Partner Violence*

Review Type: EXEMPT EXPEDITED FULL IRB

Approved Project Period: Start Date: 02/28/2014 Expiration Date: 02/23/2015

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 200 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior* to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.

TITLE: Cross Validation of the Caregiving Helplessness Questionnaire: Associations with Maternal History of Maltreatment and Intimate Partner Violence

INVESTIGATORS:

Maegan Calvert, M.S.
Patricia Petretic, Ph.D.
University of Arkansas
College of Arts and Sciences
Department of Psychology
220 Memorial Hall
Fayetteville, AR 72701
(479)575-5803

ADMINISTRATOR:

Iroshi (Ro) Windwalker, CIP
IRB/RSC Coordinator
University of Arkansas
109 MLKG
1424 W. Martin Luther King, Jr.
Fayetteville, AR 72701
(479)575-2208
irb@uark.edu

DESCRIPTION: As a voluntary participant, you will be among approximately 200 individuals who will be asked to provide information about their experience of childhood events, their current functioning in various domains, and thoughts and feelings regarding parenthood. This study is designed to investigate how different factors of parenting can affect subsequent psychosocial outcomes in adulthood. This information will be obtained by having you complete a questionnaire online through Survey Monkey or using a pencil and paper format. The questionnaire should take about two (2) hours to complete.

RISK OF PARTICIPATION: On rare occasions a few individuals may find some of the questions to be difficult to complete due to experiences in their own personal history. If you find a question to be distressing, you may skip it without penalty. You may also contact Maegan Calvert, M.S., the primary investigator (4795755803,mlcalver@uark.edu) at any time.

BENEFITS: Your participation in this study will not provide any direct benefits to you. However, there are several indirect benefits to your participation in this study. You will be entered into a drawing to receive one of four \$50.00 gift cards. The results of this study will help provide important information about how past and current experiences may impact later adjustment and functioning. The goal of this research is to gather information toward understanding the factors that constitute parental functioning and how subsequent adjustment and functioning may be affected due to an individual's childhood experiences.

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW: Your participation in this research is completely voluntary and you are free to discontinue the survey at any time.

CONFIDENTIALITY: Your consent form will be kept separate from the completed questionnaire. Only a code number will be recorded with questionnaire and it will not be associated with your name in any way. All information will be recorded anonymously and will be held confidential to the extent allowed by law and University policy. Results from the research will be reported as aggregate or group data.

INFORMED CONSENT: I have read the description, including the nature and purposes of this study, the procedures to be used, the potential risks and benefits, as well as the option to withdraw from the study at any time. I have had any questions regarding the study answered, and I believe I understand what is involved. My completion of the survey indicates that I freely agree to participate in this research study.

Name

Date

1. What is your gender?
 - a. Female
 - b. Male
 - c. Transgender
 - d. Other

2. How old are you currently? _____

3. What is your ethnicity?
 - a. Asian
 - b. Caucasian
 - c. African American
 - d. American Indian
 - e. Multi-racial
 - f. Other

4. Are you of Mexican, Latino, or Hispanic Origin?
 - a. Yes
 - b. No

5. What is your highest level of education?
 - a. Didn't go to high school
 - b. Some high school
 - c. High school graduate or GED
 - d. Some college or technical school
 - e. 4 year college graduate
 - f. Completed graduate education

6. What is your current relationship status?
 - a. Married
 - b. Not married, but living with a partner
 - c. In a relationship, but not living with a partner
 - d. Widowed
 - e. Separated
 - f. Divorced
 - g. Never Married

7. How many times have you been married? _____

8. How old were you when you first married? _____

9. Which of the following best describes your employment status?
 - a. Full time (35 hours or more)
 - b. Part-time (1-34 hours)
 - c. Not employed outside the home

10. If you are currently employed, how many days of work did you miss in the past 30 days due to stress or feeling depressed? _____
11. If you are currently employed, how many days of work did you miss in the past 30 days due to poor physical health? _____
12. If you are currently employed, how many days of work did you miss in the past 30 days due to difficulties with your children? _____

Now we're going to ask you some questions about you and your family's history.

1. How old was your mother when you were born? _____
2. How much education does\did your mother have?
- Didn't go to high school
 - Some high school
 - High school graduate or GED
 - Some college or technical school
 - College graduate or higher
 - Don't know
3. How much education does/did your father have?
- Didn't go to high school
 - Some high school
 - High school graduate or GED
 - Some college or technical school
 - College graduate or higher
 - Don't know
4. Have you ever been pregnant?
- Yes
 - No
5. Are you pregnant now?
- Yes
 - No
6. How many times have you been pregnant? _____
7. How many pregnancies resulted in the birth of a child? _____
8. How old were you when you first time you become pregnant? _____

9. The first time you became pregnant, how old was the person who got you pregnant?

10. How did your first pregnancy end?
a. Live birth
b. Still birth/miscarriage
c. Tubal or ectopic pregnancy
d. Elective abortion
e. Other
11. When your first pregnancy began, did you intend to get pregnant at that time in your life?
a. Yes
b. No
c. Didn't care
12. Were you ever pregnant a second time?
a. Yes
b. No
13. How did your second pregnancy end?
a. Live Live birth
b. Still birth/miscarriage
c. Tubal or ectopic pregnancy
d. Elective abortion
e. Other
14. How old are your current children? _____

The current study will ask you to complete the questionnaire based on your child who is between the ages of 5 to 10. If you have more than one child between the ages of 5 to 10 please choose your youngest child.

1. How old is the child you will be responding about during the questionnaire? _____
2. What is the gender of the identified child?
a. Female
b. Male

CHQ

This questionnaire is under Copy Write.

PSI-4

This questionnaire is under Copy Write.

CESD-R

Below is a list of the way you might have felt or behaved. Please check the boxes to tell me how often you have felt this way in the past week or so.

Please use the following scale:

Not at all or Less than 1 day	1	2	3	4	5	Nearly every day for 2 weeks
1-2 days			3-4 days	5-7 days		

- | | | | | | |
|--|---|---|---|---|---|
| 1. My appetite was poor. | 1 | 2 | 3 | 4 | 5 |
| 2. I could not shake off the blues. | 1 | 2 | 3 | 4 | 5 |
| 3. I had trouble keeping my mind on what I
was doing. | 1 | 2 | 3 | 4 | 5 |
| 4. I felt depressed. | 1 | 2 | 3 | 4 | 5 |
| 5. My sleep was restless. | 1 | 2 | 3 | 4 | 5 |
| 6. I felt sad. | 1 | 2 | 3 | 4 | 5 |
| 7. I could not get going. | 1 | 2 | 3 | 4 | 5 |
| 8. Nothing made me happy. | 1 | 2 | 3 | 4 | 5 |
| 9. I felt like a bad person. | 1 | 2 | 3 | 4 | 5 |
| 10. I lost interest in my usual activities. | 1 | 2 | 3 | 4 | 5 |
| 11. I slept much more than usual. | 1 | 2 | 3 | 4 | 5 |
| 12. I felt like I was moving too slowly. | 1 | 2 | 3 | 4 | 5 |
| 13. I felt fidgety. | 1 | 2 | 3 | 4 | 5 |
| 14. I wished I were dead. | 1 | 2 | 3 | 4 | 5 |
| 15. I wanted to hurt myself. | 1 | 2 | 3 | 4 | 5 |

16. I was tired all the time.	1	2	3	4	5
17. I did not like myself.	1	2	3	4	5
18. I lost a lot of weight without trying to.	1	2	3	4	5
19. I had a lot of trouble getting to sleep.	1	2	3	4	5
20. I could not focus on the important things.	1	2	3	4	5

PCL-5

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

Please use the following scale:

	Not at all	A little bit	Moderately	Quite a bit	Extremely			
	1	2	3	4	5			
1. Repeated, disturbing, and unwanted memories of the stressful experience?				1	2	3	4	5
2. Repeated, disturbing dreams of the stressful experience?				1	2	3	4	5
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?				1	2	3	4	5
4. Feeling very upset when something reminded you of the stressful experience?				1	2	3	4	5
5. Having strong physical reactions when something reminded you of the stressful experience (for example: heart pounding, trouble breathing, sweating)?				1	2	3	4	5
6. Avoiding memories, thoughts, or feelings related to the stressful experience?				1	2	3	4	5
7. Avoiding external reminders of the stressful experience (for example: people, places, conversations, activities, objects, or situations?)				1	2	3	4	5
8. Trouble remembering important parts of the stressful experience?				1	2	3	4	5
9. Having strong negative beliefs about yourself, other people, or the world (for example: having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?				1	2	3	4	5
10. Blaming yourself or someone else for the stressful experience or what happened after it?				1	2	3	4	5
11. Having strong negative feelings such as fear, horror, anger, guilt or shame?				1	2	3	4	5
12. Loss of interest in activities that you used to enjoy?				1	2	3	4	5
13. Feeling distant or cut off from other people?				1	2	3	4	5

14. Trouble experiencing positive feelings (for example: being unable to feel happiness or have loving feelings for people close to you)?	1	2	3	4	5
15. Irritable behavior, angry outbursts, or acting aggressively?	1	2	3	4	5
16. Taking too many risks or doing things that could cause you harm?	1	2	3	4	5
17. Being “superalert” or watchful or on guard?	1	2	3	4	5
18. Feeling jumpy or easily startled?	1	2	3	4	5
19. Having difficulty concentrating?	1	2	3	4	5
20. Trouble falling or staying asleep?	1	2	3	4	5

CTQ

This questionnaire is under Copy Write.

ABI-M

Here is a list of behaviors that many women report have been used by themselves and/or their partners/former partners. We would like you to estimate how often these behaviors occurred during the past 12 months. Your answers are strictly confidential.

Circle a number for each of the items listed below to show your closest estimate of how often it happened in your relationship with you and/or your partner/former partner during the past 12 months.

1 = Once in the past year

2 = Twice in the past year

3 = 3-5 times in the past year

4 = 6-10 times in the past year

5 = 11-20 times in the past year

6 = More than 20 times in the past year

7 = Not in the past year, but it did happen before

0 = This has never happened

- | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|
| 1. My partner called me a name and/or criticized me | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 2. Tried to keep you from doing something you wanted to do
(example: going out with friends, going to meetings) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 3. Gave you angry stares or looks | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 4. Prevented you from having money for your own use | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 5. Ended a discussion with you and made the decision alone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 6. Threatened to hit or throw something at you | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 7. Pushed, grabbed, or shoved you | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 8. Put down your family and friends | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 9. Accused you of paying too much attention to someone
or something else | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 10. Put you on an allowance | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 11. Used your children to threaten you (example: told you
would lose custody, said would leave town with the children) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 12. Became very upset with you because dinner, housework, or
laundry was not ready when he/she wanted it or done the way
he/she thought it should be | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 13. Said things to scare you (examples: told you something “bad”
would happen, threaten to commit suicide) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 14. Slapped, hit, or punched you | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 15. Made you do something humiliating or degrading (example:
Begging for forgiveness, having to ask his/her permission
to use the car or do something) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 16. Checked up on you (example: listened to your phone calls,
checked the mileage on your car, called you repeatedly at work) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 17. Drove recklessly when you were in the car | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 18. Pressured you to have sex in a way that you didn’t like or want | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 19. Refused to do housework or childcare | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |
| 20. Threatened you with a knife, gun, or other weapon | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |

21. Told you that you were a bad parent	1	2	3	4	5	6	7	0
22. Stopped you or tried to stop you from going to work or school	1	2	3	4	5	6	7	0
23. Threw, hit, kicked, or smashed something	1	2	3	4	5	6	7	0
24. Kicked you	1	2	3	4	5	6	7	0
25. Physically forced you to have sex	1	2	3	4	5	6	7	0
26. My partner threw me around	1	2	3	4	5	6	7	0
27. Physically attacked the sexual parts of your body	1	2	3	4	5	6	7	0
28. Choked or strangled you	1	2	3	4	5	6	7	0
29. Used a knife, gun, or other weapon against you	1	2	3	4	5	6	7	0
30. Had a sprain, bruise, or cut because of a fight with your partner	1	2	3	4	5	6	7	0
31. I needed to seek medical attention because of a fight with your partner	1	2	3	4	5	6	7	0

EH

This questionnaire is under Copy Write.

DEBRIEFING FORM

Title: Cross Validation of the Caregiving Helplessness Questionnaire: Associations with Maternal History of Maltreatment and Intimate Partner Violence

Investigator(s):
Maegan Calvert, M.S.
Patricia Petretic, Ph.D.
University of Arkansas
Department of Psychology
220 Memorial Hall, Fayetteville, AR 72701
(479)575-5803

Administrator:
Iroshi Windwalker, CIP
IRB/RSC Coordinator
University of Arkansas
109 MLKG
1424 W. Martin Luther King, Jr.
Fayetteville, AR 72701
(479)575-2208
irb@uark.edu

You have just participated in a study that is designed to examine different aspects of an individual's family history and their relation to mental health and parenting outcomes in adulthood. The experience of chaotic environments and abuse in childhood has been linked to problems in adjustment and functioning in later life. This research examines how mothers are affected by their experiences during childhood. Specifically, this study investigates how chaotic living environments and abuse in combination with other facets of parenting may impact subsequent functioning and adjustment and how positive childhood experiences may impact subsequent functioning. Thank you for your participation. The results of this research will help us to better understand the impact parenting techniques can have on an individual once they become a parent. In rare cases, participants may experience adverse effects following completion of this study. Some of these effects may include symptoms of depression or anxiety. We urge you to contact any of the resources listed below if you experience any of these changes. This information is provided solely for your convenience. The University of Arkansas provides no endorsement or guarantee of the services provided by these facilities. You may also contact Maegan Calvert at (479) 575-5803 if you have any questions.

- | | |
|---|---|
| 1. Psychological Clinic (for Northwest Arkansas residents) | (479) 575-4258 |
| 2. Crisis Center Hotline (for Northwest Arkansas residents) | 1-888-274-7472 |
| 3. Ozark Guidance (for Northwest Arkansas residents) | (479) 750-2020 |
| 4. Ozark Guidance (24 hr line) (for Northwest Arkansas residents) | 1-800-234-7052 |
| 5. National Domestic Violence Hotline | 1-800-799-7233 (TDD 1-800-787-3224) |
| 6. National Sexual Assault Hotline | 1-800-656-4673 |
| 7. Suicide Prevention Lifeline | 1-800-273-8255 (TDD 1-800-799-4889) |
| 8. American Psychological Association
Psychologist Locator | http://locator.apa.org/ |

****When you are completely finished with the survey, we recommend that you close your browser and clear the browsing history to protect your privacy****