Master's Theses   University of Connecticut Graduate School

12-13-2013

Maternal Reaction to Diagnosis: Examination of Categorization and Methods of Scoring

Alison Bradley
alison.bradley@uconn.edu

Maternal Reaction to Diagnosis: Examination of Categorization and Methods of Scoring

Alison Melissa Bradley

B.A., State University of New York at Geneseo, 2011

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

at the

University of Connecticut

2013

ii

APPROVAL PAGE

Masters of Arts Thesis

Maternal Reaction to Diagnosis: Examination of Categorization and Methods of Scoring

Presented by

Alison Melissa Bradley, B.A.

Major Advisor _____
JoAnn L. Robinson

Associate Advisor _____
Preston A. Britner

Associate Advisor _____
Jill M. Popp

University of Connecticut

2013

Acknowledgements

I cannot begin to express my gratitude to the wonderful people in my life who have helped me through this challenging time. First, I would like to thank my major advisor JoAnn Robinson for all of her guidance through these last two years of graduate school and many months of work on my thesis. I am also thankful for the two other members of my committee, Preston Britner and Jill Popp. You have both provided me with input and insight into this research.   Thank you for answering all of my questions both big and small.

I would also like to thank my family and friends who have supported me throughout this time. To my dad and stepmom, thank you for always cheering me on and reminding me that I could do it. To my brother, Chris, thank you for all of the laughs you have given me over the years, as well as your support. To Tim, your patience and caring mean the world to me.

Table of Contents

Abstract

This study examined the potential usefulness of a continuous rating system for the Reaction to Diagnosis Interview (RDI; Pianta & Marvin, 1992) compared to the already validated dichotomous coding system. Measures of family functioning, parent psychological well-being, and parental coping were also correlated with the continuous rating system. Participants were 116 young children (29 with asthma, 37 with diabetes, and 50 with cancer) and their primary caregivers. Parents were interviewed by a trained researcher and completed well-validated self-report measures of family functioning and parent psychological well-being and coping. Consensus conferencing for classification disagreements was discussed. Differences and similarities among subcategory classifications under the dichotomous coding systems were examined. Results from this study provide support for the use of a continuous rating system. Cases rated near the middle of the continuum were found to be more similar in psychosocial characteristics such as coping and family functioning than cases farther from that point. This finding suggests the possibility that the language in the original coding manual for the RDI needs further clarity.

In recent years, the categorical nature of attachment assessments has been challenged (Fraley & Spieker, 2003) and the use of continua rather than categories has been proposed. The Reaction to Diagnosis Interview (RDI; Pianta & Marvin, 1992; Pianta, Marvin, Britner, & Borowitz, 1996) is an attachment-based assessment of parental resolution with regard to the diagnosis of a child with a chronic illness. Like other assessments of attachment phenomena, the RDI is scored using a broad categorization that is further divided into subcategories. This paper will address the current critique of categorical scoring for the attachment based measures and explore the possibility of a continuous scoring system for the RDI (Kearney, 2010). In the literature review that follows, attachment theory and methods of scoring will be examined, along with the impact of childhood chronic illness on the family system.

Receiving a child's diagnosis with a chronic illness can be a traumatic event for parents. The RDI consists of six open ended questions and is meant to assess if a parent has moved past the initial crisis/trauma of receiving the diagnosis and started to come to terms with the reality of the diagnosis (Pianta & Marvin, 1996). Traditional classification for the RDI relies on a dichotomous rating system; parent interviews are categorized as either Resolved or Unresolved with regard to their child's diagnosis with a chronic illness. Raising a child with a chronic illness brings about multiple uncertainties for parents regarding everyday life and the prognosis of their child's illness (Barnett et al., 2006). These feelings of uncertainty affect how a parent engages in the tasks associated with parenting. If a parent is unable to come to terms with the situation at hand, these tasks can become increasingly difficult. The current study is a secondary data analysis based on the work presented by Popp, Robinson, Britner and Blank (in press). This study aims to examine a continuous coding approach (Kearney, 2010) in contrast to the traditional dichotomous approach used for scoring the RDI.

1

Attachment Theory and Reaction to Diagnosis

The first and most important relationship individuals experience is the relationship between the primary caregiver and an infant. Attachment is an evolutionarily advantageous adaptation that assists in the survival of offspring and the transmission of genes across generations (Cassidy, 2008). When a caregiver is sensitive and consistent in response to her infant's needs, the primary caregiver acts as a secure base from which the infant can explore the world. Attachment behavior is considered to be any behavior that attains proximity to the primary caregiver. Attachment behavior is triggered in response to stress (Hunter & Maunder, 2001), among other factors.

Loss of an attachment figure is viewed as a severe trauma for a young child that will affect relationships throughout his life. The Adult Attachment Interview (AAI; George, Kaplan & Main, 1985) assesses adults' states of mind concerning early childhood experiences with attachments, loss, and trauma (Murphy et al., in press). The AAI is a semi-structured interview scored through the use of classification categories. Adults classified as secure-autonomous are characterized as valuing attachment relationships and experiences, insecure-dismissing adults are cut off from the experience of attachment relationships, insecure-preoccupied adults are distracted by early attachment relationships and unresolved/disorganized adults speak in unusual ways about early childhood losses (Hesse, 2008). These classifications are associated with the categories used for the classification of the Strange Situation of secure, avoidant, resistant/ambivalent, and disorganized, respectively (Ainsworth, 1978).

When asked to describe experiences of loss during the AAI, individuals later classified as unresolved/disorganized have narratives which often include lapses in monitoring of speech or

reasoning. These interviews are often characterized by the use of run-on sentences with unnecessary detail or statements putting the speaker in the place of a deceased person due to lapses in self-monitoring (Murphy et al., in press). These patterns of speech represent highly disparate states of mind within the speaker and represent a level of confusion that is linked to higher risk of poor infant-parent relationships with their own children (Murphy et al., in press).

The experience of receiving news of a child's diagnosis with a chronic illness is an experience similar to that of the loss of a loved one. Hearing this news may result in parents going through a grieving process and sense of loss over the hopes and dreams that they had for their child. Parents begin to grieve the loss of the perfect child (Ellis, 1989). This sense of loss comes with the realization that the child who has been diagnosed will always be different from other children and may have limitations (Sheeran, Marvin, & Pianta, 1997). When receiving a diagnosis of a chronic illness, parents of the child must adjust their hopes and expectations for their child (Barnett et al., 2006). Cameron, Snowdon, and Orr (1992) suggest that grieving in response to the diagnosis of a childhood chronic illness is a normal reaction. Following the initial shock of the diagnosis, mothers experience an array of emotions including sadness, anger and guilt. In addition, the diagnosis can be viewed as a traumatic event with regard to the caregiving system (Landolt et al., 2002). Although most parents and families do well with adaptation to the diagnosis, there is a subgroup of parents who have difficulty adjusting to their child's illness.

Attachment research often focuses on the importance of the caregiver-child bond with regard to the needs of the child. However, the caregiving system can also experience trauma through the loss of a child or the diagnosis of a child with a chronic illness. Such a trauma, impacts an adult's caregiving system and his or her ability to care for children. Cameron et al.

3

(1992) suggest that the chronic sorrow associated with the diagnosis of a child with a chronic illness or disability is characterized by episodes of recurring stress and sadness in the caregiver. Children of adults in this situation are more likely to have insecure attachments to their primary caregiver (Marvin & Pianta, 1996).

Based on the principles set forth by attachment theory and grounded in the same qualitative manner as the AAI, the Reaction to Diagnosis Interview (RDI; Pianta & Marvin, 1992; Pianta et al., 1996) is meant to assess how a parent is able to move past the initial crisis/trauma of receiving news of their child's diagnosis of a chronic illness and coming to terms with the reality of the child's diagnosis. Traditional classification for the RDI relies on a dichotomous rating system; parent interviews are categorized as either Resolved or Unresolved with regard to their child's diagnosis with a chronic illness. Key characteristics of a resolved classification include a change in feelings since their child's diagnosis, cessation of the search for a reason why their child is ill, realistic descriptions of their child's abilities and balance related to their experience with their child's illness. In contrast, key characteristics of an unresolved classification include the presence of distorted reality concerning the diagnosis, continued search for a reason why their child is ill, the inability to move on, and denial of the impact of the diagnosis (Pianta & Marvin, 1992).

According to Sheeran et al. (1997), Resolved mothers reported lower levels of parenting stress compared to Unresolved mothers. Mothers in the Resolved group also found their social support systems to be more helpful than Unresolved mothers. Parents classified as Unresolved are in a constant state of incomplete mourning, which can affect their ability to parent successfully (Marvin & Pianta, 1996). Unresolved mothers are at higher risk for stress, which can impact mothers' ability to cope with children's difficult behaviors (Kearney, Britner, Farrell,

& Robinson, 2011). In order to fully resolve the crisis of diagnosis, parents must be realistic in their expectations of their child's abilities and skills (Kearney et al., 2011; Marvin & Pianta, 1996). Resolved mothers are able to establish balanced perceptions of the effect their child's illness has had on their family. Acceptance involves actively coming to terms with the reality of a situation and acknowledging the difference between what can and cannot be changed (Southwick & Charney, 2012). In this sense, resolution is similar to feelings of acceptance experienced in the process of grieving. Acceptance of the diagnosis is not a form of giving up, but rather a realistic outlook on a specific situation. Acceptance is considered to be a helpful coping mechanism for mothers of children with a pediatric illness and acceptance is related to fewer reported depressive symptoms in these mothers.

The RDI has been validated across many studies using multiple samples of illness groups including children diagnosed with cerebral palsy and epilepsy (Pianta et al., 1996; Sheeran et al., 1997), diabetes and asthma (Popp et al., in press), neurological disorders and disfigurement (Barnett et al., 2006). Marvin and Pianta (1996) state that most interviews will contain elements of resolution and lack of resolution, and that the coder must determine which pattern is most suitable for the situation. However, the ambiguity of the previous statement presents many issues related to coding, reliability, and validity. This ambiguity suggests that a portion of the coding of the RDI is left to the discretion of the coder and may not be consistent across coders. For this reason, it is possible that the use of a continuous rating scale for coding the RDI could be beneficial. The use of a continuous scale could assist in accounting for the variability seen between RDI responses.

Although the majority of research focuses on the dichotomous split between the Resolved and Unresolved classifications, the coding manual developed by Pianta and Marvin (1992)

5

describes nine distinct subcategories of classification. Three of these subcategories (Feeling, Action and Thinking) are part of the Resolved classification. In a study by Sheeran et al. (1997), agreement level for the Resolved/Unresolved dichotomy was 95% while the agreement level for the subcategories was 87%. Feeling oriented parents are those who clearly refer to their feelings during the interview, but do not seek sympathy from the interviewer. These parents are in control of their feelings and are able to access those feelings throughout the interview. Action oriented parents most commonly express their need to do something for their child. These parents acknowledge feelings but prefer to act and perform concrete tasks to assist their child. Thinking oriented parents respond to questions about their feelings with beliefs and thoughts. These parents intellectualize their situation and are comfortable with their thoughts and beliefs (Pianta & Marvin, 1992).

According to Greeff, Vansteenwegen, and Herbiest (2011), adaptation following a loss requires many resources at the personal, family and societal levels. These resources often include formal and informal means of social support. Greeff and van der Walt (2010) suggest that families who are willing to experience new things, learn about a chronic condition and be otherwise inventive and active in the life of their loved one with a chronic disability show higher levels of family adaptation and flexibility which promote family resilience. The aforementioned characteristics are based on Family Resilience Theory, family adaptation involves the modification and establishment of methods of family functioning that allow balance and harmony to be restored to the family system (Greeff & van der Walt, 2010).

Although all three subcategories are classified as Resolved, parents classified as Resolved-Action stand apart from parents classified as Resolved-Feeling and Resolved-Thinking. What makes the Resolved-Action subcategory distinct from the other two Resolved

subcategories is that parents classified as Resolved-Action attempt to gain control of the situation at hand through doing something. Resolved-Action parents perform concrete tasks to assist their child and family with the changes associated with a child's diagnosis with a chronic illness (Pianta & Marvin, 1992). These parents seek out ways in which they can help control the situation; managing the changes in routine is one aspect of illness care a parent has control over. Rather than contemplating ways in which to help their child deal with the illness, Resolved-Action parents choose to manage those factors of the illness which they can control. For example, Resolved-Action parents often state that they have changed family routines and diets following the child's diagnosis. These changes can be considered to be methods of problem-focused coping. Duffy (2011) states that the use of problem-focused coping strategies is associated with decreased parental stress. According to Nabors et al. (2013), parents of chronically ill children reported that not being able to understand how to care for their child and not understanding what was wrong with their child was a major contributing factor to caregiver anxiety. Action parents have a plan that they follow, which allows them to know their child's needs and care for the child. The parents with this disposition excel in problem-solving and have clear attainable goals and methods of achieving those goals (Lin, Rong, & Lee, 2013). Caregivers considered to be resilient proactively seek out balance in life, as well as the help and support they need using open communication (Lin et al., 2013).

Parents categorized as Unresolved are also divided into one of multiple subcategories. The remaining six subcategories (Emotionally Overwhelmed, Angrily Preoccupied, Neutralizing, Depressed/Passive, Cognitive Distortions and Disorganized/Confused) are part of the Unresolved classification (Pianta & Marvin, 1992). Parents classified as Emotionally Overwhelmed are easily upset by the questions presented in the interview and often attempt to gain sympathy from

the interviewer. Angrily Preoccupied parents are actively searching for a reason why this has happened to their child. These parents express anger and frustration with others throughout the interview. Parents classified as Neutralizing are characterized by active avoidance and lack of recollection of events surrounding the diagnosis. Depressed/Passive parents appear sad and are reluctant to answer questions throughout the interview. Parents classified as having Cognitive Distortions distort the information they are given concerning their child's diagnosis and construct unbalanced views of their child's abilities or the impact of the diagnosis on their family. Disorganized/Confused parents are characterized by a degree of incoherence expressed in the content of their narrative. These parents are likely to ramble or lose their train of thought during the interview (Pianta & Marvin, 1992). There are possible parallels between the three Resolved subcategories and the six Unresolved subcategories. Unresolved strategies could be classified as failed versions of Resolved strategies. These parallels would include Unresolved-Emotionally Overwhelmed and Unresolved-Angrily Preoccupied as failed versions of Resolved-Feeling due to emotional dysregulation. Unresolved- Neutralizing and Unresolved-Depressed/Passive parallel Resolved-Action due to a failure to take action. Unresolved-Cognitive Distortions and Unresolved-Disorganized/Confused parallel Resolved-Thinking due to dysregulation of thoughts and expectations. Therefore, it is possible that a more streamlined approach using fewer subcategories could be used to classify interviews of Unresolved parents (Barak-Levy & Atzaba-Poria, 2013).

Methods of Classification: Categories versus Dimensions

The Strange Situation procedure developed by Ainsworth (1978) utilizes progressively more and more stressful situations in order to activate a child's attachment system. The Strange Situation classifies infants in one of four categories: A, B, C or D. These categories are

8

established through observation of how the child interacts with the primary caregiver following their reunion. Although this categorical classification of infant attachment styles is widely accepted, researchers have begun to consider the possibility that attachment should be classified using dimensions rather than types (Fraley & Spieker, 2003). Attachment has conventionally been viewed as patterns of behavior. These patterns of behavior are converted into categorical classifications of attachment style. Fraley and Spieker (2003) examined the Strange Situation paradigm using taxometric analysis to determine whether or not a "naturally occurring type" exists for attachment styles. They found that traditional attachment patterns do not follow taxonic structure, suggesting that the traditional categories used to classify attachment are not based on inherent groupings. Therefore, categorical classification of attachment may not be the best method of classification for attachment.

Similar to the work of Fraley and Spieker (2003), the use of a continuous scale for the classification of resolution with diagnosis is not meant to present a new way of conceptualizing the mechanisms behind attachment behavior. Instead, the continuous scale is meant to present an alternative to how researchers conceptualize the individual differences associated with attachment based behavior and resolution with diagnosis.

A concern presented for the use of a continuous scale is that these types of scales provide little information and do not capture the same degree of depth and understanding as categorical classifications provide. According to Fraley and Spieker (2003), when continua represent multiple dimensions, the same degree of depth can be attained. In addition, Fraley and Spieker (2003) suggest that the use of continua can expand upon the range of behaviors that are coded. They suggest that the use of continuous data provide increased statistical power and means to test for more effects (Fraley & Spieker, 2003).

Britner, Marvin, and Pianta (2005) used ten continuous ratings scales to represent patterns of caregiving behavior during the Strange Situation. This use of continuous rating scales raises the question of whether or not attachment should be measured continuously or categorically. This is an important matter because methods of measurement greatly affect the statistical power of research and the validity of the implications that can be made through those findings. The proposed continuous scale used for coding the RDI ranges from one to eight, with scores of one through four representing Unresolved cases and scores of five through eight representing Resolved cases (Kearney, 2010). Borderline cases are considered those cases assigned ratings of either four or five, placing them at the threshold between Resolved and Unresolved classifications. These cases are of particular interest in the current study because they contain elements of both Resolved and Unresolved categories. Analysis of these cases could assist in the process of understanding what characteristics are most essential for a rating of Resolved.

Childhood Chronic Illness

Consistent with the family systems perspective, Kazak (1989) suggests that a change in one part of the system is associated with changes in the entire system. Therefore, a child's diagnosis with a chronic illness affects the entire family as one unit rather than affecting only the child who has been diagnosed. For example, after the diagnosis, parents may be preoccupied with the needs of the ill child and the new demands of his or her illness. Therefore, busy parents do not have as much time for other children in the family or their own marital relationships.

Caring for a child with a chronic illness impacts the entire family system. Families with relatively high levels of stress are at greater risk for negative outcomes, such as parental

depression and problems concerning family communication and interaction (Marvin & Pianta, 1996). Disruptions in family life are associated with poorer emotional functioning and poor adherence to medical treatment plans (Herzer et al., 2010). Certain treatment plans are increasingly complex and require families to reorganize their routines and roles. This requires a great amount of flexibility within the family system. Previous research reports less family cohesion and poorer communication in families with a child diagnosed with a chronic illness (Herzer et al., 2010). In addition, family functioning is negatively impacted during acute periods of stress when the family system is disrupted. As a major disruption in family life, a child's diagnosis with a chronic illness is associated with poorer emotional and behavioral functioning within the family (Herzer et al., 2010). Positive family functioning is linked to lower levels of anxiety in caregivers (Nabors et al., 2013).

A parent's psychological well-being is directly linked to family functioning. Parents of children with a chronic illness are more likely to develop mental health problems when compared to parents of medically healthy children (Duffy, 2011). Parental anxiety represents only one of many mental health problems parents may develop. This anxiety impacts the child's quality of life and makes it more difficult for parents to adapt to the obstacles presented to them. The family must quickly learn to appropriately adapt to a variety of situations in order to accommodate the changing needs of the ill child. For this reason, it is not uncommon for a parent to experience symptoms concurrent with posttraumatic stress disorder (PTSD) or major depressive disorder (Duffy, 2011). Most commonly, parents of children with a chronic illness experience feelings of frustration, depression, anger, guilt and hopelessness.

The uncertainty parents feel facing their child's diagnosis may decrease their ability to effectively cope with the situation at hand. This is evident in the increased stress levels and

11

negative moods experienced by parents of children with a chronic illness (Duffy, 2011). Social support is helpful for parents' successful adaptation to their child's chronic illness. Mothers report the use of both cognitive and interpersonal coping behaviors when dealing with their child's chronic illness (Katz, 2002). The presence of a strong marital relationship also helps parents adapt to the changes associated with their child's illness. Mothers report that adjustment to their child's illness brings about periodic crises and chronic sorrow (Katz, 2002).

Asthma is the most prevalent chronic illness diagnosed during childhood. Moderate to severe asthma affects up to 9.5% of the population under eighteen (CDC, 2013). Asthma is an unpredictable illness characterized by shortness of breath, chest tightness, and wheezing. Another common childhood chronic illnesses, diabetes affects approximately 151,000 individuals under the age of twenty. Every year more than 13,000 children under the age of eighteen are diagnosed with type-1 diabetes (CDC, 2013). Individuals with type-1 diabetes require daily insulin shots and a strict routine and diet. In addition, as of 2007, approximately 10,400 children are diagnosed with cancer each year (CDC, 2013). With medical advances, children diagnosed with a chronic illness are living longer, but they require more extensive treatment for their conditions. All three of these childhood illnesses require a high level of daily care and leave parents with feelings of uncertainty regarding their child's future (Duffy, 2011). Receiving a diagnosis of moderate to severe asthma, type-1 diabetes, or cancer may create a crisis for parents. Parents of children with a chronic illness report higher levels of stress than parents of medically healthy children (Duffy, 2011; Kazak, 1989). According to Melamed (2002), this parental distress can lead to poor treatment adherence and more negative child outlook.

The Current Study

The current study is a secondary data analysis based on the work presented by Popp et al. (in press). The current study aims to examine a continuous coding approach in contrast to the traditional dichotomous approach used for the RDI. The subcategories with the dichotomous codes are also taken into account. The first goal of this study was to examine the validity and potential usefulness of a continuous rating scale for the classification of RDIs. The standard coding system involves classification of parents into one of two categories (Resolved or Unresolved). Consistent with other measures derived from attachment theory, such as the Adult Attachment Interview (AAI; George, Kaplan & Main, 1985), in the standard coding system, parents are also classified into subcategories within these two larger categories. However, there is a void in the literature surrounding the validity and reliability of subcategory classifications for the RDI. Thus, another goal of the current study was to examine the reliability of subcategory scoring and the relationship between these subcategories and measures of family functioning, parent psychological well-being and parental coping strategies. The possibility of a streamlined approach to coding subcategories of the Unresolved classification was also examined. The final goal of this study was to examine the impact a continuous rating system could have on the classification of borderline cases.

Proposed Hypotheses

Based on the literature reviewed and study goals above, it is hypothesized that:

1. there is not a reliable boundary for the resolved/unresolved dichotomy.

2. the reorganization of subcategories for traditional coding of the RDI will add to the literature on attachment based coding systems.

3.

    a. parents classified as Resolved-Action will be rated higher than parents classified as Resolved-Feeling and Resolved-Thinking on the continuous resolution dimension.

    b. parents classified as Resolved-Action will report higher levels of family functioning and well-being than parents classified as Resolved-Feeling and Resolved-Thinking.

4. higher scores on the continuum will be correlated with higher levels of reported family functioning and parent psychological well-being.

5.

    a. borderline cases will be more similar in levels of reported family functioning and parent psychological well-being than those not considered borderline cases.

    b. there are more substantial differences in family functioning and well-being as scores on the continuum diverge further from the 4/5 boundary.

Method

Participants

Study participants included 116 young children (29 with asthma, 37 with diabetes and 50 with cancer) and their primary caregivers (Popp et al., in press). The mean age of the children was 7.4 years and ranged from 3 months to 18 years. Sixty-four male and fifty-two female children participated. Forty-two children (36%) had been diagnosed within one year, 28 (24%) had been diagnosed for two years, 28 (24%) had been diagnosed for two to four years and 18 (16%) had been diagnosed for four or more years. The mean number of reported hospitalizations was 1.2. The mean maternal rating of illness severity on a four point scale (0 = not severe to 3 =

very severe) was 1.759 (SD = 0.916) (See Table 1 for child demographics by illness group). The sample of parents included 69% Caucasian, 11% African American, 9% Puerto Rican, 8% Biracial, 1% Asian, 1% Eastern European, 1% Indian. The mean age of mothers in this study was 38 years (See Table 2 for parent demographics by illness group).

Procedures

Children with type 1 diabetes and cancer were recruited through the endocrinology and hematology/oncology departments at Connecticut Children's Medical Center (CCMC), Hartford, CT. Study flyers were given to families by their doctor or nurse practitioner at regularly scheduled appointments. Flyers were also placed in patient rooms and the waiting room of the endocrinology department. Children with asthma and their families were recruited by project staff through three pediatrician offices in the greater Hartford area. Study flyers were placed in waiting rooms and patient rooms of these offices as well (Popp et al., in press).

The principal investigator contacted families to screen for eligibility and schedule a home visit. During the home visit, parents completed self-report measures and a brief videotaped interview. At the same time, children completed a story telling task with the principal investigator or a trained research assistant. Parental informed consent and child assent were obtained before instructions for the study were given. The home visit was approximately one hour and parents received a $25 gift card for their participation. All recruitment and procedures complied with the standards of CCMC, as well as the Institutional Review Board of the University of Connecticut (Popp et al., in press).

Measures

   Demographic and illness history. Parents reported basic demographic information on themselves and their children, including the child's medical history, level of illness severity, and number of hospitalizations. Illness severity was rated on a 4-point scale (0 = not that severe to 3 = very severe).

   Parent narratives. A trained researcher administered the Reaction to Diagnosis Interview (RDI) (Pianta & Marvin, 1992) to all mothers in order to evaluate their feelings and thoughts surrounding their child's diagnosis. The RDI classifies parents as either resolved or unresolved based on their answers to a series of six questions. Researchers asked mothers: 1) When did you first realize that your child had a medical problem? 2) What were your feelings at the time of this realization? 3) Have these feelings changed over time? 4) Tell me exactly what happened when you learned of your child's diagnosis. Where were you, who else was there, what were you thinking and feeling at that moment? 5) Have these feelings changed over time? 6) Parents sometimes wonder or have ideas about why they have a child with special needs. Do you have anything like that that you wonder about? (Pianta & Marvin, 1992). Interviewees are classified as Resolved or Unresolved and are also further classified into one of nine previously discussed subcategories.

   There are multiple subcategories nested within the resolved/unresolved dichotomy. Parents classified as resolved are categorized into one of three groups: Action, Feeling or Thinking. Parents classified as unresolved are categorized into one of six groups: Emotionally overwhelmed, Angrily preoccupied, Neutralizing, Depressed/passive, Cognitive distortions or Disorganized/confused. Two trained coders independently assessed each interview based on

16

verbal and nonverbal content and assigned a dichotomous code, as well as, a subcategory classification.

In order to code the parent interviews that were collected, the PI and research assistant were trained to code the RDI from the third investigator in this study from materials and tapes provided by Marvin and Pianta. After training was complete, each coder was given a set of ten practice tapes to assess. In order to be approved as an RDI coder, each researcher was required to achieve a minimum of 80% agreement for the ten practice tapes. For this study, all 116 RDIs were coded independently. The researchers agreed on 99 of these 116 RDIs, for an agreement level of 85% (kappa = 0.70, $p < .001$). Consensus was reached for the 17 discrepancies by the two trained coders.

Continuous rating of resolution. Another method of coding the RDI, developed by Kearney (2010), involves an 8-point continuous scale rather than dichotomous ratings. Scores ranging from one to four are considered unresolved (1 = Strongly Unresolved, 2 = Clearly Unresolved, 3 = Mostly Unresolved, 4 = Somewhat Unresolved) and scores ranging from five to eight are considered resolved (5 = Somewhat Resolved, 6 = Mostly Resolved, 7 = Clearly Resolved, 8 = Strongly Resolved). In this study, the continuous scale was used to further examine cases classified as either Somewhat Resolved or Somewhat Unresolved. These cases are of interest because the narratives of individuals rated as Somewhat Resolved, as well as those rated Somewhat Unresolved contain elements of both classifications. The examination of what makes these classifications distinct could assist in future coding through the clarification of the coding manual.

Family adjustment. The Family Environment Scale (FES; Moos & Moos, 1986) was used to assess family functioning. The FES consists of 90 items that the respondent identifies as true or false of his or her family. For this study, the Family Relationship Index was used to assess family environment. The Family Relationship Index includes cohesion, expressiveness and conflict subscales. Moos and Moos (1986) report internal consistency ($\alpha = 0.61$-0.78) and test-retest reliability ($r = 0.68$-0.86) for the FES.

Parental psychological adjustment. The Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) was used to assess parental adjustment. The BSI consists of 53 items measuring psychological distress on a 5-point scale (0 = Not at all to 4 = Extremely). The BSI is used to assess nine symptoms including: somatization, obsessive compulsive tendencies, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Respondents are asked to indicate the extent to which they have experienced the symptoms in the past seven days. Only the Global Severity Index score was used in this study. The Global Severity Index represents the average of the nine subscales mentioned above. The BSI demonstrates both validity and reliability. Derogatis and Melisaratos (1983) report internal consistency ($\alpha = 0.71$-0.85) for the BSI.

Parental coping behaviors. The 60-item COPE (Carver et al., 1989) was used to assess a broad range of coping responses and strategies used by parents in times of stress. Each item describes a method of coping. Respondents are asked to rate the extent to which they engage in this particular method of coping on a 4-point scale (1 = I usually don't do this at all to 4 = I do this a lot). This measure is used to determine how often the strategies are used rather than their perceived effectiveness. Of the 14 subscales contained within the COPE, three composite scores were used in analyses in the current study. These three coping composite scores assessed in the

current study are self-sufficient coping, avoidant coping and coping through the use of social support.

Data Analysis Plan

Descriptive data on parent resolution of their child's diagnosis, family environment, coping strategies and symptoms of parental stress were run with all three illness groups as a whole. First, the kappa value and percentage of agreement between Coder 1 and Coder 2 were determined in order to establish inter-rater reliability for the dichotomy and subcategories. Next, an ANOVA was performed to see if the three subcategories of the resolved classification (Action, Feeling, and Thinking) differed in the distribution of cases throughout the continuous scale. The possibility of reorganizing the Unresolved subcategories was examined. Only information from individuals in the diabetes and asthma samples (n = 66) was used for analyses associated with Hypotheses 3b, 4, 5a and 5b. A second ANOVA was performed to determine if the three subcategories of the resolved classification differed across measures of family functioning and parental well-being. Bivariate correlation analyses between the continuous rating scores and measures of family functioning, parent psychological well-being and parental coping were conducted. These correlations were then re-examined using partial correlations and controlling for time since diagnosis, number of hospitalizations and illness severity. Finally, Independent Samples T-tests were used to analyze the relationship between continuous rating scores and family functioning. Continuous rating scores were grouped together for this set of analyses.

Results

Descriptives

Prior to analysis, means of the family functioning measures were calculated (see Table 3). Frequencies were computed for the dichotomous classifications reported by each coder (See Table 4). Coder 1 classified 56.9% (n=66) of mothers as resolved and 43.1% (n=50) as unresolved. Coder 2 classified 57.8% (n=67) of mothers as resolved and 42.2% (n=49) as unresolved. Frequencies for each numerical score on the continuum are shown below in Table 5. To test reliability as well as the boundary between the resolved and unresolved classifications, a cross tabulation of coder 1's continuous ratings and coder 2's dichotomous ratings was used (See Table 6).

Reliability of Scoring

Coder 1 and coder 2 agreed on 99 and disagreed on 17 of the dichotomous classification cases. The majority of the 17 discrepancies can be classified into three major types or profiles: borderline cases, extreme cases and cases involving a difference in perspective. About 41% of the discrepancy cases can be classified as borderline cases (n = 7). This means that these cases were classified as either 4s or 5s (somewhat unresolved/somewhat resolved), but in the process of reviewing the discrepancies during consensus discussions, the classification was reconsidered and assigned a code on the other side of the cut-off point. For example, reflected when one mother classified as Neutralizing by one coder and Action by another was asked how she felt about her child's diagnosis, she replied "You just deal with it." While "dealing" with the diagnosis characterizes the Action subcategory of the Resolved classification, this statement could also be considered as a denial of the impact the diagnosis has had on the family.

20

Borderline cases such as this are difficult to code because each interview contains elements of both Resolved and Unresolved classifications.

About 29% of discrepancy cases (n = 5) revealed more extreme disagreements, with the continuous scale rating changing significantly following reliability conferencing. In most of these cases scores were changed from 2s to 6s or vice versa. For example, a parent classified as Emotionally Overwhelmed exhibits extreme or dysregulated strategies associated with the classification of Feeling. Narratives that revealed a reliance on Feeling utilize similar methods of coping but differ in degree or in execution, leading to Resolved or Unresolved category decisions. About 18% of cases (n = 3) in which there were discrepancies involved a difference in rater perspective. In these cases, it was difficult to distinguish the pattern of parent responses. For example, one coder viewed the parent as dismissive toward the diagnosis while the other coder viewed the parent as very well adjusted and thoughtful. Although acceptance of the diagnosis is a key characteristic of resolved status, what appears to be acceptance could in fact be minimization of the impact of the diagnosis used as a coping mechanism. Upon discussion, the coders agreed that they each had a different perspective and interpreted the same interview differently. The final two cases coders disagreed on were not classifiable in the three profiles presented above.

Hypothesis 1. Analysis of the Resolved/Unresolved Boundary

Coders disagreed on dichotomous classification for 17 of the 116 videos making the reliability between the coders 85.3% (kappa = 0.70, $p < 0.000$). Following reliability conferencing, 57.8% (n = 67) of mothers were classified as resolved and 42.2% (n = 49) were classified as unresolved based on coding criteria for the RDI. Continuous scores were revised

based on the new dichotomous information. Approximately 41% of the disagreements (n = 7) can be considered borderline cases, meaning these interviews were scored as 4s or 5s. These seven borderline cases were of particular interest and were examined further in Hypothesis 5a and 5b.

Hypothesis 2. Descriptive analysis of unresolved subcategory classifications by coder

Frequencies for subcategory classifications by coder can be found in Table 7. A cross-tabulation of the subcategory classifications by coder was conducted producing a 9 X 9 table. This descriptive analysis shows the agreements and disagreements between coders regarding subcategory classifications. The three subcategories with the highest rates of agreement between coders were Unresolved-Depressed/Passive (kappa = 0.697, p = 0.000), Unresolved-Cognitive Distortions (kappa = 0.655, p = 0.000), and Unresolved-Emotionally Overwhelmed (kappa = 0.641, p = 0.000). These findings suggest that these three categories are the most distinct because they are the easiest to distinguish across coders. Unresolved-Angrily Preoccupied (kappa = 0.000, p = 1.000), Resolved-Thinking (kappa = 0.106, p = 0.411), and Unresolved-Neutralizing (kappa = 0.189, p = 0.155) were the three subcategories with the highest rates of coder disagreement.

These kappa scores may reveal a trichotomy for the organization of the Unresolved subcategories that parallels the Resolved-Action, Resolved-Thinking, and Resolved-Feeling subcategories. It is possible that these parallels can be distinguished by intuitively pairing a low kappa score in one Unresolved subcategory with a high kappa score in another Unresolved subcategory. In this sense, it is possible that coders are more likely to choose one over the other even when the underlying mechanism is the same. For example, Unresolved-Emotionally

22

Overwhelmed has a high kappa score and Unresolved-Angrily Preoccupied has a low kappa score. It is possible that coders are not distinguishing between these two subcategories.

Hypothesis 3a. Analysis of Variance: Do parents classified as Action score higher on the continuous dimension than those classified as Feeling or Thinking?

To assess potential differences in continuous scores between subcategories of the resolved classification, an ANOVA was conducted. The subcategory of Action was isolated from the remaining resolved subcategories (Feeling and Thinking). Subcategories were split using 0/1 coding with Action coded as one and Feeling and Thinking coded as zero. While mean differences were in the expected direction, the ANOVA was not significant (F = 1.962, p = 0.167).

Hypothesis 3b. Analysis of Variance: Do parents classified as Action score higher on levels of family functioning and parental well-being than parents classified as Feeling and Thinking?

To assess potential differences in family functioning and parental well-being scores between subcategories of the resolved classification, an ANCOVA was conducted using time since diagnosis, number of hospitalizations and illness severity as covariates. The Action subcategory was again isolated from the other resolved subcategories (Feeling and Thinking) using 0/1 coding. The ANCOVA was not significant for any of the seven measures of family functioning and parental well-being (F values range from 0.002 to 3.543).

Hypothesis 4. Correlational analysis of the relationship between continuous scores and parent reports of family functioning and well-being

Bivariate correlations were conducted using the continuous ratings of Coder 1 and parent responses to the self-report measures including three subscales of the COPE, three subscales of the FES and the global distress score from the BSI. Correlations among parent self-report measures and continuous ratings of resolution were examined. Only one significant correlation was found. Specifically, there was a negative relationship between resolution status and mother reported family conflict ($r = -0.268$, $p = 0.030$). This finding suggests that mothers classified as more resolved report fewer instances of family conflict. Higher scores on the resolution continuum were also related to family expressiveness but failed to reach statistical significance ($r = 0.233$, $p = 0.059$). Key variables were examined further through the use of partial correlations controlling for time since diagnosis, number of hospitalizations and illness severity. Controlling for these variables increased the strength of the relationship between resolution status and family conflict ($r = -0.333$, $p = 0.008$) but no other relationships among the variables in question were significant.

The relationship between the dichotomous categories and each variable were examined using Independent Samples T-Tests. Levels of parent reported family cohesion ($t = 2.373$, $p = 0.021$), family expressiveness ($t = 2.959$, $p = 0.004$) and family conflict ($t = -2.065$, $p = 0.043$) were related to resolution status, suggesting that the dichotomy may be more valuable when analyzing factors of the FES.

Hypothesis 5a. Analysis of borderline cases and their continuous scores using Independent Samples T-Tests

T-tests were conducted to assess differences between borderline cases (continuous scores of 4 or 5) and measures of the COPE, BSI and FES. In total, 22 cases met the borderline criteria on the RDI. When the means of these groups were compared with the measures of family functioning, parent psychological well-being and parental coping, none of the variables of interest yielded statistically significant differences between cases classified as 4s and those classified as 5s, suggesting no meaningful difference between borderline ratings (See Table 8).

To further test the system of continuous classification, Independent Samples T-Tests were conducted for each subsequent step from the border/divide between the resolved and unresolved categories. When cases classified as 3s and those classified as 6s were compared (n = 26), resolved mothers reported higher levels of family expressiveness (t = -3.470, p = 0.002). Similarly, when 2s and 7s were compared (n = 16), resolved mothers reported lower levels of family conflict (t = 2.364, p = 0.033) and avoidant coping (t = 2.084, p = 0.056). Resolved mothers also had lower scores on the BSI global index (t = 2.104, p = 0.054). A comparison of 1s and 8s was not possible due to the limited number of cases (n = 0, n = 2 respectively). These findings suggest that cases further from the resolved/unresolved boundary are more different than those that are closer to the boundary. It is possible that these findings provide support for a trichotomous scoring system.

Hypothesis 5b. Analysis of distance from the cutoff point using Independent Samples T-Tests

Similar results were found when cases were grouped together for analysis. When 3s and 4s were compared to 5s and 6s, family cohesion (t = -2.237, p = 0.030) and family expressiveness (t = -3.241, p = 0.002) were significantly different. For analyses that included 2s and 7s, family conflict (t = 2.133, p = 0.037) was significantly different in addition to family cohesion (t = -2.542, p = 0.014) and family expressiveness (t = -3.408, p = 0.001).

Discussion

In this secondary data analysis, parent reaction to diagnosis interviews were rescored using a continuum rather than dichotomous and subcategory classifications. A main goal of this analysis was to determine the distribution of classification errors and discrepancies in coding. Our findings suggest adequate reliability between dichotomous and continuous ratings. Another goal was to examine differences between continuous and categorical resolution classification and how each system predicts parent reported levels of stress, coping and family environment. The findings of this study suggest that a continuous approach to classifying the RDI is a viable option and presents the possible usefulness of a trichotomous coding system. It is also possible for the Unresolved subcategories to be reorganized to assist in a more streamlined approach to coding. The findings of this study also suggest that although the presence of a chronic illness seriously impacts a family, it is not the only factor that contributes to overall family functioning.

Reliability of Categorical Boundaries

Using kappa, coders reached an acceptable level of agreement (Cohen, 1960). The 17 cases with discrepancies can be divided into three separate profiles: borderline cases, extreme

cases and counterpart cases. As expected, many of the disagreements were found to fall along

the boundary between resolved and unresolved classification. This means that upon re-

examination coders agreed that these cases should be categorized on the opposite side of the cut-

off point. This finding is not all that surprising considering the descriptions of the continuum

scoring criteria are somewhat unclear. The manual states that for a continuous score of 4,

parents may waver between characteristics of resolution and non-resolution. However, these

parents can often slip into unresolved patterns (Kearney, 2010). This description suggests that

parents who are somewhat unresolved appear to be resolved some of the time. As for parents

given a continuous score of 5, the coding manual states that the parent shows signs of resolution

and is not stuck in the past, but the parent may have moments marked by non-resolution

(Kearney, 2010). Considering these descriptions, classification of cases along the boundary of

resolution can be difficult to distinguish. This same issue also arises when using a dichotomous

coding system. It is difficult to discern what cases are examples of oscillation and what cases

should be considered moments of slippage. The lack of clarity associated with this description

can lead to discrepancies in coding.

Upon first glance, disagreements found on the extremes of the spectrum may seem

unsettling, but can be explained through the perspective taken by the coder. These cases refer to

those in which one coder believed the parent to be exhibiting avoidant coping strategies, such as

minimizing or dismissive behavior, while the other coder interpreted those same actions as signs

of acceptance. Avoidance of stressors is negatively correlated with health outcomes (Penley,

Tomaka, & Wiebe, 2002). In addition, avoidant strategies do not fit the description of the

Resolved classification suggesting that these behaviors represent characteristics of the

Unresolved classification. Similar to research using the RDI, studies examining parental

attachment through the use of the AAI (George, Kaplan, & Main, 1985) rely heavily on categorical classifications. The use of a subcategory classification system depicting four distinct patterns of behavior seen during the AAI is widespread and has been successful (van IJzendoorn, 1995).

With this reliance on categories, it is sometimes difficult within the context of any individual narrative to distinguish a parent who has moved on in everyday life from a parent who is in denial and has just refused to deal with the situation. Moving on with everyday life is considered to be a key aspect of resolution. However, what appears to be a return to normal activity could instead be an evasive maneuver used to escape the reality of the diagnosis or brush off negative feelings surrounding that diagnosis. For example, one mother describes at length her faith in God and how that faith allows her to be neither surprised nor scared upon diagnosis of her child. On one hand, this belief could be considered to be that of ultimate acceptance. However, when framed differently, this mother's description of her faith could be viewed as a defense mechanism used to avoid negative feelings associated with the diagnosis of a child with a chronic illness.

Some of the disagreements in scoring were due to a difference in coping strategies reported by parents. Specifically, unresolved subtypes are described in the RDI manual as counterparts to the resolved subcategories. For example, unresolved-emotionally overwhelmed is considered as a dysregulated characteristic of Resolved-Feeling. This suggests that the same underlying strategies (e.g., tapping into feelings) are being used but some parents use these strategies more effectively than others. For example, one mother described how the family is learning to cope with the circumstances, suggesting that the family is indeed carrying on in everyday life. However, she also states that the situation is still emotionally stressful especially

when her child is not doing well. This mother has acknowledged that the diagnosis has caused

her and her family stress and asserted their actions reflect moving on. However, during the

telling of the narrative when describing her experiences with stress, she does not appear to be

entirely in control of her emotions and is easily upset. She also attempts to gain sympathy from

the interviewer during her narrative in order to validate her feelings of distress. This pattern of

responses was coded as unresolved and placed within the subcategory of Emotionally

Overwhelmed. She has access to her feelings and emotions, which is characteristic of the

Feeling oriented subcategory; however, she states that these feelings fluctuate (Pianta & Marvin,

1992). This suggests that she exhibits certain signs of resolution but not enough to be considered

resolved when the entire interview is considered.

The continuous coding method appears to offer some solutions to these coding concerns.

Instead of classifying resolution status by grouping, the continuous scale examines the degree to

which a parent is either resolved or unresolved. The continuous scale allows for more options

when analyzing data (Fraley & Spieker, 2003). Use of the continuous scale would allow

researchers to further differentiate between individuals who fall into each category through the

assignment of a degree of resolution. Using the traditional dichotomous coding scheme, there is

no differentiation between individuals who are strongly resolved and those who are merely on

the cusp of resolution. This presents a potential gap in the information being collected on

parents' reactions to their children's diagnoses. However, this scale does not account for

classification into subcategories.

Associations with Family Functioning.

When examining relationships between continuous scores and measures of family functioning, only one significant bivariate correlation was found. Specifically, parents who were more resolved reported lower levels of conflict between family members. Moreover, controlling for time since diagnosis, number of hospitalizations and illness severity strengthened the relationship between resolution status and family conflict. This suggests that presence of a chronic illness is only one of many factors affecting overall family functioning. Family conflict explains 11.1% of the variance in parental resolution when adjusting for time since diagnosis, number of hospitalizations and illness severity. While 11.1% is a statistically significant, a great deal of variability is still left unaccounted for by the model. Therefore, further research should be conducted to parse out what other factors contribute to parental resolution with their child's diagnosis with a chronic illness.

The lack of statistically significant findings provides support for the hypothesis that cases receiving 4s or 5s are not as different from one another as the original dichotomy suggests there may not be a definitive boundary between parents classified as resolved and those classified as unresolved. If these two groups are similar then a dichotomous coding system may not be the best method of measurement. As hypothesized, when continuous scores progressed further from the boundary, more relationships between measures of family functioning, parent well-being, coping and continuous scores were found. Cases further from the dividing line are more different than those surrounding that boundary. These findings support the use of a trichotomous scoring system. Results indicate the emergence of three main groupings within the continuous scores. The three categories that surface from these findings are Resolved, Partially Resolved, and Unresolved. This new Partially Resolved category would account for the cases formerly

30

considered to be borderline cases, where unreliability of coders is maximal. These middle of the road cases differ from those of clearly Resolved or Unresolved and therefore, may benefit by having their own classification.

It could be useful to revise the continuous scale to reflect this trichotomy; this would be accomplished by changing the 8-point scale to a 7-point scale in order to create a middle point on the continuous scale. The middle point on this scale would represent those cases considered Partially Resolved. One reason for this change is the extremely small number of cases receiving scores of 1 or 8 (n = 3). When combined, these two anchor points of the continuous scale account for less than 3% of cases (2.59%). The use of a 7-point scale would eliminate these extreme cases, which do not contribute much information to analyses due to the sample number of cases they represent. A score of 1 on the scale represents a parent who may not even be understood by the interviewer/coder due to incoherence, while an 8 on the scale represents sophisticated reflection (Kearney, 2010). These characteristics are more difficult to come by, which limits the usefulness of these end points.

Subcategory Classifications for the RDI

Currently, research using the RDI focuses on the use of the dichotomy (Barnett et al., 2006; Kearney et al., 2011; Sheeran et al., 1997); therefore, analyses compare only two groups. However, it is important to examine the differences among subcategory classifications. The examination of subcategories adds another layer of depth to the research questions that can be asked. In a large enough sample, when subcategories are examined analyses can be expanded and may reveal different patterns of behavior when examined individually.

There are nine subcategories that are a part of the original coding system developed by Pianta and Marvin (1992). The lack of literature addressing the use of the subcategories associated with the RDI raises the question of the relevance of subcategories to the attachment field. One study by Barak-Levy & Atzaba-Poria (2013) condensed the nine Unresolved subcategories into three coping styles. They found a significant difference between coping styles of mothers and fathers dealing with the diagnosis of a child with a chronic illness. Are other researchers collecting data using the dichotomy and subcategory classifications, or are researchers only classifying parents according to the dichotomy? It is possible that researchers do indeed collect data on subcategory classifications and perform statistical analyses. However, if these analyses do not produce statistically significant results, the information may not be reported in the published literature. The reason for this could be the inconsistent classification for subcategories between coders. If researchers are testing hypotheses related to subcategories, the results should be reported even if the findings are not significant. Reporting these findings in published literature could broaden the knowledge researchers have concerning the RDI and its relation to attachment theory. If subcategories are being coded and analyzed by many researchers without yielding significant results, this could be grounds for changing the way researchers conceptualize subcategories of the RDI.

One study stands out in the literature associated with the RDI because it addresses the presence of subcategories (Barak-Levy & Atzaba-Poria, 2013). In this study, the authors examine coping styles in parents of children with a developmental disability. Barak-Levy and Atzaba-Poria (2013) suggest that there are three types of parental coping styles based on the subcategories of the RDI: Emotional, Cognitive and Action coping styles. They combine Resolved-Feeling, Unresolved-Emotionally Overwhelmed, and Unresolved-Angrily Preoccupied

to represent the Emotional coping style. The Cognitive coping style consists of Resolved-Thinking, Unresolved-Neutralizing, Unresolved-Cognitive Distortions, and Unresolved-Disorganized/Confused. The Action coping style combines Resolved-Action and Unresolved-Depressed/Passive. This split in subcategories did yield significant differences between the coping styles of mothers and fathers. It is possible that these are natural categories which coders are drawn to, creating a split that is logical intuitively.

In the current study, the issue of subcategory classifications for the RDI was addressed in a different manner. A number of subcategories in the Unresolved classification could be combined to mirror the subcategories used in the Resolved classification. For reliability purposes, kappa scores were calculated for each subcategory. Kappa scores ranged from 0.106 to 0.697. This would result in the current six subcategories decreasing to only three subcategories that are associated with the Feeling, Thinking and Action subcategories of the Resolved classification. The logic behind this idea is that the Unresolved subcategories could represent failed versions of the Resolved subcategories. First, the Unresolved subcategories Emotionally Overwhelmed and Angrily Preoccupied could be combined to represent an overarching subcategory which encompasses parents whose narratives have failed to appropriately use methods of coping seen in Resolved-Feeling parents (i.e., Unresolved-Dysregulated Emotion). Second, narratives classified as Cognitive Distortions and Disorganized/Confused could be combined as failed attempts of the Resolved-Thinking subcategory. These subcategories represent forms of escape or avoidance of the diagnosis and its impact on the self and family either by denying the reality of the situation (i.e. Unresolved-Denial). Narratives in these subcategories often depict an alternate reality in which there is no problem or the problem is less severe. Therefore, the driving mechanism is the same for parents

33

in these sub-classifications. Finally, the Neutralizing and Depressed/Passive subcategories could be combined to encompass failed attempts of the Resolved-Action subcategory. Narratives classified as Neutralizing or Depressed/Passive often involves parent who want to take action concerning their child's diagnosis, but are not able to because of their unresolved feelings.

Clinical Implications

This coding system also has the potential for clinical implications. The continuum could be used as a guideline for intervention with parents of children with a chronic illness. Using the scores generated by the continuum, researchers and clinicians could identify parents who are in need of varying degrees of assistance in coming to terms with their child's diagnosis. All parents receiving scores of 4 and 5 would be offered a brief intervention in the form of a short discussion with a support counselor and referrals for services if the parent is interested. These parents may only need some assistance in order to gather the momentum necessary to reach a more resolved status and higher levels of family functioning. In addition to the brief intervention discussed, parents receiving scores below 3 would be offered a more strenuous intervention involving direct psychotherapy and support groups because parents receiving scores of 3 and below are characterized by emotional and/or cognitive dysregulation (Kearney, 2010).

Strengths and Limitations of the Present Study

The current study has multiple strengths. Parents were given various self-report measures to assess family environment, parental coping processes, and symptoms of parental distress for the original study by Popp et al. (in press). In addition to these self-report measures, each parent participated in an open ended Reaction to Diagnosis Interview. Therefore, the current study gathered data from two individuals using different methods of data collection.

34

Diversification among the methods of data collection aids in the creation of a more complete depiction of a participant's feelings and opinions. The use of self-report and qualitative data may also decrease the presence of social desirability bias, allowing for more accurate data collection. Another strength of the current study is the use of three separate illness diagnoses (asthma, diabetes and cancer). The use of multiple illness groups is beneficial because family functioning and parent psychological well-being can vary with the severity of the diagnosis (Schmidt, Nachtigall, Wuethrich-Martone, & Strauss, 2002). Certain diagnoses are inherently more life threatening than others, which can affect how variables such as family functioning and parent psychological well-being. The use of multiple illness groups also allows researchers to examine various differences between illness groups.

Although the current study demonstrates multiple strengths, there are also several limitations associated with this study. The presence of parental resolution with a diagnosis is linked to the amount of time available to process and cope with the child's diagnosis (i.e. time since diagnosis). Therefore, one limitation of this study is that the data was collected at a single point in time and cannot be examined longitudinally. Without longitudinal data, it is difficult to plot the progression of a parent's resolution status. The progression of resolution cannot be examined using cross-sectional comparisons because the processes of achieving resolution differ for each individual.

Another limitation of the current study is the small sample size. The full data set analyzed for the current study included data from two separate studies with a total of 116 cases. Fifty of the 116 cases included in the full data set were excluded from the analyses of the final three hypotheses. Both of the studies used the RDI to examine parental resolution with a child's diagnosis with a chronic illness. However, only one of these studies administered the parental

35

self-report measures that are the focus of hypotheses 3b, 4, 5a and 5b; this further restricts the available sample size and the power available for the last four analyses. It is possible that with a larger sample size there may have been differences found in Hypotheses 3a and 3b.

A major limitation of the RDI is the length of the narrative produced by most interviews. The majority of interviews last only approximately ten to fifteen minutes. It is possible that with extension of some of the probes for the questions that make up the RDI, a more in-depth interview could be constructed. This could help provide more detail to the narrative, allowing the coder more information to classify each case and improve reliability.

Future Work and Conclusions

The limitations of the current study provide some insight into possibilities for future research. The use of a larger and more demographically representative sample in the future would be ideal. With this ideal sample, results would be considered more generalizable. The current study explores the RDI from a new perspective. Therefore, further research must be conducted in order to validate the findings of the current study. More information is needed to determine how the continuous rating system relates to the original dichotomy.

In summary, a major goal of the current study was to explore the possibility of an alternative coding scheme for the RDI to be used in addition to or in lieu of the original dichotomy. Results of the current study suggest that the continuous rating scale provides both a dichotomous code, as well as, a rating of intensity within each dichotomous code, respectively. It is possible that this alternative coding scheme could contribute significantly to the literature associated with the RDI.

References

Barak-Levy, Y., & Atzaba-Poria, N. (2013). Paternal versus maternal coping styles with child diagnosis of developmental delay. *Research in Developmental Disabilities*, *34*, 2040-2046.

Barnett, D., Clements, M., Kaplan-Estrin, M., McCaskill, J. W., Hunt, K. H., Butler, C. M., Schram, J. L., & Janisse, H. C. (2006). Maternal resolution of child diagnosis: Stability and relations with child attachment across the toddler to preschooler transition. *Journal of Family Psychology*, *20*, 100-107.

Britner, P. A., Marvin, R. S., & Pianta, R. C. (2005). Development and preliminary validation of the caregiving behavior system: Association with child attachment classification in the preschool Strange Situation. *Attachment & Human Development*, *7*(1), 83-102.

Cameron, S. J., Snowdon, A., & Orr, R. R. (1992). Emotions experienced by mothers of children with developmental disabilities. *Journal of Child Health Care*, *21*, 96-102.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267-283.

Cassidy, J. (2008). The nature of the child's ties. In J. Cassidy and P. R. Shaver (Eds.), *The Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 3-22). New York: The Guilford Press.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measures*, *20*, 37-46.

Derogatis, L., & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. *Psychological Medicine*, *13*, 595-605.

Ellis, J. B. (1989). Grieving for the loss of the perfect child: Parents of children with handicaps. *Child and Adolescent Social Work*, *6*, 259-270.

Fraley, R. C., & Spieker, S. J. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of Strange Situation behavior. *Developmental Psychology*, *39*(3), 387-404.

George, C., Kaplan, N., & Main, M. (1985). *Adult Attachment Interview protocol*. Unpublished manuscript, University of California at Berkeley.

Greeff, A. P., & van der Walt, K. J. (2010). Resilience in families with an autistic child. *Education and Training in Autism and Developmental Disabilities*, *45*(3), 347-355.

Greeff, A. P., Vansteenwegen, A., & Herbiest, T. (2011). Indicators of family resilience after the death of a child. *OMEGA*, *63*(4), 343-358.

Herzer, M., Godiwala, N., Hommel, K. A., Driscoll, K., Mitchell, M., Crosby, L. E., … Modi, A. C. (2010). Family functioning in the context of pediatric chronic conditions. *Journal of Development & Behavioral Pediatrics*, *31*, 26-34.

Hesse, E. (2008). The Adult Attachment Interview: Protocol, method of analysis, and empirical studies. In J. Cassidy and P. R. Shaver (Eds), *The Handbook of Attachment: Theory, Research and Clinical Applications*, (552-598). New York: The Guilford Press.

Hunter, J. J. & Maunder, R. G. (2001). Using attachment theory to understand illness behavior. *General Hospital Psychiatry, 23*(4), 177-182.

Kearney, J. A. (2010). *Continuous coding for RDI*. Unpublished scale, Columbia University, New York, NY.

Kearney, J. A., Britner, P. A., Farrell, A. F., & Robinson, J. L. (2011). Mothers' resolution of their young children's psychiatric diagnoses: Associations with child, parent, and relationship characteristics. *Child Psychiatry & Human Development*, *42*, 334-348.

Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

Lin, F. Y., Rong, J. R., Lee, T. Y. (2013). Resilience among caregivers of children with chronic conditions: A concept analysis. *Journal of Multidisciplinary Healthcare*, *6*, 323-333.

Marvin, R. S., & Pianta, R. C. (1996). Mothers' reactions to their child's diagnosis: Relations with security of attachment. *Journal of Clinical Child Psychology*, *25*, 436-445.

Melamed, B. G. (2002). Parenting the ill child. In Bornstein, M. H. (Ed), *Handbook of parenting: Practical issues in parenting* (pp. 329-348). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Moos, R. H. & Moos, B. S. (1986). *Family Environment Scale*. Palo Alto, CA: Consulting Psychologists Press.

Murphy, A., Steele, M., Dube, S. R., Bate, J., Bonuck, K., Meissner, P., Goldman, H., & Steele, H. (in press). Adverse Childhood Experiences (ACEs) Questionnaire and Adult Attachment Interview (AAI): Implications for parent child relationships. *Child Abuse & Neglect*.

Nabors, L. A., Kichler, J. C., Brassell, A., Thakkar, S., Bartz, J., Pangallo, J., Van Wassenhove, B., & Lundy, H. (2013). Factors related to caregiver state anxiety and coping with a child's chronic illness. *Families, Systems, & Health*, *31*(2), 171-180.

Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavior Medicine*, *25*, 551-603.

Pianta, R. C., & Marvin, R. S. (1992). *Manual for classification of the reaction to diagnosis interview*. Unpublished manuscript, University of Virginia.

Pianta, R. C., Marvin, R. S., Britner, P. A., & Borowitz, K. C. (1996). Mothers' resolution of their children's diagnosis: Organized patterns of caregiving representations. *Infant Mental Health Journal*, *17*(3), 239-256.

Popp, J. M., Robinson, J. R., Britner, P. A., Blank, T. O. (in press). Parent adaptation and family functioning in relation to narratives of children with chronic illness. *Journal of Pediatric Nursing*.

Schmidt, S., Nachtigall, C., Wuethrich-Martone, O., & Strauss, B. (2002). Attachment and coping with chronic disease. *Journal of Psychosomatic Research*, *53*, 763-773.

Sheeran, T., Marvin, R. S. & Pianta, R. C. (1997). Mothers' resolution of their child's diagnosis and self-reported measures of parenting stress, marital relations, and social support. *Journal of Pediatric Psychology*, *22*, 197-212.

Southwick, S. M., & Charney, D. S. (2012). *Resilience: The science of mastering life's greatest challenges*. New York, NY: Cambridge University Press.

van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and

   infant attachment: A meta-analysis on the predictive validity of the Adult Attachment

   Interview. *Psychological Bulletin*, *117*(3), 387-403.

Table 1

Child Demographics

	Asthma (n = 29)	Diabetes (n = 37)	Oncology (n = 50)
Mean Age (SD) (years)	6.61 (1.05)	6.81 (1.13)	8.39 (4.92)
Gender (M/F)	19/10	15/22	30/20
Mean time since Diagnosis (months)	24-36	18-24	6-12
Mean number of hospitalizations	0.52 (0.95)	0.49 (0.90)	2.26 (3.26)
Illness severity (maternal rating from 0-4)	1.38 (0.82)	1.62 (0.95)	2.41 (0.99)

Table 2

Parent Demographics

	Asthma (n = 29)	Diabetes (n = 37)	Oncology (n = 50)
Race			
African American	3 (10.3%)	2 (5.4%)	8 (16%)
Asian	0	0	1 (2%)
Caucasian	20 (69%)	28 (75.7%)	32 (64%)
Eastern European	0	1 (2.7%)	0
Indian	0	0	1 (2%)
Pacific Islander	0	0	0
Hispanic	4 (13.8%)	3 (8.1%)	4 (8%)
Biracial	3 (10.3%)	3 (8.1%)	3 (6%)
Mean Age (SD) (years)	38.31 (7.97)	38.49 (5.90)	37.6 (7.41)

Table 3

Means and Standard Deviations for Measures of Family Functioning

	Total (n = 66)	Asthma (n = 29)	Diabetes (n = 37)
FES-Cohesion	7.682 (1.179)	7.621 (1.293)	7.730 (1.097)
FES-Expressiveness	6.030 (1.873)	6.172 (2.089)	5.919 (1.706)
FES-Conflict	2.485 (1.800)	2.552 (1.956)	2.432 (1.692)
COPE-Self-Sufficient	2.628 (0.505)	2.628 (0.612)	2.627 (0.410)
COPE-Avoidant	1.513 (0.383)	1.446 (0.323)	1.566 (0.421)
COPE-Social Support	2.715 (0.616)	2.568 (0.739)	2.831 (0.479)
BSI-GSI	0.580 (0.575)	0.500 (0.616)	0.642 (0.541)

Table 4

Frequencies for Dichotomous Classification

	Coder 1	Coder 2
Resolved	66	67
Unresolved	50	49

Table 5

Frequencies for Continuous Scores

	Frequency
Score	
1	1 (0.9%)
2	16 (13.08%)
3	18 (15.5%)
4	14 (12.1%)
5	22 (19.0%)
6	26 (22.4%)
7	17 (14.7%)
8	2 (1.7%)

Table 6

Cross Tabulation of Dichotomous and Continuous Scores

	1	2	3	4	5	6	7	8
Resolved	0	4	2	3	18	23	15	2
Unresolved	1	11	17	12	4	3	1	0
Total	1	15	19	15	22	26	16	2

Table 7

Frequencies for Subcategory Classification by Coder

Subcategory	Coder 1	Coder 2
Feeling	23	18
Thinking	19	16
Action	24	34
Emotionally Overwhelmed	19	17
Angrily Preoccupied	3	1
Depressed/Passive	10	13
Neutralizing	6	7
Cognitive Distortions	5	2
Disorganized/Confused	7	8

Table 8

Independent Samples T-Test for Borderline Cases

	t	df	*p*-value
Self-report Measures			
Cohesion (FES)	1.763	20	0.093
Expressiveness (FES)	1.350	20	0.192
Conflict (FES)	-0.594	20	0.559
Self-sufficient (COPE)	-0.662	20	0.515
Avoidant (COPE)	-1.784	20	0.090
Social Support (COPE)	0.533	20	0.600
BSI-GSI	0.534	20	0.600