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Multi-level Model of Parent-Child Attachment, Depression & Self-Concept in Pediatric Chronic Illness

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LOMA LINDA UNIVERSITY
School of Behavioral Health
in conjunction with the
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Multi-level Model of Parent-Child Attachment, Depression & Self-Concept in Pediatric
Chronic Illness

by

Natacha Donoghue Emerson

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A Thesis submitted in partial satisfaction of
the requirements for the degree
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Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Doctor of Philosophy.

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ABBREVIATIONS

CI	Chronic Illness
MEND	Mastering Each New Direction
MAVO⁻	Maternal Avoidant Attachment
PAVO	Paternal Avoidant Attachment
MANX	Maternal Anxious Attachment
PANX	Paternal Anxious Attachment

ABSTRACT OF THE THESIS

Multi-level Model of Parent-Child Attachment, Depression, and Self-Concept in
Pediatric Chronic Illness

by

Natacha Donoghue Emerson

Doctor of Philosophy, Graduate Program in Psychology
Loma Linda University, June 2016
Dr. Brian Distelberg / Dr. Cameron Neece: Co-Chairpersons

Introduction: Pediatric patients may be at higher risk for depression and a lower self-concept when difficulties within the family arise. The Mastering Each New Direction (MEND) program is a psychosocial intervention aimed at addressing adherence and family issues in adolescent CI. **Methods:** Drawing data from 50 MEND participants, we used multilevel modeling techniques to test changes in self-concept over time as predicted by number of weeks in MEND, depression, family cohesion and flexibility, and baseline levels of maternal and paternal attachment. **Results:** At Level 1, depression negatively predicted self-concept over time. At Level 2, higher baseline maternal and paternal avoidant attachment predicted higher initial self-concept. Higher maternal avoidant attachment was also associated with a stronger relationship between self-concept and depression. **Discussion:** Given that avoidant attachment predicted affective wellbeing and identity stabilization in youth with CI, targeting the parent-child relationship may be key to reducing comorbid psychological issues in this population. Programs like MEND by focusing on family wellbeing and health may help adolescents individuate while maintaining adherence.

Key Words: adolescence, chronic illness, attachment, depression, and self-concept

CHAPTER ONE

INTRODUCTION

Children with chronic illness (CI) are frequently nonadherent to their medical regimens (Brown, Daly & Rickel, 2007). This noncompliance tends to increase during the teenage years as medical management shifts from parent to child (Fiese & Everhart, 2006). Identifying children at risk for psychosocial maladjustment is vital to targeting those likeliest to suffer the repercussions of medical noncompliance. Given that medical factors including illness type, severity, and duration have failed to differentiate those at risk from their peers (Bennett, 1994; Brown et al., 2007; Cohen, 1999), researchers have attempted to find individual and ecological predictors of risk. Two individual factors have been identified as increasing risk for maladjustment to CI: a lower self-concept (Ferro & Boyle, 2013) and the presence of comorbid depression (DiMatteo, Lepper, & Croghan, 2000). However, given that not all children who struggle manifest a compromised self-concept (Ferro & Boyle, 2013) or develop depression (Barlow & Ellard, 2006), other variables in the child's microsystem have been evaluated. Differences in family functioning, dynamics and communication may differentiate adolescents who struggle with self-concept (Lee, Hamiwka, Sherman, & Wirrell, 2008) and depression (Lau & Kwok, 2000) from those who do not. Nevertheless, no research to date has focused on the interplay among these variables. How does the quality of the parent-child relationship predict family function, depression, and self-concept within CI? And can this relationship explain subsequent improvements in affective wellbeing and a healthier sense of self?

To answer these questions, the goal of the current study was to explore the

relationship between self-concept, depression, and family functioning. This study utilized a sample of adolescents with CI within the Mastering Each New Direction (MEND) program. This family systems psychosocial intervention aims to improve adjustment to illness and adherence to treatment. The study focused on the following three hypotheses. First, self-concept will improve in participants as they progress through MEND. Second, changes in self-concept will be predicted by the length of time spent in the program, and levels of comorbid depression and family flexibility and cohesion throughout the program. Third, the trajectory of self-concept over time will depend on baseline levels of parent-child attachment.

Chronic Illness in Adolescents

Prevalence of CI among children has risen since the 1990s due to continued scientific advances and improvements in diagnoses (Burns et al., 2010; Van Cleave, Gortmaker, & Perrin, 2010). A chronic illness (CI) or condition can be defined as a health problem lasting three or more months that impacts a person's daily activities and requires frequent medical intervention and/or management (Compas, 2012). Some of the most prevalent forms of childhood CI are asthma, cystic fibrosis, diabetes mellitus, sickle cell anemia, and cancer, although countless other diagnoses affect adolescents (Brown et al., 2007). In the United States, 13 to 27% of adolescents have a chronic medical condition (Modi et al., 2012). Nearly half of these youths are considered noncompliant with their treatment regimen (Brown et al., 2007). Medical nonadherence puts patients at risk for complications, more frequent hospitalizations and more disability. Moreover, noncompliance costs the United States 100 billion dollars every year (Nichols-English &

Poirier, 2000).

Adolescence itself has been identified as a predictor of increased medical nonadherence, independent of childhood adherence and family climate (Fiese & Everhart, 2006). Besides entering the teenage years, other factors may explain nonadherence, including forgetfulness, oppositional behaviors, time management problems, and resistance related to denial of the disease and to peer conformity (Brown et al., 2007). Self-efficacy, initial adherence, complexity of regimens and schedule disruptions have also been identified as predictors of management success (Dunbar-Jacob & Mortimer-Stephens, 2001).

Besides adherence, multiple other biopsychosocial factors affect the course of CI and the degree to which children adjust to their chronic condition. However, teasing these factors apart in research has been complicated by the wide array of illness severities, durations and types. Although stress, diet and exercise have been established as important predictors of wellbeing in CI, they do not adequately explain the variance in adjustment and adherence (Brown et al., 2007). Other individual and family-level predictors are posited to impact regimen adherence and adjustment to CI in adolescents.

Individual Factors

Self-Concept

Self-concept is defined as the perception of one's abilities and uniqueness. Closely related to self-esteem, it reflects one's "cognitions of competence, potency, and positive self-worth" (Beck, 2001). A high self-concept is one that is considered stable, relatively accurate in terms of self-representation, and generally positive (Ferro & Boyle, 2013).

Given the inherent stress of adolescence, decreases in the strength and valence of self-concept are common, if not expected (Dusek & McIntyre, 2003). In adolescents with a CI, decreases in self-concept may be particularly pronounced for a number of reasons (Ferro & Boyle, 2013). First, managing a CI requires the entire family's involvement and thus often inhibits the autonomy particularly desired in adolescence (Ferro & Boyle, 2013). Second, adolescents with CI may suffer cognitive delays from disease processes and aggressive treatments that postpone identity formation and delay teenage social milestones (Compas, 2012). Third, children may also suffer academically and socially from missing school. Sexson and Madan-Swain (1993) found that 40% of pediatric patients experienced problems at school, both in terms of academic performance and social life. Due to school absenteeism, adolescents may feel less socially connected to peers, and feel "undesirably different" due to their symptoms and daily struggles (Räty, Söderfeldt, Larsson, & Larsson, 2004). The inability to meet the social demands of adolescence thus leads to feeling stigmatized, which further decreases self-concept.

While there has been a wealth of research examining whether self-concept is significantly impacted in adolescent CI, research examining the effect of self-image and self-worth on adjustment to CI has yielded inconsistent findings. While some authors conclude that more negative self-concept is directly associated with individual health adherence and psychosocial adjustment to living life with a CI (Burkhart & Rayens, 2005, Räty, Larsson, & Söderfeldt, 2003), others have failed to find that decreases in self-concept differ from controls (Kashani, König, Shepperd, Wilfley, & Morris, 1988).

Other researchers have argued that self-concept may be an important, yet not independent, predictor of adjustment. In other words, the impact of self-concept on

adjustment, though proximal, may simply illustrate the effect of other ecological

variables on self-worth. Previous authors have posited that family factors may predict

individual wellbeing, which in turns predicts health behaviors and adjustment to illness

(Cohen, 1999; Lee et al., 2008). For instance, Lee et al. (2008) found that family function

directly predicted self-concept of adolescents with epilepsy above and beyond other

biological, health status, and psychological variables. In her review of families of

children with CI, Cohen (1999) argued that both family and parent variables in addition

to self-concept predicted adjustment to illness. Understanding how family factors predict

individual wellbeing may help elucidate how to target non-compliance issues associated

with identity instability and low self-worth.

Depression

 While issues related to self-concept may be directly tied to the adolescent's ability

to adjust to the CI and manage its treatment, comorbid psychological issues further

complicate the clinical picture. Children with a CI are significantly more likely to suffer

from depression than healthy peers (Pinquart & Shen, 2011). The relationship between CI

and depression is likely bidirectional. Chapman, Perry, and Strine (2005) found that

depression often predates, and in some cases precipitates, the onset of illness. While the

relationship between the onset of depression and CI can be bi-directional, depression also

plays a major role in the course of illness. Being depressed puts patients at significantly

higher risk for medical noncompliance and maladjustment (DiMatteo et al., 2000).

Unfortunately, depression in pediatric CI often remains untreated because it is not

reliably screened for (Chapman et al., 2005). Moreover, many patients may have

subthreshold levels of depression that, despite not meeting diagnostic criteria, may nonetheless have deleterious effects on adjustment and adherence (Barlow & Ellard, 2006).

Familial Factors

In order to understand what determines self-concept, comorbid depression, and subsequent adjustment to illness, the adolescent cannot be considered in a vacuum. As aforementioned, researchers studying predictors of adjustment have been unable to predict wellbeing using CI features such as type, severity and duration alone (Bennett, 1994; Brown et al., 2007; Cohen, 1999). Instead, family, which has been found to be the most powerful influence on identity formation (Mullis, Brailsford, & Mullis, 2003), may predict both interpersonal wellbeing and adjustment to illness (Armstrong, Mackey, & Streisand, 2011).

In her review of relationship variables and health outcomes, Feeney (2000) cites strong evidence for the direct impact of personal relationships on health behaviors and physiological indices of health. She argues that insecure attachment in both children and adolescents predicts more somatization, pain, physical complaints and ill health. Armstrong et al. (2011) indicate a similar pattern. Chronically ill youth with negative parental relationships report lower self-efficacy, more depressive symptoms and subsequent poorer adherence to medical regimens than children of supportive parents.

The success with which adolescents learn to become independent, prosperous adults largely depends on the family environment (Hauser et al., 1991). In families of children with CI especially, healthy families may promote better autonomization in two

ways. One, as medical management shifts from parent to child, the accurate passing down of information depends on functional parent-child relationships (Armstrong et al., 2011). Two, family dynamics are thought to contribute to adolescents' sense of self-efficacy in regards to illness management (Armstrong et al., 2011). In general, family cohesiveness, support, expressed emotion, and conflict are important determinants of child adjustment to illness: children from more cohesive and supportive families fare much better than their counterparts (Hocking & Lochman, 2005; Phipps & Mulhern, 1995). More specifically, the family factors of cohesion, flexibility, and attachment may be particularly important to the development of self-concept and emotional wellbeing in children with CI.

Family Cohesion and Flexibility

Family cohesion, which can be described as "togetherness" or the emotional bond of a family, has been related to greater autonomy development and more identity exploration, such that adolescents who feel accepted and loved are consequently more capable of "finding themselves" (Fullwider-Bush & Jacobvitz, 1993). Family cohesion has also been linked to better general adjustment to CI and greater wellbeing (Baer, 2002; Kazak, Rourke, & Nasvaria, 2009; Mullis et al., 2003).

In parallel, adjustment to illness will also depend on the rest of the family's ability to adapt to the new stressor (Fiese & Everhart, 2006; Thompson & Gustafson, 1996). Family flexibility refers to "the quality and expression of leadership and organization, role relationship, and relationship rules and negotiations" (Olson, 2011, p. 2). Families that are flexible are structured and democratic and tend to have established rules and

approaches to decision-making and problem solving (Olson, 2000). Given that

adjustment to illness depends on the family's ability to adapt to the new stressor (Fiese &

Everhart, 2006; Thompson & Gustafson, 1996), family flexibility may result in more

adaptive reactions to major changes (Olson, 2000; 2011).

Parent-Child Attachment

Attachment has also been linked to self-concept development (Allen & Land, 1999;

Allen, Moore, Kuperminc, & Bell, 1998; Zimmermann & Becker-Stoll, 2002), adherence

to treatment, and depression in CI (Kazak et al., 2009). Securely attached youths are free

to try out different roles until they settle on an identity that is consistent with their self-

concept. Likewise, securely attached children are more likely to develop autonomous

problem solving and social competence (Waters & Cummings, 2000). Contrastingly,

insecurely attached youths will explore less, which delays identity stabilization and

postpones adjustment to adulthood (Marcia, 1980).

Attachment is also related to depression and health behaviors. Depressed

adolescents are much less likely to be securely attached than their peers (Armsden et al.,

1990). In CI in particular, children with insecure attachments show more depressive

symptoms (Feeney, 2000) and different health behaviors. Those with anxious/ambivalent

attachment styles report more physical symptoms, especially when they also have high

levels of negative emotionality (Feeney, 2000). By contrast, youths with higher avoidant

attachment are less likely to visit health professionals, even after controlling for symptom

level, suggesting a direct link between interpersonal and intrapersonal variables and self-

care behaviors (Armstrong et al., 2011).

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MEND

The overarching importance of family variables on adaptation and adjustment to illness emphasizes the need to focus on family processes in the clinical care of adolescents with CI. The MEND program is a psychosocial intervention for adolescents with CI and their families, designed to improve health by influencing the adolescent and his or her family. While other programs have been designed to target adolescent adjustment to illness by way of family function, these have largely been limited to one disease type or to psychosomatic families (Brown et al., 2007; Eccleston, Palermo, Fisher, & Law, 2012; Goldberg & Goldberg, 2008). Meanwhile, more inclusive psychosocial interventions for pediatric CI that focus on the patient alone have shown poor sustainability effects (Eccleston et al., 2012; McBroom & Enriquez, 2009).

The MEND program is designed to work across the common psychosocial issues of families adjusting to a CI (adherence issues, adolescent individuation, stress surrounding prognosis, etc.). The program targets and repairs maladaptive family patterns that contribute to disease activity and nonadherence behaviors. In parallel, it sets out to improve adherence by imparting proper regimen practices, including taking prescribed medications, following testing protocols, and adhering to dietary requirements.

MEND is also unique in its blend of family- and peer-based therapy. Each three-hour session begins with a peer-based check-in that aims to target current stressors and disease-specific adherence goals. The second hour uses a blend of art and talk therapy techniques to help patients identify and modify maladaptive stress response patterns. During this time, parents meet in their own psychoeducation and process group. During the last hour, children and parents rejoin for a multi-family group. While the intervention

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is designed to last seven weeks (or 21 sessions), families are encouraged to stay in the program until the child's psychosocial issues and treatment adherence problems are resolved. Please see Distelberg, Williams-Reade, Tapanes, Montgomery, and Pandit (2014) and Tapanes, Distelberg, Williams-Reade, and Montgomery (2015) for the prescribed curriculum and underlying conceptual framework.

Both clinical outcomes and pilot study results have provided evidence of the program's effectiveness. Evaluation of preliminary data indicates that MEND reduces the impact of CI on the child and on the family's functioning across multiple domains, including missed school days, missed work days for the parent, and higher reported quality of life for both patient and family members (Distelberg et al., 2014). Moreover, a recent cost-benefit analysis has also revealed a significant reduction in direct and indirect healthcare costs for children who successfully completed MEND (Distelberg et al., 2016a). We have also recently established the sustainability of preliminary outcomes over a three-month follow-up (Distelberg et al., 2016b).

While research has established the importance of self-concept in adolescent adjustment to illness, the individual and familial determinants of positive self-worth remain unclear. The goal of the current project is to clarify whether depression, family cohesion and flexibility, and parent-child attachment explain both initial levels and growth of self-concept in children participating in MEND. We hypothesized that: (1) self-concept would increase over time; (2) self-concept and child depression would be inversely related across time, such that decreases in depression would predict increases in self-concept; (3) self-concept and family cohesion and flexibility would be positively related across time, such that increases in flexibility and cohesion would predict increases

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in self-concept; and (4) baseline levels of maternal and paternal parental attachment

would predict initial levels and change over time in self-concept.

CHAPTER TWO

METHODS

Participants

Data were collected from 50 children and adolescents with CI (74% female) ages 11 to 18 ($M = 14.56$, $SD = 1.82$) and their parent(s) (82% mothers) taking part in the MEND psychosocial intervention offered at the Loma Linda University Behavioral Medical Center between June 2013 and December 2015. The study design and informed consent processes were approved by the Loma Linda University Internal Review Board (cert #5120362). See Table 1 for child demographics and Table 2 for parent demographics.

Table 1. *Characteristics of Child Participants (N = 50)*

Gender, *N*(%)	
Male	13 (26)
Female	37 (74)
Age, *M*(*SD*)	14.56 (1.82)
Chronic Illness Type, *N*(%)	
Kidney Disease/Organ Transplant	11 (22)
Pain Disorders	5 (10)
Diabetes	12 (24)
Gastrointestinal Disorders	6 (12)
Neurological Disorders	8 (16)
Other°	8 (16)
Ethnicity, *N*(%)	
Black, Non-Hispanic	7 (14)
Asian or Pacific Islander	1 (2)
Hispanic White	18 (36)
White, Non-Hispanic	19 (38)
Native American or Alaskan Native	1 (2)
Other	4 (8)
Average Number of Weeks in Program, *M*(*SD*)	
Pre-MEND (*N*=50)	0 (0)
Post-MEND (*N*=35)	11.77 (3.69)
Three Months Post-MEND (*N*=26)	26.31 (5.35)
Self Concept Scores,* *M(SD)*	
Pre-MEND (*N*=50)	41.12 (10.71)
Post-MEND (*N*=35)	47.37 (12.92)
Three Months Post-MEND (*N*=26)	49.62 (11.39)
Depression Scores,* *M(SD)*	
Pre-MEND (*N*=50)	59.46 (14.06)
Post-MEND (*N*=35)	51.11 (12.40)
Three Months Post-MEND (*N*=26)	49.04 (12.22)
MAVO Scores,† *M(SD)*	
Pre-MEND (*N*=50)	2.29 (0.61)
Post-MEND (*N*=35)	2.42 (0.60)
Three Months Post-MEND (*N*=26)	2.52 (0.71)
PAVO Scores,* Attachment, *M(SD)*	
Pre-MEND (*N*=50)	1.91 (0.86)
Post-MEND (*N*=35)	2.21 (0.68)
Three Months Post-MEND (*N*=26)	2.26 (0.89)

Note. °Other CIs: Asthma, Cancer, Conversion Disorder, Female Epispadias, Scoliosis, Situs Inversus, Scoliosis, and Von Willebrand Disease; †$p < .10$. *$p < .05$.

Table 2. *Characteristics of Responding Parents* ($N = 50$)

Relation to Child N(%)	
Mother/Stepmother/Foster mother	41 (82)
Father/Stepfather/Foster father	6 (12)
Grandparent	1 (2)
Other Relative or Guardian	2 (4)
Mother's Education, N(%)	
Less than High School	6 (12)
High School Graduate	5 (10)
Some College or Certification Course	21 (42)
College Graduate	6 (12)
Graduate or Professional Degree	10 (20)
Missing	2 (4)
Father's Education, N(%)	
Less than High School	5 (10)
High School Graduate	13 (26)
Some College or Certification Course	14 (28)
College Graduate	5 (10)
Graduate or Professional Degree	7 (14)
Missing	6 (12)
Family Structure, N(%)	
Single	6 (12)
Married	27 (54)
Separated	6 (12)
Divorced	10 (20)
Missing	1 (2)

Criteria for eligibility included being between 11 and 18 years old, having a chronic

health condition, being referred to MEND by a physician, and being willing to complete

the entire program. A CI or chronic medical condition can be defined as a health problem

lasting three or more months, which impacts a person's daily activities and requires

frequent medical intervention and/or management (Compas, 2012). MEND participants

also had to have access to funding through health insurance or through the MEND

scholarship program, which currently funds twelve low-income, under-insured families

per year. Both child and parent participants also had to be able to speak and read English.

Parents completed the informed consent process, and children the minor assent process.

Measures

Demographic Variables

Parent participants provided demographic information about their child, including

age, race, gender, primary health condition, current school attendance and most recent

GPA. Parents also provided information about their own educational histories and current

marital status.

Family Adaptability and Cohesion Scale (FACES IV)

The FACES IV is a 40-item parent-rated, self-report questionnaire that measures a

family member's perceived and desired family functioning (see Appendix A). The

FACES IV is based on the Circumplex Model, derived by Olson (2011) to explain the

key elements of family functioning: cohesion and flexibility. Olson (2011) hypothesized

that healthy families have moderate, rather than extreme, levels of cohesion and

flexibility. That is, they are cohesive but not enmeshed nor disengaged, and flexible in their organization rather than rigid or chaotic.

Although the authors developed multiple scales for both research and clinical purposes, the two main FACES scales designed to assess family functioning, and those used in the current study are the Balanced Cohesion (BC) and Balanced Flexibility (BF) scales. Responses are made on a five-point Likert scale that ranges from 0 representing "almost never" to 5 representing "almost always." One example of a BC item is: "Togetherness is a top priority in our family" (Olson, 2011, p. 7). Items on the BF scale include: "We are able to change leadership in our family" (Olson, 2011, p. 7). The scales are calculated so that higher scores are reflective of more balance, while families at either extreme of cohesion or flexibility have low scores. Both BC and BF scales show high reliability (α = .89 and α = .84, respectively). Additionally, the two scales are highly correlated (r = .60; shared variance = .36), which supports the theory that their concordance is important to general family health (Olson, 2011). In the current study, both BC and BF scales showed adequate, though considerably lower inter-item consistency than the validation sample (BC α = 0.79; BF α = 0.75).

Experiences in Close Relationships Scale – Revised for Use with Children (ECR-RC)

The ECR-RC (Brenning, Soenens, Braet, & Bosmans, 2011) is a 72-item child-rated self-report scale designed to evaluate parent-child attachment (see Appendix B). The current study uses all four 18-item subscales: Maternal Anxious Attachment, Maternal Avoidant Attachment, Paternal Anxious Attachment, and Paternal Avoidant Attachment, hereafter referred to as MANX, MAVO, PANX, and PAVO, respectively.

Respondents rate items on a seven-point Likert scale from 1 representing "strongly agree" to 7 representing "strongly disagree." Items include: "I'm afraid my mother will stop loving me," and "I get nervous when my mother wants me to share really close moments." Children answer the same questions about both parents. Reliability is α = 0.85 for the attachment avoidance dimension and α = 0.83 for the attachment anxiety dimension (Brenning et al., 2011). In the current sample, all scales demonstrated excellent internal consistency (MANX, α = 0.92; PANX, α = 0.94; MAVO, α = 0.92; PAVO, α = 0.96).

Beck Youth Inventories, Second Edition (BYI-II)

The BYI-II (Beck, Beck, Jolly, & Steer, 2005) is composed of five different child self-report inventories to assess symptoms of depression (BDI-Y), anxiety (BAI-Y), anger (BANI-Y), disruptive behavior (BDBI-Y) and self-concept (BSCI-Y) among children ages 7 to 18 years old. The current study used the self-concept and depression inventories (See Appendices C and D). Each inventory consists of 20 statements reflecting thoughts, feelings, and behaviors associated with social and emotional difficulties experienced among this age group. Each statement is answered on a four-point Likert scale ranging from 0 representing "never" to 3 representing "always." Self-concept items include: "I can do things without help," and "I work hard." Depression items include: "I wish I were dead," and "I feel no one loves me" (Beck et al., 2005). Internal consistency is high across all five subscales, with Cronbach's alphas surpassing .85 for each scale (Beck, Beck, & Jolly, 2001).

Procedure

MEND participants completed four measurement points: baseline, week two, graduation, and three months post graduation. The first two measurement points were used to establish a test-re-test baseline for survey measures. While MEND is designed as a seven-week program, patients do not graduate until they have completed all four phases of the program: Orientation and Assessment, Introception and Congruence, Meaning and Expression, and Generalization (see Distelberg et al., 2014 for a detailed description of each phase). Given the varying degree in baseline illness severity, child wellbeing, and family functioning, families stayed in the program for a median of eleven weeks (IQR: 9-14). This project focused on the effects of the program at completion, and also on the sustainability of effects three months after completion. Because time to graduation varied per family, number of weeks from baseline measurement was used as a marker of time. Using this metric rather than fixed time points considers any variance explained by the number of sessions received by a given family, thereby accounting for the effect of dose.

Following data collection, the data were inspected for assumptions missingness. Negatively worded ECR-RC items were reverse coded (Brenning et al., 2011) and BYI raw scale scores were translated into T-scores (Beck et al., 2005) in SPSS (IBM, 2012). Cases with whole scales missing were removed. The remaining missing data were then imputed using SPSS's Multiple Imputation technique (IBM, 2012). No single variable had more than 7% missingness. Once imputed, raw scores were converted into their respective scales, deriving the FACES-IV BC and BF scales, and the ECR-RC MANX, MAVO, PANX, and PAVO scales. All continuous predictors were mean centered save for number of weeks in the program, which was compared to baseline (zero weeks).

Statistical Analysis

Deriving data from a sample of 50 adolescents and their caregivers participating in MEND, we used multilevel modeling techniques to determine changes in adolescent self-concept over time. At Level 1, we tested the following time-varying predictors: weeks in the program, depression, BC, and BF. At Level 2, we tested the effect of time-invariant, baseline MANX, MAVO, PANX, and PAVO scores on the intercept and the slopes of Level 1 predictors. Analyses were performed using HLM 7 (Scientific Software International, 2015).

Using Full Maximum Estimation, we used the bottom-up strategy to test the following hypotheses. We expected that self-concept scores would increase over time, be negatively associated with comorbid depression symptoms over time, and positively related to increases in BC and BF over time. We evaluated eight models, and each model was compared to the preceding model by comparing Deviance statistics using a chi-square difference test. Based on recommendations outlined by Singer and Willett (2003), we first fit the Unconditional Means Model (UCMM; Model A) to the data to demonstrate that a participant's self-concept consists only of deviations around his or her mean self-concept and the population's mean self-concept. We then fit the Unconditional Growth Model (UCGM; Model B) to confirm that a participant's self-concept is a function of his or her true change trajectory over time. We continued by adding Level 1 time-varying variables of weeks, depression and BC and BF one at a time, as fixed effects. Since BC and BF were not significant predictors of self-concept, we only kept weeks and depression at Level 1 (Model C). At Level 2, we added each attachment variable one by one, first predicting the intercept of self-concept, then the slope of each

Level 1 variable (Models D-G). Once the hypothesized final model had been determined,

we allowed the effects of significant Level 1 variables to vary randomly (Model H). We

also checked for and confirmed that the assumptions of linearity, normality, and

homoscedasticity of multilevel models had not been violated.

CHAPTER THREE

RESULTS

To begin, children participating in MEND had lower than average baseline self-concept scores ($M_{Tscore} = 41.12$, $SD_{Tscore} = 10.71$, $t[49] = -6.92$, $p < .001$, Cohen's $d = -1.15$) and higher than average depression scores ($M_{Tscore} = 59.46$, $SD_{Tscore} = 14.06$, $t[49] = 8.33$, $p < .001$, Cohen's $d = 1.31$) compared to normative peers in the validation study sample (Beck et al., 2001). Likewise, compared to the validation study sample in Brenning et al. (2011), MEND participants had significantly higher maternal anxious attachment ($M_{MEND} = 2.80$, $SD_{MEND} = 0.51$ versus $M = 2.20$, $SD = 0.96$, $t[49] = 8.33$, $p < .001$, Cohen's $d = 0.66$) and paternal anxious attachment ($M_{MEND} = 2.61$, $SD_{MEND} = 0.67$ versus $M = 2.25$, $SD = 1.06$, $t[49] = -6.02$, $p < .001$, Cohen's $d = 0.36$). They also had significantly lower avoidant attachment for maternal ($M_{MEND} = 2.29$, $SD_{MEND} = 0.61$ versus $M = 2.81$, $SD = 1.16$, $t[49] = 4.587$, $p < .001$, Cohen's $d = -0.48$) and paternal attachment ($M_{MEND} = 1.91$, $SD_{MEND} = 0.86$ versus $M = 3.07$, $SD = 1.34$, $t[49] = -9.58$, $p < .001$, Cohen's $d = -0.91$). While the literature supports this over-anxious trend due to the need for interdependence in CI management, the significant difference in attachment pattern was not expressly anticipated.

Paired sample *t*-tests revealed significant changes across time for the main study variables. MEND participants had significantly higher self-concept ($t[25] = -2.481$, $p < .05$, Cohen's $d = -0.77$) and lower depression scores ($t[25] = 2.306$, $p < .05$, Cohen's $d = 0.79$) at Time 4 than at baseline. In regard to attachment, changes in maternal anxious attachment were not significant across time ($p > .05$), and changes in maternal avoidant attachment approached significance ($t[25] = -2.061$, $p = .05$, Cohen's $d = -0.35$). Both

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paternal anxious ($t[25] = -2.617$, $p < .05$, Cohen's $d = -.57$) and avoidant attachment significant increased across time ($t[25] = -2.55$, $p < .05$, Cohen's $d = -.40$). Neither balanced cohesion nor balanced flexibility scores differed significantly from baseline ($p > .05$). See Table 1 for means and standard deviations of the final model variables and Figures 1 and 2 for a linear representation of the data across time.

Trajectories of Self-Concept
and Depression over Time

	Baseline	Time 2 (~2 Weeks)	Time 3 (~7 Weeks)	Time 4 (~19 Weeks)
Self-Concept	41.12	41.3092	47.3714	49.6154
Depression	59.46	56.7603	51.1143	49.0385

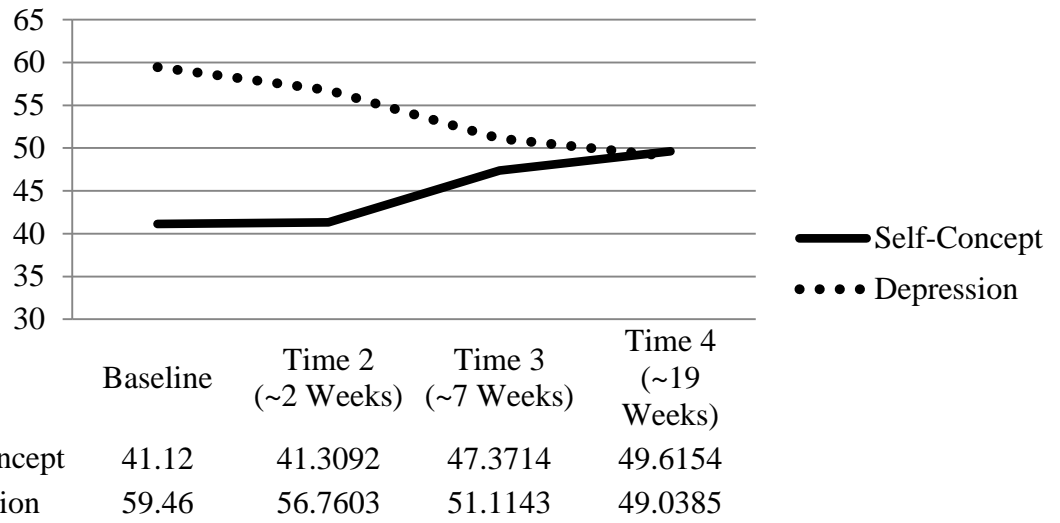*Figure 1*. Trajectories of Self-Concept and Depression in Average T-Scores over Time.

Trajectories of MAVO and PAVO
over Time

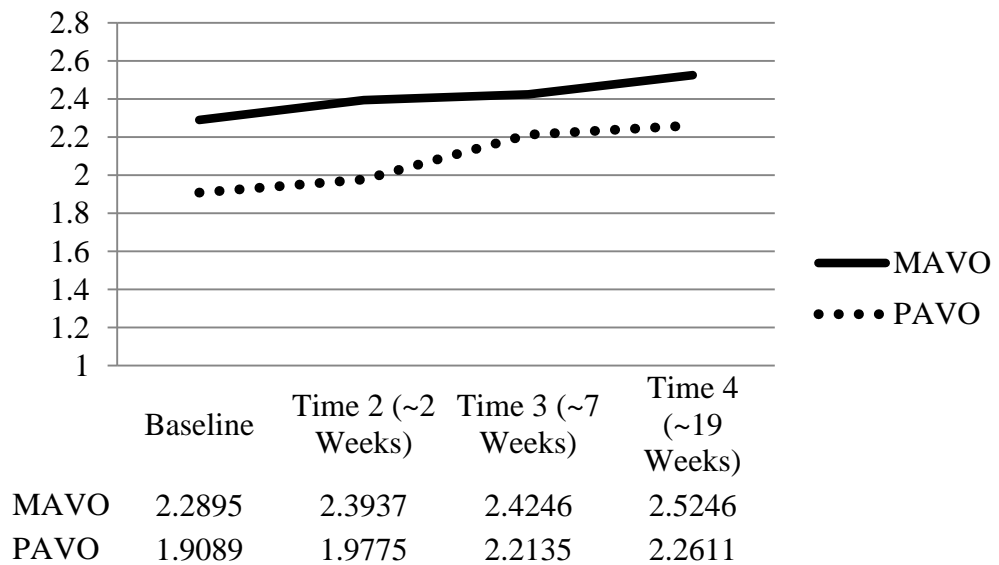|	Baseline	Time 2 (~2 Weeks)	Time 3 (~7 Weeks)	Time 4 (~19 Weeks)
MAVO	2.2895	2.3937	2.4246	2.5246
PAVO	1.9089	1.9775	2.2135	2.2611

Figure 2. Trajectories of Maternal Avoidant and Paternal Avoidant Attachment over Time.

Results are presented for each multilevel model in Table 3. The intraclass correlation coefficient calculated using the UCMM indicates that 56.31% of the variation in self-concept was at the individual level (Level 2). The UCGM had a superior fit to the UCMM, suggesting a significant linear increase in self-concept use over time ($p < .001$). The addition of Level 1 variables revealed that number of weeks in the program was initially significant (Model B), but ceased to predict self-concept once depression was added in the model (Model C). Neither BC nor BF were significant predictors of self-concept and thus removed from the model ($p > .05$).

Model D and E reflect the addition of the first and second time-invariant Level 2 variables, MAVO and PAVO respectively, as predictors of initial self-concept status. MANX and PANX were also tested here but failed to materialize as significant predictors of initial self-concept ($p > .05$). In Model F, we determined that MAVO and PAVO did not predict the relationship between time and self-concept ($p > .05$). However, the inclusion of MAVO as a predictor of how depression and self-concept change over time (Model G) further improved the model, as evidenced by the statistically significant decrease in the Deviance statistic [Deviance = 1075.10, $\chi^2_{crit}(1) = 3.84$, $p < .05$]. Results of this model indicate that baseline levels of MAVO and PAVO predict children's initial self-concept status and MAVO also helps explain the relationship between depression and self-concept over time [$Y_{ti} = \gamma_{00} + \gamma_{01}MAVO_i + \gamma_{02}PAVO_i + \gamma_{10}WEEKS_{ti} + \gamma_{20}BDI_{ti} + \gamma_{21}MAVO_i*BDI_{ti} + r_{0i} + e_{ti}$].

In the best-fitting model (Model G), MEND participants at the mean level of depression, MAVO, and PAVO had an average self-concept score of 42.64 ($p < .001$). As predicted, higher baseline MAVO and PAVO predicted higher initial levels of self-

concept. After controlling for the effects of PAVO, self-concept scores increased by 3.18 points with every one point increase in MAVO ($p < .05$). Likewise, after controlling for the effects of MAVO, every one-point increase in PAVO was associated with a 2.66-point increase in self-concept ($p < .05$).

Additionally, self-concept and depression were significantly correlated across time ($\gamma = -.49$, $p < .001$), a relationship that was influenced by baseline levels of MAVO. As MAVO increased by one point, the relationship between depression and self-concept increased by .20 ($p < .05$), suggesting that higher levels of avoidant attachment in this population may intensify the effect of depression on self-concept. Overall, allowing self-concept to vary over time and controlling for depression accounted for 36.5% of the variance in self-concept at Level 1. Including MAVO and PAVO as Level 2 predictors accounted for 60.2% of the variance in self-concept at Level 2. Of note, we also tested random effects by allowing Level 1 predictors to vary randomly. Allowing weeks to vary at the intercept did not significantly improve our model ($p > .05$). Letting the effect depression vary approached but did not reach significance [Model H: Deviance = 1069.392, χ^2_{crit} (2) = 5.99 $p = 0.056$], and therefore we left depression as a fixed effect at Level 1 in the best-fitting model (Model G).

Table 3.
Results of Fitting a Taxonomy of Multilevel Models for Change to the Self-Concept Score ($N = 50$)

		Parameters	Model A	Model B	Model C	Model D	Model E	Model F	Model G	Model H
Fixed Effects Initial Status π_{0i}	Intercept	γ_{00} (error)	43.271*** (1.488)	41.521*** (1.595)	43.055*** (1.280)	42.979*** (1.204)	42.937*** (1.152)	42.929*** (1.159)	42.644*** (1.105)	42.339*** (1.131)
	MAVO	γ_{01} (error)					4.102* (1.806)	2.827 (1.620)	2.905 (1.834)	3.178* (1.539)	3.148* (1.520)
	PAVO	γ_{02} (error)					3.073* (1.057)	3.104* (1.243)	2.659 (1.077)	2.057* (0.944)
Rate of Change for Weeks π_{1i}	Intercept	γ_{10} (error)		0.268*** (0.085)	0.114† (0.067)	0.118† (0.066)	0.120 (0.066)	0.122* (0.067)	0.107 (0.065)	0.077 (0.062)
	MAVO	γ_{11} (error)						-.014 (0.177)		
	PAVO	γ_{12} (error)						-.003 (0.098)		
Rate of Change for BDI π_{2i}	Intercept	γ_{20} (error)				-0.505*** (0.079)	-0.485*** (0.078)	-0.469*** (0.074)		-0.494*** (0.078)	-0.559*** (0.070)
	MAVO	γ_{21} (error)								-0.208* (0.103)	-0.251* (0.099)

Variance Components

Level 1	Within-person	σ^2 (error)	66.866 (9.250)	59.719 (8.263)	43.681 (6.040)	43.819 (6.055)	43.773 (6.045)	43.762 (6.039)	42.455 (5.863)	36.617 (5.521)
Level 2	In initial status	τ (error)	86.178*** (22.251)	80.724*** (20.628)	48.179*** (12.904)	41.810*** (11.633)	35.884*** (10.437)	35.989*** (10.455)	34.265*** (10.014)	30.343*** (9.936)
		$\sigma^2_{\upsilon 1}$ (error)								0.059* (.04)
		Covariance	0.779	0.787	0.752	0.725	0.695	0.696	0.692	0.406
Pseudo R^2 Statistics and Goodness-of-fit		R^2_e		0.107	0.347	0.345	0.345	0.346	0.365	0.452
		R^2_0		0.063	0.441	0.515	0.584	0.582	0.602	0.648
		Deviance	1162.296*	1146.752*	1090.764*	1085.898*	1080.345*	1080.318	1075.096*	1069.392†

Note. All coefficients reflect fixed effects with robust standard errors.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$

CHAPTER FOUR

DISCUSSION

The goal of the current study was to use multi-level modeling to understand how depression and family factors impact the trajectory of self-concept in a sample of adolescents with CI participating in MEND. We found that within-subject decreases in depression were associated with increases in self-concept. Between-subjects, baseline levels of both maternal and paternal avoidant attachment positively predicted initial levels of self-concept, while maternal avoidant attachment increased the strength of the relationship between depression and self-concept. In other words, higher levels of avoidant attachment were associated with greater self-concept; and the effect of depression on self-concept was stronger for adolescents with higher levels of maternal avoidant attachment

Initially, time spent in the program was a significant predictor of self-concept (Model B). However, after including depression in our model, the direct effect of time on self-concept ceased to be significant. Given the fact that maternal avoidant attachment seemed to strengthen the relationship between depression and self-concept, we may conclude that, although number of weeks in the program does not directly predict self-concept, MEND likely influences self-concept through decreases in depression, which in turn depends on avoidant attachment patterns. This suggests that MEND does and should continue to target reductions in depression through improvements in the parent-child relationship.

In regards to attachment, our results indicate that children in MEND become more avoidant as they move through the program, but remain less avoidant than their normative peers.

This change in attachment, and its subsequent effect on depression and self-concept, may be explained by two conflicting needs of adolescent CI: the basic need to rely on others for CI management and the push for individuation in adolescence.

As aforementioned, a major task of adolescence is to separate from one's parents in order to form an independent identity and inner working model for how to create and maintain interpersonal relationships. This task of self-definition has been closely tied to avoidant attachment (Brenning et al., 2011). While being avoidant does not in itself promote healthy independence, being self-reliant to some degree is necessary for the entry into independent adulthood. Unfortunately for these youths, however, they may lack the opportunity to separate from their families due to the interdependence necessary for illness management and overprotection on behalf of fearful parents (Ferro & Boyle, 2013).

The tension between the need for co-management and the need for independence may in fact be at the center of many CI family tensions. As MEND works to simultaneously resolve the enmeshment and impart proper CI management strategies, adolescents may be able to move away from anxious overdependence towards independent, responsible adulthood. As MEND participants begin to feel more secure and differentiated, they may in turn experience less depression and a higher self-concept.

On one hand, our research supports the findings of prior authors who found that attachment predicts affective wellbeing and identity stabilization (Armstrong et al.,

2011). On the other hand, we were unable to replicate prior research that indicated that improvement in family cohesion and flexibility would improve self-concept. Neither balanced cohesion nor flexibility predicted self-concept at Level 1. This lack of significance may simply reflect the lack of change in these variables over time rather than their lack of influence on self-concept (i.e., neither changed much and therefore could not account for variance in self-concept). One possibility for the lack of change is that these family level factors had a lower inter-item reliability than was found in the validation sample.

Another reason for the lack of hypothesized findings may be that BC and BF are take longer to modify than the time allotted by MEND. The biopsychosocial family model (BBFM) of pediatric illness supports this finding (Wood, 1993). The BBFM proposes that the patient's physiological and psychological wellbeing is impacted by family functioning via parent-child attachment. Wood, Klebba, and Miller (2000) proposed that attachment quality mediates the effects of family variables on more proximal, intrapersonal factors. The authors argue that the family-level factors of proximity and responsivity, which are very similar to cohesion and flexibility, take longer to change than parent-child patterns, which in turn take more work to modify than individual factors (Wood, 1993; Wood et al., 2000; 2006, 2007, 2008).

Finally, the lack of influence of BC and BF on self-concept may also lie in rater differences. While self-concept, depression, and attachment were all child-rated instruments, the FACES IV measure was filled out by parents. Parents' subjective impression of family cohesion and flexibility may not accurately reflect their children's reality. Using a child-rated measure of family wellbeing in future research may help us

determine whether high levels of perceived healthy functioning have an impact on self-concept.

In terms of strengths, the sample's wide array of CIs provides evidence for the generalizability of our model. It also supports one of MEND's cornerstone principles that CIs, despite their vastly different presentations and prognoses, impact the adolescent and his or her family in similar ways. In addition, our sample is highly diverse in regards to participant ethnic/racial background. This diversity is particular important for a study on pediatric chronic illness, given established racial disparities regarding access to healthcare, adherence, and prognosis (Flores & Tomany-Korman, 2008; Goodman, 1999).

Furthermore, the use of multi-level modeling affords us the opportunity to understand how individual and family factors work to influence change over time in adolescents with CI. Given prior authors' conviction that the inclusion of the family promotes the long-term effectiveness of psychosocial interventions for pediatric CI (Eccleston et al., 2012; McBroom & Enriquez, 2009), we may begin to understand how improving family dynamics alleviates the negative repercussions that follow the onset of a chronic illness (e.g., depression, negative self-concept, and the nonadherence to treatment that often follows). Additionally, the model explained a significant amount of variance at both Level 1 and Level 2, suggesting that both depression and attachment are important influences on self-concept among children with CI.

Our results must also be considered in light of certain limitations. To begin, number of weeks to MEND completion differed across participants. Two factors may explain this difference: rate of improvement and insurance authorization. On one hand, given that

participants are not eligible for graduation until they are considered stable in terms of both adherence and psychosocial wellbeing, participants with a greater number of weeks were likely those who entered MEND with the most difficulty. On the other hand, some children likely graduated from MEND early due to health insurance limits that required services to stop after any evidence of clinical improvement. Replicating this research using a fixed experimental design may permit clarification of how MEND participants change over time.

Additionally, our sample size may be considered small. However, compared to other pediatric illness psychosocial interventions, a sample size of fifty is on the larger side of average (Kahana, Drotar, & Frazier, 2008). Furthermore, the use of multi-level modeling for longitudinal data afforded us the opportunity to examine over 150 observations, which increases statistical power. It is also important to consider that only 26 of our 50 participants completed the three-month, post-graduation timepoint. As such, we cannot discount the possibility that the sustainability of the relationship between attachment, depression, and self-concept is unique to those participants who returned for the final measurement point. For instance, it is possible that unmeasured variables, such as level of financial stress or child-care scheduling issues, may have led certain families to choose not to return for the final measurement timepoint. These factors would be worthwhile to examine in future studies. Finally, our sample of responding parents also consisted primarily of mothers, which indicates that MEND families are typically mother-led. This may explain the unique impact of maternal avoidant attachment on depression. In future studies, it may prove worthwhile to compare the effects of parent-type on outcomes of MEND and to further analyze whether results depend on family

structure (i.e., single parent, divorced, married, etc.).

Keeping these limitations in mind, our findings must nevertheless be discussed in terms of clinical implications. To begin, adolescents with CI seem to be more anxious and less avoidant than their peers in terms of attachment. Given that these youths may lack the independence to execute the individuation required of adolescence, subtle increases in avoidant attachment in this population may be a positive step forward for the adolescent with CI. This is supported by the fact that MEND participants grew more avoidant over time, but did not reach the level of avoidant attachment seen in the validation sample (see Table 1). On the other hand, over independence in this population may also lead to the premature undertaking of independent medical management. Programs such as MEND, which aim to foster family communication, personal wellbeing, and adherence to medical treatments, may be ideal to encouraging simultaneous individuation and appropriate health management. In future studies, we may seek to determine whether increases in self-concept, via the effects of depression and improvements in family life, lead to improvements in health behaviors and adherence. More research is warranted to determine whether these important interpersonal changes impact longitudinal health outcomes.

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APPENDIX A

FACES IV

Family Adaptability and Cohesion Evaluation Scales (FACES) IV Questionnaire
Directions to Family Members:
1. All family members over the age 12 can complete FACES IV.
2. Family members should complete the instrument independently, not consulting or discussing their responses until they have been completed.
*3. Fill in the corresponding **number** in the space on the provided answer sheet.*

1	2	3	4	5
Strongly Disagree	Generally Disagree	Undecided	Generally Agree	Strongly Agree

1. Family members are involved in each others lives.
2. Our family tries new ways of dealing with problems.
3. We get along better with people outside our family than inside.
4. We spend too much time together.
5. There are strict consequences for breaking the rules in our family.
6. We never seem to get organized in our family.

7. Family members feel very close to each other.
8. Parents equally share leadership in our family.
9. Family members seem to avoid contact with each other when at home.
10. Family members feel pressured to spend most free time together.
11. There are clear consequences when a family member does something wrong.
12. It is hard to know who the leader is in our family.

13. Family members are supportive of each other during difficult times.
14. Discipline is fair in our family.
15. Family members know very little about the friends of other family members.
16. Family members are too dependent on each other.
17. Our family has a rule for almost every possible situation.
18. Things do not get done in our family.

19. Family members consult other family members on important decisions.
20. My family is able to adjust to change when necessary.
21. Family members are on their own when there is a problem to be solved.
22. Family members have little need for friends outside the family.
23. Our family is highly organized.
24. It is unclear who is responsible for things (chores, activities) in our family.

25. Family members like to spend some of their free time with each other.
26. We shift household responsibilities from person to person.
27. Our family seldom does things together.
28. We feel too connected to each other.
29. Our family becomes frustrated when there is a change in our plans or routines.
30. There is no leadership in our family.

1	2	3	4	5
Strongly Disagree	**Generally Disagree**	**Undecided**	**Generally Agree**	**Strongly Agree**

31. Although family members have individual interests, they still participant in family activities.
32. We have clear rules and roles in our family.
33. Family members seldom depend on each other.
34. We resent family members doing things outside the family.
35. It is important to follow the rules in our family.
36. Our family has a hard time keeping track of who does various household tasks.
37. Our family has a good balance of separateness and closeness.
38. When problems arise, we compromise.
39. Family members mainly operate independently.
40. Family members feel guilty if they want to spend time away from the family.
41. Once a decision is made, it is very difficult to modify that decision.
42. Our family feels hectic and disorganized.
43. Family members are satisfied with how they communicate with each other.
44. Family members are very good listeners.
45. Family members express affection to each other.
46. Family members are able to ask each other for what they want.
47. Family members can calmly discuss problems with each other.
48. Family members discuss their ideas and beliefs with each other.
49. When family members ask questions of each other, they get honest answers.
50. Family members try to understand each other's feelings
51. When angry, family members seldom say negative things about each other.
52. Family members express their true feelings to each other.

1	2	3	4	5
Very Dissatisfied	**Somewhat Dissatisfied**	**Generally Satisfied**	**Very Satisfied**	**Extremely Satisfied**

How satisfied are you with:
53. The degree of closeness between family members.
54. Your family's ability to cope with stress.
55. Your family's ability to be flexible.
56. Your family's ability to share positive experiences.
57. The quality of communication between family members.
58. Your family's ability to resolve conflicts.
59. The amount of time you spend together as a family.
60. The way problems are discussed.
61. The fairness of criticism in your family.
62. Family members concern for each other.

Experiences in Close Relationships Scale – Revised Child Version (ECR-RC)

<u>Directions:</u> Below are a number of statements about your mother/father. Please indicate to which degree you agree with these statements, thereby picturing your mother/father as vividly as possible.

1. I'm afraid my mother will stop loving me

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

2. I don't like telling my mother how I feel deep down

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

3. I'm worried that my mother might want to leave me

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

4. I find it easy to tell my mother what I think and how I feel

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

5. I'm worried that my mother doesn't really love me

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

6. I find it difficult to admit I need help from my mother

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

7. I'm worried that my mother doesn't love me as much as I love her

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

8. I am very comfortable feeling close to my mother

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

9. I wish my mother would love me just as much as I love her

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

10. It's not easy for me to tell my mother a lot about myself

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

11. I worry a lot about my relationship with my mother

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

12. I prefer not to get too close to my mother

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

13. When I don't see my mother, I worry she may stop thinking about me

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

14. I don't feel comfortable when my mother cuddles up to me too much

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

15. When I show my mother I love her, I'm afraid she doesn't love me just as much

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

16. Feeling close to my mother comes easily to me

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

17. I do not often worry that my mother would abandon me

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

18. It's not difficult for me to feel close to my mother

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

19. The things my mother says and does make me unsure about myself

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

20. I usually talk to my mother about my problems and worries

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

21. I do not worry that my mother would abandon me

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

22. When I feel bad, it helps to talk to my mother

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

23. I feel that my mother does not want to get as close to me as I'd like

Strongly Agree	*Agree*	*Agree Somewhat*	*Agree/Disagree*	*Disagree Somewhat*	*Disagree*	*Strongly Disagree*
1	2	3	4	5	6	7

24. I tell my mother nearly everything

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

25. I sometimes think my mother has changed her feelings about me without any reason

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

26. I talk things through with my mother

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

27. I'm afraid that I want to feel too close to my mother and she does not like it

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

28. I get nervous when my mother wants me to share really close moments

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

29. I'm afraid my mother wouldn't love me any more if she found out how I really feel and what I really think

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

30. I find it easy to ask my mother for help

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

31. I get angry because my mother doesn't give me enough love and support

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

32. I find it easy to rely on my mother

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

33. I'm afraid my mother thinks less of me than she does of other children

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

34. I find it easy to show my mother I love her

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

35. I think my mother only pays attention to me when I make a fuss

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

36. I feel that my mother understands me well *

Strongly Agree	Agree	Agree Somewhat	Agree/Disagree	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6	7

* Items 37-72 repeat the questions above verbatim but ask about the child's relationship with his or her father

APPENDIX C

BYI-II SELF-CONCEPT SUBSCALE

Here is a list of things that happen to people and that people think or feel. Read each sentence carefully, and circle the <u>one</u> word (Never, Sometimes, Often, or Always) that tells about you best. THERE ARE NO RIGHT OR WRONG ANSWERS.

		0	1	2	3
1.	I work hard.	Never	Sometimes	Often	Always
2.	I feel strong.	Never	Sometimes	Often	Always
3.	I like myself.	Never	Sometimes	Often	Always
4.	People want to be with me.	Never	Sometimes	Often	Always
5.	I am just as good as the other kids.	Never	Sometimes	Often	Always
6.	I feel normal.	Never	Sometimes	Often	Always
7.	I am a good person.	Never	Sometimes	Often	Always
8.	I do things well.	Never	Sometimes	Often	Always
9.	I can do things without help.	Never	Sometimes	Often	Always
10.	I feel smart.	Never	Sometimes	Often	Always
11.	People think I'm good at things.	Never	Sometimes	Often	Always
12.	I am kind to others.	Never	Sometimes	Often	Always
13.	I feel like a nice person.	Never	Sometimes	Often	Always
14.	I am good at telling jokes.	Never	Sometimes	Often	Always
15.	I am good at remembering things.	Never	Sometimes	Often	Always
16.	I tell the truth.	Never	Sometimes	Often	Always
17.	I feel proud of the things I do.	Never	Sometimes	Often	Always
18.	I am a good thinker.	Never	Sometimes	Often	Always
19.	I like my body.	Never	Sometimes	Often	Always
20.	I am happy to be me.	Never	Sometimes	Often	Always

BSCI–Y
Total RS

2

BYI-II DEPRESSION SUBSCALE

Here is a list of things that happen to people and that people think or feel. Read each sentence carefully, and circle the <u>one</u> word (Never, Sometimes, Often, or Always) that tells about you best, especially in the last two weeks. THERE ARE NO RIGHT OR WRONG ANSWERS.

	0	1	2	3
41. I think that my life is bad.	Never	Sometimes	Often	Always
42. I have trouble doing things.	Never	Sometimes	Often	Always
43. I feel that I am a bad person.	Never	Sometimes	Often	Always
44. I wish I were dead.	Never	Sometimes	Often	Always
45. I have trouble sleeping.	Never	Sometimes	Often	Always
46. I feel no one loves me.	Never	Sometimes	Often	Always
47. I think bad things happen because of me.	Never	Sometimes	Often	Always
48. I feel lonely.	Never	Sometimes	Often	Always
49. My stomach hurts.	Never	Sometimes	Often	Always
50. I feel like bad things happen to me.	Never	Sometimes	Often	Always
51. I feel like I am stupid.	Never	Sometimes	Often	Always
52. I feel sorry for myself.	Never	Sometimes	Often	Always
53. I think I do things badly.	Never	Sometimes	Often	Always
54. I feel bad about what I do.	Never	Sometimes	Often	Always
55. I hate myself.	Never	Sometimes	Often	Always
56. I want to be alone.	Never	Sometimes	Often	Always
57. I feel like crying.	Never	Sometimes	Often	Always
58. I feel sad.	Never	Sometimes	Often	Always
59. I feel empty inside.	Never	Sometimes	Often	Always
60. I think my life will be bad.	Never	Sometimes	Often	Always

BDI–Y
Total RS

4