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MATERNAL RELATIONSHIPS, BULLYING, AND DEVIANCE: A COMPARISON
OF ADOLESCENTS WITH AND WITHOUT MEDICAL CONDITIONS

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in Family Sciences in the
College of Agriculture, Food and Environment
at the University of Kentucky

By

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Lexington, Kentucky

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Lexington, Kentucky

2019

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ABSTRACT OF THESIS

MATERNAL RELATIONSHIPS, BULLYING, AND DEVIANCE: A COMPARISON OF ADOLESCENTS WITH AND WITHOUT MEDICAL CONDITIONS

The purpose of the current study was to examine and compare the quality of the mother-adolescent relationship, the prevalence of bullying and cyberbullying perpetration and victimization, and the prevalence of externalizing behaviors, as well as the relationship among these constructs, in a clinical and a nonclinical sample of adolescents. It tested a series of hypotheses focused on group differences in the mother-adolescent relationship, peer victimization, and externalizing behaviors (i.e. deviant behaviors and bullying perpetration) for the clinical and nonclinical samples. It also tested the relationships between the mother-adolescent relationship and peer victimization, deviant behaviors, and bullying perpetration, and whether these links varied in the clinical versus non-clinical samples. Multiple regressions were used to test the first three hypotheses, while path analyses were used to test the latter hypotheses. Findings provide evidence that adolescents in the clinical group reported significantly closer relationships with their mothers and lower levels of externalizing behaviors; no differences were found in the likelihood of experiencing peer victimization. Maternal support was a negative predictor of peer victimization, and maternal support and monitoring were negative predictors of deviant behaviors and bullying perpetration. These links were invariant across clinical versus non-clinical samples.

KEYWORDS: Adolescents, Medical Conditions, Maternal Relationships, Bullying, Deviance

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04/18/2019

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MATERNAL RELATIONSHIPS, BULLYING, AND DEVIANCE: A COMPARISON
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CHAPTER 1. INTRODUCTION

1.1 Background Information

Approximately ten percent of adolescents in the United States report having a chronic medical condition (Suris, Michaud, & Viner, 2004). Given the stressful nature of living with a medical condition, these adolescents and their families may experience changes in family relationships and roles in the family. Additionally, adolescents with medical conditions may also be at increased risk of peer victimization due to social isolation that often accompanies having a medical condition (Cortina, McGraw, deAlarcon, Ahrens, Rothenberg, & Drotar, 2010; Noll, Kiska, Reiter-Purtill, Gerhardt, & Vannatta, 2010; Sentenac, Gavin, Arnaud, Molcho, Godeau, & Gabhainn, 2011). Adolescents living with a medical condition may also be more likely to participate in deviant behaviors as they crave independence from their families and feel a need to test their limits (Nylander, Seidel, & Tindberg, 2013). Given that parental factors have been linked to both bullying and externalizing behaviors, the potential change in the parent-adolescent relationship after an adolescent is diagnosed with a medical condition may contribute to changes in developmental outcomes of adolescents. The current study sought to further examine and compare the mother-adolescent dyad, the prevalence of bullying victimization and perpetration, and the likelihood of participating in deviant behaviors, as well as the relationships among these three variables, for adolescents from a clinical and a nonclinical sample.

1.2 Theoretical Frameworks

Family systems theory and human ecological theory provide key insights into how the adolescent-maternal relationship and developmental outcomes, such as deviant

behaviors and bullying perpetration, might be affected when youth live with a medical condition. Family systems theory helps to explain how mother-adolescent interactions affect the quality of the relationship and how family relationships may change as a result of living with a medical condition. In addition, human ecological system also provides insights into how deviant behaviors and bullying perpetration are in effect ecological phenomena that occur in the context of complex interactions between individuals, the family, and the larger social developmental context. Relevant features of both theories for the current study are discussed next.

1.2.1 Family Systems Theory

When examining adolescents with medical conditions, family systems theory provides insights into how family relationships, especially the mother-adolescent relationship, may change following a diagnosis. There are two major components of family systems theory that lend themselves to the present study. The first tenant of this theory relevant to this study is that the entire unit of the family is greater than the sum of its parts (Smith & Hamon, 2012). This means that the family system and the relationships within the family, including the relationship that exists between a mother and an adolescent, are more important than each individual family member. Because individual family members are connected by their relationships to one another, individual family members cannot be considered in isolation. For this reason, the present study will examine the mother-adolescent dyad and how this relationship affects developmental outcomes for the adolescent. The second component of this theory explains that a change in one member of the family has an effect on the other members of the family (Smith & Hamon, 2012). Thus, changes in an adolescent family member, whether it be changes in

health status or changes in behavior, are very likely to affect the mother and the adolescent-mother relationship. When an adolescent has a medical condition, the mother may experience changes in family roles and may have an increased caregiving burden. The adolescent-mother relationship is also likely to undergo changes in the aftermath of a medical diagnosis, which can impact adolescent developmental outcomes. Adolescents without medical conditions also experience changes during the teenage years; in this particular study, adolescents' participation in externalizing behaviors and bullying behaviors and victimization will be explored. These changes in adolescent behaviors can be impacted by the mother-adolescent relationship, and therefore the relationship between the mother-adolescent dyad and externalizing behaviors, as well as bullying perpetration and victimization, will be explored.

1.2.2 Human Ecological Theory

Human ecological theory is rooted in the idea that all development takes place in context; thus, intra-individual and inter-individual variables interact with the environment to form a reciprocal developmental process over time. The intra-individual characteristics of the adolescent interact with the inter-individual characteristics of the family context to contribute to developmental outcomes of the adolescents and the family (Smith & Hamon, 2012). Adolescent interactions with various environments, primarily the family, may contribute to externalizing behaviors, as well as bullying perpetration and victimization. Bullying in particular can be seen as an ecological phenomenon that is established and maintained by complex interactions between intra- and inter-individual variables. Individual characteristics that support bullying perpetration interact with contextual factors, such as family influences, that create an environment where bullying

behaviors are launched and upheld over time (Espelage & Swearer, 2003). In the present study, the family context (i.e. the mother-adolescent relationship) will be explored as it relates to adolescent externalizing behaviors, as well as bullying perpetration and victimization. In addition, because all development takes place in context, a change in developmental context may affect familial relationships and adolescent developmental outcomes. For example, a change in an adolescent's medical status effectively changes the developmental context for that adolescent. When an adolescent gets diagnosed with a medical condition, some contextual factors, such as school environment and community support, may change drastically. An adolescent with a medical condition typically spends less time at school, which is an environment in which adolescents have much social interaction, spend significant time with peers, participate in the educational system, and hone their talents and interests. Less time at school may mean the adolescent spends more time with family, which could thereby influence family relationships. The community environment may also change drastically after an adolescent is diagnosed with a medical condition. While the geographic location of an adolescent's community may remain the same, the way that the adolescent is treated and viewed by the community may change immensely, which could influence the adolescent's developmental outcomes. In this study, adolescents with medical conditions may have different developmental contexts than adolescents without medical conditions, and this concept will be explored by examining the maternal relationships of both groups, as well as the relationship between maternal relationships, deviant behavior, and prevalence of bullying perpetration and victimization.

1.3 Maternal Relationships and Adolescents with Medical Conditions

After being diagnosed with a medical condition, adolescents and their mothers may experience changes in the parent-adolescent relationship due to stressors of illness and adolescents' increased reliance on parents to meet medical, physical, or emotional needs. After being diagnosed with a critical illness, adolescents report an increased reliance on parents for physical assistance and health maintenance. This increased reliance on parents typically results in conflicted feelings as these adolescents also want to preserve their independence from parents (Manning, Hemingway, & Redsell, 2013). While adolescents with a medical condition may wish to maintain or increase independence from parents, they also identify their parents as a major part of their support network. Adolescents with a medical condition specifically emphasize the importance of active communication with parents, and they describe patterns of communication with parents that may not be as typical for well adolescents. Adolescents with a medical condition describe parent-adolescent conversations as being an open dialogue in which the parent and adolescent share thoughts and feelings, or as a discussion focused on adolescent self-care and management of their illness (Kyngas, 2004). Furthermore, children who experience a critical medical condition often feel confused about their experiences, and they frequently try to gain clarity about their experiences through others' narratives, especially parents' narratives. Given the confusion surrounding being diagnosed with a medical condition, children and adolescents often use their parents' narratives to help create a new sense of personal identity (Manning et al., 2013). These potential changes in the mother-adolescent relationship after diagnosis of a medical condition may be related to development outcomes for adolescents.

Kronenberger and Thompson (1990) identify three factors associated with family functioning that have significant outcomes for chronically ill children. The three levels of family functioning are marked by parent-child relationships that are either supportive, conflicted, or controlling. When family functioning is marked by less support and more conflict, adolescents with chronic illness tend to have more externalizing problem behaviors (Kronenberger & Thompson, 1990). Furthermore, negative family functioning may impact internalizing behaviors for adolescents with a medical condition. For example, adolescents with a chronic medical condition who perceive their mothers as being psychologically controlling have greater depressed moods regardless of age and gender; furthermore, firm maternal control is also associated with an increase in depressive symptoms.

On the other hand, positive and supportive mother-adolescent relationships can result in positive outcomes for youth with medical conditions. Adolescents with medical conditions who perceive their mothers as accepting have lower rates of depressed mood, especially for females (Butler, Skinner, Gelfand, Berg, & Wiebe, 2007). Williams, Sharpe, and Mullan (2014) find that for adolescents with diabetes mellitus, family support was predictive of adolescent anxiety; that is, adolescents who report high levels of family support are less likely to experience anxiety. Additionally, Thai adolescents with asthma who report positive family functioning tend to have better self-esteem (Preechawong, Zauszniewski, Heinzer, Musil, Kerckmar, & Aswinanong, 2007).

1.4 Bullying and Adolescents with Medical Conditions

There has been much evidence to support that adolescents with medical conditions are at greater risk to become victims of bullying compared to peers without medical

conditions. However, although much research on this topic has been done in European countries, few studies have been carried out in the United States. In France and Ireland, students with a disability or chronic illness are more likely to report being a victim of bullying compared to students without disability or chronic illness. There is an additional risk for being bullied if the disability or chronic illness has an impact on participation in school (Sentenac et al., 2011). Another study finds that European students with a disability or chronic illness are more likely to report being victimized by bullying; furthermore, these victims of bullying report more negative subjective health outcomes compared to those who are not bullied (Sentenac et al., 2012). Sexual victimization and violent assaults are also of concern for teens with medical conditions, as evidenced by one study finding a high prevalence of violence and sexual victimization among adolescents with chronic illness (Miauton, Narring, & Michaud, 2003). These findings also seem to hold true for both sexes and across a wide array of medical conditions. For example, a Swedish study reports that girls are twice as likely to be a victim of bullying if they have medical conditions such as physical disabilities, ADHD, epilepsy, eczema, speech deficits, and mental illness. The same study notes that boys are three times as likely to be bullied if they have epilepsy, mental problems, eczema, speech deficits, physical disability, or ADHD (Olsson, Hasselgren, Hagquist, & Janson, 2013).

There are several documented reasons as to why adolescents with medical conditions may be more vulnerable to peer victimization, including missing school frequently, having less social contact with peers, and feeling more anxious in social situations. A number of studies show that adolescents with a medical condition are more likely to miss school when compared to their healthy counterparts (Cortina et al., 2010;

Noll et al., 2010). Chronically ill children report that they have less contact with peers and more social anxiety than their healthy counterparts (McCarroll, Lindsey, MacKinnon-Lewis, Chambers, & Frabutt, 2009), and this could be due to the fact that these children miss out on opportunities to socialize with their peers at school or during extracurricular activities. Adolescents with a variety of illnesses who miss a significant amount of school due to illness may feel abandoned, rejected, and isolated from their peers. Even when adolescents with sickle cell disease do not disclose their diagnosis to their peers, peers still view them as being ill and missing school more frequently than other students. Furthermore, sickle cell disease may be related to a decrease in overall social involvement due to peer perceptions of these adolescents as ill individuals who missed school often (Noll et al., 2010). When examining adolescents who survived a critical illness, Manning, Hemingway, and Redsell (2013) report that these adolescents often feel like a “novelty” to their peers. However, peer interest in the formerly ill adolescents tends to wane after a short time, leaving these survivors feeling isolated and rejected. Additionally, survivors of childhood critical illness tend to place significance on their former self, the self-identity before the illness, and state that they felt that some friends and family found their former self more acceptable than the person they are today (Manning et al., 2013). To add to these findings, adolescents with medical conditions display less prosocial behavior according to their teachers (McCarroll et al., 2009) and tend to have lower social functioning when compared to adolescents without medical conditions (Pinquart & Teubert, 2011).

It is reasonable to question if adolescents with medical conditions are also more likely to bully their peers as perpetrators. It appears that sex differences influence the

likelihood of peer victimization for adolescents with medical conditions. Boys with medical conditions, regardless of specific diagnosis, tend to bully others more often than their healthy peers. On the other hand, girls with medical conditions (other than mental conditions, ADHD, and physical disabilities) are not likely to bully others as much as their healthy peers (Olsson, Hasselgren, Hagquist, & Janson, 2013). Given the limited findings on the prevalence of bullying perpetration for youth with medical conditions, more research on this topic needs to be done with a clinical sample of adolescents.

The prevalence of cyberbullying perpetration and victimization in clinical populations of adolescents remains to be studied, but findings from nonclinical samples can be helpful in understanding the prevalence, impact, and reasons for cyberbullying. Adolescents perceive cyberbullying as online behaviors that are intended to hurt the victim and are part of a repetitive pattern of offline and online behaviors (Vandebosch & van Cleemput, 2008). While it is challenging to know the exact prevalence of cyberbullying, findings from a recent study show that over 15% of adolescents report being a victim of cyberbullying (Schneider, O'Donnell, Stueve, & Coulter, 2012). Furthermore, many victims of cyberbullying also report being victims of traditional bullying (Schneider et al., 2012). Cyberbullying perpetration is not only related to traditional bullying perpetration, but also to deviant behavior and frequency of online communication (Sticca, Ruggieri, Alsaker, & Perren, 2013). The impacts of cyberbullying on the victim are profoundly negative, with picture and video cyberbullying having the most negative effects. When pictures or videos are used to cyberbully, the public nature and concreteness of the bullying (i.e. actually seeing the picture or video) may increase the negative effects for the victim (Slonje & Smith, 2008).

In addition, cyberbullying affects the self-confidence, self-esteem, relationships, and grades of victims, and often leaves those victimized feeling sad and angry (Price & Dalgleish, 2010). Given the prevalence and negative impacts of cyberbullying found in nonclinical samples, research on this topic with clinical samples may provide additional insights regarding cyberbullying.

1.5 Externalizing Behaviors and Adolescents with Medical Conditions

Research has yielded mixed results on whether adolescents with a medical condition are likely to exhibit externalizing behaviors such as drinking alcohol, doing drugs, or participating in risky behaviors. There has been much research showing that adolescents with medical conditions are less likely to engage in externalizing behaviors compared to healthy counterparts. In fact, compared to adolescent males with heart disease, healthy adolescent males have more externalizing behaviors and demonstrate more behavior problems (da Silva, Schoen-Ferreira, Diogenes, & Carvalho, 2013). One study found that drug use in particular may be higher in healthy adolescents, as chronically ill adolescent males are slightly less likely to use drugs (Suris & Parera, 2005). Research has also examined if adolescents with medical conditions are likely to engage in risky sexual activity, and the results have not been consistent. Asnani et al. (2014) find that adolescents with sickle cell disease are less likely than nonclinical youth to have had sex, but Suris and Parera (2005) find that adolescents with a chronic illness reported similar rates of sexual intercourse and of engaging in risky sexual behaviors as their healthy counterparts. As a whole, the above findings suggest that adolescents with chronic illness are not necessarily more at risk of participating in externalizing and risk-taking behaviors.

Alternatively, there has been ample research producing evidence that adolescents with medical conditions may be more likely to participate in externalizing behaviors compared to healthy peers. Some researchers have found that alcohol and drug use are prevalent among youth with chronic medical conditions. In one study, upwards of 20% and 33% of chronically ill youth reported smoking marijuana and drinking alcohol, respectively (Weitzman, Ziemnik, Huang, & Levy, 2015). This high prevalence of alcohol and drug use for youth with medical conditions seems to hold true for both genders across the adolescent developmental trajectory and across a wide variety of medical diagnoses. When compared to healthy counterparts, adolescent females with a chronic condition are more likely to use drugs (Suris & Parera, 2005) and to smoke cigarettes on a daily basis (Huurre & Aro, 2002). Middle schoolers and high schoolers with a chronic condition are more likely to smoke cigarettes, smoke marijuana, and participate in other drug use (Erickson, Patterson, Wall, & Neumark, 2005). Furthermore, adolescents with sickle cell disease are more likely to drink alcohol when compared with counterparts from a nationally representative sample (Asnani et al, 2014). When compared to healthy peers, Nylander, Seidel, and Tindberg (2013) find that adolescents with chronic conditions report participating in risky behaviors more frequently; these risky behaviors include self-harm, early sexual behaviors, and violence. Adolescents with a chronic illness are also more likely to participate in risky behaviors when driving, such as driving under the influence of alcohol and refusing to wear a seatbelt (Miauton et al., 2003). These data tend to suggest that adolescents with a medical condition are just as likely or more likely to engage in externalizing behaviors compared to their peers (Miauton et al., 2003).

Furthermore, adolescents with medical conditions are likely to participate in more than one externalizing behavior at a time, increasing the risk for harmful consequences of such behaviors. For the adolescent sickle cell population, risky behaviors tended to coexist; that is, if an adolescent reported participating in one risky behavior, they were likely to report partaking in other risky behaviors as well (Asnani et al, 2014). This finding seems to hold true for youth with other medical conditions, as one study found that youth with a variety of chronic conditions who report participating in risky behaviors generally report partaking in more than one risky behavior (Nylander, Seidel, & Tindberg, 2013). Researchers have presented several reasons why adolescents with a medical condition may be more likely to participate in risky behaviors. Some of these reasons may include adolescents wanting to establish autonomy from parents, wanting to feel more mature or more “normal,” and using these behaviors as a coping mechanism to manage the stressors of having a medical condition. Additionally, adolescents with a medical condition may feel an urge to “live life to the fullest” given the potential for a shorter life-span regardless of whether or not they choose to participate in risky behaviors (Nylander, Seidel, & Tindberg, 2013). Adolescents with this mindset may disregard risky behaviors as unsafe, because they may not view those behaviors as being more threatening to their life than their medical diagnosis. With a wide variety of findings on whether or not youth with chronic illness are more likely to exhibit externalizing problems when compared to nonclinical samples, more research could provide clarity on this topic.

1.6 Relationship between Maternal Family Processes and Bullying

While the links between parent-child relationships and bullying have not been thoroughly studied in a clinical population of adolescents, some research has been conducted in nonclinical samples. There are several familial and parental factors that contribute to children's bullying behaviors. Adolescents who bully others are likely to come from families that have violence in the home (Smith & Myron-Wilson, 1998; Olweus, 1980), low levels of family support (Perren & Hornung, 2005; Wang, Iannotti, & Nansel, 2009), poor parental communication (Spriggs, Iannotti, Nansel, & Haynie, 2007), and low levels of family cohesion (Bowers, Smith, & Binney, 1994). Harsh discipline administered by parents (Smith & Myron-Wilson, 1998) and low monitoring of child behaviors (Olweus, 1993) may also be linked to bullying behaviors in children. While few studies have considered the role of maternal relationships in children's bullying behaviors, some research has shown that low maternal involvement (Flouri & Buchanan, 2003) and poor mother-child relationships (Connolly & O'Moore, 2003; Rigby, 1993) contribute to bullying behaviors of children.

Alternatively, there are several familial and parental factors that may contribute to adolescent risk of peer victimization (i.e., being bullied by others). Compared with peers who are not victims of bullying, those who have been victimized tend to have lower levels of family support (Perren & Hornung, 2005). However, victims of bullying may also have enmeshed relationships with their parents, as one study found that victims of bullying reported unusually high levels of involvement with other family members (Bowers et al., 1994). As is typical in enmeshed parent-child relationships, parents who overprotect their children may be putting their adolescents at increased risk of being

victimized by peers (Smith & Myron-Wilson, 1998). When looking at the mother-adolescent relationship in particular, studies have found that female victims of bullying report having poorer relationships with their mothers (Rigby, 1993) and having an overly controlling mother may increase the risk of peer victimization (Berdondini & Smith, 1996).

1.7 Relationship between Maternal Family Processes and Externalizing Behaviors

The association between mother-adolescent relationships and adolescent externalizing behaviors has yet to be studied in a clinical population, but this relationship has been examined in adolescents from nonclinical samples. Parental coercive behaviors (Kim, Hetherington, Reiss, 1999), low parental monitoring (Hoeve, Dubas, Eichelsheim, van der Laan, Smeenk, & Gerris, 2009; Hoeve, Dubas, Gerris, van der Laan, & Smeenk, 2011; Kim, Hetherington, Reiss, 1999; Reitz, Deković, & Meijer, 2006), and low parental support (Hoeve et al., 2009) have been linked to deviant behaviors of adolescents. On the other hand, attachment to parents (Dornbusch, Erickson, Laird, & Wong, 2001) and having warm relationships with parents (Crosnoe, Erickson, & Dornbusch, 2002) decrease the risk of adolescent externalizing behaviors. In particular, high levels of parental support (Parker & Benson, 2004; Wright & Cullen, 2001) and high levels of parental monitoring (Parker & Benson, 2004) contribute to lower rates of delinquency in adolescents. The mother-adolescent relationship in particular may contribute to adolescent deviant behavior more so than the father-adolescent relationship. Child externalizing behaviors are more strongly correlated with maternal, rather than paternal, caregiving, and this could be due to the fact that mothers tend to be the primary caregivers and spend more time in caregiving roles when compared to fathers (Rothbaum

& Weiss, 1994). For example, maternal support is directly and indirectly related to adolescent delinquency (Deutsch, Crockett, Wolff, & Russell, 2012) and maternal negativity, especially in the context of hostile family environments, is related to externalizing behaviors of adolescent children. Given the relationship between maternal family processes and adolescent externalizing behaviors in nonclinical samples, this relationship should also be studied in clinical samples of adolescents. Furthermore, adolescents with medical conditions may spend more time with their mothers after diagnosis and may seek their mothers for physical, medical, and emotional support; thus, for a clinical sample of adolescents, maternal family processes may become more important for certain developmental outcomes, such as externalizing behaviors.

CHAPTER 2. CURRENT STUDY AND HYPOTHESES

2.1 Current Study

This study sought to compare mean levels of maternal family processes, the prevalence of bullying perpetration and victimization, and externalizing behaviors, as well as the relationships among these variables, in clinical versus nonclinical samples of adolescents. Given the potential for change in maternal family processes after an adolescent is diagnosed with a medical condition, the study explored the quality of the adolescent-maternal relationship in clinical and nonclinical samples; it also tested the relationships between adolescent-maternal relationships and measures of bullying victimization and perpetration, as well as externalizing behaviors in clinical versus nonclinical samples. Bullying perpetration and victimization of youth with medical conditions has been studied in European countries, but further data from the United States are needed to validate these findings for youth in America. Furthermore, this study examined the prevalence of cyberbullying in adolescents with a medical condition, which has not previously been examined in prior research. Given mixed findings of externalizing behaviors for adolescents with and without medical conditions, this study also tested for potential similarities or differences of externalizing behaviors in adolescents from clinical and nonclinical samples. For the following research questions and study hypotheses, “nonclinical sample of adolescents” refers to a sample of middle and high schoolers from the Southeastern U.S. and “clinical sample of adolescents” refers to those adolescents who have been treated or are currently being treated at a hematology/oncology clinic in the Southeastern U.S.

2.2 Research Questions

The research questions for this study were as follows:

1. Does the quality of the adolescent-maternal relationship differ for nonclinical and clinical samples of adolescents? Are there certain aspects of the adolescent-maternal relationship that differ for youth from nonclinical versus and clinical samples (i.e. communication, closeness, support, conflict)?
2. Compared to adolescents from a nonclinical, are youth from a clinical sample more vulnerable to peer victimization (bullying)? Are there certain types of bullying that are more likely among adolescents from a clinical sample (i.e., verbal, physical, exclusion, cyber)?
3. Compared to adolescents from a nonclinical sample, are youth from a clinical sample more likely to participate in externalizing behaviors (including deviant behaviors and bullying perpetration)?
4. How is the adolescent-maternal relationship associated with bullying and externalizing behaviors for adolescents from the clinical versus nonclinical samples?

2.3 Research Hypotheses

The research hypotheses for this study were as follows:

1. Compared to adolescents from a nonclinical sample, it was expected that adolescents in the clinical sample would enjoy affectively closer maternal relationships. In particular, adolescents in the clinical sample would score higher on measures of maternal communication, closeness, and support, and would score lower on maternal conflict.

2. Compared to adolescents in the nonclinical sample, it was expected that adolescents in the clinical sample would be more likely to be victims of bullying. In particular, adolescents in the clinical sample would be more likely to experience cyberbullying.
3. Compared to adolescents in the nonclinical sample, it was expected that adolescents in the clinical sample would be less likely to participate in externalizing behaviors (i.e. bullying perpetration and deviance).
4. It was expected that decreased levels of maternal closeness, support, and monitoring would be associated with increased risk of peer victimization for adolescents from clinical and nonclinical samples. Because maternal relationships may become more important for adolescents in the clinical sample given an increased dependence on parents and decreased time spent with peers, it was expected that this association would be larger for youth in the clinical sample (see Figure 2.1)
5. It was expected that decreased levels of maternal monitoring, closeness, and support would be associated with increased risk of adolescent externalizing behaviors (i.e. deviance and bullying perpetration). Because maternal relationships may become more important for adolescents in the clinical sample, this association was expected to be comparatively stronger for adolescents in the clinical sample (see Figure 2.2).

Figure 2.1 Hypothesis 4 Model

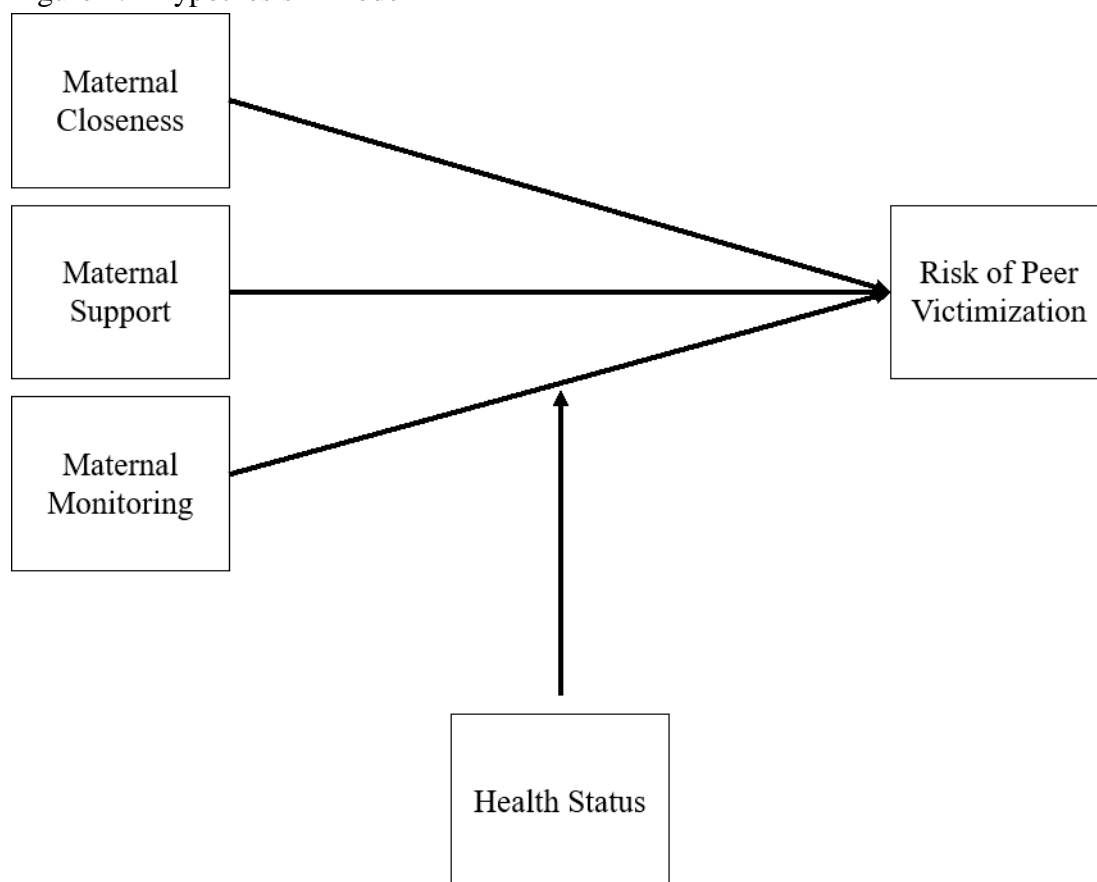
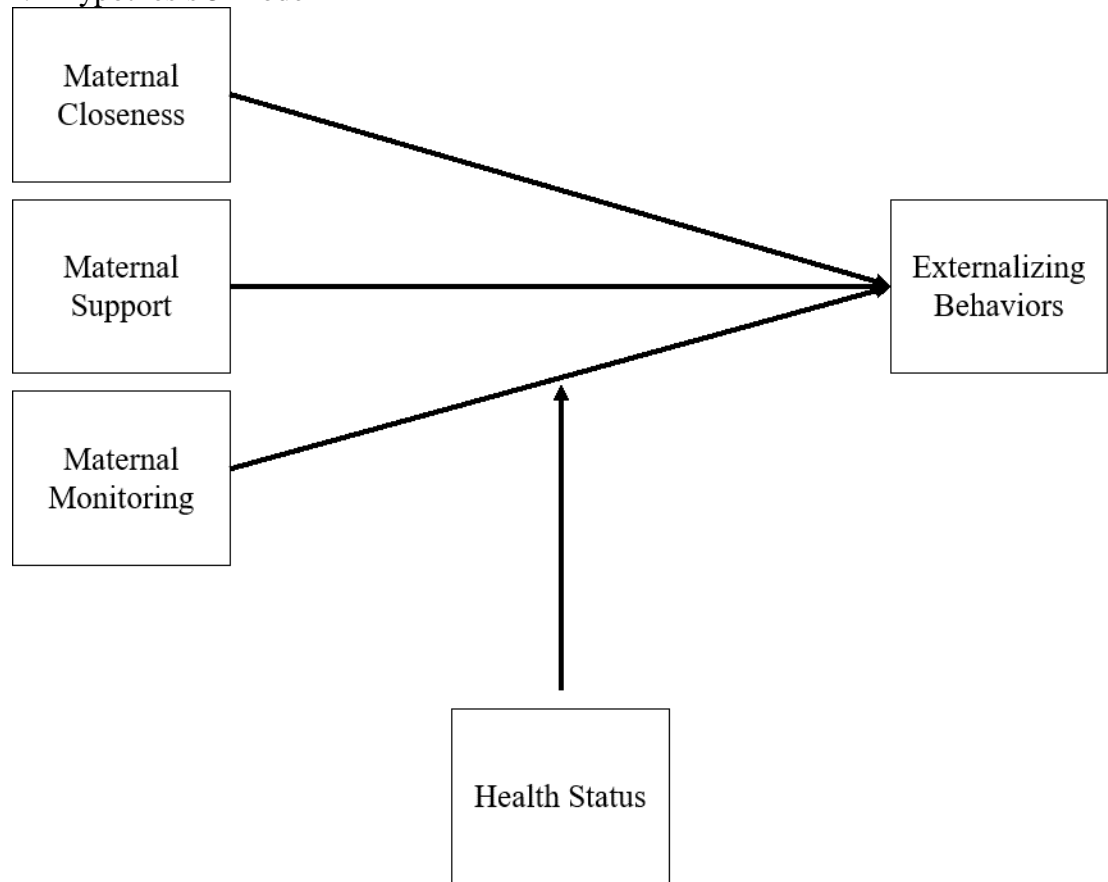


Figure 2.2 Hypothesis 5 Model



CHAPTER 3. METHODS

3.1 Clinical Sample

3.1.1 Sampling Plan

Adolescents in middle school or high school who were being treated or followed for an oncologic or hematologic diagnosis at a hematology/oncology clinic in the Southeastern United States were invited to participate in the study. Recruitment for the study took place from June 2016 to June 2018, and 53 adolescent participants were recruited. In order to be part of the study, participants were required to meet the following inclusion criteria: (a) be in middle school or high school, (b) have an oncologic or hematologic diagnosis, (c) have a parent or legal guardian present to sign consent, (d) have regular contact with a maternal figure, either the biological mother or a female caregiver, and (d) speak English. The following exclusion criteria were used to exclude potential participants: (a) history of developmental delay that could prevent the participant from understanding or completing surveys, and (b) recent traumatic experience that could potentially systematically affect responses to certain measures.

3.1.2 Procedures

Adolescents being treated at a hematology/oncology clinic who met the above criteria were invited to participate in the study by the researcher. The researcher worked at the clinic, and due the dual role of clinic staff and researcher, participants were approached out of uniform to mitigate any potential for patients to perceive an invitation to participate in the study as coercive. The researcher ensured that study participants and their parents knew that participation in the study was completely voluntary and would not affect their care in any way. Before participating in the study, a parent or legal guardian

signed a consent form and the adolescent signed an assent form. Adolescents filled out the anonymous survey on a tablet; Qualtrics was used to collect the data. Data collection took no longer than 15-20 minutes for each adolescent. As an incentive, adolescents had the option of entering into a drawing for a tablet that took place at the end of the study.

3.1.3 Clinical Sample Description

Data from the clinical sample were collected by a researcher at a hematology/oncology clinic in the Southeastern United States. This sample consisted of 53 adolescents, ages 12-17 years ($M = 14.84$ years; $SD = 1.75$ years). The sample had slightly more females than males (52.8% females). European Americans represented the majority of the sample (83%); the sample also included African Americans (5.7%), Native Americans (1.9%), and 9.4% that indicated race/ethnicity as “Other.” With regard to an approximate annual family income, 22.6% of adolescents reported an income below US\$ 20,000, 22.6% reported an income between US\$ 20,000-\$35,000, 13.2% reported an income between US\$ 35,000-60,000, 15.1% reported an income between US\$ 60,000-100,000, and 15.1% reported an income above US\$ 100,000. Please see Table 3.1 for demographic characteristics comparing the clinical and nonclinical samples. The study protocol was reviewed and approved by a University Institutional Review Board.

3.2 Nonclinical Sample

Data for the nonclinical sample were collected by Vazsonyi and colleagues in a rural county located in the Southeastern United States (Vazsonyi, Ksinan, Kelley, & Ksinan, 2016). This sample consisted of 708 adolescents ages 11-19 years ($M = 14.72$ years; $SD = 1.84$ years) from a middle school ($N = 212$) and a high school ($N = 496$). The sample had slightly more females than males (53.5% females). There was a

predominance of European American youth (82.8%); the sample also included African American (5%), Native American (3.1%) and Latino/Latina American adolescents (8%). This sample had more diversity compared to county data based on information from the census (85.0 % of European Americans). Furthermore, the rural county was characterized by low population density (69.0 persons per square mile) and relatively low median household incomes (\$40,933 versus \$53,046). When compared to national figures, the county also had a smaller proportion of college graduates in its population (15.8% versus 22.8%). Lastly, a considerable portion of the county population (17.2%) lived below the poverty threshold (U.S. Census Bureau, 2015). The data from this sample were collected using both paper and pencil and online surveys. The study protocol was reviewed and approved by a University Institutional Review Board.

3.3 Measures

3.3.1 Demographics

Demographic questions were rated by participants and included age (i.e. “In what year were you born? In what month were you born?”), sex (i.e., “What is your sex?” with choices of male and female), race/ethnicity (i.e. “What is your race/ethnicity?” with choice of African American, Asian American, European American, Hispanic/Latino, Native American, Native Hawaiian/Pacific Islander, Other), education level (i.e., “What grade are you in?” with choices ranging from 6th grade to 12th grade), medical diagnosis (i.e., “What is your primary medical diagnosis?” with choices including cancer first diagnosis, cancer relapse, sickle cell disease, anemia (any kind), ITP, and other), and other pertinent information related to family structure and functioning, such as parental relationship status (i.e., “My biological parents are...” with choices of married,

remarried, divorced, separated, widowed, they never married), number of people living in the home (i.e., “How many people live with you?” with choices of 1, 2, 3, 4, 5 or more), and approximate family income (i.e., “Please pick one of the following choices describing your family’s approximate total annual income.” with choices of US\$20,000 or less; 20,000-35,000; 35,000-60,000; 60,000-100,000; 100,000 or more). Please see Appendix 1 for the questions that were asked of study participants. This questionnaire was used to better understand the demographics of the clinical sample; some demographics were used as controls during analysis (i.e., age, sex, race/ethnicity, and SES/family income). In addition to the demographic questionnaire, parents will be required to sign a consent form, and adolescents will be required to sign an assent form.

3.3.2 Adolescent Maternal Relationship

The Adolescent Family Process Measure (AFP) was used to measure the maternal parent-adolescent relationship in terms of communication, closeness, monitoring, support, conflict, and peer approval (see Appendix 2). This measure was developed by Vazsonyi, Hibbert, and Snider (2003). In the current study, the focus was on communication, closeness, monitoring, support, and conflict. The measure is comprised of two types of items that differentiate between adolescents’ feelings about their mothers and activities that adolescents participate in with their mothers. Items focusing on adolescents’ feelings toward their mothers include 14 5-point Likert-type items with responses anchored by strongly disagree (0) to strongly agree (4). The items on the inventory include statements such as “I am closer to my mother than are a lot of kids my age,” and “My mother seems to wish I were a different type of person.” Items focusing on activities that adolescents partake in with their mothers include 11 5-point Likert-type

items with responses anchored by never (0) to very often (4). The items on this inventory include questions such as “How often do you talk to your mother about other things that are important to you?” and “How often do you have disagreements or arguments with your mother?” The internal consistency (Cronbach's alpha) for the AFP-Maternal Scale was high in the original study ($\alpha = .68-.91$) for each subscale (Vazsonyi et al., 2003). For this study, the internal consistency remained high for subscales of communication ($\alpha = .86$), closeness ($\alpha = .87$), monitoring ($\alpha = .89$), support ($\alpha = .81$), and conflict ($\alpha = .79$). The maternal support subscale was reverse coded so that a high score indicated high levels of maternal support, while the maternal conflict subscale was recoded so that the results would represent low levels of conflict in the adolescent-maternal relationship. This was done so that all of the maternal constructs would represent positive aspects of the adolescent-maternal relationship.

3.3.3 Deviant Behaviors

The Normative Deviance Scale Short Form (Liu, Ksinan, & Vazsonyi, 2018) was used to assess the level of deviant behavior in adolescents (see Appendix 3). The Normative Deviance Scale (NDS) was developed for the ISAD project (Vazsonyi, Pickering, Belliston, Hessing, & Junger, 2002; Vazsonyi, Pickering, Junger, & Hessing, 2001), and the original 55-item scale was reduced to develop the short-form version, using exploratory and confirmatory factor analyses. It is comprised of 10 5-point Likert-type items with responses anchored by never (0) to more than six times (4). The items on the inventory include questions such as “Have you ever intentionally damaged or destroyed property belonging to a school, college, or university?” and “Have you ever got drunk (intentionally) just for the fun of it (at any age)?” For this study, the Normative

Deviance Scale Short Form consisted of only 9 items ($\alpha = .86$), due to an error in the application of the instrument in one sample (see Liu et al., 2018). The scale score was computed based on 9 items.

3.3.4 Bullying/Cyberbullying

The bullying/cyberbullying scale measures the extent to which an adolescent participates in or is a victim of bullying and cyberbullying (Gradinger, Strohmeier, Schiller, Stefanek, & Spiel, 2012; Gradinger, Strohmeier, & Spiel, 2010). This scale includes measures of bullying perpetration and victimization by way of verbal aggression, physical aggression, and exclusion, and measures cyberbullying perpetration and victimization by way of texts, calls, photos, and videos (see Appendix 4). It is comprised of 16 5-point Likert-type items with responses anchored by never (0) to nearly every day (4). The items on the inventory include questions such as “How often have you insulted or hurt other students during the last two months?” and “How often have you been insulted or hurt by other students during the last two months?” The internal consistency (Cronbach's alpha) for the Bullying/Cyberbullying Scale was high in the original study ($\alpha = .72, .93, .86, \text{ and } .68$ for outcome measures of bullying perpetration, cyberbullying perpetration, bullying victimization, and cyberbullying victimization, respectively; Gradinger et al., 2012; Gradinger et al., 2010). For this study, the internal consistency was high for bullying perpetration and cyberbullying perpetration (which were combined for the purposes of this study; $\alpha = .90$), bullying victimization ($\alpha = .87$), and cyberbullying victimization ($\alpha = .89$).

Table 3.1 Demographics for Clinical and Nonclinical Samples

| Variable | Clinical | Nonclinical |
|--------------------------------------|----------|-------------|
| Mean Age (years) | 14.84 | 14.71 |
| Sex | | |
| % Male | 47 | 47 |
| % Female | 53 | 53 |
| Grade Level | | |
| % Middle School | 43 | 30 |
| % High School | 57 | 70 |
| Race/ethnicity | | |
| % White | 83 | 83 |
| % Black | 6 | 5 |
| % Other | 11 | 12 |
| SES/Family Income (US\$) | | |
| % 20,000 or less | 23 | 19 |
| % 20,000-35,000 | 23 | 19 |
| % 35,000-60,000 | 13 | 27 |
| % 60,000-100,000 | 26 | 21 |
| % 100,000 or more | 15 | 14 |
| Family Structure | | |
| % Two Biological parents | 68 | 56 |
| % One Biological Parent + Stepparent | 9 | 15 |
| % Single Parent | 19 | 17 |
| % Other | 4 | 12 |

Notes. Percentages are represented for all variables except for age. This was done for a simpler comparison of the demographics of the two groups since the same size of the clinical group (n = 53) was much smaller than the sample size of the nonclinical group (n = 708).

CHAPTER 4. ANALYSIS

The present study used multiple regressions in SPSS and path analyses in AMOS to examine the quality of the adolescent-maternal relationship, the likelihood of peer victimization, and the prevalence of externalizing behaviors for adolescents with and without medical conditions, as well as the relationship between the adolescent-maternal relationship and risk associated with experiencing peer victimization and exhibiting externalizing behaviors. The first three hypotheses examined group differences for adolescents with and without medical conditions regarding the quality of the adolescent-maternal relationship, the prevalence of peer victimization, and the prevalence of externalizing behaviors (i.e., bullying perpetration and deviant behaviors). The nonclinical sample of high-schoolers was not administered the peer victimization subscale of the bullying/cyberbullying scale, which precluded matching participants from the nonclinical sample to ones from the clinical sample and using t-tests to compare group differences. Therefore, study hypotheses were tested in a regression framework, where being a member of the clinical versus non-clinical sample was the focal predictor; the model also included statistical controls of background variables, including age, sex, SES/income, and race/ethnicity (dichotomized into European American versus other), to also address potential differences in these variables across the two samples. During analysis, missing items from the nonclinical sample were treated as missing, and the analysis was conducted only on those who had complete data. Additionally, all of the clinical participants had complete data. For H1, H2, and H3, the predictor variable was group membership (i.e. belonging to the clinical sample or the nonclinical sample), and

the dependent variables were quality of maternal relationship, likelihood of being victimized by peers, and prevalence of externalizing behaviors, respectively.

The last two hypotheses tested the parent-adolescent relationships and the risk associated with peer victimization and the risk associated with exhibiting externalizing behaviors, respectively. Both hypotheses were tested using multi-group path analysis rather than multiple regression in order to eliminate issues of multicollinearity of the AFP maternal subscales (monitoring, closeness, and support) and their interaction terms. Multi-group invariance analyses also allowed for testing of potential relationship moderation, namely whether the specified links varied across the two study samples. First, a path model was tested where the regression weights of the relationships between maternal processes and the outcome variable were freely estimated for each group. In the subsequent model, these paths were constrained to equality across groups and the difference in model fit compared. A non-significant difference in the Chi-Square statistic of the model would indicate that the models fit the data equally well, providing evidence that the relationships of maternal processes and outcome variables did not differ between groups. For each path analysis, the constrained and unconstrained had fit that was not significantly different; therefore, for subsequent analyses, the two samples were combined to complete model tests on the pooled data. Again, age, sex, race/ethnicity, and SES/income were included in models as control variables.

CHAPTER 5. RESULTS

5.1 Group Differences

All group differences were tested using multiple regressions that controlled for age, sex, race/ethnicity, and SES/family income. For each of the results listed below, the unstandardized b coefficient represents the differences in the group means between the clinical and the nonclinical groups, independent of the effects of age, sex, race/ethnicity, and SES/family income, and the Beta value represents the effect size of the group differences. Table 5.1 includes group means and standard deviations of the study constructs for the clinical and nonclinical groups, while Table 5.2 includes both the unstandardized and standardized coefficients for each model as well as significance levels ($p < .05$). The results of each regression model are further described in the discussion section.

5.1.1 Parent-Adolescent Relationship

Adolescents in the nonclinical sample had an affectively lower overall quality of relationship with their mothers when compared to youth in the clinical sample.

Adolescents belonging to the nonclinical sample scored significantly lower on levels of maternal communication ($b = -.290$, $\beta = -.079$, $p = .043$), closeness ($b = -.338$, $\beta = -.101$, $p = .010$), support ($b = -.554$, $\beta = -.145$, $p = .001$), and higher on levels of maternal conflict ($b = -.453$, $\beta = -.134$, $p = .001$). The results from the individual subscales fully support H1.

5.1.2 Peer Victimization

There were no significant differences between adolescents with and without medical conditions regarding their likelihood of being bullied or cyberbullied by their peers. These results indicated that H2 was not supported.

5.1.3 Externalizing Behaviors

Adolescents in the nonclinical sample were more likely than adolescents in the clinical sample to participate in deviant behaviors ($b = .215$, $\beta = .100$, $p = .009$) and to bully their peers ($b = .254$, $\beta = .125$, $p = .001$). These results supported H3.

5.2 Parent-Adolescent Relationship and Risk of Peer Victimization

Path analysis was used to determine the relationship between the quality of the parent-adolescent relationship and the risk associated with adolescent peer victimization (please see Figure 5.1). During initial analysis, invariance tests provided evidence that there was a difference in the relationship between maternal closeness and victimization for the clinical versus nonclinical groups. However, after testing for outliers in both groups, two extreme cases were identified in the clinical sample, which were then removed. The following model fit statistics reflect findings from the path analysis after removal the two outliers from the clinical sample. Model fit for the constrained model versus unconstrained models did not differ significantly: Unconstrained: $\chi^2(34) = 97.457$, $p < .001$, CFI = .903, RMSEA = .050, 90%CI [.038, .061]. Constrained: $\chi^2(37) = 102.471$, $p < .001$, CFI = .900, RMSEA = .048, 90%CI [.037, .060], Difference: $\Delta\chi^2(3) = 5.014$, $p = 0.171$, $\Delta\text{CFI} = .003$, $\Delta\text{RMSEA} = .002$. Given this finding, the model test was repeated for the total pooled sample (the clinical and nonclinical samples combined). Model fit was adequate, but absolute fit is of limited little concern in path analysis with

only observed variables: $\chi^2(17) = 85.783, p < .001, CFI = .893, RMSEA = .073, 90\%CI [.058, .089]$. Decreased levels of maternal support were associated with increased risk of peer victimization ($b = -.149, \beta = -.288, p < .001$). Maternal closeness ($b = -.044, \beta = -.074, p = .381$) and monitoring ($b = .034, \beta = .063, p = .428$) were unrelated to risk of peer victimization. In addition, group membership status did not serve as moderator in the link between the mother-adolescent relationship and peer victimization. Given these results, H4 was only partially supported. For details, please see Table 5.3 for standardized and unstandardized coefficients from path analyses.

5.3 Parent-Adolescent Relationship and Risk of Externalizing Behaviors

Path analyses were used to test the links between the parent-adolescent relationship and externalizing behaviors, specifically deviant behaviors and bullying perpetration (please see Figures 5.2 and 5.3). When testing the relationship between the parent-adolescent relationship and deviant behaviors across the two samples, model fit did not differ significantly: Unconstrained: $\chi^2(34) = 98.192, p < .001, CFI = .908, RMSEA = .050, 90\%CI [.038, .062]$. Constrained: $\chi^2(37) = 99.064, p < .001, CFI = .911, RMSEA = .047, 90\%CI [.036, .058]$, Difference: $\Delta\chi^2(3) = .872, p = 0.832, \Delta CFI = .003, \Delta RMSEA = .003$. Thus, no difference was found (no moderation effects by group membership) and the analysis was repeated the total pooled sample (clinical and nonclinical sample combined). The model fit statistics from the path analysis of the total sample were: $\chi^2(17) = 86.874, p < .001, CFI = .902, RMSEA = .073, 90\%CI [.059, .089]$. Decreased levels of maternal support ($b = -.088, \beta = -.158, p < .001$) and maternal monitoring ($b = -.158, \beta = -.277, p < .001$) were associated with increased risk of deviance. Closeness was unrelated ($b = .055, \beta = .086, p = .089$).

When testing the links between parent-adolescent relationship and bullying perpetration, again the unconstrained versus constrained model fit did not significantly differ (no moderation by group membership): Unconstrained: $\chi^2(34) = 98.209$, $p < .001$, CFI = .904, RMSEA = .050, 90%CI [.039, .062]. Constrained: $\chi^2(37) = 102.361$, $p < .001$, CFI = .902, RMSEA = .048, 90%CI [.037, .059], Difference: $\Delta\chi^2(3) = 4.152$, $p = 0.246$, $\Delta CFI = .002$, $\Delta RMSEA = .002$. Thus, again, the samples were combined, and analyses repeated for the total sample. The model fit statistics were: $\chi^2(17) = 86.948$, $p < .001$, CFI = .896, RMSEA = .074, 90%CI [.059, .089]. Maternal support and monitoring were negative predictors of bullying perpetration. Decreased levels of maternal support ($b = -.068$, $\beta = -.133$, $p < .001$) and maternal monitoring ($b = -.096$, $\beta = -.181$, $p < .001$) were associated with increased risk of bullying perpetration. Closeness was unrelated ($b = .001$, $\beta = .001$, $p = .986$) to bullying perpetration. Given these results, H5 was only partially supported and will be discussed further in the discussion section.

Table 5.1 Scale Means

| Group Status | Outcome | Mean | Standard Deviation |
|--------------------|-----------------------|------|--------------------|
| Clinical sample | Maternal Relationship | | |
| | Communication | 3.65 | 0.98 |
| | Closeness | 4.27 | 0.64 |
| | Support | 4.12 | 0.76 |
| | Conflict | 3.61 | 0.85 |
| | Peer Victimization | 1.29 | 0.66 |
| | Deviance | 1.12 | 0.35 |
| | Bullying Perpetration | 1.06 | 0.17 |
| Nonclinical Sample | Maternal Relationship | | |
| | Communication | 3.37 | 1.01 |
| | Closeness | 3.95 | 0.93 |
| | Support | 3.58 | 1.07 |
| | Conflict | 3.16 | 0.94 |
| | Peer Victimization | 1.34 | 0.51 |
| | Deviance | 1.33 | 0.60 |
| | Bullying Perpetration | 1.30 | 0.56 |

Notes. The means of each group are representative of responses to the scales anchored by qualifiers with numerical values of 1-5. Please see each measure (Appendices E-G) for appropriate interpretation of each mean.

Table 5.2 Regression Analyses with Group Status as Predictor for H1-H3

| Outcome | <i>b</i> | <i>SE b</i> | β | <i>p</i> |
|------------------------------|----------|-------------|---------|----------|
| Maternal Relationship | | | | |
| Communication | -0.290 | .143 | -.079 | .043 |
| Closeness | -0.388 | .130 | -.101 | .010 |
| Support | -0.554 | .147 | -.145 | < .001 |
| Low Conflict | -0.453 | .131 | -.134 | .001 |
| Peer Victimization | 0.114 | .108 | .086 | .293 |
| Peer Cybervictimization | 0.116 | .098 | .096 | .237 |
| Peer Perpetration | 0.254 | .078 | .125 | .001 |
| Deviance | 0.215 | .082 | .100 | .009 |

Notes. Each row represents a separate regression model, and the coefficients are values of clinical vs. nonclinical status as the predictor variable. Each model included control variables of age, sex, race/ethnicity, and SES/family income.

Table 5.3 Path Analysis Coefficients for Maternal Predictors of Dependent Measures

| Outcome Predictor | <i>B</i> | <i>SE b</i> | β | <i>p</i> |
|----------------------|----------|-------------|---------|----------|
| Victimization | | | | |
| Closeness | -0.044 | .050 | -.074 | .381 |
| Support | -0.149 | .034 | -.288 | < .001 |
| Monitoring | 0.034 | .043 | .063 | .428 |
| Perpetration | | | | |
| Closeness | 0.001 | .031 | .001 | .986 |
| Support | -0.068 | .020 | -.133 | <.001 |
| Monitoring | -0.096 | .026 | -.181 | <.001 |
| Deviance | | | | |
| Closeness | 0.055 | .032 | .086 | .089 |
| Support | -0.088 | .021 | -.158 | <.001 |
| Monitoring | -0.158 | .027 | -.277 | <.001 |

Notes. Each section represents a separate path analysis with the maternal relationship subscales as predictors of the specified outcome variable. The coefficients represent path estimates (regression weights) for the combined sample of each maternal variable on the outcome variables, controlling for age, sex, race/ethnicity, and SES/family income.

Figure 5.1 Path Analysis Model for H4 (Victimization risk)

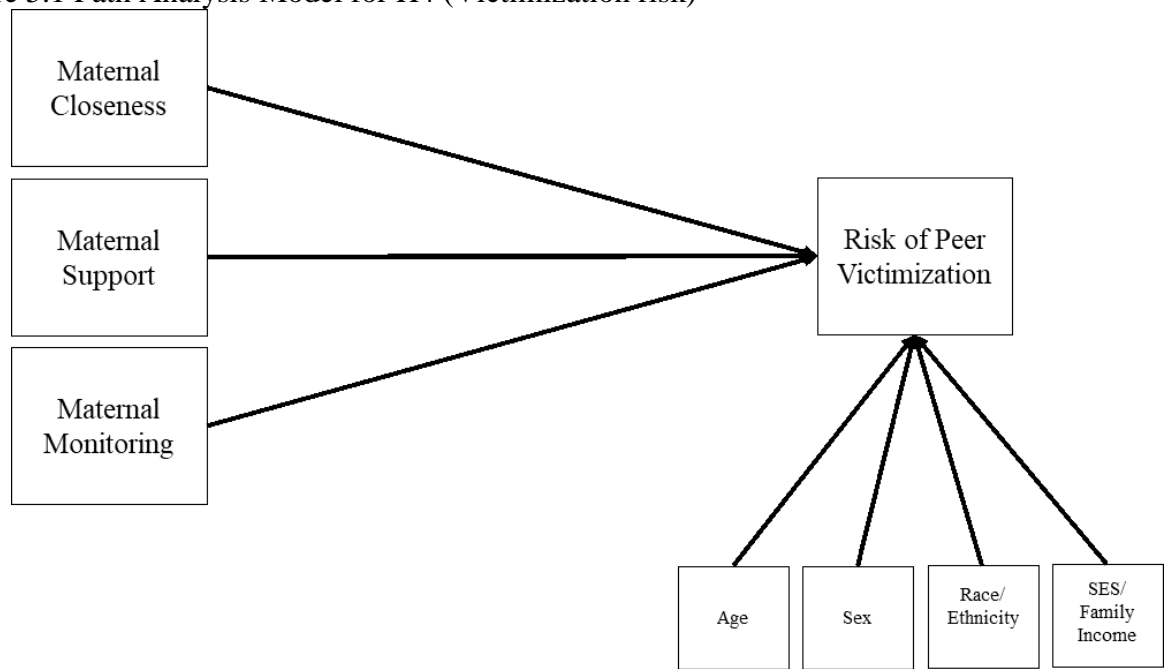


Figure 5.2 Path Analysis Model for H5 (Deviant Behaviors)

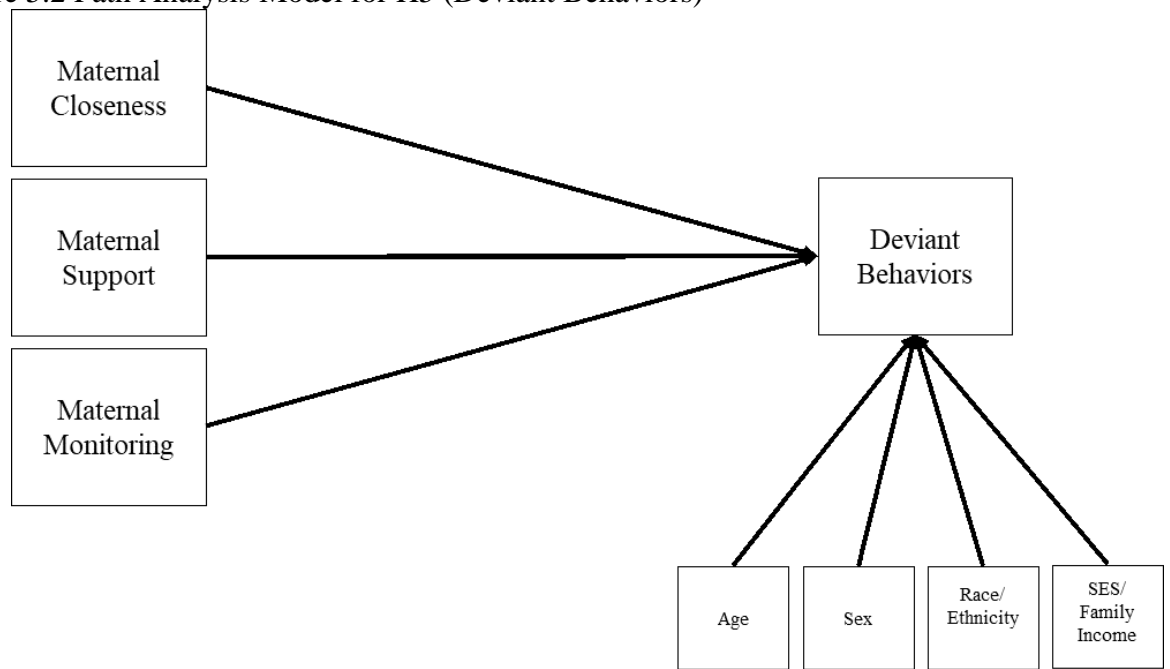
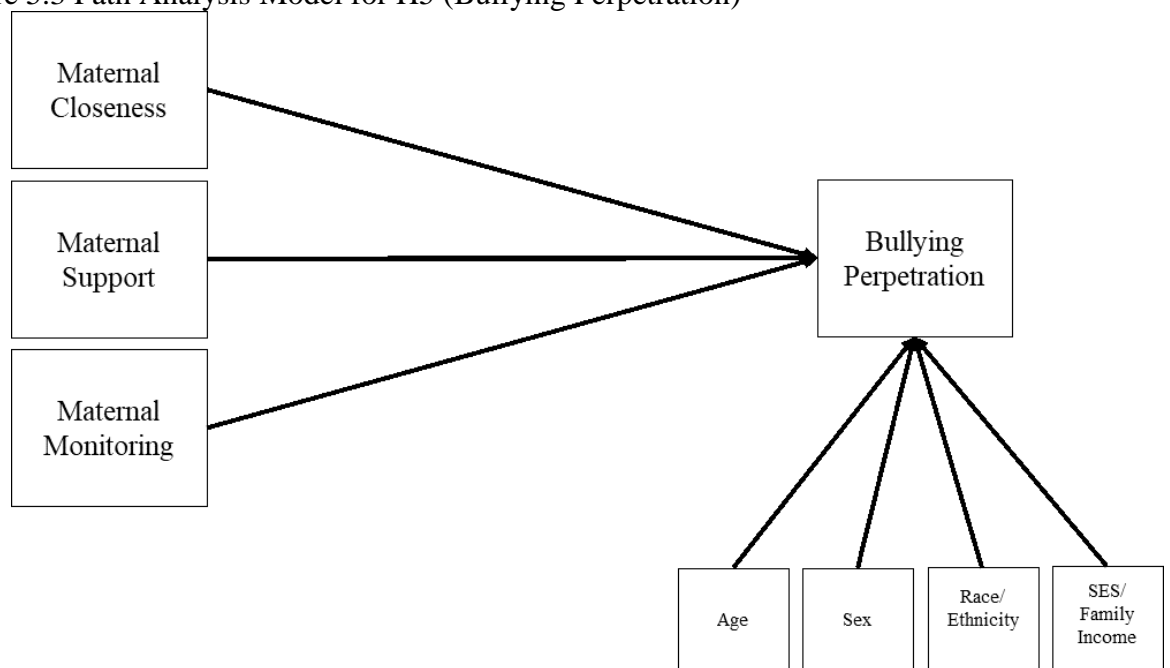


Figure 5.3 Path Analysis Model for H5 (Bullying Perpetration)



CHAPTER 6. DISCUSSION

6.1 Mean Level Differences

6.1.1 Maternal Relationship

Given that adolescents in the clinical sample had affectively closer maternal relationships as evidenced by scoring higher on levels of maternal communication, closeness, and support while scoring lower on levels of maternal conflict, H1 was fully supported. Adolescents in the clinical sample likely have an increased reliance on their mothers to meet their medical and physical needs (Manning et al., 2013) and therefore a closer adolescent-maternal relationship may ensue. Furthermore, adolescents who have medical conditions may look to their mothers as part of their support system (Kyngas, 2004), and this could increase the quality of the relationship between chronically-ill adolescents and their mothers, in comparison to youth in the non-clinical sample. Given that the results of this study were consistent with previous evidence on the quality of the adolescent-mother relationship, it is not entirely surprising that adolescents in the clinical sample had overall better quality of relationships with their mothers when compared to youth in the nonclinical sample.

6.1.2 Peer Victimization

No significant differences were found between adolescents with and without medical conditions regarding peer victimization or peer cybervictimization (i.e. being bullied or cyberbullied by peers), and therefore H2 was not supported. It was expected that adolescents in the clinical sample would be more likely to be victims of bullying when compared to adolescents in the nonclinical sample for several reasons. Adolescents with medical conditions are likely to miss school more frequently than their healthy peers

(Cortina et al, 2010; Noll et al. 2010) as well as to have less contact with their peers (McCarroll et al., 2009). Furthermore, adolescents with medical conditions may have increased social anxiety (McCarroll et al., 2009) and lower levels of social functioning (Pinquart & Teubert, 2011) when compared to adolescents without medical conditions. When considering these factors, it was expected that adolescents in the clinical sample would be at increased risk of being victimized by their peers; however, no differences were found between the two groups regarding peer victimization. Perhaps there are other individual and contextual predictors of peer victimization that play a larger role in adolescent victim status than health condition that this study did measure of address. For example, some individual predictors of victim status include social competence and internalizing behaviors. Low social competence, which is the ability to engage with peers effectively while avoiding or limiting socially unacceptable behaviors, is related to peer victimization (Cook, Williams, Guerra, Kim, & Sadek, 2010). Additionally, internalizing problems, such as exhibiting symptoms of depression and anxiety (Kelly et al., 2015), and having low self-esteem (Baldry & Farrington, 1998) are also related to adolescent victim status. Contextual factors, such as school climate (i.e. fairness of teachers and administrators toward the student population and students' sense of belonging at the school) and peer status (i.e. adolescents' overall quality of relationships with their peers) are also related to peer victimization (Cook et al., 2010). Given these findings from other studies, it is possible that these individual and contextual factors play a greater role than medical status when predicting adolescent peer victimization, and thus, might explain why no differences were found between the clinical and nonclinical samples.

6.1.3 Externalizing Behaviors

Adolescents in the clinical sample were less likely to participate in externalizing behaviors (i.e. deviant behaviors and bullying perpetration); thus, H3 was fully supported. Previous research has also found that healthy adolescents are more likely to participate in deviant behaviors when compared to adolescents with a chronic illness (da Silva et al., 2013; Valencia & Cromer, 2000). Adolescents in the clinical sample may be less likely to participate in deviant behaviors simply because they do not have as many opportunities to do so when compared to their healthy counterparts. Adolescents with medical conditions may also have health or physical limitations that make it more challenging for them to engage in risky behaviors. Furthermore, adolescents in the clinical sample may be spending less time with peers, thereby limiting the chance that these adolescents would be persuaded by their peers to participate in deviant behaviors. There have been mixed findings on whether or not adolescents with medical conditions are more or less likely to bully others; for example, some research has shown that girls with medical conditions are not as likely to bully others, but that boys with medical conditions are more likely to bully others when compared to their healthy counterparts (Olsson et al., 2013). This study found that adolescents in the clinical sample were in fact less likely to bully their peers. This may be because adolescents with medical conditions are spending less time with peers and may therefore be less likely to be bullying other adolescents. Furthermore, when adolescents are diagnosed with a chronic medical condition, it is likely that their priorities and values may change, away from peer interactions and a greater focus on self and well-being. For example, adolescents with medical conditions may become more focused on getting well, may be relying more on

family members rather than friends for support, or may have more insight into what it is like to be “different.” These changes may make adolescents with medical conditions less likely to bully their peers.

6.2 Parent-Adolescent Relationship and Increased Risk of Peer Victimization

As expected, lower levels of maternal support were associated with greater risk of peer victimization for youth from both the clinical and nonclinical samples; unexpectedly, lower levels of maternal closeness and monitoring were not associated with increased risk of peer victimization for youth from either group. Furthermore, and also unexpectedly, group membership did not moderate the relationship between the mother-adolescent relationship and risk of peer victimization. Therefore, H4 was only partially supported. Given that maternal support was a negative predictor of peer victimization, but maternal closeness and monitoring were unrelated, it is important to consider the reasons for this finding. Previous research has found that victims of bullying reported lower levels of parental support (Perren & Hornung, 2005), and specifically lower levels of maternal support (Holt & Espelage, 2007) as compared to youth that were not victims of bullying, which corroborates current study findings. Researchers have found conflicting results regarding parental closeness and peer victimization. It does appear that having a poorer mother-adolescent relationship may increase the risk of peer victimization for some youth (Rigby, 1993). Because this study did not find that maternal closeness was a predictor of peer victimization, more research may be warranted to further understand the relationship between maternal closeness and adolescent peer victimization. Furthermore, this study did not find that maternal monitoring was associated with peer victimization. Other work has also found that

parental efforts to be aware of adolescents' socialization may not lead to lower risk of peer victimization. This could be due to the fact that adolescents with prior victimization also have lower levels of disclosing their victim experiences to their parents, so perhaps efforts to monitor peer victimization are not effective (Stavrinides, Nikiforou, & Georgiou, 2014). These findings could explain why no effect was found between maternal monitoring and peer victimization; however, more research on this relationship could provide more clarity on this topic.

Lastly, health status did not moderate the relationship between the mother-adolescent relationship and peer victimization. Initially, health status was expected to be a moderator given that adolescents in the clinical sample were predicted to have a better overall quality of maternal relationships. In fact, this study did find that adolescents with medical conditions reported having higher levels of maternal closeness, communication, and support, and lower levels of maternal conflict. While there were group means differences for adolescents with and without medical conditions regarding maternal relationships, these group differences do not and did not translate as being moderators of the links between the adolescent-mother relationship and peer victimization. This finding is not entirely surprising in that developmental processes, namely the links between risk or protective factors and measures of adjustment, may simply be invariant across youth with and without medical conditions.

6.3 Parent-Adolescent Relationship and Increased Risk of Externalizing Behaviors

For both the clinical and nonclinical samples, decreased levels of maternal support and monitoring were associated with increased risk of adolescent participation in deviant behaviors and bullying perpetration; however, maternal closeness was not a significant

predictor of adolescent externalizing behaviors. Again, health status did not moderate the link between the mother-adolescent relationship and externalizing behaviors. Therefore, H5 was only partially supported. Other studies have also found that decreased levels of parental monitoring (Hoeve et al., 2009; Hoeve et al., 2011; Pettit, Laird, Dodge, Bates, & Criss, 2001) and support (Hoeve et al., 2009) were associated with increased adolescent participation in deviant behaviors. Interestingly, maternal closeness was not a predictor of adolescent externalizing behaviors in the current study; more research on the maternal closeness and adolescent developmental outcomes could provide more insights into this finding.

Lastly, health status did not moderate the relationship between the mother-adolescent relationship and externalizing behaviors. Initially, health status was expected to be a moderator given that adolescents in the clinical sample were predicted to have affectively better quality maternal relationships. In fact, this study did find that adolescents with medical conditions reported having an overall higher quality of relationships with their mothers. Again, as previously noted, mean level differences for adolescents with and without medical conditions regarding participating in deviant behaviors and bullying perpetration did not translate into differences in the links between the adolescent-mother relationship and externalizing behaviors. Again, this suggests that developmental processes for adolescents with or without medical conditions are not affected.

CHAPTER 7. LIMITATIONS

There are several limitations of this study that warrant discussion. First of all, the nonclinical sample of high-schoolers was not administered the peer victimization subscale of the bullying/cyberbullying scale; therefore, only middle schoolers in the nonclinical sample filled out items related to peer victimization and peer cybervictimization. The middle schoolers averaged 12.51 years of age, while the clinical sample averaged 14.84 years of age. This two-year age difference between the two remaining samples makes it more difficult to truly compare the means of the two groups regarding the likelihood or frequency of experiencing bullying or cyberbullying. Perhaps if the mean ages had been more similar for the two groups, differences in peer victimization and cybervictimization may have been clearer. More research is warranted to explore if adolescents with medical conditions are indeed more likely to experience peer victimization and cybervictimization. Secondly, the nonclinical sample of adolescents was administered their surveys via computers or paper and pencil, while the clinical sample of adolescents completed their surveys on a tablet. Given that the method of collecting data from each sample varied, this might have introduced systematic differences which affected study findings.

Next, the study's clinical sample only included adolescents with oncologic or hematologic diagnoses, and this may impact the group mean results found in this study. For example, perhaps adolescents with oncologic or hematologic diagnosis are not more likely to experience peer victimization when compared with adolescents who have psychological or behavioral diagnoses. For example, Olsson et al. found that youth with a broader array of medical diagnoses, such as physical disabilities, mental illnesses, or

speech deficits, may be more likely to experience peer victimization than their healthy counterparts. However, this study's clinical sample only included adolescents with oncologic or hematologic diagnoses, so the group mean differences on some outcomes in this study may vary if a wider range of medical diagnoses were included. Furthermore, adolescents with oncologic or hematologic diagnoses may experience larger impacts on their self-identity, their values, and their perception of the world around them than adolescents who are diagnosed with other medical conditions (such as diabetes mellitus, psychological diagnoses, asthma, etc.). While these other diagnoses may also be chronic in nature, they may not be considered life-limiting or life-threatening to the same extent as an oncologic or hematologic diagnosis. The graveness associated with an oncologic diagnosis specifically may have an impact on how adolescents with this diagnosis relate to their mothers, their peers, and their communities, and this could have had a great impact on the outcomes of this study. More research on maternal relationships, bullying, and deviance should be conducted with adolescents with a wider variety of medical conditions in order to better understand how living with a medical condition may impact these outcomes and how they interact with one another.

Lastly, the clinical sample size ($n = 53$ participants) was comparatively smaller than the nonclinical sample size ($n = 708$ participants), and all participants were located in the state of Kentucky. Having a larger clinical sample may allow for a better understanding of group differences and moderator effects, as well as lend to greater statistical power for the analyses to be able to draw conclusions. Furthermore, replicating this study with participants from multiple geographical areas of the country may make the results more generalizable to youth in the United States as a whole.

CHAPTER 8. CONCLUSION

Overall, the current study provided valuable insights into how adolescents with and without medical conditions perceive their maternal relationships, as well as their likelihood to experience bullying victimization and to participate in bullying perpetration and deviant behaviors. Findings from this study provide evidence that adolescents with medical conditions were more likely to report higher quality maternal relationships and were less likely to exhibit externalizing behaviors (bullying perpetration and deviance). Since no group differences were found between the two groups regarding peer victimization and cybervictimization, further research is warranted to further test this question. Importantly, health status did not moderate the links between maternal support, closeness, or monitoring and adolescent bullying victimization, perpetration, and deviant behaviors. At the same time, certain qualities of the maternal relationship were found to be important predictors of adolescent bullying victimization, perpetration, and externalizing behaviors, for both youth with and without medical conditions. Therefore, evidence from the current study can inform both researchers and clinicians of the importance of the adolescent-maternal relationship for both groups of adolescents when considering their adjustment and developmental outcomes. In addition, the current study is the first of its kind to examine cybervictimization for adolescents with medical conditions, which adds valuable knowledge to existing literature.

APPENDICES

APPENDIX 1. DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

1. In what year were you born?
2. In what month were you born?
3. What grade are you in?
 - a. 6th grade
 - b. 7th grade
 - c. 8th grade
 - d. 9th grade
 - e. 10th grade
 - f. 11th grade
 - g. 12th grade
4. What is your sex?
 - a. Male
 - b. Female
5. What is your primary medical diagnosis?
 - a. Cancer – first diagnosis
 - b. Cancer – relapse
 - c. Sickle Cell Disease
 - d. Anemia (any kind)
 - e. ITP
 - f. Other
6. How long have you had your primary medical diagnosis?
 - a. Less than 6 months
 - b. 6 months – 1 year
 - c. 1-2 years
 - d. 2-3 years
 - e. 3-4 years
 - f. 4-5 years
 - g. 5 more more years
7. Does anyone else in your family have the same medical diagnosis as you?
 - a. Yes
 - b. No
8. If someone has the same medical diagnosis as you, who is it?
9. Do you have any of the following medical problems in addition to your primary diagnosis? (Please select all that apply.)
 - a. Asthma
 - b. Arthritis
 - c. Diabetes
 - d. Headaches/migraines
 - e. Heart disease
 - f. Obesity
 - g. None
10. Do you have any of the following? (Please select all that apply.)
 - a. ADHD
 - b. Anxiety
 - c. Depression
 - d. Mood disorders
 - e. None
11. What is your race/ethnicity?
 - a. African American (Black)
 - b. American Indian/Native American
 - c. Asian American
 - d. European American (White)
 - e. Hispanic/Latino
 - f. Native Hawaiian/Pacific Islander
 - g. Other
12. How many people live with you?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5 or more
13. How many siblings do you have that live with you?
 - a. 0
 - b. 1
 - c. 2

- d. 3
e. 4 or more
14. In what type of home do you live?
a. Trailer
b. Apartment duplex
c. Condo or townhouse
d. House
15. Which of the following home situations best applies to you? "I live with my..."
a. Biological parents
b. Biological mother only
c. Biological father only
d. Biological mother and stepfather
e. Biological father and stepmother
f. Biological parent and significant other
16. My biological parents are...
a. Married
b. Remarried
c. Divorced
d. Separated
e. Widowed
f. They never married
17. Does your father/stepfather or male caretaker work?
a. Does not apply/I don't know my father
b. He does not work
c. He is unemployed, but looking for work
d. He has one part time job
e. He has one full time job
f. He has multiple jobs (amounting to more than 1 full time job)
18. How much education does your father/stepfather or male caretaker have? (Give your BEST guess if you don't know for sure!)
a. Does not apply
- b. He finished elementary or junior high school (through 9th grade)
c. He finished high school (through 12th grade)
d. He finished some college or technical school
e. He has a college degree (4 years)
f. He has a graduate degree (advanced degree, e.g., masters or doctorate)
19. Does your mother/stepmother or female caretaker work?
a. Does not apply
b. She does not work
c. She is unemployed, but looking for work
d. She has one part time job
e. She has one full time job
f. She has multiple jobs (amounting to more than 1 full time job)
20. How much education does your mother/stepmother or female caretaker have? (Give your BEST guess if you don't know for sure!)
a. Does not apply
b. She finished elementary or junior high school (through 9th grade)
c. She finished high school (through 12th grade)
d. She finished some college or technical school
e. She has a college degree (4 years)
f. She has a graduate degree (advanced degree, e.g., masters or doctorate)
21. How much education does your father/stepfather or male caretaker have? (Give your BEST guess if you don't know for sure!)?

- a. Some high school
 - b. High school
 - c. Associate degree
 - d. Bachelor's degree
 - e. Master's degree
 - f. Doctorate degree
22. Please pick one of the following choices describing your family's approximate total annual income:
- a. 20,000 or less
 - b. 20,000-35,000
 - c. 35,000 to 60,000
 - d. 60,000-100,000
 - e. 100,000 or more

APPENDIX 2. ADOLESCENT FAMILY PROCESS MEASURE – MOTHER

Below is a list of statements dealing with your general feelings about your mother. Please indicate how strongly you agree or disagree with each statement.

1. Strongly Disagree
2. Disagree
3. Neither Agree nor Disagree
4. Agree
5. Strongly Agree

1. My mother often asks about what I am doing in school.
2. My mother gives me the right amount of affection.
3. One of the worst things that could happen to me would be to find out that I let my mother down.
4. My mother is usually proud of me when I finish something at which I've worked hard.
5. My mother trusts me.
6. I am closer to my mother than are a lot of kids my age.
7. My mother sometimes puts me down in front of other people.
8. Sometimes my mother won't listen to me or my opinions.
9. My mother sometimes gives me the feeling that I'm not living up to her expectations.
10. My mother seems to wish I were a different type of person.
11. My mother wants to know who I am with when I go out with friends or on a date.
12. In my free time away from home, my mother knows who I'm with and where I am.
13. My mother wants me to tell her where I am if I don't come home right after school.
14. When I am not home, my mother knows my whereabouts.

Please indicate how often you take part in the following activities:

0. Never
1. Occasionally
2. Sometimes
3. Often
4. Very Often
15. How often do you talk to your mother about other things that are important to you?
16. How often do you talk to you mother about major personal decisions?
17. How often do you have disagreements or arguments with your mother?
18. How often do you purposely not talk to your mother because you are mad at her?
19. How often do you get angry at your mother?
20. How often do you talk with your mother about problems you have at school?
21. How often do you talk with your mother about your job plans for the future?
22. How often do you talk with your mother about how well you get along with your teachers?
23. How often does your mother approve of your friends?
24. How often does your mother approve of your boyfriend/girlfriend?
25. How often does your mother like when you go out with friends?

APPENDIX 3. NORMATIVE DEVIANCE SCALE SHORT FORM

Please answer the ten items using the following scale:

1. Never
2. Once
3. 2-3 times
4. 4-6 times
5. More than 6 times

Have you ever...?

1. Intentionally damaged or destroyed property belonging to a school, college, or university?
2. Intentionally damaged or destroyed other property (signs, windows, mailboxes, parking meter, etc.) that did not belong to you?
3. Stolen, taken, or tried to take something that belonged to "the public" (e.g., street signs, construction signs, etc.)?
4. Got drunk (intentionally) just for the fun of it (at any age)?
5. Gone to a concert when you were drunk or high on drugs?
6. Gone to school when you were drunk or high on drugs?
7. Been in trouble at school so that your parents received a phone call about it?
8. Stayed out all night without informing your parents about your whereabouts?
9. Stolen, taken, or tried to take something worth between \$10 and \$100 (e.g., shirt, watch, cologne, video game, shoes, money, etc.)?
10. Hit or threatened to hit other students/peers or people?

APPENDIX 4. BULLYING AND CYBERBULLYING SCALE

Please answer these 16 items using the following scale:

1. Never
2. Once or twice
3. 2-3 times a month
4. Once a week
5. Nearly every day

1. How often have you insulted or hurt other students during the last two months?
2. How often have you insulted or hurt other students by verbally harassing them during the last two months? (verbal)
3. How often have you insulted or hurt other students by physically harassing them during the last two months? (physical)
4. How often have you insulted or hurt other students by socially excluding them during the last two months? (exclusion)
5. How often have you insulted or hurt other students by sending mean text messages, e-mails, videos or photos to them during the last two months?
6. How often have you insulted or hurt other students by mean calls during the last two months? (cyber call)
7. How often have you insulted or hurt other students by mean text messages during the last two months? (cyber text)
8. How often have you insulted or hurt other students by mean videos or photos during the last two months? (cyber video/photo)
9. How often have you been insulted or hurt by other students during the last two months?
10. How often have you been insulted or hurt by other students by verbal harassments during the last two months? (verbal)
11. How often have you been insulted or hurt by other students by physical harassments during the last two months? (physical)
12. How often have you been insulted or hurt by other students by being socially excluded during the last two months? (exclusion)
13. How often have you been insulted or hurt by other students by receiving text messages, e-mails, videos or photos during the last two months?
14. How often have you been insulted or hurt by other students by mean phone calls during the last two months? (cyber call)
15. How often have you been insulted or hurt by other students by mean text messages during the last two months? (cyber text)
16. How often have you been insulted or hurt by other students by mean videos or photos during the last two months? (cyber video/photo)

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