MENTAL HEALTH IN ADOLESCENTS AFFECTED BY HIV: AN ATTACHMENT STYLE PERSPECTIVE

by

JENNIFER NICOLE WEAVER

(Under the Direction of Bernadette D. Heckman)

ABSTRACT

Those who are born from a mother who is HIV positive but do not contract the virus themselves are often referred to as HIV affected. The focus of this study was understanding the patterns of attachment style for this sample of affected youth, aged 8-18 years. Sixty participants completed a survey packet examining their attachment style, parentification, and mental health outcomes along with their HIV positive parent's responses on the BSI-18, demands of illness inventory, and a demographic questionnaire. Results showed that while attachment style was significantly predictive of same of the outcome measures, it only accounted for a low amount of the variance in the mental health outcomes when the other factors were entered into the model. Future directions and limitations are also reviewed.

INDEX WORDS: HIV, affected youth, HIV affected, attachment style, disclosure status, parentification

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DEDICATION

For my children who have continually inspired me to complete this degree, yet have loved me the same through every season. For my husband and family for their unwavering support and love.

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CHAPTER ONE

Introduction

It is estimated that 1.2 million individuals aged 13 and older in the United States are living with HIV (CDC, 2014; CDC, 2018). The rate of new infections has declined by more than two-thirds since the 1980s (CDC, 2014). A contributing factor behind the decline in HIV incidence rates is the drastic reduction in vertical/perinatal transmission rates between mother and child, which has reportedly declined more than 95% since the 1990s (CDC, 2020). In 2018, less than 1% of the new HIV cases were due to perinatal exposure. According to results from the CDC's Enhanced Perinatal Surveillance, approximately 3% of exposed babies, which is defined as babies born to mothers who are HIV positive, were infected in 2005. If only 3% were infected, that leaves 97% who are uninfected yet are born to mothers who are HIV positive. The term for children who are not HIV infected but whose parents are HIV infected is *affected offspring (*i.e., Brackis-Cott et al., 2003; Hough et al., 2003; Murphy et al., 2010). Despite the drastic decline in perinatal transmission rates (CDC, 2006; CDC, 2020), the number of affected offspring is on the rise and is expected to keep rising (Forehand et al., 2002). As further evidence, the CDC (2015) reported that in 2000 there were approximately 6500 women who are HIV positive that gave birth in the United States. By 2006, the number had increased 30% to 8,700 births by women who are HIV positive. Women are continuing to become infected with HIV and continuing to have children, so while vertical transmission rates are now low, the number of HIV positive women having children (also known as *affected offspring*) is increasing

or remaining steady. With the numbers of affected offspring, there is a need to understand the psychological experience of children whose parents are living with HIV.

HIV Affected Youth

The term commonly used in the research literature to describe family members who are HIV negative but who have a family member who lives with HIV is *HIV affected* (i.e., Brackis-Cott et al., 2003; Hough et al., 2003; Murphy et al., 2010). In the current study, children who live with a parent (s) who is HIV seropositive will be referred to as *HIV affected offspring/children/youth*. HIV affected offspring often experience psychosocial stress (i.e., Biggar & Forehand, 1998; Murphy, Roberts, & Herbeck, 2013; Pilowsky et al, 2013). The effects of the increased stress that HIV affected youth endure is seen at many levels, including community (i.e., school delinquency), familial (i.e., strained parent-child relationship) and individual (i.e., personal adjustment/depression).

HIV affected youth report being under significant stress as the result of a wide-range of stressors including the parent's illness, separation from parents when parental hospitalizations occur, financial difficulties, and perceived stigma related to their parent's infection (Murphy, Roberts, & Herbeck, 2013). The affected youth reported taking on additional adult responsibilities as a result of their parents' illness (Murphy, Roberts, & Herbeck, 2013) and are at increased risks for externalizing behaviors compared to HIV unaffected offspring (i.e., Esposito et al., 1999; Pilowsky et al., 2013). For example, compared to non-HIV affected kids, HIV affected kids had higher rates of delinquency and aggression (Forehand et al 1998) and more school difficulties, such as increased absences, poorer grades and participation, and lower educational attainment than the general population (Guo, Li, & Sherr, 2012). In general, studies comparing HIV affected and unaffected youth repeatedly demonstrate that youth affected by

HIV experience externalizing behaviors at a higher rate, such as increased absences, higher dropout rates, and more oppositional behaviors.

HIV affected youth also demonstrate higher levels of internalizing problems (i.e., Foresyth et al., 1996; Biggar & Forehand, 1998). HIV affected kids report more symptoms of depression, such as being more withdrawn, experiencing more sadness and increased attention problems compared with HIV unaffected youth (Biggar & Forehand, 1998; Forsyth, Damour, Naglin, & Adnopoz, 1996). Esposito et al (1999), compared HIV affected and unaffected youth on self and maternal ratings of depression and anxiety and found that the HIV affected kids endorsed more depression and anxiety than the unaffected kids. The abovementioned studies provide evidence supporting that HIV affected youth are suffering from symptoms of anxiety and depression significantly more than their non-HIV affected peers.

Potential moderating and mediating variables for the negative outcomes for the HIV affected youth have been examined, including HIV status disclosure, parentification, and the parent-child relationship. Decades of research have examined the mental health outcomes based on parental status HIV disclosure (i.e., Murphy, Marelich, & Hoffman, 2002; Nagler, Adnopoz, & Forsyth, 1995; Weiner & Septimus, 1990), and have concluded, that typically those who are disclosed to are functioning better than those who are uninformed or ill-informed. HIV affected adolescents have endorsed distress that has been shown to be positively correlated with taking on adult roles (Stein, Riedel, & Rotheram-Borus, 1999). However, kids report taking on more responsibilities than the parents report that the child takes on (Bauman et al., 2006). Some researchers have reported increased parent-child conflict from mothers who are living with HIV (Rotheram-Borus, Robin, Reid, & Draimin, 1998). Other work has shown that in families with HIV-positive mothers, parental monitoring, the mother-child relationship and structure within the

home can lead to better mental health outcomes in the affected children (Dutra et al., 2000; Rotheram- Borus, Stein, & Lester, 2006). One study showed that the better the parent-child relationship, the lower the child depression inventory was for the affected youth (Bauman, Foster, Silver, Berman, Gamble & Muchaneta, 2006).

Attachment Style Literature

While research with HIV affected youth has examined components of the parent-child relationship, no study to date has examined parental attachment for this population. However, researchers with the general population have been guided by Bowlby's framework while investigating the etiology of anxious and depressive symptoms (Bifulco et al, 2002; Jinyoa et al., 2012; van Eijck et al., 2012). Evidence from many studies shows secure attachment as a protective factor for adolescent's psychological well-being (Woodhouse et al., 2010). Securely attached individuals view others as supportive and the self as competent (Bretherton & Munholland, 2008). Studies have also documented the negative ramifications of insecure attachment styles. Jinyoa et al. (2012) surveyed 662 college students and found that depressive and anxious symptoms were both correlated with insecure-anxious and avoidant attachments. Brenning et al. (2012) found that an adolescent's avoidant attachment and anxious attachment were correlated with internalizing symptoms.

While attachment style has not fully been examined specifically for HIV affected adolescents, researchers have recently investigated parental chronic illness and its effects on childhood attachment formation. Miller (2008) studied the impact of parental cancer on adolescent adjustment. Miller's results showed that adolescents affected by parental cancer had more insecure attachment to parents compared to the control group of adolescents who were not affected by parental cancer. Further results showed that attachment style fully mediated the

relationship between cancer-related stressors and emotional symptoms reported by the adolescent. Similarly, van der Meet et al (2014) studied adults experiences of growing up with a parent with a genetic disorder, such as Huntington's Disease, Cerebral Autosomal Dominant Arteriopathy, etc. compared to adults who grew up with a parent who did not have any of these genetic diseases. Adults who were raised with a parent with one of these genetic disorders showed more attachment anxiety and reported poorer mental health. Parental mental health difficulties also disrupt attachment. For example, Murray, Fiori-Cowley, Hooper, and Cooper (1996) found that women who suffered from depression were less attuned to their babies needs and less reaffirming to the child. Similarly, Smith (2004) reviewed the literature and concluded that approximately 60% children of parents with a mental illness are going to experience a mental illness as well.

In sum, secure adolescent attachment is linked with positive outcomes (i.e., adaptive thinking, less anxiety) whereas insecure attachment (anxious or avoidant attachment styles) is correlated with negative outcomes (i.e., increased depression, more internalizing symptoms).

STATEMENT OF THE PROBLEM

More HIV positive women are having children than in decades past (CDC,2015; CDC, 2020). While medical advances and educational outreach have reduced the number of perinatal transmissions between mother and child (CDC,2006), the increased number of women becoming HIV infected and having children is increasing the number of children living with parents with HIV.

Studies characterizing the psychosocial stress experienced by the HIV affected youth population consistently showed higher levels of internalizing and externalizing problems compared to control groups, often even after confounds such as demographic variables were

controlled (i.e., Esposito et al., 1999; Hough et al., 2003; Murphy et al., 2010; Pilowsky et al., 2013). Research has established the increased experiences of internalizing (e.g., depression) and externalizing (e.g., disruptive behaviors) symptoms for the kids who are living with a parent who is living with HIV; the research focus has shifted to examine factors that are related to the outcome behaviors within those who are HIV affected. Many factors related to increased HIV affected youth outcomes have emerged in the literature, such as parent's HIV status disclosure (i.e., Murphy,Steers, & Dello Stritto, 2001), parental physical and mental well-being (i.e.,Biggar and Forehand, 1998), parentification of the child (i.e., Brackis-Cott, Mellins, & Block, 2003) and parent-child relationship (i.e., Bauman, Foster, Silver, Berman, Gamble & Muchaneta, 2006). However, generalizations across these studies are sometimes difficult to make because researchers use different operational and conceptual definitions of the same or a similar concept. For instance, some compare HIV status disclosure as a dichotomous variable whereas others have viewed it as existing on a continuum ranging from *fully disclosed* to *partially disclosed* to *no disclosure*.

According to recent reports, the number of vertical transmissions is less than 3%, meaning 97% of those born to a mother with HIV are affected by HIV. However, with the appropriate treatments, the risk of vertical transmission can be below 1% (Coutsoudis, Kwaan, & Thomson, 2010), meaning that approximately 99% of children born to HIV infected mothers would themselves be affected by HIV rather than infected with HIV. Women of childbearing age are the fastest growing population becoming infected with HIV and many of these women are having children, likely due to medical improvements that have drastically reduced vertical transmission rates. Considering the numbers of affected offspring are on the rise, there is a need to identify what factors are related to mental health outcomes experienced by this group.

Research especially needs to capture the experiences of adolescents as most of the published literature on this topic is focused on childhood (Mellins et al, 2008). Learning if there are factors that are related to the affected offspring's mental health could inform interventions focused on building resiliency and promoting positive mental health for this group. The goal of this study is to contribute to the body of literature by further examining these factors and attempting to parse out their effects on mental health outcomes for HIV affected adolescents.

Several things are known from the above reviewed literature. However, most of what is known is based on parental report (Murphy et al, 2010) and focused on child populations (Mellins, et al., 2008). This approach of surveying parents alone is insufficient as parent and child reports of child well-being are often times inconsistent (Murphy, Marelich, & Hoffman, 2002). Additionally, adolescents, rather than just children, should be studied. The current study will investigate children and adolescents who are currently HIV affected and explore their perspective as well as their parents' perspective. Most of the published research is from northern or western samples. Yet, with the growing numbers of HIV cases in the South, there is a need to investigate this population. This study will begin to fill that gap, as the sample will be recruited from a southern state, but will not be limited to the southern USA as online participation is an option.

No published study has holistically examined attachment style as a potential factor influencing psychological well-being for the affected offspring. Some studies have examined proxy variables, such as parental communication or parent-child relationship (Bauman, Foster, Silver, Berman, Gamble & Muchaneta, 2006; Dutra et al., 2000; Millens et al., 2008; Murphy et al., 2008; Rotheram-Borus, Robin, Reid, & Draimin, 1998; Rotheram- Borus, Stein, & Lester, 2006). While parental communication and the parent-child relationship are components of

attachment style, neither variable alone holistically captures the concept as originally posited by Bolwby. For instance, trust, which is a foundational component of attachment theory, has not been investigated in this literature. The current study seeks to fill this gap in the literature by examining attachment style for this population. The purpose of this study is to examine the effect of parental attachment style on the reports of psychosocial distress by HIV affected adolescents.

THEORETICAL FRAMEWORK

Attachment theory was described by Bowlby (1969/1982, 1973, 1980) as a human need/drive for attachment to a primary caregiver as a means of survival. According to Bowlby and Ainsworth, babies use primary caregivers as a base from which to explore. One's attachment style is based on four tenets: proximity maintenance (a desire to be close to those we are attached), safe haven (returning to those we are attached to for safety when fear arises), secure base (the attachment figure), and separation distress (anxiety that occurs when separated from the attachment figure; Bowlby 1969/1982, 1973, 1980). Ainsworth observed this behavior in the famous Strange Situation study (Ainsworth & Whittig, 1969; see Figure 1). Working with the 4 tenets of this theory, three attachment styles were derived from observations of the infants: secure, ambivalent and avoidant attachment styles. Secure attachment is desirable. Through this attachment, the child begins to build trust and this relational model will eventually serve as the template for future relationships. Avoidant attachment is characterized by no distinguishable differences in the attachment figure's and the stranger's interactions with the infant. The baby has no preference for the "attachment figure." This will be the relational scheme the child uses for future relationships. Ambivalent attachment is characterized by extreme distress when the caregiver departs and inability to be comforted once the caregiver returns and may even reject

the caregiver. This style is often associated with anxiety and, as the other two, serves as the relational model for future relationships.

Many researchers have extended beyond focus on infants and toddlers regarding attachment style. Shaw et al. (1997) assessed attachment during infancy and later in preschool. Their findings showed that those observed to be insecure as infants were more likely to be anxious in preschool. Additionally, Armsdeb and Greenberg (1987) have found that attachment to both parents has been shown to be positively correlated with positive psychological well-being and the absence of poor mental health outcomes for kids and adolescents. For example, Eng and Heimberg (2006) found that perceived insecure attachment from the adolescent perspective was more common in those diagnosed with GAD compared to those without this diagnosis. Hale et al. (2006) also showed that GAD symptoms predicted insecure attachment. Furthermore, Van Eijick, Branje, Hale and Meeus (2012) looked at longitudinal associations between GAD symptoms and parental attachment in adolescents. For mothers, GAD symptoms negatively predicted perceived attachment over time, whereas with fathers, the relationship was bidirectional.

Attachment can act as a protective factor, even when the parent has mental health symptoms. Woodhouse et al. (2010) showed that adolescent attachment moderated the association between parent and child psychological symptoms, such that when parents were anxious, high security attachment was a protective factor, even when one or both parents also experienced depressive symptoms. Additionally, internalizing the mother as a secure base mediated the relationship between maternal and adolescent depressive symptoms. This relationship was not observed for fathers.

Attachment style has also been shown to be predictive of safer sex practices in adolescents. Doneberg, Emerson and Mackesy-Amiti (2011) found that for sexually active African American females (12-16 years old), those with greater maternal attachment were less likely to report inconsistent condom use. Concerning adulthood, Bifulco, Moran & Bernazzani (2002) showed that the presence of any insecure attachment based on a global scale of attachment to supportive systems, was related to depression over a 12-month period.

In summary, Secure attachment is often found to be a protective factor (Woodhouse et al., 2010). Internalizing and externalizing symptoms have been shown to be related to insecure forms of attachment (Brenning et al., 2012; Jinyoa et al., 2012).

RESEARCH QUESTIONS

What are the attachment styles of HIV affected children and adolescents? We suspect that approximately half the participants will have secure attachment and the other roughly 50% will be insecurely attached. Our second question is there a relationship between attachment styles and psychosocial well-being among HIV affected kids? Consistent with Attachment Theory, we hypothesize that HIV affected adolescents who are securely attached will have better mental health outcomes than HIV affected adolescents who are insecurely attached. Specifically, we predict that those who are securely attached will have better outcomes on the BASC scales of internalizing problems, externalizing problems, inattention/hyperactivity, emotional symptom index and personal adjustment than those who are insecurely attached. Our final question is will attachment styles be associated with the mental health outcomes above and beyond the other moderators and mediators presented, including parental disclosure, parental mental health and parentification. We suspect that it will account for variance above and beyond the other variables.

CHAPTER TWO

Literature Review

The CDC (2015) defines HIV (human immunodeficiency virus) as a virus that affects immune system cells called CD4 cells. It is spread through body fluids, such as blood. Eventually HIV destroys so many of the CD4 cells that one's body loses the ability to fight off infections. HIV was first acknowledged as an epidemic in the United States in the 1980s (CDC, 2014). Currently, 1.2 million individuals in the United States are living with HIV.

Since the epidemic in the 1980s, efforts have been successful in reducing the transmission rate of HIV (CDC, 2014). Historically, one of the typical routes of transmission was vertical transmission. According to the World Health Organization (WHO; 2010), vertical transmission is when a mother passes the virus to her baby in utero, while giving birth or through breastfeeding. Without interventions the risk of transmission during pregnancy and delivery is 15%-30% with an additional 10%-20% risk through breastfeeding, for a collective risk of 15-45%. However, with interventions, including antiretroviral therapy medications throughout the pregnancy, a cesarean delivery and no breastfeeding, the risk of transmission is drastically reduced to less than 2%. Resultantly, the number of children born to HIV positive mothers who do not contract the disease themselves is steadily rising (National Institute of Health; NIH, 2015).

Children who are born to HIV positive parents but remain HIV negative are referred to as HIV "affected" offspring (i.e., Brackis-Cott et al., 2003; Hough et al., 2003; Murphy et al., 2010). This population, while not usually the target of interventions, tends to suffer psychological distress associated with the parental disease.

Youth affected by HIV report being under significant stress, including the parent's illness, separation from parents when parental hospitalizations occur, financial difficulties, and perceived stigma (Murphy, Roberts & Herbeck, 2013). Murphy, Roberts and Herbeck (2013) conducted qualitative interviews with adults about their experience growing up with an HIV infected mother. Results yielded six negative themes and three positive themes. Participants reported feeling disappointment when their mother missed activities, even though they understood that her absence was due to being ill. They endorsed worrying over their mother's health and the possibility of her imminent death. Lastly, they reported feeling an increased burden of adult responsibilities as well as increased care giving duties. Many of the participants felt that they had to live in a state of secrecy because of the stigma around the disease. Interviewees said they had to self-monitor their behaviors and filter communication with their mothers in order to avoid adding additional maternal distress. Regarding the positive reports, participants said they felt an increased closeness to their mothers, they enjoyed the "perks" (i.e., getting free stuff, going to summer camps) given to HIV families, and lastly, they developed positive personality traits as a result of their mother's condition. These positive traits reported were being open-minded, having gratitude for things often taken for granted and feeling resilient. A critique of this study is that it relied on adults retrospectively reporting their experiences of growing up with a parent living with HIV, rather than asking participants within the age range of clinical interest.

Along similar lines, Bogart et al (2008) interviewed parents living with HIV (33), their adult (19) and minor (27) children and one other caregiver (15). Content analysis of the interviews showed that all families experienced stigma at some point or another. For the HIV affected youth, 53% reported feelings of stigma associated with the parent's infection. However, participants reported that they felt less stigmatized by individuals who had more HIV-specific

knowledge. Their research identified the need for a scale that measures stigma experienced by the affected family members as well.

Researchers have compared HIV affected youth to unaffected youth and found that typically HIV affect youth display more externalizing symptoms and internalizing symptoms (i.e., Esposito et al., 1999; Forehand et al., 1998; Pilowsky et al., 2013). Forsyth, Damour, Nagler, Adnopoz, Chernoff and Ireys (1996) compared 26 HIV affected offspring to 26 unaffected HIV. They matched the target and control group on age, sex, race, maternal employment, and maternal marital status. Children's ages ranged from 6 to 16 years. The researchers had mothers complete the Child Behavior Checklist, Revised **Children's** Manifest Anxiety Scale and the **Children's** Depression Inventory. Confounds were statically controlled. Results from the Child Behavior Checklist showed that affected children were significantly more withdrawn and had more attention problems. The affected children's mothers reported more depression on the Child Depression Inventory than did the control group, but there were not differences in anxiety ratings on the Revised Children's Manifest Anxiety Scale. They further divided the HIV affected group into asymptomatic and symptomatic based on mother's condition. The researchers found that symptomatic mother's kids endorsed more anxiety and depression than asymptomatic kids. Authors conclude that future work should examine more specifically what factors are related to resiliency and problematic outcomes for the HIV affected offspring. Or in other words, research should begin to do within group comparisons for the HIV affected youth.

Biggar and Forehand (1998) investigated maternal depression as it is related to depression for HIV affected youth. The youth in this study were 6 to 11 years old, African American and were from the inner-city New Orleans area. For the mothers, depression rates

were gathered using the Brief Symptom Inventory. Depression was assessed for the kids utilizing the Child Depression Inventory - Self Report. Results were contrasted with a comparison group of uninfected mothers and their unaffected children. Results revealed a that for the affected youth, the clinical depression rate on the CDI was 13% compared to only 4% in the unaffected control group, which is a significantly difference. Maternal depression was a moderator of child depression. Specifically, for the HIV sample, high maternal depression was related to fewer child depressive symptoms. The opposite relationship was observed for the uninfected/unaffected sample. A limitation in this study was the method of data collection. Data was collected from the HIV positive mothers and their children in a hospital, whereas the control data was collected in a school setting. Although this limitation may not have been avoidable, researchers should strive to collect data in as consistent manner as possible.

Forehand and co-researchers (1998) published the first article to include the HIV affected youth's self-report, rather than relying exclusively on parental report measures. They compared HIV affected and unaffected kids across internalizing problems, externalizing problems, cognitive competence and prosocial competence. The HIV affected and unaffected children in their study ranged in age from 6 to 11 years, were African American and lived in the inner-city. Mother and child reports of externalizing behaviors was significantly higher for the HIV affected kids compared to the unaffected group. More specifically, the HIV affected youth had higher rates of delinquency and aggression than the unaffected group, even after controlling for demographics. Additionally, the HIV affected child ratings on the Child Depression Inventory were significantly higher than the ratings from the control group of kids. Unaffected youth were rated as more socially competent by their mothers compared to the HIV affected youth. However, no significant group differences existed on cognitive competence. While the authors

asserted that their study was the first to include child self-report measures, Forsyth et al. (1996) had affected offspring complete the CDI and RCMAS.

In 1999, Esposito and co-researchers compared mother's reports externalizing symptoms from their child between HIV affected offspring and unaffected offspring. The participants in their study ranged in age from 6 to 11 years. There were 39 children in the HIV affected group and 78 in the unaffected group. The mothers living with HIV reported that their children had significantly more problems with attention, adjusting socially, and externalizing symptoms, such as disruptive behaviors and defiance, than the HIV negative mothers reported. On the child completed self-reports, the HIV affected group reported significantly higher levels of anxiety and depression than the unaffected children. Of note, the affected kids consistently reported more symptoms than their caregivers perceived the kids experienced, which demonstrates why relying exclusively on parental report of youth's experiences is a major limitation. A limitation of this study is that the control group utilized was not matched to the target group used, in terms of demographics.

Guo, Li and Sherr reviewed over 20 studies that investigated the impact of parental HIV on the affected offspring's school career. They found that HIV affected youth are more likely to be absent from school, have poor grades and lower in class participation. Additionally, the HIV affected offspring are also at risk of dropping out and in general have lower educational attainment. They are also limited and often unable to participate in extracurricular activities. In general, the trend across these studies demonstrated increased school difficulties for the HIV affected youth.

Pilowsky et al. (2013) gathered a subgroup of 61 participants from a study of inner-city African American injection drug users. All participants had one or more children aged 6 to 11

years. More specifically, they compared parents living with HIV reports of children's psychosocial adjustment to uninfected parent's reports of children's psychosocial adjustment. Results showed that HIV infection was associated with an 8-times increase in disruptive behavior disorders compared to the unaffected group. Parental depression was related to a 3-fold increase in disruptive behavior disorders. The sample used in this study seems to be smaller than the sample used in similar studies. Also, information was not gathered about other caregivers in the household currently or historically. The parent in this study may not have been the primary attachment figure for the children, as the history of injection drug use could have had the children being raised by another parent or family member prior. This could explain the lack of significant findings. Also, having a parent who is an injection drug user could already be a stressor, which could wash out any effects that the HIV status would have on the psychosocial adjustment of affected kids.

Taken together, the above reviewed studies demonstrate that affected offspring, or children who are living with a parent who is living with HIV, are experiencing more distress and psychosocial stressors than same-age peers. Often these correlations and findings remain steady even once confounds (i.e., gender, maternal marital status) are controlled for.

Within group differences for those offspring affected by HIV have also been empirically explored.

Parent's Mental and Physical Well-being and Mental Health Outcomes for HIV Affected Youth

Another area often explored in the research is HIV positive parent's well-being and what affect their well-being has on the mental health outcomes for their children (i.e., Biggar & Forehand,1998; Murphy, Marelich & Hoffman, 2002; Murphy, Marelich, Hoffman, & Schuster,

2006). According to work by, Marelich, Hoffman and Schuster (2006), parental health is usually the strongest variable related to the mental health outcomes of HIV affected youth.

In a longitudinal study, Murphy, Marelich and Hoffman (2002) found that HIV positive mother's physical health was correlated to levels of depression for the affected youth. As the mother's CD4 count (a measure of health) decreased, the affected youth's depression increased.

Murphy, Marelich and Herbeck (2011) conducted 12-year study. They noted that adolescents still experience the anxiety and depression that is well established for the research on this population. However, they reported a decline in symptomology as an affected child gets older. Similarly, confidence increases with age, which may explain some of the decline in symptoms experienced. Despite the age of the affected offspring, overall well-being and maternal health are still correlated. The better the mother's health, the better the well-being of the affected offspring. Similar to the other associations, this relationship is not as strong as one ages, but it does still remain significant. This study high lights the need to evaluate adolescents' well-being rather than only kids 6-11.

A study comparing 99 HIV positive mothers and 148 HIV negative mothers on their children's psychosocial adjustment found an ascending linear trend beginning at the non-infected stage and progressing up to the more intense stages as the disease progresses (Dorsey et al., 1999). Essentially, as the mother's health gets worse, the child's internalizing and externalizing symptoms increase.

Parental HIV Status Disclosure and Mental Health Outcomes for HIV Affected Youth

Disclosure of one's HIV status to their children and the children's reactions is another area that has been researched. According to Forsyth et al (1996), spikes in anxiety sometimes occur once an HIV affected youth learns of his/her parent's HIV positive status. Armistead et al

(1997) compared HIV affected adolescents who knew about their parent's HIV status to those who did not. Those who knew about the HIV diagnosis reported experiencing higher levels of depression than those who did not know about their parent's status.

Some research has examined affected youth's responses upon learning about their parent's HIV status. For instance, Nostlinger et al (2006) documented emotional and behavioral reactions in affected youth living with an HIV following disclosure of the parent's HIV status. Of note, the reports of the youth's reactions were from the parent's perspective. Reactions were characterized as depressive (39%), mature (27%), anxiousness (11%), other (7%), none in particular (16%). However, family functioning may act as a buffer as it presented as a protective factor for this sample. Nostlinger et al (2006) concluded that many behavioral problems were endorsed for their sample for the time period immediately following disclosure.

Very few studies have examined the viewpoint of the father's disclosure to their children as most research is centered around HIV infected mothers (Letteney, 2012). Letteney investigated 41 custodial fathers from New York about experiences surrounding their level of disclosure about their HIV status to their children. Eighty-three percent had disclosed partially or fully disclosed. Approximately 88% of participants believed that it was important to them for their children know their HIV status. However, the children's age was a reported an area of consideration when determining how much to disclose or withhold. Older children typically were more fully informed than their younger counterparts. A theme that was overwhelmingly evident from this study was that fathers are reporting they need help with handling disclosure to their children. Over 90% of these fathers endorsed the statement that parents LWHIV need assistance (i.e., social worker, therapist, educational materials, etc.) with disclosure.

Murphy, Steers & Dello Stritto (2001) found positive effects for children who are privy to their parent's health status. When they compared affected kids who were informed of their mother's serostatus to those who were uninformed, aggression levels were lower and self-esteem was higher for those who were in the informed group (Murphy,Steers, & Dello Stritto, 2001).

According to results from a longitudinal study HIV affected offspring, regardless of disclosure status, negative mood and negative self-esteem decreased over a one-year period (Murphy, Marelich, & Hoffman, 2002). However, at the end of the year, between group comparisons showed that the uninformed group reported more negative self-esteem than their informed peers. The uninformed group also have higher levels of depression on the CBCL than the normative table provided in the manual. Lastly, those with healthier moms were more likely to show positive improvements over the year, including reduced negative mood, anhedonia and overall depressive presentations. For this analysis, healthy moms had CD4 counts above 500 whereas the unhealthy mothers did not. Results are somewhat mixed as to whether the disclosure is beneficial or not. However, most of this work is with a younger population (6-11) and does not examine how an adolescent is coping with or without the knowledge of their parent's HIV positive status.

Parentification of the Youth and Associated Mental Health Outcomes

Since kids with chronically ill parents often take on adult responsibilities, parentification is an area that has been empirically evaluated for this population. A child taking on adult roles is termed "parentified" (Earley & Cushway, 2002) and young caregivers are defined as those under the age of 18 who help care for a family member (Early & Cushway, 2002). According Super's (1990) Life Span Life-Space developmental theory, separation from the immediate family in attempt to form one's personal identity is the chief developmental task during adolescents.

However, disease states, like parental HIV, could require family adaption, such as children taking on additional roles to compensate for the ill parent(s) (Levine, 1995), which may impede separation from the immediate family. Consequently, researchers have explored what the relationship between parentification of the child and mental health outcomes is for this population. HIV positive mothers endorse worrying about their kids taking on adult roles too early in life (Brackis-Cott, Mellins, & Block, 2003). Almost echoing the HIV positive mother's concerns, affected adolescents have endorsed distress that has been shown to be positively correlated with taking on adult roles (Stein, Riedel, & Rotheram-Borus, 1999). Bauman, Foster, Silver, Berman, Gamble and Muchaneta (2006) conducted a study on parents' and kids' perspectives on parentification of youth when parents are living with HIV. For this study, a New York sample was contrasted against a Zimbabwe sample. All parties endorsed increased responsibilities for the affected children that included helping care for parents. Approximately 45% of youth from New York said they have too many responsibilities compared to only six percent of New York parents reporting that their kids have too many responsibilities. Kids from New York reported decreased time to spend with peers and for extracurricular events. The New York youth sample had higher depression rates than the Zimbabwe sample, however, the depression rates were unrelated to care giving. Additionally, another adult living in the home was not a protective factor. There were discrepancies between parent and child reports. For example, the youth participants reported that their parents complain to them significantly more than parents reported complaining to the kids. There were no significant gender differences in care provided to parents living with HIV.

Murphy, Greenwell, Resell, Brecht, and Schuster (2008) studied autonomy development and parentification in HIV affected youth. Self and family care autonomy was positively

associated with responsibility and attachment to mother while it was negatively related with drug and alcohol use. The relationship between care autonomy and attachment to mother was a robust effect that remained significant, even after age of participant was entered into the model. Management autonomy was another variable of interest in this study as it was positively correlated with mother's illicit drug use, attachment to peers, coping and attachment to mother. They found that taking on more instrumental caretaking tasks was not detrimental to participants and did not affect later autonomy. The recommendation they drew from this study is if HIV infected parents must rely on their children to help perform additional household tasks, there should be a focus on maintaining a strong attachment bond between the parent and child, as this has been demonstrated to have protective powers. Additionally, there should be support to help the child develop strong coping self-efficacy.

Based on the literature reviewed, parentification alone is not detrimental. However, its influence is dependent on other variables, such as the parent-child relationship.

Parent-Child Relationship and Mental Health Outcomes for HIV Affected Youth

With the parent-child relationship identified as a potential protective factor (Murphy et al., 2008), it is no surprise that studies are beginning to investigate this relationship and how it influences mental health outcomes in youth affected by HIV. Unfortunately, some researchers have reported increased parent-child conflict from mothers who are living with HIV (Rotheram-Borus, Robin, Reid, & Draimin, 1998). Other work has shown that in families with HIV-positive mothers, parental monitoring, the mother-child relationship and structure within the home can lead to better mental health outcomes in the affected children (Dutra et al., 2000; Rotheram-Borus, Stein, & Lester, 2006). One study showed that the better the parent-child relationship, the lower the child depression inventory was for the affected youth (Bauman, Foster, Silver,

Berman, Gamble & Muchaneta, 2006). For this study, the parent-child relationship was measured by Armsden and Greenberg's (1987) Inventory of Parent and Peer Attachment.

In response to reported increased parent-child conflicts for this population, Rotheram-Borus and colleagues studied a family-based intervention designed to assist parents and their adolescents (11-18) cope (Rotheram- Borus, Lee, Gwadz, & Draimin, 2001). The goal was to reduce adolescent's adverse mental health, social, and behavioral symptoms. The family intervention proved efficacious as the youth reported decreased emotional distress.

In general, a strong parent-child relationship acts as a protective factor. When the relationship is weakened, negative ramifications have been more evident.

Social Action Theory and Mental Health Outcomes for HIV Affected Youth

Research in this area is beginning to apply behavioral health theories and models. Mellins and co-researchers (2008) adapted Social Action Theory to guide their investigation of mental health outcomes of HIV affected adolescents. Mellins et al used a control group of HIV unaffected adolescents. Participants from both groups were living in inner-city neighborhoods. Results revealed no group differences in mental health outcomes. Regarding the affected group, those who knew their mother's status had significantly higher CDI scores than those who did not know their mother's status. Adolescent depression and anxiety were each correlated with victimization, lower income, older age, maternal health problems, maternal depression, lower self-esteem, and less autonomy in parent-child relationships. Additionally, adolescent anxiety was correlated with maternal anxiety. Increased internalizing and externalizing behaviors were correlated with less maternal social support, maternal unemployment and mother not having a live-in partner. Researchers noted that, in general, this sample (both the target and control groups) had mothers with chronic conditions (cardiac problems, diabetes, etc.) which may

account for why there were not significant differences between the affected and unaffected groups. They noted that comparing an HIV affected group to a control group not affected by parental chronic conditions would likely produce very different results.

To date, Mellins et al (2008) has been the only study to work from Social Action Theory when investigating adolescents affected by HIV. While this study was very thorough and took many of the key factors (i.e., HIV status disclosure, mother's health, etc.) examined in the literature for this population, their concept of the mother-child relationship was strictly conceptualized as parental communication. Attachment theory was not an apparent underpinning of this study. Based on Bowlby's work, core components of attachment, such as trust, were not measured in any of the above studies.

Attachment style's influence on mental health outcomes for adolescents

Researchers have been guided by Bowlby's framework while investigating the etiology of anxious and depressive symptoms (Bifulco et al, 2002; Jinyoa et al., 2012; van Eijck et al., 2012). Evidence from many studies shows secure attachment as a protective factor for adolescent's psychological well-being (Woodhouse et al., 2010). For secure adolescents, distressing emotions are identified and discussed, then categorized as emotions that can be tolerated, which reveals an adaptive thinking style (Fonagy, Gergely, & Target, 2008), whereas those with insecure attachment perceive these same emotions as intolerable and overwhelming, which is maladaptive thinking (Woodhouse et al., 2010). Securely attached individuals view others as supportive and the self is as competent (Bretherton & Munholland, 2008). Studies have also documented the negative ramifications for insecure attachment. For instance, Jinyoa et al. (2012) surveyed 662 college students and found that depressive symptoms were moderately correlated with anxious attachment and avoidant attachment. Additionally, symptoms of anxiety

were correlated with avoidant and anxious attachment, but to a slightly lesser degree than the depressive symptoms. Similarly, Brenning et al. (2012) found that an adolescent's avoidant attachment and anxious attachment were correlated with internalizing symptoms, across three different measures (Child Depression Inventory, Youth Self Report, and Child Behavior Checklist).

While attachment style has not fully been examined specifically for HIV affected adolescents, researchers have recently investigated parental chronic illness and its effects on childhood attachment formation. For instance, Miller (2008) studied the impact of parental cancer on adolescent adjustment. Miller's results showed that adolescents affected by parental cancer had more insecure attachment to parents compared to the control group of adolescents who were not affected by parental cancer. Further results showed that attachment style fully mediated the relationship between cancer-related stressors and emotional symptoms reported by the adolescent. Similarly, van der Meet et al (2014) studied adults experiences of growing up with a parent with a genetic disorder, such as Huntington's Disease, Cerebral Autosomal Dominant Arteriopathy, etc. compared to adults who grew up with a parent who did not have any of these genetic diseases. Adults who were raised with a parent with one of these genetic disorders showed more attachment anxiety and reported poorer mental health. Parental mental health difficulties also disrupt attachment. For example, Murray, Fiori-Cowley, Hooper, and Cooper (1996) found that women who suffered from depression were less attuned to their babies needs and less reaffirming to the child. Similarly, Smith (2004) reviewed the literature and concluded that approximately 60% children of parents with a mental illness are going to experience a mental illness as well.

In sum, secure adolescent attachment is linked with positive outcomes (i.e., adaptive thinking, less anxiety) whereas anxious or avoidance adolescent attachment is correlated with negative outcomes (i.e., increased depression, more internalizing symptoms).

CHAPTER THREE

Research Methodology

Participants

Participants were recruited through state-wide (Georgia only) organizations that serve HIV positive populations as well as Facebook HIV support and education groups (not state-specific). Participants included HIV affected offspring, which is operationalized as having at least one parent or guardian diagnosed with HIV. Adolescent participants were between 8 and 18 years. Their parent who was diagnosed with HIV also completed a survey packet. Each parent-child dyad received a $30 electronic gift card (Amazon or Walmart) upon notifying the researcher of survey completion. Sixty parent-child dyads completed the surveys. When parents had more than one child, the parent was only presented the survey once and the data entered was matched with each participating offspring based on the unique code provided to each parent. There were 5 parents with more than one participating offspring, accounting for 12 of the participants (20%). Of the five parents, two had three children participate each and the remaining two each had two children participate, totaling 53 unique parent participants.

Individual Level Measures (microsystem)

Demographics

Participant information gathered about the offspring included age (M = 12.05 years, SD = 2.44), gender (26 offspring identified as female and 34 offspring identified as male), grade in school (mode was sixth grade, representing 21.67% of the data), race (mode was Caucasian/White with 46.67%), and current GPA (mode was 2.5 with 33.33%). GPA was

selected from categories (4.0 All A's, 3.5 A's & B's, 3.0 mostly B's, 2.5 mostly B's and C's, 2.0 mostly C's and D's, 1.5 mostly D's, or 1.0 mostly F's). All other demographic information gathered was written in by the participant, with the option to leave the question blank. See Table 1 (Appendix) for counts.

Behavior Assessment System for Children, Third Edition (BASC-3)

The BASC-3 (Reynolds & Kamphaus, 2015) is designed to obtain a respondent's report related to his or her own adjustment across five composites: Internalizing Problems, Inattention/Hyperactivity, Social Problems, Emotional Symptoms Index, and Personal Adjustment. Within these composites are subscales, such as anxiety and depression (Reynolds & Kamphaus, 2004). This measure has good validity and reliability as well as high internal consistency and test-retest reliability. Construct validity has been supported by structural equation analysis and factor analyses (Reynolds & Kamphaus, 2004). Some sample items include: "worries about what teachers think," "is too serious" and "has headaches." Endorsement options include: *Never, Sometimes, Often,* and *Almost Always.* There are three version of this assessment available: self-report, parent report and teacher report. For purposes of this study, only self-report was of interest.

This measure was completed by the youth respondent as part of the overall battery of assessments and then scored online twice. The PDF responses were then entered into the datasheet. For the five composite scores of interests, the averages were as follows: Internalizing Problems M = 59.12 (SD = 9.67), Inattention/Hyperactivity M = 56.13 (SD = 8.39), Social Problems M = 57.15 (SD = 8.66), Emotional Symptoms Index M = 60.95 (SD = 10.05), and Personal Adjustment M = 39.27 (SD = 10.33).

Parent-Child Attachment Style

Parent-Child Attachment was measured with Greenberg's Inventory of Parent and Peer Attachment (Greenberg, 1987). This assessment includes 28-items that evaluate positive and negative aspects of the parent-child relationship from the viewpoint of the adolescent. Scores are continuous, with higher scores indicating more secure attachment and lower scores representing less secure attachment. The overall attachment range is 28 to 112. Sample items include: "my mother (father) respects my feelings," "my mother (father) understands me," and "I wish I had a different mother(father)." This measure has been validated on populations ranging from age 12 to 20 (Armsden & Greenberg, 1987; Turner, Chapman & Gratz, 2014). This measure has sound psychometrics, including test re-test reliability (.93) and internal reliabilities (.87-.89). The current study's Cronbach Alpha is .89, which according to George and Mallory (2003) is excellent. Convergent and discriminate validities have also been established. For the current study, the range was 61 to 111, with the average attachment as 85.81 (N = 48, SD = 13.95). When used as a categorical variable, attachment style was divided into 3 categories based on an even split: low (28-56), moderate (57-84), and high (85-112). None from this sample fell in the "low" range.

Interpersonal Level Measures (microsystem)

Demographics

Parents' age ranged from 29-years to 57-years, with an average age of 40.57 (SD = 6.58). Thirty of the participants self-identified as female with the remaining 23 identifying as male. Approximately 47% of the parents identified as Caucasian/White and 28% identified as Black/African American (see Table 2 for further breakdown of parent demographics). Reported

income ranged from the category *less than $10,000* to the category $60,000-$69,999, with a modal income of $20,000 - $29,999 annually.

Additionally, parents were asked about their educational obtainment (mode was 2-year degree with 33.96%), health insurance status (83.02% reported being insured), employment status (67.92% reported full-time employment), and home ownership status (54.72% renting and 43.40% owning/purchasing). Finally, the parent was asked when he/she was diagnosed with HIV (years ranged from 1985 to 2016). The average number of years living with HIV at the time of data collection was 9.08 years, with a range from 2-years to 33-years (*SD* = 7.03 years) and one participant not answering this item.

Parents were asked how many children they had. The range was one to six children, with one (*N* = 28; 52.83%) being the modal number of children.

Parental Disclosure

Parental disclosure was assessed by asking the parent: "Does your child, ***participating in this study***, know that you are diagnosed with HIV?" Parents selected one of three options for the disclosure status: *Yes, my child knows* (fully disclosed); *my child knows I am sick but does not know I have HIV* (partially disclosed); or *no my child does not know* (no disclosure). Most adolescents were either fully disclosed to (51.67%) or partially disclosed to (28.33%). Eleven of the participants indicated his/her child was not disclosed to (18.33%). However, one participant left this item unanswered (1.67%).

Parentification of the Adolescent

There were two measures of parentification of the adolescent. The Demands of Illness Inventory (Woods, Haberman, & Packard, 1993) was completed by the parent and yielded an overall score and the following subscales: physical symptoms, personal meaning, family

functioning, social relationships, self-image, monitoring symptoms, and treatment issues. This measure contained 123-items. Sample items were "as a result of my illness, I go out with friends less often" and "I worry about how my children are reacting to my illness." Items were endorsed on a scale of 0 (not at all) to 4 (extremely) or N/A. Cronbach's alpha for internal consistency was .93 in a sample of bone marrow transplant patients and .96 in a sample of breast cancer patients (Flectcher, Lewis, & Haberman, 2011). Missing items were imputed with the average for that subscale, since each subscale contained a different number of items. The range for this measure for this sample was 84.53 - 303.96, with the *M* = 212.49 *(SD = 50.03).* Subscales means and standard deviations are in the Appendix below (Table 4). The Cronbach Alpha for the current study for the overall scale was .93, which is excellent. For the individual subscales it ranged from .70 (Image) to .94 (Personal Meaning; see Table 5 for all subscales).

The Parentification Questionnaire (PQ; Sessions & Jurkovic, 1986) was the second measure of parentification and was completed by the adolescent. This questionnaire was created based off of Brofenbrenner's Ecological Model and is the most widely used instrument to measure parentification (Hooper & Wallace, 2009). The original 42-item scale contains true/false items (17 are reversed scored) measuring parentification. The higher the score, the more parentification. Psychometrics have been verified through an exploratory factor analysis that resulted in three scales: instrumental parentification (α = .81), emotional parentification (α = .82), and perceived fairness (α = .88). For the current study: instrumental parentification (α = .61), emotional parentification (α = .74), and perceived fairness (α = .60). Sample items are " Members of my family understood me pretty well" (perceived fairness), "I was rarely asked to look after my siblings" (instrumental parentification), and " In my family I often made sacrifices that went unnoticed" (emotional parentification). An overall score from the original

administered 42-item PQ as well as the subscale scores from the 23 items have been generated. The average for the sum of the PQ was 17.79 (*SD* = 3.46). Since each subscale contained an uneven number of items, the average was obtained rather than the sum. The averages were as follows: Perceived Fairness was 0.37 (*SD* = 0.23), Emotional Parentification was 0.27 (*SD* = 0.22), and Instrumental Parentification was 0.38 (*SD* = 0.30).

Substance Use History

Parents were presented a list of drugs and asked to circle yes or no to indicate whether or not they have ever used that substance. The list included pills not prescribed by a physician, cocaine, marijuana, crack, hallucinogens, heroin, "shot up," methamphetamines, or other. Following the methodology employed by Murphy et al. (2013), this variable was transformed to be dichotomous. Seven parents left this item unanswered while the remaining 46 (86.79% overall or 100% of the total responding sample) indicated "yes."

Parent's mental well-being

The parent's mental well-being was assessed through the Brief Symptom Inventory 18-item (BSI-18; Derogatis, 2004). The BSI-18 is an 18-item abbreviated version from the original version of the BSI (Derogatis, 1993; 53 items) that focuses on quickly gathering patient-reported information regarding psychological distress and symptoms experienced over the past seven days ranging from 0 (not at all) to 4 (extremely). It yields three symptom scales (Somatization, Depression, and Anxiety) and a Global Severity Scale. This measure has sound psychometrics. For instance, the internal consistency was .96 (Tate et al., 1993). Cronbach's Alpha for the current study was .94 for the overall scale, .87 for the Somatization subscale, .85 for the Depression subscale, and .90 for the Anxiety subscale. Strong validity has also been established. Sample items include: "How much are you distressed by faintness or dizziness?"

and “How much are you distressed by feeling lonely?” This scale has been normed on adult non-patients, adult psychiatric inpatients and outpatients as well as adolescent (13+) non-patients. Scores for the current study ranged from 0 to 48 for the Global Severity Scale, with an average of 21.98 (*SD* = 15.18). The following averages were obtained for the subscales: Somatization was 5.77 (*SD* = 5.09), Depression was 9.17 (*SD* = 5.65), and Anxiety was 7.04 (*SD* = 6.23).

Parent's Religious Status and Involvement

The parents were asked if the family identifies as religious or spiritual (yes/no), attends religious or spiritual events (yes/no), and the frequency of attendance. The majority of the sample (62.26%; *N* = 33) identified as religious and/or spiritual and 49.06% reported attending religious or spiritual events (*N* = 26). For the parents who reported attending religious or spiritual events, the modal reported was *once per week* (41.94%; see Table 2 in Appendix for complete reporting).

Community Level Measures (mesosystem)

Demographics

Parents were asked what the average SES in their neighborhood was (Table 3 in Appendix). The modal reported neighborhood SES was $20,000 - $29,999 (35.85%).

Design

The study’s design was cross-sectional, with data gathered through an Qualtrics, an online survey system. The main outcome variable was the youth’s mental health outcomes, as measured by the BASC composite scales. The main predictor variables included youth’s report of attachment style, parent’s mental health as measured by the BSI-18, parentification as measured by the Demands of Illness Inventory and Parentification Questionnaire, and Disclosure

Status. Age and gender were used as covariates in many of analyses. Remaining demographic variables were explored in the regressional analysis.

Procedure

Participation Criteria

Inclusion criteria was: 1. Parent is HIV+; 2. There must be a child between the ages of 8 and 18 living with that parent; this range was generated from viewing the research. Most studies include ranges of children and/or adolescents (i.e., Murphy et al., 2013). Exclusion criteria included active substance abuse, reported by the parent or child. Participants were asked if there were currently using any illicit drugs (yes or no; Murphey et al., 2013). Those who indicated "yes" would ineligible for participation. Of note, no participants or parents reported current substance abuse. No one who contacted the researchers to participate were deemed ineligible.

For parents with more than one eligible child, each child completed the measures while the eligible parent completed one packet. The parent packet that was then paired with each child based on an assigned code, unique to each parent.

Participant Recruitment

There were two main methods of recruitment that focused on participants who may meet qualification requirements. One form of recruitment occurred in collaboration with the local (to the state of Georgia) offices who serve clients diagnosed with HIV. The case workers received the recruitment flyer with the inclusion criteria that they passed along to potential participants. Additionally, flyers were on display at the AIDs offices. Finally, researchers attended events at the local AIDs offices to pass out fliers and answer questions regarding the study. The second method of recruitment was posting the identical flyer in online support and education groups for those living with HIV. Some of examples of these groups included HIV+ Support Group,

HIV/AIDS, HIV in the South Education and Support, POZ Place – A Support Place for those with HIV/AIDS and our allies. Online flyers were displayed as frequently as the online sites allowed and were distributed by the organizations at minimum monthly. One organization, AID Atlanta sent a special mail containing our flyer through physical mail. Recruitment flyers included information about the $30 gift card incentive, participation criteria and contact information to screen for eligibility to participate and details about the survey being offered online or in-person and lasting approximately 45-minutes. Gift Card options were Amazon or Walmart, selected by the parent. Recruitment lasted from May of 2018 until March of 2019.

There were many challenges to recruiting participants for this study. Participants were initially recruited through AIDS organizations local to Athens, Atlanta, and Macon in Georgia, such as Live Forward in Athens. However, very few participants were responding through the displayed flyers and the recruitment through case managers. The researchers then attended events at the Athens office as well as hosted two free events for those served at Live Forward. One event was an educational event where those served learned about the survey opportunity as well as had access to a medical presentation on new medical advancements. Free lunch was served at this event. While this event's attendance was high, only two participants met survey criteria. As a result of the outcome of aforementioned event, the second event was tailored to the families with children served at Live Forward. The family night had free crafts, games, and dinner for those in attendance. After several weeks of advertising by the researchers and the organization, one family attended this event. As a result of the continued low enrollment, researchers revised the recruitment procedure to include online support groups. Each group had a unique process of getting the flyers displayed. For example, some you could only post weekly, others monthly. For some sites, you had to go through the management to get permission to

post. However, once the flyers were displayed in the groups, participation increased and the target of 60 was obtained.

Survey Administration

Potential participants contacted the researchers, utilizing the phone number or email provided on the recruitment flyer, to determine eligibility. Those who were eligible were given the option to sign up for an in-person appointment to complete the measures on an I-pad or to complete the measures at home on their device. Eligible participants at the events were able to immediately complete the surveys at the events or to complete at-home. All chose immediate completion with the immediate gift card. Surveys were presenting identically regardless of in-person or virtual completion.

The surveys were accessed through Qualtrics, with parents and children being able to complete the measures simultaneously on different devices or at different times, to best accommodate schedules and technology limitations.

At the start of the study, participants were given informed assent and parents were given informed consent and invited to participate in the study. The consent/assent process was the first page of the survey information. Participants were informed that participation was voluntary and they could stop at any point and request that their data be removed at any point in the process, without penalty or losing the gift card. Of note, none of the participants requested to be removed from the study. Participation took approximately 30- to 45-minutes. The final screen participants viewed was a debriefing letter. As part of the parent's debriefing screen, parents provided an email address at the end of the surveys, that was detached from the data collected, to receive the $30 gift card. Each participant indicated which type of gift card they preferred to receive.

Data Screening

Participants with more than 50% of their data missing on any measure were removed from analyses involving that measure. For cases missing less than 25% of the data on a measure, a mean imputation was used for that measure, unless otherwise noted. Normally distributed data remained untransformed (Tabachnick & Fidell, 2007). The main variables were normally distributed and remained untransformed.

Hypotheses

Hypothesis 1: It was predicted that those who were securely attached would have lower levels of internalizing problems, inattention/hyperactivity, social problems, and emotional symptoms on the BASC than those who are insecurely attached. Those who were insecurely attached were predicted to have a lower level of personal adjustment on the BASC. Hypothesis 2: It was hypothesized that the lower the BSI-18 from the parent's report, the higher the child's personal adjustment (BASC) would be. It was predicted that the lower the BSI-18, the lower the inattentive/hyperactivity, social problems, internalizing problems, and emotional symptoms would be. In sum, it was predicted that the better the Mental Health Outcomes for youth would be predicted by lower BSI-18 scores from the parents. It was predicted that the higher the BSI-18 was, the more insecure the attachment would be. Hypothesis 3: It was hypothesized that HIV affected adolescents who were disclosed to would have better mental health outcomes than those who are not disclosed to. Hypothesis 4: It was predicted that more parentification (PQ; DII) would be negatively associated with attachment style. Hypothesis 5: It was predicted that less parentification would result in better mental health outcomes. More specifically, it was predicted that the more demands of illness, the lower the child's personal adjustment (BASC) would be. It is hypothesized that the more demands of illness, the higher the inattention/hyperactivity,

internalizing problems and emotional symptoms would be. Additionally, it is predicted that the higher the PQ the lower the child's personal adjustment (BASC) would be. It is hypothesized that the higher the PQ, the higher the inattention/hyperactivity, internalizing problems and emotional symptoms would be. Hypothesis 6: Lastly, it was predicted that attachment would predict mental health outcomes in participants' mental health outcomes above and beyond the other variables examined in this study.

CHAPTER FOUR

Results

Demographics

Youth participants (*N = 60)* ranged in age from 8-years to 18-years, with the average age of 12.05 years (*SD* = 2.44). Fifty-six and half percent identified as male and the remainder identified as female. Most participants identified as Caucasian/White (46.67%) or Black/African American (31.67%). For remaining youth demographics see Table 1 in Appendix 1. Parent participants (*N = 53)* ranged in age from 29-years to 57-years, with a mean age of 40.78 (*SD* = 6.88). Fifty-seven percent identified as female with the remaining 43% identifying as male. Forty-seven percent of the parent respondents selected Caucasian/White while 28% self-identified as Black/African American. Modal reported income was $20,000-$29,999 while the modal degree obtainment was a 2-year degree. Most parents reported having health insurance (83%). Approximately 68% of the parent participants reported full-time employment, with 55% reporting home ownership. The average number of years reported for living with HIV was 9.08 years (*SD* = 7.03 years). For more complete parental demographics view Tables 2 and 3 in Appendix 1.

Data Screening

Participants with more than 50% of their data missing on any measure were removed from analyses involving that measure. For cases missing less than 25% of the data on a measure, a mean imputation was used for that measure. Since data for this study was normally distributed, it remained untransformed (Tabachnick & Fidell, 2007).

For the BASC scales, all participants completed the measure. Since this measure was computer scored, the program handled missing items accordingly. Regarding the predictor variables, the attachment inventory was completed by 48 youth (80% of our sample) with no missing items. The remaining participants did not complete this measure, therefore, not items needed to be imputed on this scale. The current range for our sample was 62-111, with an average of 85.81 (*SD* = 13.95). The Parentification Questionnaire was completed by 19 participants (31.67%). Four imputations were needed on this scale; in those cases, the modal response for that item was entered. For example, if true was the most common answer selected, true was used for the imputation. For this study, on item 2, false (0) was imputed twice and once on item four. On item 3, false was imputed once; however, since this item was reverse scored a 1 was imputed. The co-variates, age and gender, were entered for every participant.

Regarding the parental variables that were utilized as predictor variables, 1 participant did not answer the year they were diagnosed, which was used to compute years living with HIV. Additionally, one participant left the disclosure status blank. Ninety-eight percent (52) of the participants completed the BSI-18 entirely. The final participant did not answer any items; therefore, no imputations were necessary. Fifty-two of the 53 parent respondents completed the Demands of Illness Inventory (98.11%), which was matched with 59/60 youth data (98.33%). For this scale, the 7 subscales had an uneven number of items. When imputations were necessary, the missing items were replaced with that person's average for the other items on that person's subscale. For example, if a person's scale had seven answered items, averaging 6, but there was a missing item, that missing item was imputed with a 6, the respective participant's average. For a complete chart of counts for imputations by subscale and item number please see appendix 2 table 1. Of note, on this scale, more imputations were required than the other

measures completed. Perhaps this was a result of the length of this scale or its placement toward the end of the questionnaire (i.e., cognitive fatigue; Ackerman & Kanfer, 2009).

Correlations

Table 2 shows the correlations between the five BASC scales, which are the dependent variables. All five scales are moderately (Inattention/Hyperactivity and Social Problems, r (60) = .46, $p < .01$.) to strongly correlated (Social Problems and Personal Adjustment, r (60) = -.91, $p < .01$.). These scales correlations met the assumption of correlation between the dependent variables (Meyers, Gampst, & Guarino, 2006) for the hypotheses examined below. A Box's M value of 24.94 was associated with a p-value of .11, which is non-significant, indicating the homogeneity of covariance assumption was not violated for this group of variables. We also examined the correlations between the BASC scales and the main predictor variables (Table 3). Social Problems, Personal Adjustment, and Inattention/Hyperactivity were not significantly correlated with any of the predictor variables examined. Internalizing Problems was significantly correlated with the following subscales Perceived Fairness (PF), Somatization (BSI-18), Monitoring Symptoms, and Treatment Issues. Emotional Symptoms was significantly correlated with the subscales Perceived Fairness (PF) and Somatization (BSI-18).

Descriptive Statistics for (Table 4) and Inter-correlations between the main predictor variables were also computed (Table 5). Attachment was our primary predictor variable of interest in this study. Attachment was significantly correlated with the subscale Perceived Fairness (PQ), how many children the adult participant had, and the subscale Treatment Issues (DII). The Parentification Questionnaire was not significantly correlated with any of the other predictor variables. However, this scale had many marginally significant correlations that would

have likely been found significant if this scale would have had a higher completion rate. The Demands of Illness Inventory was significantly related to the parent's age, how many children the parent had, and years living with HIV. The BSI-18 was significantly correlated with the youth's age, the subscale Physical Symptoms (DII), and the subscale Personal Meaning (DII).

Attachment Style and Mental Health Outcomes

It was predicted that those who were more securely attached (higher scores on the attachment scale) would have lower levels of internalizing problems, inattention/hyperactivity, social problems, and emotional symptoms on the BASC compared to those who were more insecurely attached. Those who are more insecurely attached were predicted to have lower levels of personal adjustment on the BASC compared to those who are more securely attached. Following guidelines in place by Cramer and Brock (1996) to protect against Type I error, a MANCOVA was utilized to test this hypothesis, with age and gender entered as the covariates.

Prior to conducting the MANCOVA, a series of Pearson's correlation were computed to exam the assumption of correlation between the dependent variables (Meyers, Gampst, & Guarino, 2006). This assumption was met, as can be seen in Appendix B Table 2. Additionally, a Box's M value of 24.94 was associated with a p-value of .11, which is non-significant, indicating the homogeneity of covariance assumption was not violated. Pilia's Trace was selected as it more robust to departures from the assumptions than the other methods and can be considered a more conservative approach (Tabachnick, 1989).

A one-way MANCOVA, with age (F (5,10) = 0.66, p = 0.62; Pilia's Trace =0.25, partial η^2 = 0.25) and gender (F (5,10) = 2.66, p = 0.09; Pilia's Trace =0.57, partial η^2 = 0.57) as the covariates, was performed to determine a statistically significant difference between overall attachment on the BASC measures and was found to be significant based on participant's

attachment level, F (155, 70) = 1.69, p = 0.01; Pilia's Trace = 3.93, partial η^2 = .79. This result allows us to conclude that the Mental Health of Adolescents as measured by the five BASC scales differs significantly based on one's attachment to the parent, with higher levels of attachment being associated with better mental health outcomes. However, looking at the Between Subjects Effects, there are not significant differences for any of the five scales (Table 6). Furthermore, no significant MANOVA results were found when Attachment Style was analyzed as a categorical variable, F (42, 5) = 0.51, p = 0.77; Pilia's Trace = 0.06.

It was predicted that the higher the BSI-18, the less secure the attachment would be. Evidence was not found in this sample to support this hypothesis, r (47) = 0.08, p = 0.59.

BSI-18 and Mental Health Outcomes

It was hypothesized that the lower the BSI-18 from the parent's report, the higher the child's personal adjustment (BASC) would be. It was predicted that the lower the BSI-18, the lower the inattentive/hyperactivity, social problems, internalizing problems, and emotional symptoms would be. In sum, it was predicted that the better the Mental Health Outcomes for youth would be predicted by lower BSI-18 scores from the parents. Protecting against Type I error (Cramer & Brock, 1996), a MANCOVA was used to test this hypothesis. Bonferroni's correction was applied and post-hoc analyses were computed to examine the significant between group mean differences.

A series of assumptions were examined prior to conducting the MANOVA. These assumptions were met, as explained in hypothesis outlined above. A one-way MANCOVA, with age (F (5,23) = 1.77, p = 0.16; Pilia's Trace =0.28, partial η^2 = 0.28) and gender (F (5,10) = 2.66, p = 0.09; Pilia's Trace =0.57, partial η^2 = 0.57) as the covariates, was performed to determine a statistically significant relationship with the BASC based on BSI-18 scores, F (135, 145) = 1.36, p = 0.04; Pilia's Trace = 2.97, partial η^2 = .59. This result allows us to conclude that the Mental

Health of Adolescents as measured by the five BASC scales differs significantly based on a parent's reported BSI-18. Next, we examined the between-subjects effects. We can see in Table 7, that BSI had a statistically significant impact on all five BASC scales: Social Problems, F (29, 27) = 2.40; p = .01, partial η^2 = .72; Internalizing Problems, F (29, 27) = 2.40; p = .01, partial η^2 = .72; Inattentive/Hyperactivity, F (29, 27) = 2.18; p = .02, partial η^2 = .70; Emotional Symptoms, F (29, 27) = 2.53; p = .009, partial η^2 = .73; and Personal Adjustment, F (29, 27) = 2.22; p = .02, partial η^2 = .70. The scales were made into categorical variables, with a mean split, prior to post-hoc analyses. After applying Bonferroni's correction, the significance level required was .01, therefore, none of the groups differed statistically significantly (Table 8). However, as seen in Appendix B Table 8, BASC Personal Adjustment was marginally significant (p = .15). Similarly, BASC Inattention/Hyperactivity was approaching significance (p = .07).

Disclosure Status and Mental Health Outcomes

Researchers hypothesized that HIV affected adolescents' mental health outcomes would be better for those who were fully disclosed to compared to those who were not disclosed to. Those who were partially disclosed to were expected to have better mental health outcomes compared to those not disclosed to. Of the 59 participants who answered this item, 52.5% had fully disclosed to their youth in this study, 28.8% were partially disclosed to, and the remaining 18.6% were not disclosed.

A one-way MANCOVA, controlling for age and gender, was conducted with disclosure status as the grouping variable and the five BASC scales as the testing variables. Assumptions for using a MANCOVA were met. The one-way MANCOVA, with age (F (5,50) = 2.41, p = .23; Roy's Largest Root = .14, partial η^2 = .13) and gender (F (5,50) = 2.10, p = .08; Roy's

Largest Root = .21, partial η^2 = 0.17) as the covariates, found disclosure status as a significant predictor variable for Mental Health Outcomes (BASC), F (5, 51) = 2.69, p = .03; Roy's Largest Root = 0.26, partial η^2 = .21. This outcome indicates that the Mental Health of Adolescents as measured by the five BASC scales differs significantly based on a parent's disclosure status. The between-subjects effects revealed a significant effect for internalizing problems, F (2,54) = 5.01, p = .01, partial η^2 = .16, Inattention/Hyperactivity F (2,54) = 3.91, p = .03, partial η^2 = .13, and Emotional Symptoms F (2,54) = 3.65, p = .03, partial η^2 = .12. The remaining two scales were marginally significant: Social Problems, F (2,54) = 2.35, p = .11, partial η^2 = .08 and Personal Adjustment, F (2,54) = 2.31, p = .11, partial η^2 = .08.

Next, Tukey's post-hoc analyses were examined. For internalizing problems, the significant difference (p = .04) was between those partially disclosed to (M = 63.82, SD = 10.09) and those fully disclosed to (M = 56.77, SD = 9.71), consistent with the hypothesis, those who were fully disclosed to had lower levels of internalizing problems. Regarding Inattention/Hyperactivity, the statistical difference (p = .02) was between those partially disclosed to (M = 60.35, SD = 6.8) and those fully disclosed to (M = 53.74, SD = 9). As predicted, those who were fully disclosed to had lower levels of Inattention/Hyperactivity than those partially disclosed to. Concerning Emotional Symptoms, the significant difference (p = .04) is between those partially disclosed to (M = 65, SD = 9.87) and those fully disclosed to (M = 58.71, SD = 10.65). Consistent with the prediction, those who were fully disclosed to had lower levels of emotional symptoms.

Attachment Style and Parentification

Researchers predicted the higher the youth's parentification (PQ), the less securely attached they would be. This was examined with a Pearson's correlation. While this hypothesis

was not supported, $r(18) = -0.35$, $p = 0.16$, it was trending in the right direction and may have been significant had more participants completed this measure as this is considered a moderate correlation. Furthermore, the direction is negative, which is consistent with the prediction.

It was predicted that the higher the parent's overall Demands of Illness Inventory (DII), the less securely attached the youth would be. However, this hypothesis was not supported, $r(59) = -0.009$, $p = 0.94$. Pearson's correlations were performed for attachment style and the subscales within the DII and PQ (Appendix B Table 4). Of note, attachment was significantly related to Perceived Fairness (PQ subscale), $r(18) = -0.70$, $p = 0.00$, which is a large correlation and to Treatment Issues (DII), $r(47) = 0.32$, $p = 0.03$, which is a moderate correlation.

Mental Health Outcomes and Parentification

It was predicted that less parentification, as measured by the PQ, would result in better mental health outcomes for youth. Controlling for age and gender, a one-way MANCOVA was executed with PQ as the grouping variable and the five BASC scales as the testing variables. Assumptions for using a MANCOVA were met. The one-way MANCOVA, with age (F (5,2) = 1.58, $p = 0.42$; Pilia's Trace =0.80) and gender (F (5,2) = 0.30, $p = 0.88$; Pilia's Trace = 0.43) as the covariates, failed to find PQ as a significant predictor variable for Mental Health Outcomes (BASC), F (50, 30) = 1.36, $p = 0.19$; Pilia's Trace = 3.47.

Similarly, it was hypothesized that the lower the DII, the higher the mental health outcomes for youth. Age and gender were controlled for during this analysis. A one-way MANCOVA, with age (F (5,2) = 5.07, $p = 0.17$; Pilia's Trace =0.93) and gender (F (5,2) = 2.59, $p = 0.30$; Pilia's Trace = 0.87) as the covariates, was utilized for this analysis as well and failed to find a statistically significant outcome, F (250, 30) = 1.44, $p = 0.12$; Pilia's Trace = 4.62.

Model for Mental Health Outcomes

Lastly, it was hypothesized that attachment would predict mental health outcomes for youth above and beyond the other predictor variables utilized in this study (age, gender, DII, PQ, BSI-18, Disclosure Status). To analyze this prediction, a step-wise regressional analysis was used. On step one, the abovementioned predictor variables were entered into the model. On step two, attachment was entered into the model. This approach was selected to identify any unique variance not accounted for by the other predictors that would be explained by attachment.

Examining the model as stepwise regression with all variables on step one and entering attachment on step two, a model was produced that was approaching significance, for BASC Inattentive/Hyperactivity only. This final model retained constant (B = 50.23, p =.003) + BSI-18 (B = .34, p =.006), youth's age (B = 1.45, p =.04), and attachment (B = -.19, p =.13) from the original 10. This model had no multicollinearity concerns, as all three VIFs were less than 1.35 and the tolerances were greater than .75. The overall R was 0.74, with an adjusted R^2 of .45, meaning this model accounts for 45% of the variability in BASC Inattentive/Hyperactivity. However, the model did not have a significant change in R^2 once Attachment was entered (p = .13).

Significant models were not detected for the remaining four BASC measures.

CHAPTER FIVE

Discussion

Prior to this study, attachment style had been neglected in research as a primary variable of investigation for affected youth. One of the research questions we sought to uncover is what are the representations of attachment styles for affected youth. For this study, attachment style was investigated as a continuous measure, with higher scores reflecting a more secure attachment. Previous research and theory classified about 70% of American infants as secure and the remaining 30% as insecure (Ainsworth et al 1978). Similarly Main and Solomon (1990) found the rate of unsecure attachment to be around 15% for middle class, Caucasian American children. However, our current sample did not include participants who identified with low levels of attachment. With the possible range of 24 to 112 points, our sample averaged 85.8, with the lowest score being 61 and the highest being 111. Following attachment theory and its applications into adolescents and adulthood, these early reports of secure attachment to one's parent should lay the foundation for continued secure relationships in the future (Main, Kaplan, & Cassidy, 1985; Appendix 2 Figure 1). Our study's breakdown suggests the analyses are based on a moderately to strongly secure sample of youth. Sine this is the first known study to fully examine attachment style as measured by Greenberg's Inventory of Parent Attachment, we cannot determine if our sample is representative of the larger sample of affected youth for attachment style reports. Perhaps our study was biased towards those who had more secure relationships with their parents, as this study required the parent and child to complete the

measure. The parents who signed up for the study may have been the parents who felt more involved in their children's lives.

Despite having a moderately to strongly secure sample, this study was able to uncover some significant results regarding attachment style as a predictor variable for mental health outcomes in affected youth.

Studies repeatedly show secure attachment as a protective factor for youth's psychological well-being (Woodhouse et al., 2010) This study sough to add to that body of evidence.

Attachment Style and Mental Health Outcomes

This study examined the impact of the youth's perceived attachment style on their reported mental health measures, as determined by the five BASC scales. While more secure attachment was overall related to better mental health outcomes for the MANCOVA examining the five scales, there were not differences detected between the scales. Resultantly, this study seems to suggest that more secure attachment predicts better mental health outcomes non-discriminately for Social Problems, Emotional Problems, Inattentive/Hyperactivity, Personal Adjustment, and Internalizing problems, as predicted. This result is consistent with work by Woodhouse et al. (2010) which has shown secure attachment as a protective factor against mental health problems. Work by Bauman et al. (2006) demonstrated that the better the parent-child relationship, the lower the child depression inventory was for the affected youth, which is congruent with our results as well.

Those with secure attachment tend to view themselves as competent and others as supportive (Bretherton & Munholland, 2008); these types of cognitions lend themselves to feeling better emotionally and doing better in daily functioning. This finding aligns with our

current study showing better mental health outcomes for those who are more securely attached. Congruently, Brenning and co-researchers (2012) found that anxious and avoidant attachment in youth were predictive of internalizing symptoms. Of note, our current study did not differentiate between anxious and avoidant attachment within our measure (Greenberg) as the goal of this study was to being to differentiate between secure and unsecure attachment in affected youth. Future studies could further divide the types of unsecure attachment.

Attachment Style and Parentification

Parentification has been defined as the child feeling as if they are taking on adult or parental responsibilities, often prematurely. Understanding that those early parent-child interactions are laying the foundation for current and future attachment styles, this study sought to better understand the impact, if any, of parentification on attachment style. However, parents and children rarely agree on the number and degree of adult tasks the child assist with. Adults tend to report fewer, whereas the children interpret taking on more responsibilities than the parent(s) perceives. To account for this discrepancy, this study included two measures of parentification; one (Demands of Illness Inventory) from the parent's perspective and the other from the youth's outlook (Parentification Questionnaire).

It was predicted that the higher the PQ, the lower security/attachment the affected youth would report. Unfortunately for this study's investigations, this measure was only completed by 18 participants, yielding a completion rate of only 30% for this scale. While this correlation was not significant, it was trending in the predicted direction and produced a moderate correlation coefficient (r = -.35). This result is consistent with previous research. For example, Murphy, Roberts and Herbeck (2013) found that when interviewing adults about their experiences of being raised by a parent with HIV, a predominant theme reported was an increased burden of

parental/adult responsibilities that often included caretaking roles for the parent. Many also reported filtering communication with their parent who had HIV, which violates one of the pillars of secure attachment - communication with the parent. According to Stein et al., (1999) affected youth reported increased distress when taking on what they perceived to be adult roles in their families. Similarly, one study reported increased parent-child turmoil when mothers were living with HIV (Rotheram-Borus, Robin, Reid, & Draimin, 1998), which can be resulting from feelings of parentification. Regardless, this outcome is concerning because communication and trust are essential to secure attachment.

However, based on the available literature reviewed, parentification alone is not detrimental; its influence is dependent on other variables, such as the parent-child relationship. For example, Murphy et al., (2008) investigated autonomy development and parentification in HIV affected offspring. A conclusion from their work is that if HIV infected parents require their children to take on additional task (increased parentification), this is not necessarily detrimental, if the bond is strong between the parent and the child. A recommendation was a focus on creating and maintaining a strong attachment bond between the parent and his/her child, as this has been shown to be a protective factor against feeling burdened by parentification.

Silver and co-researchers (2006) found that while both parents infected with HIV and children affected by HIV reported increased responsibilities, there is a major discrepancy in the report. For example, 45% of affected youth stated they have too many responsibilities, contrasted to only 6% of the parents reporting the affected youth has too many responsibilities. Drastically different reporting from parents and offspring necessitates asking both parties for their report.

This study measured the parents' perceptions of parentification through the Demands of Illness Inventory. Researchers predicted the DII would be correlated with attachment. However, this prediction was not supported in this sample, perhaps because parents believe their children are not experiencing distress from parentification, if they even perceive that their children are being parentified.

Researchers delved further to determine if attachment was related to any of the parentification subscales on either measure to more fully understand the relationship between reported parentification and attachment style as identified by the affected adolescent. Perceived Fairness, on the PQ measure, was strongly related to attachment security. If a child perceived that equity existed in their home and those responsibilities were more balanced, that youth was more likely to report more secure attachment as well. Treatment Issues, a subscale on the DII that focuses on concerns regarding medical treatments from the parent's perspective was moderately related to the attachment. Of note, the more treatment issue concerns reported by the parent the more secure the attachment reported by the affected participant. Perhaps this can be understood in that if a parent is experiencing more treatment issues, perhaps that child feels closer to the parent and values that relationship more, understanding that the parent may not be around as long due to the illness.

Mental Health Outcomes and Parentification

We predicted worse mental health outcomes for higher scores on both measures of parentification (PQ and DII). However, neither hypothesis was supported. Perhaps, as suggested above, the more important variable is attachment and understanding with the parent rather than the amount of parentification. The low response rate on the PQ could also account for why we did not see significant outcomes that may have existed if the measure would have

had a higher completion rate. The measures that we selected for the parentification might not be the most sensitive and the best at capturing whether or not the participants feel parentification is occurring. Future research could utilize different, perhaps more sensitive, measures. Additionally, research is somewhat mixed on parentification's influences on mental health outcomes in youth.

However, research has repeatedly shown parent's mental health to be a predictor variable of offspring's mental health.

BSI-18 and Mental Health Outcomes

Another predictor variable examined was the parent's mental health, as measured by the BSI-18. It is pretty well established that parent's mental health influences youth's mental health (Murphy, et al., 2011). Murphy and others have found that symptoms in youth decrease with age as confidence increases. This finding is a reason why age and gender were controlled for in most of the analyses of this data. Despite controlling for that pair of variables, our MANCOVA was still significant for the five mental health measures (BASC scales) when utilizing BSI-18 as a predictor variable. Furthermore, BSI-18 was a predictor for all five scales when examining the between-subjects effects. Even though the post-hoc analyses technically were not significant once Bonferoni's Correction was applied, all the between group differences were in the direction predicted. For example, personal adjustment, which was marginally significant during post-hoc testing, includes items that tend to be related to confidence, consistent with the findings from Murphy and others.

These results are consistent with previous research. Smith (2004) conducted a literature review and found that approximately 60% of children who have a parent with a mental illness are going to experience some type of mental illness as well. Similarly, Biggar and Forehand (1998) found maternal depression as a moderator for child depression. In this study, only 4% of the

unaffected offspring reported depression on the CDI whereas 13% of the affected offspring reported depression. The relationship between maternal and offspring depression is not unique to HIV populations. Murray and others'(1996) findings showed that mothers who suffered from depression were less attuned to their infants and therefore less reaffirming than those who did not suffer these symptoms. Pilowsky et al. (2013) found that parental depression was associated with a 3-fold increase in disruptive behavior disorders among kids, whereas HIV infection in the parent was associated with an 8-times increase in those same disruptive behaviors.

Some of the mental health outcomes in affected children may be mediated or influenced by what the child does or does not know.

Disclosure Status and Mental Health Outcomes

It is often said that knowledge breeds understanding and understanding breeds empathy. Following the wisdom of this quote, we predicted that those who were fully disclosed to would have better mental health outcomes compared to those only partially or not at all disclosed to. While the results of this study do not fully align with that quote, many of the findings seem to support it. We did not find a significant difference between those who did not know ("no disclosure") and either of the two disclosure groups. However, for our sample, only 18% were not-at-all disclosed to. Our sample of this subgroup may have been too small and therefore too under-powered to detect any differences. We did find significant differences between the partially and fully disclosed groups. For the BASC scales that were statistically different, being fully disclosed to was more protective than only being partially disclosed to, which seems to align well with previous research.

Murphy and colleagues (2001) found that those who were informed of their mother's HIV status displayed lower levels of aggression and higher levels of self-esteem compared to

those who did not know their mother's status. Similarly in 2002, Murphy et al. found uninformed affected offspring to have more negative self-esteem and higher levels of depression compared to their informed peers. Their children being informed also seems to be subjectively important to parents. When interviewing fathers about their disclosure status to their kids, 88% reported that it was important to them that their children knew their HIV status (Letteney, 2012).

Model for Mental Health Outcomes

Finally, this study ran a series of step-wise regression models for the five BASC scales to determine which of the predictor variables examined in this study account for the most variance and to determine if attachment, as measured in this study, did in fact account for variance above and beyond the other variables examined as the theory and literature review seem to posit. For example, Esposito and co-researchers (1999) found that based on the mother's reports, their children had significantly more problems with attention, social adjustment and other externalizing symptoms compared to HIV negative mothers' reports. Guo, Li and Sherr reviewed over 20 studies that investigated the impact of parental HIV on the affected offspring's school career. Their reviewed revealed that HIV affected kids are more likely to be absent from school, have poor grades, at a greater risk of dropping out, are lower in class participation and have a lower educational attainment. Additionally, their participation in extracurricular activities is often limited.

Based on previous research, we expected each BASC scale to have a significant model produced. However, the only BASC scale that a significant model was produced for was Inattention/Hyperactivity. The two variables selected by the model were BSI-18 (parental report of depression) and youth age. We entered attachment in separately to ascertain its impact, which was minimal. Why might we have not seen the expected result? Perhaps BASC scales are not

the best measure of mental health outcomes for this population. Perhaps more tailored measures would produce significant models with these predictor variables. Our sample also did not have very high levels on the BASC. We cannot be certain if their scores are reflective of norms for this population. Feasibly, we could see more variance accounted for in these scales by the predictor variables if the DVs had higher levels of distress.

This study is an important contribution to literature, with both the significant and non-significant findings. It sought to expand on the understanding of attachment styles in affected youth and to explore which variables help us to understand the mental health outcomes for this group. With modern medical advances, the number of affected youth should be on the rise. Around 97% of HIV expectant mothers are not expected to pass the virus onto their children, creating a large population of offspring who are affected by HIV, thus creating and sustaining the need to understand this group's experiences and psychological needs.

Understanding what variables impact their mental health allows that research to then become applied in settings to aid this group as they navigate their circumstances. Learning what impact attachment style has on this group enables clinicians and educators and medical providers to hopefully teach and encourage healthy forms of attachment early on.

Additional Limitations and Future Directions

One limitation of this study was that Attachment Style for this sample only had participants in the moderately and highly secure levels of attachment. Hypotheses would likely have been more strongly supported if data was gathered from affected youth who identified as insecurely attached and this could be a direction for future research. However, a sample matching these criteria might be hard to locate for research purposes. Perhaps affected youth are more likely to be more securely attached to their parents due to some of the circumstances

surrounding their parent's illness. Future research could compare attachment style identifications for youth affected and unaffected by HIV. Additionally, since this study incorporated both parents and youth, perhaps those who participated together are more securely attached than those who chose not to participate with a parent. Further research could focus solely on the youth's perspective, without including the parent, to perhaps get a more wide-spread sample of attachment styles.

Esposito and co-researchers (1999) found that HIV positive parents consistently reported fewer symptoms than their affected offspring, demonstrating why it is necessary not to rely exclusively on parental report of youth's experiences. Gathering information from both parties was a strength of this study. Future research could further expand on that strength by gathering even more of the information from both parties. For example, in our study, only the youth completed the BASC. In the future, both the parents and children could complete this measure.

With this increasing population, there comes a greater need to understand affected youth's psychological experience. The current study sought to add to and expand the literature for this area, particularly understanding how one's attachment style may influence their mental health outcomes. The primary outcome variables included the five BASC scales (Mental Health Measures) whereas the remaining measures mostly were predictor variables, including parentification, parent's mental health, demographics, and notably attachment style.

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Appendix

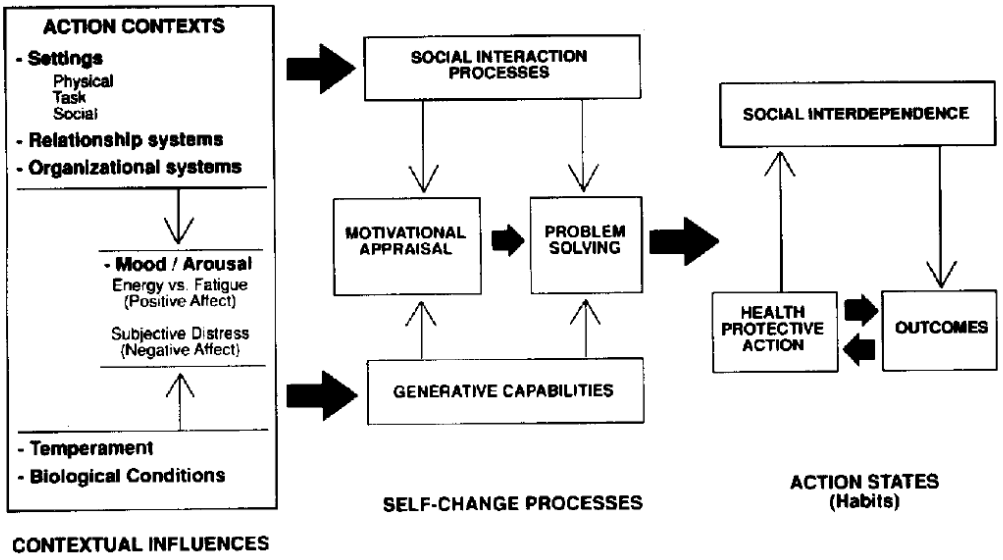
Figure 1

Attachment Style

	Secure Attachment	Ambivalent Attachment	Avoidant Attachment
Separation Anxiety	Distressed when mother leaves.	Infant shows signs of intense distress when mother leaves.	Infant shows no sign of distress when mother leaves.
Stranger Anxiety	Avoidant of stranger when alone but friendly when mother present.	Infant avoids the stranger - shows fear of stranger.	Infant is okay with the stranger and plays normally when stranger is present.
Reunion behavior	Positive and happy when mother returns.	Child approaches mother but resists contact, may even push her away.	Infant shows little interest when mother returns.
Other	Will use the mother as a safe base to explore their environment.	Infant cries more and explores less than the other 2 types.	Mother and stranger are able to comfort the infant equally well.

Figure 2

Contextual Model Representing Self-Regulation as a Subcomponent of a Larger Social and Environmental Systems



Note. The model specifies contextual influences that, by altering microsocial relationships and personal generative capabilities (self-change processes), empower or constrain the development of self-protective habits (action states).

Table 1

Offspring Demographics

Variable	Variable level 2	Count	Percentage
School Grade (N = 60)	Second	2	3.33%
	Third	2	3.33%
	Fourth	8	13.33%
	Fifth	9	15%
	Sixth	13	21.67%
	Seventh	11	18.33%
	Eighth	5	8.33%
	Ninth	5	8.33%
	Tenth	1	1.67%

	Eleventh	2	3.33%
	Twelfth	2	3.33%
Race (*N= 60)*	African-American/Black	19	31.67%
	Asian	1	1.67%
	Caucasian/White	28	46.67%
	Latina/o	6	10%
	Native American	1	1.67%
	Other*	5	8.33%
Current GPA (*N* = 60)	2.0 (Cs and Ds)	7	11.67%
	2.5 (Bs & Cs)	20	33.3%
	3.0 (Bs)	17	28.33%
	3.5 (As & Bs)	13	21.67%
	4.0 (All As)	3	5.00%

*Note: Other self-identified as Kenyan (1.67%), mixed race (1.67%), Swazi (1.67%), North American (1.67%), and White Latina (1.67%).

Table 2
Parent Demographics

Race (*N= 53)*	African-American/Black	15	28.30%
	Asian	1	1.89%
	Caucasian/White	25	47.17%
	Latina/o	5	9.43%
	Native American	1	1.89%

	Other*	6	11.32%
Education (*N= 53)*	Some high school, but did not graduate	1	1.89%
	High school diploma or equivalent	10	18.87%
	Some college, no degree	15	28.30%
	2 year degree	18	33.96%
	4-year degree	8	15.09%
	Graduate studies or degree	1	1.89%
Income (*N= 53)*	Less than $10,000	7	13.21%
	$10,000 - $19,999	1	1.89%
	$20,000 - $29,999	15	28.30%
	$30,000 - $39,999	13	24.53%
	$40,000 - $49,999	10	18.87%
	$50,000 - $59,999	5	9.43%
	$60,000 - $69,999	2	3.77%
Employment Status (*N= 53)*	Full-time	36	67.92%
	Part-time	9	16.98%
	Unemployed	8	15.09%
Status of current home (*N= 53)*	Homeless	1	1.89%
	Own/Purchasing	23	43.40%

	Renting	29	54.72%
Frequency of attending religious or spiritual events (*N*=31)	Holidays and Special Events	2	6.45%
	Several Times per Year	2	6.45%
	Monthly	8	25.81%
	Once per week	13	41.94%
	2+ times per week	6	19.35%

*Note: Other self-identified as “A Swazi from Swaziland” (1.89%), “Hispanic White” (1.89%), “Hispanic Biracial” (1.89%), “North American” (1.89%), “Pro Black” (1.89%), “Ugandan” (1.89%)

Table 3

Neighborhood SES (estimated)

Neighborhood SES (*N= 53)*	Less than $10,000	5	9.43%
	$10,000 - $19,999	2	3.77%
	$20,000 - $29,999	19	35.85%
	$30,000 - $39,999	13	24.53%
	$40,000 - $49,999	5	9.43%
	$50,000 - $59,999	4	7.56%
	$60,000 - $69,999	0	0%
	$70,000 - $79,999	2	3.77%
	$80,000 - $89,999	1	1.89%
	$90,000 - $99,999	0	0%
	$100,000 - $149,999	2	3.77%

Table 4

Descriptive Statistics for the Demands of Illness Inventory by Subscale

	Mean	*Standard Deviation*
Overall total	212.49	50.03
Physical Symptoms	0.92	0.69
Personal Meaning	2.38	0.99
Family Functioning	1.92	0.57
Social	1.90	0.70
Body Image	1.36	0.73
Monitoring Symptoms	2.08	1.00
Treatment Issues	1.40	0.47

Table 5

Cronbach Alpha's for Subscales on DII

	Cronbach's Alpha
Physical Symptoms	.89
Personal Meaning	.94
Family Functioning	.86
Social	.72
Body Image	.70
Monitoring Symptoms	.88
Treatment Issues	.77

Appendix B

Table 1

Counts for Imputations for DII Scale by Subscale

Subscale	Item Number	Imputation Count	Percentage Imputed
Physical Symptoms	1	1	1.9%
	2	3	5.7%
	3	5	9.6%
	4	2	3.8%
	5	3	5.7%
	8	2	3.8%
	9	1	1.9%
	10	3	5.7%
Personal Meaning	15	1	1.9%
	18	1	1.9%
	20	1	1.9%
	23	1	1.9%
	29	1	1.9%
Family Functioning	30	1	1.9%
	31	2	3.8%
	32	1	1.9%
	33	1	1.9%
	34	1	1.9%
	35	1	1.9%

	36	2	3.8%
	38	7	13.5%
	39	1	1.9%
	41	3	5.7%
	42	1	1.9%
	43	1	1.9%
	44	2	3.8%
	46	7	13.5%
	47	8	15.4%
	48	9	17.3%
	49	10	19.2%
	50	9	17.3%
	51	10	19.2%
	52	9	17.3%
	53	9	17.3%
	54	9	17.3%
	55	11	21.2%
	56	3	5.7%
	57	3	5.7%
	58	3	5.7%
	59	3	5.7%
	60	1	1.9%
	61	1	1.9%
	62	1	1.9%
Social Relationships	66	1	1.9%

	67	1	1.9%
	69	1	1.9%
	70	2	3.8%
	72	1	1.9%
Self-image	79	6	11.5%
	80	5	9.6%
Monitoring Symptoms	82	6	11.5%
	83	1	1.9%
	85	1	1.9%
	88	1	1.9%
Treatment Issues	106	1	1.9%
	114	1	1.9%
	117	2	3.8%
	118	3	5.7%
	119	3	5.7%
	120	2	3.8%
	122	1	1.9%
	123	1	1.9%

Note. Items that did not require imputations are not included. They were completed by 100% of the sample examined.

Table 2

Descriptive Statistics and Correlations for BASC Scales (Dependent Variables)

Variable	*n*	*M*	*SD*	1	2	3	4	5
1. Social Problems	60	57.15	8.66	-				
2. Internalizing Problems	60	59.12	9.68	.65**	-			
3. Inattention/ Hyperactivity	60	56.13	8.39	.46**	.65**	-		
4. Emotional Symptoms	60	60.95	10.05	.69**	.96**	.70**	-	
5. Personal Adjustment	60	39.27	10.33	-.67**	-.80**	-.74**	-.91**	-

*$p < .05$. **$p < .01$.

Table 3

BASC Scale Correlations with Predictor Variables

Variables	Social Problems	Internalizing Problems	Inattention/ Hyperactivity	Emotional Symptoms	Personal Adjustment
1. Attachment	.12	.08	.20	.03	-.08
2. PQ	.11	-.01	.06	-.04	.08
3. PQ: Perceived Fairness	.23	.55*	.42	.54*	-.39
4. PQ: Emotional	-.30	-.26	-.01	-.12	.20
5. PQ: Instrumental	.18	.16	.27	.05	.07
6. Youth Age	.01	.18	.02	.17	-.15
7. BSI	.15	.23	.25	.25	-.14
8. BSI: Somatization	.24	.38**	.25	.35**	-.18
9. BSI: Depression	.14	.09	.22	.18	-.13
10. BSI: Anxiety	.05	.16	.20	.15	-.07
11. DII	-.03	.17	-.09	.07	.01
12. DII: Physical Symptoms	.05	.10	.10	.13	-.04
13. DII: Personal Meaning	-.11	-.10	-.19	-.14	.11
14. DII: Family Functioning	-.20	-.06	-.20	-.13	.17
15. DII: Social	.02	.10	-.03	.12	-.13
16. DII: Body Image	-.03	.24	.19	.23	-.18
17. DII: Monitoring Symptoms	.18	.72*	.01	.20	-.14
18. DII: Treatment Issues	.12	.34**	.04	.18	-.04
19. Parent Age	-.09	-.30	-.29	-.30	.25
20. Years Living with HIV	-.19	-.29	-.07	-.21	.05
21. How Many Children	-.15	-.07	.00	-.06	-.03

*$p < .05$. **$p < .01$.

Table 4

Descriptive Statistics for the Predictor Measures

Scale	*n*	*M*	*SD*
1. Attachment	48	85.81	13.95
2. Parentification Questionnaire	19	17.79	3.46
3. PQ: Perceived Fairness	19	0.37	0.23
4. PQ: Emotional	19	0.27	0.23
5. PQ: Instrumental	19	0.38	0.30
6. Youth Age	60	12.05	2.44
7. BSI	59	21.71	14.81
8. BSI: Somatization	59	5.41	4.94
9. BSI: Depression	59	9.31	5.78
10. BSI: Anxiety	59	7.00	5.98
11. DII	59	212.98	53.06
12. DII: Physical Symptoms	59	0.88	0.68
13. DII: Personal Meaning	59	2.41	0.98
14. DII: Family Functioning	59	1.95	0.61
15. DII: Social	59	1.91	0.70
16. DII: Body Image	59	1.41	0.77
17. DII: Monitoring Symptoms	59	2.05	1.01
18. DII: Treatment Issues	59	1.37	0.49
19. Parent Age	60	40.78	6.49
20. Years Living with HIV	60	9.08	7.03
21. How Many Children	60	1.88	1.38

Table 4

Intercorrelations for Study's Predictor Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Attachment	-																				
2. PQ	-.35	-																			
3. PQ: Perceived Fairness	-.70**	.12	-																		
4. PQ: Emotional	-.13	.56*	-.29	-																	
5. PQ: Instrumental	-.06	.50	-.01	.07	-																
6. Youth Age	-.14	-.36	.13	-.23	.11	-															
7. BSI	.08	.12	.12	-.09	.45	-.29*	-														
8. BSI: Somatization	.13	.22	.18	-.06	.47*	-.17	.87**	-													
9. BSI: Depression	-.06	.07	.17	-.11	.44	-.30*	.87**	.63**	-												
10. BSI: Anxiety	.15	.06	-.02	-.06	.33	-.29*	.91**	.73**	.68**	-											
11. DII	-.01	-.08	.22	.00	-.40	.03	-.07	-.17	-.21	.16	-										
12. DII: Physical Symptoms	-.06	.15	.22	.02	.46*	-.04	.80**	.69**	.74**	.69**	-.22	-									
13. DII: Personal Meaning	-.09	.10	-.01	.26	-.48*	-.07	-.51**	-.59**	-.49**	-.30*	.73**	-.63**	-								
14. DII: Family Functioning	-.10	-.12	.05	.06	-.44	.02	-.11	-.25	-.18	.11	.84**	-.29*	.67**	-							
15. DII: Social	.12	-.32	.16	-.22	-.52*	.08	.06	-.09	.14	.08	.53**	.03	.17	.36**	-						
16. DII: Body Image	-.12	-.11	.65**	-.22	-.09	.17	.24	.12	.23	.27*	.42**	.20	-.01	.29*	.53**	-					
17. DII: Monitoring Symptoms	-.13	-.13	.25	-.02	-.43	.12	-.22	-.22	-.32*	-.07	.78**	-.30*	.63**	.48**	.38**	.25	-				
18. DII: Treatment Issues	.32*	-.05	.11	-.14	-.08	-.01	.06	.19	-.27*	.25	.67**	-.10	.34**	.36**	.20	.15	.52**	-			
19. Parent Age	.05	-.39	.28	-.07	.03	.34**	-.22	-.17	-.06	-.36**	-.31*	-.05	-.16	-.15	-.20	-.20	-.26*	-.30*	-		
20. Years Living with HIV	.05	-.16	-.37	.16	-.06	.26*	-.17	-.32*	-.04	-.13	-.37**	.05	-.11	-.20	-.18	-.32*	-.28	-.51**	.38**	-	
21. How Many Children	.31*	-.06	-.38	.10	.23	.08	.09	.06	.13	.04	-.47**	.13	-.29*	-.45**	-.20	-.23	-.36*	-.32*	.25	.68**	-

*$p < .05$. **$p < .01$.

Table 6

Between Subjects Effects for Attachment and BASC Scales

Scale	*F*	*p*	η^2
BASC: Social Problems	1.486	.218	.767
BASC: Internalizing Problems	.821	.688	.645
BASC: Inattention/ Hyperactivity	.980	.540	.685
BASC: Emotional Symptoms Index	.747	.759	.623
BASC: Personal Adjustment	1.153	.402	.719

Table 7

Between Subjects Effects for BSI-18 and BASC Scales

Scale	*F*	*p*	η^2
BASC: Social Problems	2.403	.012	.721
BASC: Internalizing Problems	2.400	.012	.721
BASC: Inattention/ Hyperactivity	2.176	.023	.700
BASC: Emotional Symptoms Index	2.533	.009	.731
BASC: Personal Adjustment	2.219	.020	.704

Table 8

Between Subjects Effects for BSI-18 and BASC Scales Categorized

Scale	Low	High	*t*(59)	*p*
	M(SD)	*M(SD)*		
BASC: Social Problems	19(13.8)	24.16(15.48)	-1.35	.18
BASC: Internalizing Problems	20.63(12.46)	22.83(17.07)	-.56	.58
BASC: Inattention/ Hyperactivity	18.21(13.45)	25.10(15.49)	-1.82	.07
BASC: Emotional Symptoms Index	20.33(12.48)	23.14(17)	-.72	.48
BASC: Personal Adjustment	24.25(15.87)	18.7(13.10)	1.45	.15

Table 9

Regression Coefficients of Predictor Variables on BASC: Inattention/Hyperactivity

Variable	Model 1			Model 2			Model 3		
	B	*β*	*SE*	*B*	*B*	*SE*	*B*	*β*	*SE*
Constant	50.52**		3.08	32.17**		8.57	50.23**		13.94
BSI-18	.30*	.53	.12	.35**	.62	.11	.34**	.60	.11
Youth Age				1.51*	.44	.67	1.45*	.42	.64
Attachment							-.19	-.29	.12
R^2	.28				.46			.55	
▲ R^2					.18*			.08	

Note. For this stepwise model, BSI-18 was selected first followed by Youth Age. Attachment was entered on step two to determine its' contribution above and beyond the other predictor variables.

*$p < .05$. **$p < .01$.

Figure 1

Model of Early Caregiver Behaviors Determining Attachment Outcome