Is Love Enough? The Consequences of Family Economic Disadvantage and Parent-Child Relationships for Adolescent Children's Well-being

By

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To my husband, Kyle, who never stopped believing in me
and
To our daughter, Miriam, who I will never stop believing in

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I

INTRODUCTION

The family of origin is the primary agent of socialization, with family social and material resources having a profound impact on children's development (Conger et al. 1994; Ferraro, Schafer, and Wilkinson 2016; Barret and Turner 2005; Diprete and Eirich 2006; Turney 2011a; Christie-Mizell and et al. 2008; Carr and Springer 2010). A great deal of research has identified the separate connections between financial circumstances and family processes (Powdthavee and Vignoles 2008; Barrett and Turner 2005). However, there is still more to uncover in how finances and family relationships interact to shape adolescent children's short- and long-term mental and physical health outcomes. Further, important questions remain regarding the influence of the family in determining mental and physical health differences across race/ethnicity and gender. The purpose of this dissertation is to identify how material resources and parent-child relationships shape children's short- and long-term outcomes. Three interconnected papers will explore the consequences of material hardship, parent-child closeness, maternal depression, and poverty on adolescent and adult children's mental and physical health outcomes.

Paper one will assess the influence of material hardship and parent-child closeness on adolescent anxiety and depressive symptoms. Anxiety and depressive symptoms measure the extent an individual is experiencing symptomology associated with anxiety or depression (Ge et al. 1994; Monroe et al. 1999). Anxiety symptoms include feelings such as terror or being tense; whereas depressive symptoms include feeling life is not worth living or feeling blue. Research has demonstrated that anxiety and depressive symptoms are discrete measures of distress, but

that they are also correlated (Kessler 2002). Further, other scholars have demonstrated anxiety and depressive symptoms are not impacted by the same predictors (Sternthal et al. 2010). These outcomes are useful for underscoring the impact of material hardship on adolescent well-being as both anxiety and depression symptoms indicate general distress (Pearlin 1981; Avison and Turner 2003; Wickrama, Noh, and Elder 2009). Including two measures of distress will prevent underestimation of the impact of material hardship on adolescent well-being. While some adolescents may experience the fear associated with anxiety in response to material hardship, others may be more likely to experience feelings of sadness linked to depression.

Utilizing a measure of material hardship to understand patterns in adolescent anxiety and depressive symptoms will expand present research concerned with economic inequality and children's mental health outcomes. Scholarship that has focused on the impact of economic disadvantage on children's outcomes has primarily investigated the effects of poverty status or income (Edin and Kissane 2010). Family income is money that is earned from doing work or received from an investment and is used to support or fund day-to-day expenditures. Poverty status is a classification determined by the total amount of money a given family size is expected to need to cover basic expenses (Center for Poverty Research 2019). For example, a family of four making less than $25,000 lives in poverty. Though income and poverty status provide useful insight into a family's financial situation, they are limited in their ability to capture whether a family can buy what they need (Gerschoff et al. 2007). Further, poverty status may underestimate economic disadvantage because poverty thresholds are set at the federal level and do not account for geographical differences in cost of living (Center for Poverty Research 2019).

Material hardship is conceptualized as the inability to meet material needs, including difficulty securing housing, providing food, and purchasing clothing (Ross and Mirowsky 1999).

Families experiencing material hardship are likely to be low-income, but not all low-income families experience material hardship. In fact, low-income families may only experience elevated distress when they are faced with the inability to pay for what they need (Heflin and Iceland 2009; Shelleby 2018). Additionally, families living in high-cost areas may be above the poverty threshold or have a moderate income; but they may still experience trouble meeting financial obligations (Blumenthal et al. 2016).

Families who experience material hardships undergo a great deal of pressure and stress. For young children, previous research has identified that material hardship can negatively impact well-being because their parents were distressed and subsequently used harsh discipline practices (Mcloyd 1990; Conger et al. 1994; Freeman 2017). Harsh discipline, such as spanking, is harmful to young children's mental health (Mcloyd 1990; Thompson, Hanson, McLanahan 1994; Whitbeck et al. 1997; Gershoff et al. 2007; Mustillo et al. 2011). However, it is less clear how the connections between material hardship and parents influence mental health among older children, specifically adolescents.

Adolescence is a developmental period between childhood and adulthood. It is characterized by three stages bounded by age and pubertal development (Dornbusch 1989). Early adolescence occurs during the ages twelve to fourteen, middle adolescence occurs from fifteen to seventeen, and most recently added to this period is later adolescence which occurs from age eighteen to twenty-one (Masselink et al. 2018).

Adolescence is a key time in the life course to assess the connections between material hardship, relationships with parents, and anxiety and depressive symptoms. During adolescence, youth begin to seek independence and individuate from their parents (Grotevant and Cooper 1986). Maintaining a healthy and close bond with parents is also important for adolescent

children's well-being (Rushing 1964; Allen and Land 1999; Coleman 2011). The relational changes between children and parents during adolescence is also likely to change the way material hardship influences parent-child interactions. In contrast to research which assesses the influence of material hardship on parents and young children, physical discipline practices may be less applicable for the outcomes of adolescent children. Even among families that used harsh disciplinary practices when children were young, this type of punishment becomes less frequent as children age into adolescence (Christie-Mizell, Pryor, and Grossman 2008; Lansford 2009). Assessing other facets of parent-child interactions (e.g., parent-child closeness) may be a better measure of how material hardship shapes family practices and influences children's anxiety and depressive symptoms during adolescence.

Research that has investigated the connection between material hardship and parents' behavior towards their young children suggests that the stress of material hardship constrains the parent-child relationship (Mcloyd 1990; Thompson, Hanson, McLanahan 1994; Conger et al. 1994; Whitbeck et al. 1997; Shelleby 2018). However, this pattern may be unique to the stress of experiencing material hardships with young children. As children transition to adolescence, the directions of influence in the parent-child relationship become more symmetrical (Collins and Russel 1991). Adolescents may take on increased responsibility and offer support to parents (Allen and Land 1999; Coleman 2011). Adolescent children and their parents may not only develop and maintain a close relationship in spite of material hardship, but through social and emotional support, a close parent-child relationship may act as a buffer against the harm of dealing with such economic disadvantage (Lempers, Lempers, and Simons 1989; Whitbeck et al. 1991; Hines 1997; Sobolewski and Amato 2005).

Paper two will investigate the association between maternal depression and material hardship and determine how this relationship influences adolescent depressive symptoms. The first paper focuses on the consequences of material hardship. Paper two extends the findings of paper one by identifying maternal depression as one of the causes of material hardship in the family and determining how this connection leads to the transmission of depression from mothers to adolescent children. Scholars have assessed the likelihood of experiencing one type of hardship, such as eviction (Lundberg and Donnelly 2018), but less attention has been given to the families that experience multiple hardships simultaneously. These families will face greater difficulty attaining economic stability and may experience disadvantage long-term (Mcleod and Shanahan 1993). Additionally, most scholars have identified the economic causes of material hardship, but more research needs to be given to social influences such as parents' depression status (Shelleby 2018).

Depression is characterized by a malaise which influences an individual's ability to be motivated, complete tasks, find meaning, or maintain a healthy weight and sleep patterns (Kessler 2012). When severe and chronic, these symptoms interrupt life and prevent individuals from meeting responsibilities (Kessler 2012). Diagnoses of depression have steadily risen over time and are concentrated among women, single-parents, and those in poverty (Pratt and Brody 2014; Brody, Pratt, and Hughes 2018). Depression is also prevalent in families with children. It is estimated that one in ten adolescents have a mother with depression (Ertel 2011). Though economic disadvantage has typically been considered a cause of depression, less attention has been paid to determining the role of depression in economic outcomes (Horwitz et al. 2007). The hindering qualities of depression, such as lack of motivation, may contribute to a parent's ability to meet the financial needs of his or her family (Butterworth et al. 2009).

Considering those most vulnerable to depression are women and parents (Horwitz et al. 2007), maternal depression may have a significant influence on the likelihood of experiencing material hardship and impact adolescent children's depressive symptoms. The influence of maternal depression on adolescent depressive symptoms may be indirect through adolescent children's exposure to material hardship, but maternal depression will also likely heighten adolescent distress directly (Turney 2011a; Turney 2011b; Marleen et al. 2015). Depressed mothers have lower levels of maternal warmth and poorer quality relationships that negatively impact adolescent children (Christie-Mizell et al. 2008; de Coster and Zito 2013). The symptoms associated with depression (e.g. severe sadness) may also be distressing for children to observe in their parents.

Paper three explores the impact of adolescent poverty and parent-child relationships on early adulthood education, material hardship, and health outcomes. The influence of economic disadvantage in the family of origin often extends across the life course. The material and social resources available within a family create a trajectory of advantage or disadvantage which shape long-term economic outcomes (Goldscheider et al. 2014; Eliason, Mortimer, and Vuolo 2015). One key pathway between childhood family economic status and adulthood outcomes is through education. For instance, adults who grew up in families with poverty are less likely to attain years of education beyond high school (Walsemann, Geronimus, and Gee 2008; Melby et al. 2008; Rosenbaum 2011). Understanding this link has been important because a college education or vocational degree is associated with health benefits and promotes social mobility (Ross and Wu 1996; Liu and Hummer 2008; Dupre 2008).

Adolescent poverty will also shape the frequency of material hardship in early adulthood. Individuals who transition to adulthood from low-income or impoverished families face greater

obstacles in their transition that lead to uncertainty and increased financial insecurity. (Silva 2014). Young adults transitioning from economically disadvantaged families typically do not have the financial support of parents to fall back on (Fingerman et al. 2015; Seltzer and Bianchi 2013). These young adults are also less likely to enroll in post-high school education than their middle- and upper-class counterparts (Crosnoe, Mistry, and Elder 2002). Adolescent poverty will shape material hardship in early adulthood directly, but poverty may also operate through education to decrease economic stability and increase material hardship.

Linking poverty in adolescence to education and experiences of material hardship in early adulthood will also clarify the association between adolescent poverty and early adulthood self-rated health (Ferraro, Schafer, and Wilkinson 2016). Self-rated health is a subjective measure of general physical and mental health and is a reliable predictor of morbidity and mortality (Altman, Van Hook, and Hillemeier 2016). The broad nature of self-rated health can capture general health, which is a useful health measure in young adults who are less likely to experience severe health limitations, but who do experience worse health associated with obesity or stress (Altman, Van Hook, and Hillemeier 2016).

As mentioned above, scholars have already connected the accumulation of resources in adulthood (e.g. education and wealth) to the economic resources available in childhood (e.g. parent education, income, and wealth) (Wilson, Shuey, and Elder 2007). Less research has engaged with the influence of adolescent family economic status on early adulthood education and material hardship and the subsequent consequences for self-rated health during early adulthood. Education is associated with a host of economic and social advantages which reduce health risks throughout the life course (Dupre 2008). The characteristics of material hardship (e.g. forgoing necessary expenses) make it an important mechanism for shaping health outcomes

because the most financially disadvantaged adults will be compromising medical care and other important health determinants such as diet or safe housing. Those who grew up in poverty are likely to gain fewer years of education and experience material hardship more often which will lead to worse self-rated health (Gunasekara et al. 2013).

The impact of adolescent poverty on early adulthood education, material hardship, and self-rated health may also be conditioned by the relationship an individual had with parents during adolescence. As outlined above, the parent-child relationship during adolescence is integral to the development and the transition to adulthood (Rushing 1964; Allen and Land 1999; Coleman 2011). Those who had a close relationship with their parents during adolescence may experience emotional benefits, which can support a stable transition to adulthood (Knoester 2003). The benefits of a close-parent child relationship during adolescence are associated with increased well-being, which may aid in adapting to employment, education, and establishing an independent household (Knoester 2003).

There are many reasons to expect that the relationships across the three dissertation papers may also vary by race, ethnicity, and gender. For example, the risk factors associated with mental health are different by race and ethnicity. African American and Hispanic youth are more likely to endure material hardship compared to their white counterparts (McLoyd 1990; Jackson et al. 1998). Further, cultural experiences by race and ethnicity may provide differential coping resources that impact mental health. On the one hand, African American and Hispanic youth are more likely to receive racial socialization and preparation for bias that prepares them to deal with distress related to racial discrimination (Neblett et al. 2009; Smith 2010). On the other hand, white privilege and the associated opportunities may result in a lower prevalence of distressing

economic conditions that can lead to mental health problems and lower socioeconomic attainment (Bonilla-Silva 2015).

Along those same lines, young men and women may differ in their responses to economic and relational disadvantages in the family. During adolescence, young women and men experience increased pressure to conform to culturally appropriate norms of gender expression (Hill and Lynch 1983). Adolescent girls and boys may be affected by family economic stress in accordance with gendered expectations for how they should deal with problems (Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). These processes have been shown to lead to variations in outcomes by gender. For example, women are socialized to view themselves as they relate to others, while men are encouraged to be socially independent (Rosenfield, Lennon, and White 2005). For this reason, adolescent girls may be more vulnerable to family stress and maternal depression than adolescent boys.

Research Questions

In this dissertation, I explore the ways that family economic disadvantages are associated with well-being throughout the life course to better elucidate the mechanisms that link family resources and relationships to psychological and physical health disparities. This research comprises three separate but related studies that explore the impact and causes of economic disadvantage during adolescence and the transition to adulthood. Each paper offers insight into the connections between family resources and relationships in shaping children's short- and long-term outcomes.

1. Does material hardship influence adolescent anxiety and depressive symptoms? Are these relationships qualified by race, ethnicity, gender, or the level of closeness between parents and adolescent children?

2. Are depressed mothers more likely to experience material hardship and does material hardship influence maternal depression? Does this relationship between maternal depression and material hardship influence adolescent depressive symptoms?
3. Does experiencing poverty during adolescence influence education, material hardship, and self-rated health in early adulthood? Are these relationships qualified by race, ethnicity, gender, or parent-child closeness?

Theory

In this research, I will incorporate elements of the life course perspective (Elder, Johnson, and Crosnoe 2003), cumulative disadvantage theory (Wilson, Shuey, and Elder 2007) and the stress-process paradigm (Pearlin et al. 1981; Pearlin 1989). This set of theories acknowledge both the structural and individual domains of life. Such frameworks will allow me to assess how material hardship and poverty impact the parent-child relationship, and in turn, how these interactions affect adolescent mental health and adulthood education, material hardship, and self-rated health outcomes.

Life Course and Cumulative Disadvantage Theory

Life course theory purports that historical conditions structure lives in addition to the events, roles, people, and places embedded within an individual's life. The focus of my dissertation incorporates the life course principles of life-span development and linked lives (Elder, Johnson, and Crosnoe 2003). I utilize these principles to demonstrate that the life course occurs on a continuum, rather than a discrete set of events. The circumstances and relationships in one stage of life influence other stages of life which accumulate to create trajectories of varying advantage (Kahn and Pearlin 2006; DiPrete and Eirich 2006; Wilson, Shuey, and Elder 2007). The life course framework is particularly useful in explaining the way that identities such

as race, ethnicity, and gender shape individual trajectories and lead to inequality (Petit and Western 2004; McLeod and Owen 2004; Mossakowski 2008; Brown et al. 2016)

The principle of life span development dictates that research must account for development and aging as a lifelong process. An individual life course is marked by changes in stages and roles which are generally defined by age (Mayer 2009). For instance, in the period from adolescence to adulthood, individuals are expected to make strides towards economic independence from the family of origin by gaining employment and/or education and establishing their own family relationships (Hogan and Astone 1986; Melby et al. 2008; Goldscheider, Hofferth, and Curtin 2014; Eliason et al. 2015). The principle of linked lives accounts for the influence of connected lives within individual life courses (Mayer 2009). Generally, an individual's life course is influenced by relationships with others. For instance, an individual's social network can shape health (Umberson and Montez 2010; Umberson, Crosnoe, and Reczek 2011; Umberson et al. 2014), influence intimate relationships (Sassler 2010), and overall psychological well-being (Roberts and Bengston 1993; Evensen and Simon 2005; Krause 2009).

Life spans are also structured by historical and institutional contexts. This is an important point because lives are shaped by social expectations unique to a historical moment and cultural context. For instance, contemporary adolescence in the U.S. is normatively marked by significant cognitive and pubertal development, identifying the "self", and individuating from parents (Steinberg 2014). It is also a period in the life course in which gender and race/ethnicity become salient in shaping identity (Barrett and Raskin White 2002; Sellers et al. 2006; Umana-Taylor et al. 2014). As such, gender, race, ethnicity, family relationships and experiences of material

hardship during adolescence will influence how individuals come of age in the contemporary U.S.

Linked lives vary in structural ways. In the contemporary U.S., single-parent households are more likely to be headed mothers and this pattern is stratified across race, ethnicity, and economic status (Mitchell, Booth, and King 2009; Hummer and Hamilton 2010). While many non-resident fathers make great aims to maintain relationships with their children, fathers who reside in the same household as their children have more frequent contact and greater involvement with their children (Castillo, Welch, and Sarver 2011; Slade 2013). Variations in parent residence and involvement have a significant influence on the role parents play in the life course outcomes of their children (Fomby, Mollborn, and Sennot 2010).

The present research investigates the relationships among economic disadvantage, parent-child closeness, and mental health during adolescence and the transition to adulthood. Life course theory will guide the research by providing a framework to explain why and how these relationships vary at these two life course stages. Additionally, life course theory can aid in answering questions related to gender, racial, and ethnic inequalities in health. These social identities are connected to structural inequalities which influence family and economic inequality throughout the life course and subsequently shape variations in health outcomes.

Cumulative disadvantage theory considers how resources additively influence life course trajectories (DiPrete and Eirich 2004). Each stage in the life course is influenced by preceding stages, which culminate to create diverging pathways for individuals. The development that occurs in one stage, is largely shaped by the resources and relationships available in an earlier stage. As an example, young adults from disadvantaged backgrounds experience uncertainty when they enter adulthood (Silva 2014). Lacking economic or social support resources in

adolescence can make transitioning into an independent adult difficult due to limited educational opportunities, meek employment options, or uncertainty in maintaining romantic relationships (Melby et al. 2008; Ryan et al. 2009; Wickrama et al. 2009; Silva 2012).

This dissertation benefits from the use of cumulative disadvantage theory in three primary ways. First, the primary questions of interest are concerned with how economic disadvantage and parent-child relationships influence the well-being of adolescents and young adults. Economic resources in the family of origin are influential for determining access to resources in adulthood and shaping health outcomes (Hayward et al. 2000; Wilson, Shuey, and Elder 2007; Brown et al. 2016). Economic resources in adolescence can accumulate to lead to other economic advantages or disadvantages in early adulthood. Second, cumulative disadvantage theory considers the ways that identities may interact with other social or material disadvantages and lead to "double jeopardy" (Mcleod and Owen 2004; Rosenfield 2012). For example, the depressive symptoms of African American and Hispanic youth are higher than those of white youth when exposed to low SES in childhood (Adkins et al. 2009). Third, this research frames parent-child closeness as an important developmental resource which can positively impact well-being (Sobolewski and Amato 2005). A close parent-child relationship during adolescence fosters increased responsibility and independence (Allen and Land 1999; Coleman 2011). These social developments may have long-term benefits for adolescents and lead to positive social and economic outcomes.

Stress Process Paradigm

The stress process model is a conceptual framework that considers stress as dependent upon the relationships among stressors, mediators/moderators, and outcomes (Pearlin et al. 1981; Pearlin 1989). Stressors are problematic experiences which challenge the interpersonal coping

capabilities of individuals (Pearlin 1981; Pearlin 2010). There are two primary stressors individuals experience: life events and chronic strains (Pearlin 1981; Pearlin 1989; Pearlin 2010; Thoits 2010). Life events are discrete experiences and are most distressing when they are undesired, unscheduled, nonnormative, or uncontrolled. Life events may include job loss, an unexpected medical emergency, or the inability to pay a bill. Chronic strains are enduring problems individuals face across their lives. Repeated racial discrimination, persistent poverty, maternal depression are examples of chronic strains which can create stress for an individual.

Mediators and moderators are the interpersonal resources an individual has to cope with stressors (Pearlin et al. 1981). Parent-child closeness is one of the main moderators considered in this research. The extent that parents are close with their children is going to be an important psychosocial resource for adolescent mental health. In the face of stress, adolescent children may be able to look to their parents for comfort and support which can protect mental health.

The stress process paradigm accounts for stress as dynamic and simultaneously dependent upon the variety of resources individuals' have available to respond to impending stressors. The primary goal of this dissertation is to assess how the experience of family economic disadvantage in adolescence influences the outcomes of children from these families. Economic disadvantage is a discrete and chronic stressor. It includes material hardship (e.g. inability to pay bills) and the number of years spent in poverty. I aim to verify how material hardship acts as a stressor and influences adolescent mental health. Additionally, this research will assess the connection between poverty during adolescence and the resulting outcomes during the transition to adulthood. Education, economic stability, and self-rated health are each considered as outcomes affected by the number of years spent in adolescent poverty. Parent-child

closeness is considered as an important moderating resource for the effect of material hardship on adolescent mental health and adulthood outcomes.

This research also considers the importance of connecting mothers' stress outcomes to adolescent children's experiences of stress. Mothers' may experience depression in response to material hardship and maternal depression may be a stressor for adolescents. Maternal depression may also lead to future material hardship, which will lead to additional distress for adolescent children. Stress exposure is also shaped by race/ethnicity and gender (Taylor and Turner 2002). African Americans and Hispanics are disproportionately exposed to material hardship and poverty which has implications for their health and economic mobility (McLoyd 1990). Further, adolescent girls may be more sensitive to family-based stressors than adolescent boys. Feminine identity scripts encourage girls to prioritize others before the self, especially the family, which may amplify the distress of having a mother with depression and experiencing material hardship in the family (Rosenfield, Lennon, and White 2005; Hill and Needham 2013).

In the studies that follow, I utilize longitudinal data to examine how material hardship, poverty, and parent child-closeness in the family of origin influence the well-being of adolescent and adult children. Though distinct, these studies are related by my effort to piece together the stress of economic disadvantage on families and how this burden transfers across generations. The goal of this research is to demonstrate the pervasive impact economic disadvantage has on the family and to highlight the relational resources families may have to combat the harm of this disadvantage.

II

THE INFLUENCE OF MATERIAL HARDSHIP AND THE PARENT-CHILD RELATIONSHIP ON ADOLESCENT MENTAL HEALTH

Abstract

Extensive research has demonstrated that family material resources influence child well-being. Less research has considered the role of parent-child relationships in shaping the influence of economic disadvantage on adolescent children's well-being. In this study, I draw upon the stress process model to investigate whether the influence of material hardship on adolescent depressive and anxiety symptoms is qualified by parent-child closeness. Data for this study are taken from the Fragile Families and Child Wellbeing Study (N=2,795). The results of regression analyses show that material hardship is associated with heightened anxiety and depressive symptoms. Closeness to mothers and fathers is associated with reduced anxiety and depressive symptoms, but these relationships do not buffer the stress of experiencing material hardship for adolescent's mental health. Analyses also reveal that material hardship is no more harmful to African American adolescents or girls when compared to whites and Hispanics or boys, respectively. These findings demonstrate the pervasive impact of material hardship on the well-being of adolescent youth regardless of the closeness they feel towards their parents and other social structural identities they occupy.

Introduction

Do material hardships cause adolescents to experience symptoms of anxiety or depression? Does the impact of material hardship on anxiety or depressive symptoms vary across race/ethnicity or gender? Does parent-child closeness act to reduce the harmful effect of material hardship for adolescent mental health? Material hardship occurs when individuals are unable to secure necessities such as housing, food, clothing, or medical care (Mirowsky and Ross 1999). Scholars have established that financially disadvantaged young children have higher incidences of behavioral problems (McLeod and Shanahan 1996; McLeod and Nonnemaker 2000), but less is known about how material hardship influences adolescents' mental health symptoms. Further, few studies assess racial, ethnic, and gender differences in exposure and impact of material hardship and whether adolescents' closeness to their parents interacts with material hardship to influence mental health.

Mental health symptoms include feelings of anxiety and depression. In many studies assessing distress, a measure of depressive symptoms is used as a generic indicator of distress (Pearlin 1981; Avison and Turner 2003; Wickrama, Noh, and Elder 2009). The following research incorporates anxiety symptoms as well. Anxiety and depressive symptoms measure the extent an individual is experiencing symptomology associated with anxiety or depression (Ge et al. 1994; Monroe et al. 1999). Anxiety symptoms include feelings such as terror or being tense; whereas depressive symptoms include feeling life is not worth living or feeling blue. Research has demonstrated that anxiety and depressive symptoms are discrete measures of distress, but that they are also correlated (Kessler 2002). Further, other scholars have demonstrated anxiety and depressive symptoms are not impacted by the same predictors (Sternthal et al. 2010). These outcomes are useful for underscoring the impact of material hardship on adolescent well-being as

both anxiety and depression symptoms indicate general distress (Pearlin 1981; Avison and Turner 2003; Wickrama, Noh, and Elder 2009). Including two measures of distress will prevent underestimation of the impact of material hardship on adolescent well-being. While some adolescents may experience the fear associated with anxiety in response to material hardship, others may be more likely to experience feelings of sadness linked to depression.

Previous research investigating family-based socioeconomic inequalities in mental health symptoms has typically focused on poverty status, income, parent education, and/or parent employment (McLeod and Owens 2004; Barrett and Turner 2005; Wickrama et al. 2008; Wickrama, Noh, and Elder 2009; Adkins et al. 2009). This line of research demonstrates that limited material resources in the family do contribute to worse mental health outcomes for children and adolescents. The purpose of this paper is to extend the current literature by incorporating material hardship. Material hardship compliments other measures of socioeconomic status by capturing whether people experience difficulties meeting material needs (Mirowsky and Ross 1999). Research has demonstrated that material hardship is an important link in the relationship between socioeconomic status and mental health (Whitbeck et al. 1991; Mirowsky and Ross 1999; Zimmerman and Katon 2005; Heflin and Iceland 2009). I wish to build upon these findings by focusing on the effects of family material hardship in a sample of disadvantaged adolescents from the Fragile Families and Wellbeing Survey (Lempers, Lempers, and Simons 1989).

Extensive attention has been given to the effects of economic adversity in early childhood (Thompson, Hanson, McLanahan 1994; Whitbeck et al. 1997; Gershoff et al. 2007; Mustillo et al. 2011; Freeman 2017). There is still more to know about the effects of material hardship in adolescence (Simons et al. 2016). Scholars have focused on early childhood because it is

considered a sensitive period in the life course during which exposure to stressful circumstances can have enduring consequences (Gee, Walsemann, and Brondolo 2012; Umberson et al. 2014). Research demonstrates that adolescence is also a critical period of development (Steinberg 2005; Steinberg 2010; Fuhrmann, Knoll, and Blakemore 2015). Research on early childhood material hardship and children's well-being primarily focuses on an indirect relationship between material hardship, harsh parenting practices, and children's well-being (Conger et al. 1994). However, the relationship between material hardship and mental health is going to be direct for adolescents as they likely have a greater awareness of the precarious economic circumstances facing their family compared to young children (Collins and Russel 1991).

Supportive relationships with others are protective of mental health in the face of stressful economic circumstances (Thoits 1995; Lee et al. 2009; Thoits 2010). The parent-child relationship is particularly important for the mental health of adolescents (Pruncho, Burant, and Peters 1994; Ardelt and Day 2002; Yoder and Hoyt 2005; Choo and Shek 2013). Parent-child closeness measures the bond parents and children feel in their relationship with each other (Driscoll and Planta 2011). Though not all close parent-child relationships are healthy, previous research has found that these cases tend to be extreme outliers (Steinberg 2003; Duncan, Coatsworth, and Greenburg 2009; Driscoll and Planta 2011). Youth who feel close to their parents are less likely to experience harmful behavioral or emotional health problems such as suicidal ideation, uncontrollable weight gain or loss, or drug use (Ardelt and Day 2002; Ackard et al. 2006). The emotional gains adolescents experience when they have a close attachment to parents will lead to lower anxiety and depressive symptoms and reduce the harmful mental health impact of material hardship (Sobolweski and Amato 2005).

Emotional closeness with parents may have consequences for adolescents beyond the direct impact on mental health. Families who are most likely to experience economic disadvantage are likely to be headed by single mothers (McLoyd 1990; Freeman 2017). This structural reality has implications for the relationship adolescents can develop with their fathers. The involvement of non-resident fathers is important for adolescent well-being and has also been shown to influence the consistency in which fathers provide financial resources to support their adolescent child (Dazinger and Radin 1990; King et al. 2007; Slade 2013). The emotional and subsequent financial involvement of non-resident fathers may act as a preventative mechanism to mother-headed families experiencing material hardship.

The impact of material hardship on mental health will also vary by race/ethnicity. Among economically disadvantaged families, material hardship is concentrated in minority families (McLoyd 1990; Hirschmann and Snipp 1999; Williams and Mohammed 2013; Killewald 2013). Recent research has demonstrated that economic inequality is a driving force in racial and ethnic health inequalities (Gee, Walsemann, and Brondolo 2012; Umberson et al. 2014). However, there is still more to know regarding the role of material hardship in racial and ethnic mental health differences. Though there is mixed scholarly support regarding the relationship between race and mental health, it is generally accepted that racial minorities have equal or better mental health than whites, despite the economic and social disadvantages racial minorities experience. This contradiction is also known as the "mental health paradox" (Williams et al. 1997; Samaan 2000; Gee et al. 2006; Rosenfield 2012; Mouzon 2013; Ai et al. 2014). When African Americans and Hispanics do experience poor mental health, it is important to understand the conditions and underlying mechanisms (Williams and Williams-Morris 2000). The concentration of material

hardship among minority families means it is likely an important determinant of minority youth mental health.

Material hardship is also going to vary in its impact on adolescent girls versus adolescent boys. During adolescence, girls and boys begin experiencing increased pressure to conform to culturally appropriate gender norms (Hill and Lynch 1983). The gender differences that begin emerging during adolescence include varying responses to stressful events. Adolescent girls and boys may be affected by family economic stress in accordance with gendered expectations for how they should deal with problems (Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). For example, young girls are socialized to view themselves as they relate to others, while boys are encouraged to be socially independent (Rosenfield, Lennon, and White 2005). For this reason, the mental health of adolescent girls may be more vulnerable when their families experience material hardships.

In this paper, I utilize data from the Fragile Families and Wellbeing Study (FFCWS) to underscore the racial, ethnic, and gender variability in the impact of material hardship for mental health and whether parent-child closeness is a beneficial resource in the face of material hardship. The present research utilizes wave six, year fifteen of the FFCWS data, which includes the self-reported experiences of the adolescent children in the study. The FFCWS data are also rich with detailed questions regarding the types of material hardship a family has experienced in the past year. The FFCWS sample design is representative of low-income families in large urban areas. These families are likely to experience social and material disadvantages that may lead to material hardship. The FFCWS data is advantageous for the present research because it allows me to assess how difficult material hardship is for the youth and families who are most vulnerable to these economic experiences (Pilkauskus, Campbell, and Wimer 2017).

This paper improves prior studies by incorporating material hardship to provide a clearer picture of how material resources may not satisfy needs and how this inequality is stratified by race (McLoyd 1990). This paper will demonstrate whether material hardship influences adolescents' feelings of anxiety and depression. Material hardship is associated with depression throughout adulthood (Mirowsky and Ross 2001; Levecque et al. 2011), but there is still more to know regarding the impact of material hardship for adolescent depressive symptoms and whether it influences adolescent symptoms of anxiety. This research also incorporates a measure of social support for adolescents and assesses whether the parent-child relationship benefits adolescent depressive and anxiety symptoms at different levels of material hardship.

Theory

This research is guided by the stress process model. The stress process model posits that differences in mental health outcomes arise from the relationships among stressors, moderators, and outcomes (Pearlin et al. 1981). Stressors are the problematic experiences individuals experience throughout their life (Pearlin 2010; Thoits 2010). There are two primary stressor individuals experience: life events and chronic strains (Pearlin 1989; Pearlin 2010; Thoits 2010). Life events are discrete experiences and are most distressing when they are undesired, unscheduled, nonnormative, or uncontrolled. Life events may include job loss, an unexpected medical emergency, or the inability to pay a bill. Chronic strains are enduring problems individuals face across their lives. Moderators are the psychosocial resources an individual possesses that aide in dealing with a stressor (Pearlin 1989; Pearlin 2010). An important resource for coping with a stressor is social support. Social support includes the material and emotional resources available to an individual from his or her relationships. Finally, stress outcomes are the manifestations of stress (Pearlin 1989).

Utilizing this framework, family material hardship is conceptualized as a series of stressful life events which will lead to heightened adolescent anxiety and depressive symptoms. Parent-child closeness is the primary moderator in this study and captures how close adolescent children feel towards their mother or father. Among families experiencing material hardship, close relationships with mom and dad will act as a protective buffer that boosts adolescents' abilities to cope and respond to the stress associated with material hardship (Thoits 2010).

Stress vulnerability is also stratified by race, ethnicity, and gender (Turner and Avison 2003; Akins et al. 2009; Umberson et al. 2014). For instance, African American families are disproportionately exposed to acute economic stressors which impact mental health (George and Lynch 2003). It is likely that African American youth experience the most material hardship compared to white and Hispanic youth which will act as an important predictor in racial/ethnic differences in mental health. The process by which stress leads to symptoms of depression and anxiety is also going to vary for girls compared to boys. Girls may be more sensitive to the economic stress impacting their family and subsequently experience worse mental health outcomes compared to boys (Hill and Needham 2013).

Hypotheses

Material hardship is the inability to meet financial needs. Experiences of material hardship range from being unable to pay for a phone to being evicted. Families may experience only one type of hardship or every kind of hardship. For this reason, material hardship is captured as a count of different hardships a family has experienced. This economic disadvantage is going to be stressful which will lead to heightened depressive and anxiety symptoms in adolescents. Symptoms of anxiety are feelings of terror, fear, panic, or restlessness. Depressive symptoms are feelings of sadness, that life is not worth living, or the inability to shake the blues.

Material hardship may impact these mental health outcomes because it likely leads to the fear or terror associated with anxiety. It may also lead to intense sadness related to depression.

Youth who feel close to their mother or father will likely have lower anxiety and depressive symptoms. Adolescents are going to benefit from parent-child closeness because they will be able to look to parents for support and comfort in difficult times. The emotional closeness youth perceive with their parents is going to be important if the family experiences material hardships. African American youth are going to be disproportionately more likely to experience material hardships and may be more vulnerable to the impact of material hardship. Adolescent girls will be more likely to internalize the stress of material hardship and have elevated depressive and anxiety symptoms when their families encounter hardships.

H1. African American youth will have the greatest exposure to material hardship compared to white and Hispanic youth.

H2 a-b. Material hardship will be positively associated with (a) anxiety symptoms and (b) depressive symptoms.

H3 a-d. Closeness to mothers will be associated with lower (a) anxiety symptoms and (b) symptoms of depression and closeness to fathers will be associated with lower (c) anxiety symptoms and (d) depressive symptoms.

H4 a-d. The impact of material hardship on anxiety and depressive symptoms will be moderated by race/ethnicity, such that white (a) and Hispanic (b) youth will have lower anxiety symptoms and white (c) and Hispanic (d) youth will have lower levels of depressive symptoms when experiencing material hardship compared to African American youth experiencing material hardship.

H5 a-b. The influence of material hardship on anxiety and depressive symptoms will be moderated by gender, such that adolescent girls will have greater anxiety (a) and depressive (b) symptoms than adolescent boys.

H6 a-d. Closeness to mothers and fathers will moderate the relationship between material hardship and mental health, such that closeness to mothers will diminish the heightened (a) anxiety and (b) depressive symptoms associated with material hardship and closeness to fathers will diminish the heightened (c) anxiety and (d) depressive symptoms associated with material hardship.

Data and Measures

Data for this paper are drawn from wave six (year 15) of the Fragile Families and Child Wellbeing Study (FFCWS: N = 2,795). The FFCWS consists of interviews with mothers, fathers, and/primary caregivers at birth and again when children are one, three, five, nine, and fifteen. The FFCWS is a part of a larger project by Princeton University's Center for Research on Child Wellbeing and Center for Health and Wellbeing, the Columbia Population Research Center, and Columbia University's National Center for Children and Families. The original study sampled approximately 5,000 children born in large U.S. cities between 1998 and 2000. Approximately three-quarters of the children in the sample were born to unmarried parents. Unmarried parents and their children are considered "fragile families" because of their greater risk of family dissolution and higher prevalence of poverty, compared to two-parent, married families. FFCWS was originally designed to address four primary research questions:

1. What are the conditions and capabilities of unmarried parents, especially fathers?
2. What is the nature of the relationships between unmarried parents?
3. How do children born into these families fare?

4. How do policies and environmental conditions affect families and children?

Data from year fifteen of the FFCWS study are advantageous for the study of material hardship and adolescent mental health because the sample design includes some of the most disadvantaged youth in the U.S. Studying material hardship in the general population can prove difficult because more severe forms of hardship like an eviction or homelessness are rare, making it is difficult to capture in a nationally representative survey. Year 15 from the FFCWS includes survey interviews from the adolescent's primary caregiver and it is the first year the children in the study are interviewed directly. In previous years of the survey, in-home assessments were used to acquire data on children's health and well-being. Now that the children are all around the age of 15, they can provide self-reported information on their well-being and mental health. I utilize the children's self-report of anxiety and depressive symptoms in combination with primary caregiver reports of material hardship and parent-child closeness. Descriptive statistics for all study variables are included in Table 1.

Measures

Dependent variables. My dependent variables are adolescent's symptoms of anxiety and symptoms of depression. Symptoms of anxiety come from the Brief Symptom Inventory 18-item assessment (BSI 18). The BSI 18 anxiety symptoms included in the FFCWS study include six measures adapted from the BSI 18 anxiety subscale. In the original BSI 18 anxiety subscale, respondents were asked, "During the past seven days, how much were you distressed by…" Examples of symptoms included in this scale are spells of terror or panic, feeling tense or keyed up, or suddenly scared for no reason. Responses to these symptoms could include a range of

Table 1. Means, Percentages, and Standard Deviations for All Study Variables. Fragile Families and Child Wellbeing Study – Wave 6, Year 15.

Variables	Mean/ Percent	SD
BSI youth anxiety symptoms	10.87	3.92
CES-D youth depressive symptoms	7.98	2.99
Material hardship and parent-child closeness		
Material hardship	1.22	1.76
At least one material hardship	47.44%	
Parent-child closeness	3.50	.69
Youth closeness to mom	3.31	.97
Youth closeness to dad	2.26	1.43
Gender, Race, Age		
Female	48.87%	
African American	53.20%	
Hispanic	26.87%	
White	19.93%	
Age (years)	15.57	.74
Parent's education, employment, and household income		
Parent has a college degree	18.33%	
Employed	71.57%	
Household income	60878	63064
Below poverty level	25.66%	
Household structure		
Parent is a good parent	2.96	.71
Household size	4.65	1.82
Number of children in household	2.56	1.51
Biological mother-father household	28.40%	
Biological mother and new partner	23.16%	
Biological father and new partner	4.10%	
Biological mother only	36.46%	
Biological father only	3.44%	
Other primary care giver	4.43%	

Note: N = 2,795.

values from 0= "Not at all" to 4= "Extremely." The Fifteen-Year child survey of the FFCWS includes the same items from the original BSI 18 anxiety subscale, but the respondents were asked "Thinking about the past four weeks, do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with this…" The symptoms include "I have spells of terror or panic"; "I feel tense or keyed up"; "I get suddenly scared for no reason"; "I feel nervous of shaky

inside"; "I feel fearful"; or "I feel so restless I can't sit still." The scale ranges from 1= "strongly disagree" to 4= "strongly agree." The symptoms were summed to create a composite scale with a range of 6 to 24, alpha reliability of .77, and mean of 10.87.

Depressive symptoms are combined in a scale which includes five items from the Center for Epidemiological Studies Depression Scale (CES-D) as used in the National Longitudinal Study of Adolescent Health (Perreira et al. 2005). The five-item scale is considered an improvement to the full 20-item CES-D scale for cross-cultural comparability. The original version of the CES-D scale, respondents are asked how often they experienced a symptom within the past week. The five-item CES-D scale included in the FFCWS, asks adolescents about their experiences in the past four weeks and include: "I feel I cannot shake off the blues", "I feel sad", "I feel happy", "I feel life is not worth living", and "I feel depressed." All items were coded as 1= "strongly disagree" to 4= "strongly agree" except for "I feel happy" which is coded as 1= "strongly agree" to 4 = "strongly disagree". The scale was summed with an alpha of .77, a range of 5 to 20, and a mean of 7.98.

Independent variables. My primary independent variables are material hardship, parent-child closeness, race, ethnicity, and gender. Material hardship is a count of eleven yes or no questions that asked primary caregivers, "Did you or anyone in your family experience the following within the past year…" The eleven hardships include receiving free food or meals, going hungry because the primary caregiver could not afford food, inability to pay rent/mortgage, being evicted because rent/mortgage was not paid, inability to pay utility bills, having a utility turned off because the primary caregiver did not have enough money, borrowed money from friends or family to help pay bills, moved in with other people because of financial problems, stayed at a shelter or a place not intended for housing, someone did not see a doctor

because of cost, and the telephone was disconnected because there was not enough money to pay it. Responses to these questions were coded as 1= “yes” or 0= “no” and summed together to create a composite measure which captures a count of the different hardships experienced in the past year.

The variable ranges from one to eleven. While 47 percent of the sample has experienced at least one material hardship, the distribution of the variable is concentrated around zero with substantial positive skew (Table 1). To adjust for non-linearity with the dependent variable, I attempted a root transformation in addition to creating a tri-category variable comparing those who have no material hardships (1) to those who have a range of one to five (2) or six or more (3) material hardships. These transformations did not reveal statistically different results from those presented below. Therefore, I maintained the original variable distribution in all analyses. The mean material hardship is 1.22.

Closeness to parents includes two ordinal variables indicating adolescent reports of closeness to mothers or closeness to fathers. Youth were asked “How close do you feel to your biological mother?” and “How close do you feel to your biological father?” Responses were coded as 4= “Extremely close”, 3= “Quite close”, 2= “Fairly close”, and 1= “Not very close”. There were 65 individuals who did not report on the question for their mother and 485 individuals who did not report on the question for their father due to their mother or father being deceased or having no contact with the adolescent respondent in the past year. To prevent dropping these individuals from complete case analyses, they are coded as “0” to indicate no relationship. These adolescents likely have significant differences in anxiety and depressive symptoms as well as exposure to material hardship that make their contribution to analyses important. The mean closeness to mothers is 3.31 and the mean closeness to fathers in 2.26. The

models are also adjusted for parents' reports of the closeness they feel to the FFCWS youth respondent. Parents were asked, "How close do you feel to youth?" Responses were coded as 4= "Extremely close", 3= "Quite close", 2= "Fairly close", and 1= "Not very close". The average closeness reported was 3.50. Previous research has found that parent reports of relational closeness tend to overestimate the closeness between children and parents, but children reports do not differ significantly from parents (Aquillano 1999).

Youth race is a five-category variable that includes white, non-Hispanic; black/African American, non-Hispanic; Hispanic or Latino/a; other only, non-Hispanic; and multi-racial, non-Hispanic. Youth were asked to indicate which race or ethnicity as which they most closely identify. There were 170 youths that indicated other only, non-Hispanic or multi-racial, non-Hispanic. To remain theoretically consistent in comparisons across race and ethnicity, only white, Hispanic, and African American youth are included in the final sample. Ancillary analyses reveal no differences between models including youth who identify as "other race" or "multi-racial". White (19.93%) and Hispanic (26.87%) respondents are compared to African American (53.20%) respondents in all analyses. Gender is coded as 1= "female" 0= "male". The sample is 47.87 percent female and 51.13 percent male.

Other covariates. There are other variables that may be important when assessing the relationships among material hardship, parent-child closeness, and youth mental health. Each model controls for socioeconomic factors that may contribute to the likelihood of experiencing material hardship. Parents' education, employment status, and household income are incorporated into the models. Each of these factors captures components of economic class and will influence the likelihood of experiencing material hardship. Parents' education includes "less than high school", "high school", "trade or technical degree", and "four-year degree or higher".

Education is coded as 1= “four-year degree or higher” and are compared 0= “all other education statuses” in analyses. Those with a college degree or higher comprise 18.33 percent of the sample. Employment captures whether the primary caregiver worked for pay in the past week. The variable includes two categories 1= “yes” 0= “no”. In the final sample, 71.57 percent of the primary caregivers were employed. Income is measured in dollars with a mean of $60,878. Income is logged in all analyses to adjust for overdispersion.

Household composition is likely to influence adolescent mental health and material hardship. The models account for whether the youth lives with both their biological mother and father (28.40%). This is incorporated in the models as 1= “youth lives with mom and dad” and 0= “other living arrangement”. Household size is also included in the analyses. The average household size was 4.721. Household size may impact youth distress and it may be a determining factor for experiencing material hardship (Williams, Yu, and Jackson 1997). Finally, the models account for how well the parent performs as a parent. Parents were asked to rate how themselves as a parent. The ratings included 1= “not a very good parent”, 2= “a good parent”, 3= “a very good parent”, and 4= “an excellent parent” with a mean of 2.961. It is likely that parenting practices will impact youth mental health in addition to impact the relationship parents have with their youth child.

Analytic Strategy

I utilize logistic regression and ordinary least squares regression to assess the relationships among material hardship, parent-child closeness, race, ethnicity, gender, and adolescent anxiety and depressive symptoms in four steps. First, I highlight a logistic regression model predicting the odds of experiencing material hardship to assess my first hypothesis that African American youth are more likely to experience material hardship than other youth.

Second, I assess whether material hardship is associated with increased anxiety and increased depressive symptoms. In the same models, I test the relationship among parent-child closeness and anxiety and then, parent-child closeness and depressive symptoms. Third, I estimate interactions with material hardship by race, ethnicity, and gender on anxiety symptoms and depressive symptoms to identify if experiences of material hardship result in varying mental health outcomes across these statuses. Finally, I present models that test the interaction of material hardship by youth reports of closeness to fathers and closeness to mothers to examine whether parent-child closeness reduces the harmful association of material hardship on adolescent anxiety and depressive symptoms. All continuous variables included in interaction terms have been centered at their means. Centering variables at the mean allows interaction variables to be interpreted at the mean instead of an arbitrary zero. Mean centering also ensures the main effect coefficients are not impacted by multicollinearity with the interaction term. This adjustment only influences micro-level effects between variables and does not impact model level predictions such as r-squared or fit indices (Iocabuccie et al. 2016; Dalal and Zicker 2012)

Results

Table 2 tests the association between race and experiencing at least one material hardship. I find support for my first hypothesis – African Americans are more likely than whites and Hispanics to experience any hardship. The odds of experiencing material hardship are 47 percent lower for whites and 44 percent lower for Hispanics compared to African American youth (O.R. for whites = .53; O.R. for Hispanics = .56). Adolescent girls are no more likely to experience material hardship than adolescent boys. Parents with a college education or higher have lower odds of experience material hardship than those with less education (O.R. =.66). Increases in income are associated with reduced odds of experiencing material hardship (O.R. =

.75). Employment does not significantly reduce the likelihood of experiencing material hardship. As household size increases, as do the odds of experiencing material hardship (O.R. = 1.04).

Table 2. Logistic Regression Predicting the Likelihood of Material Hardship by Race and Ethnicity. Fragile Families and Child Wellbeing Study Wave 6, Year 15.

	Material hardship		
Variables	*b*	*se*	O.R.
Intercept	3.99***	.51	—
Gender, race/ethnicity, age			
White (1=yes)	-.63***	.12	.53
Hispanic (1=yes)	-.58***	.10	.56
Female (1=yes)	.01	.08	1.01
Parent's socioeconomic indicators			
College degree or higher (1=yes)	-.41***	.12	.66
Employed (1=yes)	-.18	.10	.84
Household income (logged)	-.29***	.05	.75
Household structure and parent rating			
Household size	.04*	.02	1.04
Biological parents head household (1=yes)	-.39***	.10	.68
Good parent	-.17**	.06	.85
Parent closeness to youth	-.11	.06	.90
Parent-child closeness			
Youth closeness to mom	-.06	.05	1.06
Youth closeness to dad	-.00	.03	.99
Model Statistic			
Pseudo R^2	.10		

Note: *N* = 2,795; *p<.05; **p<.01;***p<.001 (two-tailed tests).

Households with both biological parents present have 32% lower odds of experiencing material hardship than other household structures (O.R. = .68). Parent evaluations of themselves as parents was associated with reduced material hardship (O.R. = .85). Parent and adolescent reports of parent-child closeness were not associated with material hardship.

In Table 3, models 1 and 2 test hypotheses 2a-b and 3a-d by analyzing the main effects of material hardship and parent-child closeness on anxiety and depressive symptoms. In Model 1, I find analytical support that material hardship is positively and significantly associated with anxiety symptoms (hypothesis 2a). For each additional hardship, youth experience approximately a .14 increase in anxiety symptoms. Youth reports of closeness to mothers and closeness to fathers reduce anxiety symptoms by .53 and .26, respectively, which provides support for hypotheses 3a-b. Parent reports of parent-child closeness have no impact on anxiety symptoms. Closeness to mothers has the largest effect on anxiety symptoms (standardized beta = -.13) followed by closeness to fathers (standardized beta = -.09). There are also significant patterns across race, ethnicity, and gender in anxiety symptoms. White and Hispanic youth experience higher anxiety symptoms than African American youth. Adolescent girls have significantly higher anxiety symptoms than adolescent boys. Adolescent anxiety symptoms are not influenced by other socioeconomic conditions such as parent education, employment, or income. Smaller households and parents who rate themselves as good parents are associated with lower symptoms of anxiety.

Model 2 demonstrates the patterns in youth depressive symptoms by material hardship, parent-child closeness, race, ethnicity, and gender. Consistent with hypothesis 2b, material hardship is significantly associated with increased depressive symptoms. Each additional hardship is associated with a .08 increase in depressive symptoms. I also find support for hypotheses 3c-d; closeness to mothers and closeness to fathers are both associated with reduced depressive symptoms. Closeness to mothers has the greatest influence on depressive symptoms (standardized beta = -.18) followed by closeness to fathers (standardized beta = -.12). Parent

Table 3. OLS Regression for Anxiety and Depressive Symptoms by Material hardship and Parent-Child Closeness. Fragile Families and Child Wellbeing Study Wave 6, Year 15.

	Anxiety Symptoms Model 1			Depressive Symptoms Model 2		
Variables	*b*	*se*	β	*b*	*se*	β
Intercept	11.44***	.79	—	10.36***	.59	—
Gender, race/ethnicity, age						
White (1=yes)	.46*	.21	.05	.12	.15	.02
Hispanic (1=yes)	.55*	.13	.06	.16	.13	.02
Female (1=yes)	.42**	.15	.05	.48***	.11	.08
Parent's socioeconomic indicators						
College degree or higher (1=yes)	-.32	.21	-.03	-.44**	.15	-.06
Employed (1=yes)	.00	.17	.00	-.07	.13	-.01
Household income (logged)	-.07	.06	-.02	-.11*	.05	-.05
Household structure and parent ratings						
Household size	.11**	.04	.05	.04	.03	.03
Biological parents head household (1=yes)	.07	.19	.01	.05	.14	.01
Good parent	-.25*	.11	-.05	-.22**	.08	-.05
Parent closeness to youth	-.02	.12	-.00	-.28***	.09	-.06
Material hardship and parent-child closeness						
Material hardship	.14***	.04	.06	.08**	.03	.05
Youth closeness to mother	-.53***	.08	-.13	-.57***	.06	-.18
Youth closeness to father	-.26***	.06	-.09	-.24***	.04	-.12
Model Statistic						
Adjusted R^2	.05			.10		

Note: *N* = 2,795; *p<.05; **p<.01;***p<.001 (two-tailed tests).

reports of parent-child closeness are also significantly and positively associated with youth depressive symptoms. There are no differences among races and ethnicity in depressive symptoms, but there are gender differences. Adolescent girls have greater depressive symptoms than adolescent boys. After closeness to mom and dad, being female has the next largest effect on depressive symptoms (standardized beta - .08). Parent socioeconomic indicators did not influence adolescent anxiety symptoms, but they do impact depressive symptoms. Adolescent depressive symptoms are lower for those whose parent has a college degree or higher and reported higher household incomes. Household size and composition have no effect on

adolescent depressive symptoms. Parents evaluations of their parenting were negatively related to depressive symptoms.

Table 4. OLS Regression for Anxiety and Depressive Symptoms with Interactions among Material Hardship, Race, and Ethnicity. Fragile Families and Child Wellbeing Study Wave 6, Year 15.

	Anxiety Symptoms Model 1			Depressive Symptoms Model 2		
Variables	*b*	*se*	β	*b*	*se*	β
Intercept	11.48***	.79	—	10.37***	.59	—
Gender, race/ethnicity, age						
White (1=yes)	.45**	.21	.05	.12	.16	.02
Hispanic (1=yes)	.54***	.18	.06	.15	.13	.02
Female (1=yes)	.41**	.15	.05	.48***	.13	.08
Parent's socioeconomic indicators						
College degree or higher (1=yes)	-.32	.21	-.03	-.43**	.15	-.06
Employed (1=yes)	.01	.17	.00	-.07	.13	-.01
Household income (logged)	-.07	.06	-.02	-.11*	.05	-.05
Household structure and parent ratings						
Household size	.11**	.04	.05	.04	.03	.03
Biological parents head household (1=yes)	.07	.19	.01	.04	.14	.01
Good parent	-.26*	.11	-.05	-.22**	.08	-.05
Parent closeness to youth	-.01	.12	-.00	-.28***	.09	-.06
Material hardship and parent-child closeness						
Youth closeness to mom	-.53***	.08	-.13	-.57***	.06	-.18
Youth closeness to dad	-.26***	.06	-.09	-.24***	.04	-.12
Material hardship	.20***	.05	.09	.12**	.05	.07
Interaction race, gender, and hardship						
White*material hardship	-.13	.13	-.02	-.06	.09	-.01
Hispanic*material hardship	-.19	.10	-.04	-.11	.07	-.03
Model Statistic						
Adjusted R^2	.05			.10		

Note: N = 2,795; *p<.05; **p<.01;***p<.001 (two-tailed tests).

Results from Table 4 test the interactions among race, ethnicity, and material hardship. Both Model 1 for anxiety symptoms and Model 2 for depressive symptoms reveal comparable patterns. I fail to find support for hypotheses 4a-d that the relationships among material hardship,

anxiety, and depressive symptoms would be moderated by race or ethnicity, such that African American youth would have higher mental health symptomology when experiencing material hardship.

Table 5. OLS Regression for Anxiety and Depressive Symptoms with Interactions between Material Hardship and Gender. Fragile Families and Child Wellbeing Study Wave 6, Year 15.

	Anxiety Symptoms Model 1			Depressive Symptoms Model 2		
Variables	*b*	*se*	β	*b*	*se*	β
Intercept	11.44***	.78	—	10.36***	.59	—
Gender, race/ethnicity, age						
White (1=yes)	.46*	.21	.05	.12	.15	.02
Hispanic (1=yes)	.55**	.18	.06	.16	.13	.02
Female (1=yes)	.42**	.18	.05	.48***	.11	.08
Parent's socioeconomic indicators						
College degree or higher (1=yes)	-.32	.21	-.03	-.44**	.15	-.06
Employed (1=yes)	.00	.17	.00	-.08	.03	-.01
Household income (logged)	-.07	.06	-.02	-.11*	.05	-.05
Household structure and parent ratings						
Household size	.11**	.04	.05	.04	.03	.03
Biological parents head household (1=yes)	.07	.19	.01	.04	.14	.01
Good parent	-.25*	.11	-.05	-.22**	.08	-.05
Parent closeness to youth	-.02	.12	-.00	-.28***	.09	-.06
Material hardship and parent-child closeness						
Youth closeness to mom	-.53***	.08	-.13	-.57***	.06	-.18
Youth closeness to dad	-.26***	.06	-.09	-.24***	.04	-.12
Material hardship	.16***	.06	.07	.08	.05	.05
Interaction race, gender, and hardship						
Female*material hardship	-.05	.08	-.01	-.00	.06	-.00
Model Statistic						
Adjusted R^2	.05			.10		

Note: *N* = 2,795; *p<.05; **p<.01;***p<.001 (two-tailed tests).

In Table 5, I find no support for hypotheses 5a-b which stated that the relationships among material hardship, anxiety, and depressive symptoms would be moderated by gender, such that girls would have higher mental health symptoms in the face of material hardship than

boys. The same patterns among control covariates demonstrated in the main effect models from Table 3 are present in the models in Tables 4-7. Additionally, Table 6 includes interactions between material hardship and closeness to mothers and material hardship and closeness to fathers. These models assess whether closeness to mothers or fathers moderates the influence of material hardship on anxiety and depressive symptoms. I do not find support for hypotheses 6a-d. Closeness to fathers and closeness to mothers have no influence on the way material hardship impacts adolescent anxiety and depressive symptoms.

Table 6. OLS Regression for Anxiety and Depressive Symptoms with Interactions among Material Hardship, Mother-Child Closeness, and Father-Child Closeness. Fragile Families and Child Wellbeing Study Wave 6, Year 15.

	Anxiety Symptoms Model 1			Anxiety Symptoms Model 2			Depressive Symptoms Model 3			Depressive Symptoms Model 4		
Variables	*b*	*se*	β	*b*	*se*	β	*b*	*se*	β	*b*	*se*	β
Intercept	11.45***	.79	—	11.46***	.79	—	10.37***	.59	—	10.37***	.59	—
Gender, race/ethnicity, age												
White (1=yes)	.45*	.21	.05	.45*	.21	.05	.12	.15	.02	.12	.15	.02
Hispanic (1=yes)	.54**	.18	.06	.54**	.18	.06	.16	.13	.02	.16	.13	.02
Female (1=yes)	.43**	.15	.05	.42**	.15	.05	.49***	.11	.08	.49***	.11	.08
Parent's socioeconomic indicators												
College degree or higher (1=yes)	-.32	.21	-.03	-.32	.21	-.03	-.44**	.15	-.06	-.44**	.15	-.06
Employed (1=yes)	.00	.17	.00	.00	.17	.00	-.08	.13	-.01	-.08	.13	-.01
Household income (logged)	-.07	.06	-.02	-.07	.06	-.02	-.11*	.05	-.05	-.11*	.05	-.05
Household structure and parent ratings												
Household size	.11**	.04	.05	.11**	.04	.05	.04	.03	.03	.04	.03	.03
Biological parents head household (1=yes)	.06	.19	.01	.06	.19	.01	.05	.14	.01	.04	.14	.01
Good parent	-.25*	.11	-.05	-.25*	.11	-.05	-.22**	.08	-.05	-.22**	.08	-.05
Parent closeness to youth	-.02	.12	-.01	-.02	.12	-.01	-.28***	.09	-.06	-.28***	.09	-.06
Material hardship and parent-child closeness												
Youth closeness to mom	-.53***	.08	-.13	-.53***	.08	-.13	-.57***	.06	-.18	-.57***	.06	-.18
Youth closeness to dad	-.26***	.06	-.09	-.25***	.06	-.09	-.24***	.04	-.12	-.24***	.04	-.12
Material hardship	.14***	.04	.06	.14***	.04	.06	.08**	.03	.05	.08**	.03	.05
Interaction between closeness and hardship												
Youth close to mother*material hardship	.07	.04	.03				-.02	.03	-.01			
Youth close to father*material hardship				-.04	.03	-.02				-.00	.02	-.00
Model Statistic												
Adjusted R^2	.05			.05			.10			.10		

Note: N = 2,795; *p<.05; **p<.01;***p<.001 (two-tailed tests).

Discussion

Is material hardship related to the experience symptoms of anxiety or depression for adolescents? Does the impact of material hardship on anxiety or depressive symptoms vary across race/ethnicity or gender? Does parent-child closeness act to reduce the harmful effect of material hardship for adolescent mental health? I examined these questions using the stress process paradigm and a sample of disadvantaged families that allowed me to identify which youth are most likely to experience material hardships and under what conditions do material hardships influence adolescents' anxiety and depressive symptoms. As other scholars have concluded, family economic status influences the well-being of children and their families (Thompson, Hanson, McLanahan 1994; Whitbeck et al. 1997; Gershoff et al. 2007; Mustillo et al. 2011; Freeman 2017). My results provide support for the broader research in this area which demonstrates that disadvantaged economic conditions lead to worse mental health outcomes for adolescent children. The findings presented here extend this area of study further by incorporating material hardship and specifying the conditions under which material hardship remains an impactful predictor of adolescent mental health.

Attention has been paid to the influence of material hardship on children's outcomes, but until now this literature has mainly focused on young children (Simons et al. 2016). In studies of young children, material hardship primarily influences well-being through parent behaviors towards children (McLoyd 1990; Conger et al. 1994). Among adolescent children, I found that the influence of material hardship is a robust and direct indicator of adolescent mental health regardless of parent-child relationship closeness, race, ethnicity, and gender. These results demonstrate that adolescents are likely aware of the financial circumstances facing their families and that their mental health is vulnerable when their families experience material hardships.

Though adolescents feel the weight of material hardships in their families, they typically have few opportunities for employment that could drastically improve their economic situations (Lerman 2000). Adolescents in low-income families who are engaging in part-time employment may experience additional harm to their mental health when they work extensive hours each week and transition to employment in early adolescence (Wickrama, Merten, and Elder 2005).

Broadly, the findings from this paper demonstrate three important insights. First, among economically and socially disadvantaged families, African American families still have greater economic instability than their white and Hispanic counterparts. African American youth are more likely than white and Hispanic youth to experience material hardship controlling for important factors such as household income, household size, and parents' education. However, the impact of material hardship on mental well-being was not qualified by the youth's racial or ethnic classification. Further, the main effects models revealed that white and Hispanic youth have higher levels of anxiety symptoms than African American youth and that there are no racial or ethnic differences in depressive symptoms.

African American youth may be socialized in ways that allow them to successfully cope with economic stressors and reduce psychological harm (Neblett et al. 2009; Smith 2010; McLeod and Owens 2014). African American youth may also report better psychological well-being despite the increased likelihood of experiencing material hardship because it is more common among other African American families. Evaluations of personal economic circumstances are impactful relative to comparisons to others' economic circumstances (Ferrer-i-Carbonell 2004). Consider the finding from this research that African American families are more likely to encounter material hardship than white and Hispanic families. Further, African American youth also tend to see other African American youth as their closest comparison group

(Williams and Williams-Morris 2000). The experience of material hardship does not lead to greater psychological harm among African American adolescents compared to whites or Hispanics because African American youth experiencing material hardship are facing similar economic disadvantages as the youth with whom they are most likely to compare (Simons et al. 2016; McLeod and Owens 2014). Together, these findings confer with other scholarship which demonstrates that despite greater economic disadvantage, African American mental health is slightly better than other racial or ethnic groups (Williams et al. 1997; Samaan 2000; Gee et al. 2006; Rosenfield 2012; Mouzon 2013; Ai et al. 2014).

Second, material hardship is a better predictor of youth anxiety and depressive symptoms than income alone. In the main effects models, income had no association with anxiety symptoms. Income was associated with lower depressive symptoms, but the magnitude was equal to that of material hardship. In the logistic regression model predicting whether a family experienced any material hardship, income was positive and significant. These findings suggest that there may be a mediating relationship between material hardship and income for mental health. However, additional analyses demonstrate that the non-effect of income on anxiety symptoms and the magnitude of the effect for depressive symptoms remains constant across models with and without material hardship. There are also no significant differences in fit indices across these models. Other scholars have suggested having a certain level of income is only harmful to mental health to the extent that a family's income does not allow them to meet their needs (Heflin and Iceland 2009; Shelleby 2018). The results provided in this study indicate that this pattern may not exist for adolescents and does not hold across a variety of well-being outcomes.

This research also indicates a third important implication. The impact of material hardship for anxiety or depressive symptoms is not qualified by the relationship adolescents have with their mothers or fathers. A key component of the stress process framework is the role of social support as a moderating mechanism between the influence of a stressor and the subsequent stress outcome (Pearlin et al. 1981). In this case, a family's level of material hardship remains an important predictor of youth anxiety and depressive symptoms above and beyond the level of closeness an adolescent child feels towards their mother or father. Though the relationships youth have with their parents are beneficial to their mental health, these relationships do not have the capacity to diminish the stress caused by the inability of a family to meet financial needs.

Other scholars have pointed out that material hardship may strain family relationships in ways that reduce the protective benefits that could result from these relationships (Lempers and Lempers 1989). The results from the logistic regression analysis predicting the likelihood of material hardship revealed no associations among youth or parents reports of parent-child closeness and material hardship, but there was a negative association between parent evaluations of their parenting and material hardship. Though parent and adolescent closeness does not appear dependent on the presence of material hardship, parents may feel they are not parenting well when they are unable to meet the financial needs of their family (Pollmann-Schult 2014). Further analysis reveals that parents who report being close to their adolescent children report being better parents. Additionally, in logistic regression analysis predicting the likelihood of any material hardship, parent reports of parent-child closeness are significantly and negatively associated with material hardship when evaluations of parenting are removed from the model. These patterns indicate that parent-child relationships may remain close regardless of material hardship, but that the quality of this relationship may change in ways that cannot be measured

with the present data. Adolescent perceptions of how close they are with their mother or father, may not reduce the distress of experiencing material hardship because parents may be too distressed themselves to provide the support their children need during these times (Thompson, Hansen, and McLanahan 1994).

Though material hardship is associated with parents' perceptions of their parenting practices, material hardship does not influence how close youth feel to their mothers or fathers and closeness does not moderate the impact of material hardship on adolescent mental health. Considering these findings together, the impact of material hardship and parent-child relationships in shaping adolescent mental health remains complex. On the one hand, material hardship consistently predicts the psychological well-being of adolescent children directly. This finding contrasts with scholarship focused on young children, which shows that material hardship only impacts the well-being of young children through the behavior of their parents (Thompson, Hanson, McLanahan 1994; Whitbeck et al. 1997; Gershoff et al. 2007; Mustillo et al. 2011; Freeman 2017). Moreover, the influence of material hardship on adolescent mental health was not diminished by parent-child closeness. On the other hand, material hardship does impact how parents evaluate the quality of their parenting, which was negatively associated with both anxiety and depressive symptomology (Conger at al. 1994). It is certain that family economic disadvantages distress adolescent children, that their parents feel constrained in these conditions, and the parent-child relationship is not protective enough to shield adolescents from the psychological harm of material hardship. It is less clear why the relationships between parents and children are not made more distant by material hardship, but that a close relationship is unable to attenuate the distress of material hardship. Future research should incorporate additional qualitative indicators capturing the quality of the relationship parents and children

have with each other (e.g. affection or respect) (Roberts and Bengston 1993). These factors may be more sensitive to the economic context of the family in shaping adolescent mental health.

This study revealed additional noteworthy findings. The FFCWS data were originally sampled to capture the social and demographic changes low-income or unmarried parents and their children experience over time. Since the original wave, a little under one-third of the sample of youth reside with both biological parents. Yet, the mental health of these children does not significantly differ from those residing in other family structures. This pattern of findings is consistent with other research that demonstrates among disadvantaged families, family structure alone does little in the way of contributing to children's development or well-being (Foster and Kalil 2007).

This study explored how material hardship influences the anxiety and depressive symptoms of adolescents. Identifying the impact of material hardship on adolescent outcomes is important to the extent that material hardship acts as a stressor for adolescents and relationships with parents do little to ameliorate the associated stress. These results, however, are limited in some respects. First, the analyses presented here only explain 5 percent of the variance in youth's anxiety symptoms and 10 percent of their depressive symptoms. During adolescence, individuals undergo a host of biological and social changes that influence mental health. Though material hardship remains a robust predictor of mental health throughout analyses, it is only a small portion of the many educational, social, and familial stressors adolescents experience (Keyes 2006). The conclusions presented here do indicate that adolescents are vulnerable to the economic experiences in their family. These family contexts may impact how they respond to the other stressors in their life and should be explored in future studies. Additionally, while the present data is advantageous for understanding the impact of material hardship on youth anxiety

and depressive symptoms, it is unclear how the anxiety and depressive symptoms of youth in this sample compare to rates in the general population. Further, the analyses presented here cannot provide conclusions regarding the influence of increases and decreases in material hardships across time for adolescent children's relationships with parents and their subsequent mental health symptomology.

Future research should continue to explore the impact of material hardship on families and how it influences children's well-being. In addition to findings that demonstrate the relationship between material hardship and symptoms of anxiety and depression, the results of this study indicate that the parent-child relationship is not enough to diminish the harm of experiencing such economic precarity. These results shed light on the limitation of social support as a resource in the face of severe economic stress which speaks to stress research more broadly (Pearlin et al 1981). Additionally, the results of this study demonstrate that African Americans and adolescent girls are no more likely to experience worse mental health in the face of material hardship than whites, Hispanics, or boys. These findings speak broadly to research concerned with racial, ethnic, and gender differences in responses to economic stressors by highlighting that the family economic precarity associated with the inability to cover necessities is equally distressing regardless of social status (Mouzon 2013; Ai et al. 2014; Hill and Needham 2013).

III

MATERNAL DEPRESSION AS A CAUSE AND CONSEQUENCE OF MATERIAL HARDSHIP AND THE SUBSEQUENT IMPACT OF ADOLESCENT DEPRESSIVE SYMPTOMS

Abstract

The influence of economic disadvantage in the family on mental health has been well-documented. This research utilizes life course theory and the stress process paradigm to extend present research and determine whether maternal mental health is both a cause and consequence of material hardship. Data for this study are taken from years 9 and 15 of the Fragile Families and Child Wellbeing Study (N = 2,378). The analyses utilize structural equation modeling to determine the reciprocal effects of maternal depression and material hardship. This research also examined if the relationship between material hardship and maternal depression influenced the depressive symptoms of adolescent boys and girls. Results demonstrate that maternal depression and material hardship do subsequently influence each other, but this effect is only true for families with adolescent boys. Among adolescent girls, mother's depression was unrelated to material hardship. Maternal depression leads to higher depressive symptoms for adolescent girls, but not for boys. The findings demonstrate the importance of gender in understanding processes within the family and how maternal mental health can translate into material hardship.

Introduction

Depression is an impairment characterized by a lack of motivation, excessive weight gain or loss, too much or too little sleep, or extended periods of sadness (Kessler 2012). Depressive symptoms measure the extent an individual is experiencing symptomology associated with depression (Ge et al. 1994; Monroe et al. 1999). Depressive symptoms capture feeling life is not worth living, feeling blue, or sleep troubles and indicate general distress (Pearlin 1981; Avison and Turner 2003; Wickrama, Noh, and Elder 2009). In the U.S., the prevalence and severity of depressive disorders among adolescents has inclined steadily in the past three decades (Collishaw 2004; Merikangas 2010; Mojtebai et al. 2016). Concurrently, diagnoses of Major Depressive Disorder (MDD) have also increased in adults (BlueCross BlueShield 2018). Among people with depression, women, single-parents, and those in poverty are more vulnerable to depressive disorders (Pratt and Brody 2014; Brody, Pratt, and Hughes 2018). When these statuses overlap, the risk of depression is even greater (Horwitz et al. 2007). The escalation of depression in U.S. adults and youth alike demands continued attention to the causes and consequences of depression and how depression may impact entire families.

The increased prevalence of depressive disorders among youth and adults has been attributed to both cultural and economic changes. Some scholars argue that each successive cohort of adolescents is increasingly distressed due to the rise of electronic communication and social media (Twenge et al. 2019). Other researchers argue that depressive disorders for both adolescents and adults are primarily related to income inequality and limited health care access (Weismann et al. 2017; Rambotti 2015; Pickett and Wilkinson 2015; Miech 2010). Though explanations for the rise of depression among U.S. youth and adults vary, scholars tend to focus on broader structural changes. Additional research on depression highlights the importance of

understanding how family interactions can shape depression among both parents and children (Sutton et al. 2017; Turney 2011a; Turney 2011b).

One in ten youths have a mother with depression (Ertel 2011). Mothers experiencing economic disadvantage have even higher rates of depression (Belle and Doucet 2003; Nomaguchi and Milkie 2004; Slade 2013). Maternal mental health also has implications for children's well-being. When mothers experience poor mental health, children also have greater behavioral, health, and psychological problems. (Meadows, McLanahan, and Brooks-Gunn 2007; Powdthavee and Vignoles 2008; Mennen and Trickett 2011; Turney 2011a; De Coster and Zito 2013; Garbarski 2014; van Doorn et al. 2016). Scholars have established that a mother's mental health influences her child's well-being through various mediating pathways (Leinonen et al. 2002; Turney 2011a). Maternal mental health impacts children's mental health via parenting practices (Lempers, Clark-Lempers, and Simons 1989; McLoyd 1990; de Costa and Zito 2013), the parent-child relationship (van Doorn et al. 2016), and incidences of maternal abuse and neglect (Mustillo et al. 2011). Less scholarship has assessed how a mother's depression may lead to economic insecurity and subsequently impact her adolescent child's depressive symptoms (Marcotte and Wilcox-Gok 2001).

Elucidating the connection between maternal depression, a family's economic status, and adolescent depressive symptoms will aid in understanding how family interactions may contribute to the rising depressive disorders in the U.S. The economic conditions of a family have been shown to shape children's well-being through limited economic investment and parents' simultaneous distress (Simons et al. 2016). While economic disadvantage leads to distress in parents it may also be that parents' mental health contributes to the economic conditions of the family. Testing whether maternal depression is also a cause of economic

hardship will expand current research by more fully describing the process of how depression is transmitted from parents to children.

Maternal depression will likely influence the mental health of adolescents directly and indirectly. The symptoms associated with depression such as limited motivation, inability to complete tasks, and feeling that life is not worth living are going to affect parenting (Kessler 2012; Turney 2011a; Turney 2011b). One channel that maternal depression will influence adolescent mental health is through experiences of material hardship (Heflin and Iceland 2009; Wickrama et al. 2012; Hardie and Landale 2013). Material hardship is conceptualized as the inability to meet material needs, including difficulty securing housing, providing food, and purchasing clothing (Ross and Mirowsky 1999). Depressed mothers may face difficulties in preventing antecedents of material hardship, such as job instability (Ross and Mirowsky 1995; Butterworth et al. 2009).

It has also been demonstrated that material hardship leads to higher incidences of depression (Ross and Mirowsky 1999). Even the World Health Organization has recognized severe economic disadvantage as "the greatest cause of suffering on earth" (Murali and Oyebode 2004). However, there is still more to know about the mechanisms leading to material hardship and whether poor mental health is a key predictor. Indeed, people with depression are at greater risk for a host of disadvantages such as unemployment (Dooley, Prause, and Ham-Rowbottom 2000), multi-partnered fertility (Turney and Carlson 2011), and even poor physical health (Aneshensel, Frerichs, and Huba 1984). It may be that maternal depression is indirectly related to adolescent depressive symptoms by these families having greater incidences of material hardship (Heflin and Iceland 2009).

Adolescence is an important period of the life course to study the impact of a mother's depression on the psychological well-being of her child (Sabolewski and Amoto 2005; Steinberg 2010; Fuhrmann, Knoll, and Blakemore 2015). During adolescence, individuals begin experiencing their first incidences of depressed affect and the associated symptomology (Ge et al. 1994; Monroe et al. 1999). Additionally, it is during adolescence that notable gender differences in behavior begin emerging (Hill and Lynch 1983). Women and men report similar levels of distress, but women tend to experience greater depressive symptoms and feelings of sadness than men (Hankin et al. 1998; Simon and Nath 2004). During adolescence, patterned differences in distress responses and depressive symptoms between boys and girls may begin emerging. This developmental period is marked by gender intensification – an increased pressure to conform to culturally appropriate norms of gender expression (Hill and Lynch 1983). Adolescent girls and boys may be affected by family economic stress in accordance with gendered expectations for how they should deal with problems (Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). For example, women and girls are conditioned to view themselves as they related to others, especially the family, while men and boys are encouraged to be independent (Rosenfield, Lennon, and White 2005). Adolescent girls may be more sensitive to their mothers' depression than boys, which makes studying these relationships during this period in the life course important.

Adolescence is also characterized by changes in parent-child interactions. Adolescent children begin individuating from parents, gaining greater independence, and they experience greater relational symmetry with their parents (Grotevant and Copper 1986; Collins and Russel 1991; Coleman 2011). Successfully navigating adolescent development is important and leads to better functioning and well-being in young adulthood (Rushing 1964; Demo et al. 1987; Reed

and Dubow 1997; Collins and Laursen 2006). However, mothers impacted by depression are more likely to experience obstacles that delay or hinder their ability to aid adolescent children in achieving successful independence. For instance, mothers with depression express less warmth towards their children which can diminish self-efficacy and mental health in adolescence (van Doorn et al. 2016). For these reasons, understanding the impact of maternal depression for adolescent children can reveal important insights into the way depression impacts familial relationships and economic circumstances.

The purpose of this research is to answer the following questions related to how depression is experienced in families: Is maternal depression a cause or consequence of material hardship? Does maternal depression increase depressive symptoms in adolescent girls and boys? This research builds upon current knowledge in three ways. First, depression can act as a barrier to economic mobility. If maternal depression is both a cause and a consequence of material hardship, then mothers with depression who experience material hardship have a heightened risk of persistent economic disadvantage. Second, mothers' depression can also be a mechanism for intergenerational inequalities in mental health. Maternal depression may be distressing for adolescents and it may also give way to precarious economic circumstances. With few economic resources, children may face distressing economic circumstances long-term and experience worse mental health. Third, maternal depression may lead to higher depressive symptoms for adolescent girls than adolescent boys. Highlighting the impact of maternal depression for young men and women will further understandings regarding gender differences in depressive symptoms.

Theory

This research is motivated by life course theory and the stress process paradigm. Life course theory accounts for the historical conditions, events, roles, people, and places embedded within an individual's life (Elder, Johnson, and Crosnoe 2003). Life course theory utilizes theoretical principles to describe the nature of an individual's life course. The present research draws on the principle of linked lives and life-span development. The principle of linked lives demonstrates that individuals exist relative to others; one person's life is influenced by the events that occur in the life of another person. The nature of a relationship between people has implications for the extent that one person's experiences will affect another person (Mayer 2009). Consider the relationship between parents and their children. Few other relationships carry as much influence for an individual's well-being. The type of relationship parents and children have influences children's health even into adulthood (Umberson et al. 2014). The direction of influence between parents and children extends both ways. For instance, the developmental stage of one's child has significant implications for parents' mental health (Evenson and Simon 2005).

Life-span development characterizes lives and aging as on-going processes. An individual life course is segmented by changes in roles which are generally defined by age (Mayer 2009). During adolescence, youth are making strides towards forming their identities (Grotevant and Cooper 1986). A major part of this developmental period is encountering pressures to conform to culturally appropriate norms of gender expression (Hill and Lynch 1983). While a key part of adolescence is gaining independence from parents, forming a strong relationship with parents during this time contributes to gender development and adolescent well-being (Reed and Dubow 1997; Collins and Laursen 2006; Coleman 2011; Hill and

Needham 2013). The process of aging in adolescence is going to be impacted by gender and affective responses to stressful events are also likely to be gendered.

The stress process paradigm is a conceptual framework that conceives stress as a process whereby the stressors an individual encounter and the resources an individual has available combine to influence outcomes (Pearlin et al. 1981; Pearlin 1989). Stressors are the problematic experiences individuals experience throughout their life (Pearlin 2010; Thoits 2010). Stressors can include life events, which are discrete occurrences; or they can be enduring problems known as chronic strains. Life events are most distressing when they are undesired, unscheduled, nonnormative, or uncontrolled (e.g. the inability to pay a bill). Chronic strains are reoccurring problematic experiences individuals face in their life (e.g. persistent material hardship or chronic depression). Stressors impact an individual's life outcomes to the extent she has resources which counteract the stressor she may be facing. Resources may be interpersonal (e.g. a close parent-child relationship) or external (e.g. economic stability).

The following research tests the reciprocal effects of maternal depression and material hardship and the subsequent impact each of these variables has on adolescent girls' and boys' depressive symptoms. Life course theory and the stress process paradigm complement one another in framing the present paper. Depression is typically characterized as a stress outcome for an individual, but maternal depression may act as a chronic stressor for adolescents. The lives of a mother and her children are connected. A mother's depressed mood is going to be distressing for her adolescent children. Due to the principle of linked lives, I expect that mothers' depression will impact youth directly and indirectly through material hardship. Depression is going to limit mothers' opportunities for economic mobility which will increase the likelihood of

experiencing material hardship. Further, experiencing material hardship may also contribute to mothers' depression.

Responses to stressors are also qualified by the developmental period in the life course an individual is situated. According to life span development, adolescent responses to maternal depression and material hardship are likely to be gendered. Adolescent girls and boys may be affected by family economic stress in accordance with gendered expectations for how they should deal with problems related to gender intensification during this time (Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). These processes have been shown to lead to variations in outcomes by gender. For example, women are socialized to view themselves as they relate to others, while men are encouraged to be socially independent (Rosenfield, Lennon, and White 2005). In this research, adolescent girls may be more vulnerable to family stress and maternal depression than adolescent boys.

In sum, the analyses in this research will draw on the life course principles linked lives and life span development and the stress process paradigm. The principle of linked lives will be assessed by determining the impact of maternal depression on adolescent children. Testing this association will identify whether the lives of mothers and children are connected such that depression is transmitted between them. Life span development provides the theoretical framework for identifying whether girls and boys respond differently to mothers' depression and material hardship. During this developmental period, gender differences in response to stress should emerge. Finally, I assess the stress process paradigm by evaluating whether maternal depression, a stress outcome in response to material hardship, acts as a chronic stressor for adolescent girls and boys. The following analyses also determine if material hardship is a mediator between the impact of maternal depression on adolescent depressive symptoms.

Hypotheses

Given the previous discussion, this research is motivated by the following hypotheses:

H1a-b. The relationship between material hardship and maternal depression will be reciprocal such that, material hardships at time two controlling for mothers' depression criteria at time one will lead to a higher likelihood of mothers meeting depression criteria at time two (b) and mothers' depression at time two controlling for material hardship at time one will be associated with increased material hardships at time two.

H2a-b. Maternal depression (a) and material hardship (b) will lead to higher adolescent depressive symptoms.

H3. The impact of mothers' depression criteria at time two on adolescent depressive symptoms will be greater for adolescent girls than adolescent boys, such that when adolescent girls have a mother with depression, they will have higher depressive symptoms than adolescent boys who have a mother with depression.

Data and Measures

Data for this paper are drawn from waves five (year 9) and six (year 15) of the Fragile Families and Child Wellbeing Study (FFCWS: N = 2,378). The FFCWS consists of interviews with mothers, fathers, and/primary caregivers at birth and again when children are one, three, five, nine, and fifteen. The FFCWS is a part of a larger project by Princeton University's Center for Research on Child Wellbeing and Center for Health and Wellbeing, the Columbia Population Research Center, and Columbia University's National Center for Children and Families. The original study sampled approximately 5,000 children born in large U.S. cities between 1998 and 2000. Approximately three-quarters of the children in the sample were born to unmarried parents. Unmarried parents and their children are considered "fragile families" because of their

greater risk of family dissolution and higher prevalence of poverty, compared to two-parent, married families. FFCWS was originally designed to address four primary research questions:

1. What are the conditions and capabilities of unmarried parents, especially fathers?

2. What is the nature of the relationships between unmarried parents?

3. How do children born into these families fare?

4. How do policies and environmental conditions affect families and children?

Data from years nine and fifteen of the FFCWS study are advantageous for the study of maternal depression, material hardship, and adolescent depressive symptoms because the sample design includes some of the most disadvantaged youth in the U.S. Studying material hardship in the general population can prove difficult because more severe forms of hardship like an eviction or homelessness are rare enough that it is difficult to capture in a nationally representative survey. Year 9 from the FFCWS includes separate surveys from the mother, father, and the youth's schoolteacher. The present analyses only use data from the mother's survey in year 9. Year 15 from the FFCWS includes survey interviews from the adolescent's primary caregiver and the adolescent children. The primary care-giver survey could be completed by the youth's mother, father, or the youth's legal guardian. Ninety-one percent of all primary care-giver surveys were completed by the FFCWS focal child's mother. All analyses have been restricted to surveys completed by the mother for comparing maternal depression at year 9 to year 15. In year 15, youth were interviewed for the first time. The youth were asked questions germane to psychological well-being, school performance, activities, and friendships. I utilize youth self-reports of depressive symptoms from year 15 in combination with mothers' reports of material hardship and a constructed variable for mothers meeting the criteria of Major Depression from

years 9 and 15. Descriptive statistics for all study variables and differences between girls and boys are included in Table 1.

Measures

Dependent variables. My dependent variable is adolescent's symptoms of depression. The depressive symptoms variable is a scale which includes five items from the Center for Epidemiological Studies Depression Scale (CES-D) as used in the National Longitudinal Study of Adolescent Health. The five-item scale is considered an improvement to the full 20-item CES-D scale for cross-cultural comparability. The original version of the CES-D scale, respondents are asked how often they experienced a symptom within the past week. The five-item CES-D scale included in the FFCWS, asks adolescents about their experiences in the past four weeks and include: "I feel I cannot shake off the blues", "I feel sad", "I feel happy", "I feel life is not worth living", and "I feel depressed." All items were coded as 1= "strongly disagree" to 4= "strongly agree" except for "I feel happy" which is coded as 1= "strongly agree" to 4 = "strongly disagree". The scale was summed with an alpha of .77, a range of 5 to 20, and a mean of 7.95.

Table 1. Means, Percentages, and Standard Deviations for All Study Variables. Fragile Families and Child Wellbeing Study Wave 5, Year 9 and Wave 6, Year 15.

	Full Sample		Girls		Boys	
Variables	Mean/ Percent	SD	Mean/ Percent	SD	Mean/ Percent	SD
CES-D youth depressive symptoms	7.95	2.97	8.29	3.13	7.62***	2.76
Material hardship and maternal depression						
T1 Material hardship	1.49	1.83	1.46	1.79	1.52	1.87
T1 Mother meets criteria for Major Depression	16.15%	—	14.95%	—	17.32%	
T2 Material hardship	1.27	1.79	1.29	1.80	1.25	1.79
T2 Mother meets criteria for Major Depression	18.84%	—	17.50%	—	19.15%	—
Gender, Race, Age						
Female	49.50%	—				
African American	54.12%	—	54.72%	—	53.54%	—
Hispanic	26.87%	—	26.42%	—	27.31%	—
White	19.00%	—	18.86%	—	19.15%	—
Age	15.50	.69	15.49	.68	15.50	.69
Parent's education, employment, and household income						
College degree or higher	18.67%	.39	17.50%		19.82%	
Employed	71.53%		71.70%		71.36%	
Household income	59812	61681	59715	62840	59907	60549
Household structure						
Parent-child closeness	3.51	.69	3.53	.66	3.48	.71
Youth closeness to mom	3.43	.81	3.33	.86	3.52***	.74
Youth closeness to dad	2.21	1.42	2.10	.44	2.31***	1.43
Household size	4.75	1.85	4.74	1.83	4.78	1.87
Biological mother-father household	30.07%	—	28.46%	—	31.64%	—
Biological mother and new partner	26.24%	—	26.00%	—	26.48%	—
Biological father and new partner	.13%	—	.08%	—	.10%	—
Biological mother only	42.89%	—	44.69%	—	41.13%	—
Biological father only	.25%	—	.08%	—	.4%	—
Other primary caregiver	.42%	—	.60%	—	.10%	—

Full Sample: *N* = 2,378; Girls: *N* = 1177; Boys: *N* = 1201
*p<.05; **p<.01;***p<.001 (two-tailed tests)

Independent variables. My primary independent variables are youth gender, mothers' reports of material hardship, and a constructed variable for maternal depression. Gender is coded as 1= "female" 0= "male". Forty-nine percent of the sample is female. Material hardship is a combination of eleven yes or no questions that asked primary caregivers, "Did you or anyone in your family experience the following within the past year…" The eleven hardships include receiving free food or meals, going hungry because the primary caregiver could not afford food, inability to pay rent/mortgage, being evicted because rent/mortgage was not paid, inability to pay utility bills, having a utility turned off because the primary caregiver did not have enough money, borrowed money from friends or family to help pay bills, moved in with other people because of financial problems, stayed at a shelter or a place not intended for housing, someone did not see a doctor because of cost, and the telephone was disconnected because there was not enough money to pay it. Responses to these questions were coded as 1= "yes" or 0= "no" and summed together to create a composite measure which captures a count of the different hardships experienced in the past year.

The variable ranges from one to eleven. The distribution of the variable is concentrated around zero with substantial positive skew (T1 mean = 1.49, SD=1.83; T2 mean = 1.27, SD=1.79). To adjust for non-linearity with the dependent variable, I attempted a root transformation in addition to creating a tri-category variable comparing those who have no material hardships (1) to those who have a range of one to five (2) or six or more (3) material hardships. These transformations did not reveal statistically different results from those presented below, so I maintained the original variable distribution in all analyses.

Maternal depression is a constructed variable based on a series of 15 questions derived from the Composite International Diagnostic Interview (CIDI) (Kessler et al. 1998). The CIDI is

a standardized instrument for the assessment of mental disorders for the use in epidemiological and cross-cultural research studies. The questions included in the FFCWS ask respondents to report on the duration, intensity, and the number of symptoms an individual experienced for two weeks or more in the past year. Symptoms included feelings of dysphoria, anhedonia, feeling tired, changes in weight, trouble sleeping, trouble concentrating, feeling worthless, and thinking about death. The CIDI questions are used to generate the probability a respondent would be positively diagnosed with Major Depression if given the full CIDI interview. If a respondent indicated they experienced all the symptoms for a two-week period or more which lasted at least half of the day, they were classified as a positive case (Kessler and Mroczek 1994; Kessler and Mroczek 1997). The classifications and questions are equivalent across waves 5 and 6. Sixteen percent of mothers met criteria for Major Depression at time one, year 9 and approximately 19 percent met the criteria at time two, year 15.

Other covariates. There are other variables that may be important when assessing the relationships among material hardship, maternal mental health, and youth mental health. All control variables are taken from wave 6, year 15 survey. First, each of the models accounts for the race of the youth respondent. Youth race is a five-category variable that includes white, non-Hispanic; black/African American, non-Hispanic; Hispanic or Latino/a; other only, non-Hispanic; and multi-racial, non-Hispanic. Youth were asked to indicate which race or ethnicity they most closely identify with. There were 222 youths that indicated other only, non-Hispanic or multi-racial, non-Hispanic. To remain theoretically consistent in comparisons across race and ethnicity, only white, Hispanic, and African American youth are included in the final sample. Further, ancillary analyses reveal no differences between models including youth who identify as

"other race" or "multi-racial". White (19.00%) and Hispanic (26.87%) respondents are compared to African American (53.12%) respondents in all analyses.

Second, each model controls for socioeconomic factors that may contribute to the likelihood of experiencing material hardship. Parents' education, employment status, and household income are incorporated into the models. Each of these factors will impact class generally and the likelihood of experiencing material hardship. Parents' education includes "less than high school", "high school", "trade or technical degree", and "four-year degree or higher". Those with a college degree or higher comprise 18.67 percent of the sample. Education is coded as 1= "four-year degree or higher" and are compared 0= "all other education statuses" in analyses. Employment asks parent respondents to indicate whether they worked for pay in the past week. The variable includes two categories 1= "yes" 0= "no". Seventy-one percent of mothers reported being employed. Income is measured in dollars with a mean of $51,812. The variable is logged in all analyses to adjust for over-dispersion.

Third, the youth's household composition and family relationships are likely to influence depressive symptoms. Household characteristics may also contribute to maternal depression and whether a family experiences material hardship. The models account for whether the youth lives with both their biological mother and father (30.07%). This is incorporated in the models as 1= "youth lives with mom and dad" and 0= "other living arrangement". Household size is also included in the analyses. Household size may impact youth distress and it may be a determining factor for experiencing material hardship (Williams, Yu, and Jackson 1997). The mean household size is 4.75 people.

Finally, the models are adjusted for parent-child closeness. Closeness to parents includes two ordinal variables which asked the youth respondent to indicate how close they feel to their

mother and then using the same scale how close they feel to their fathers. Youth were asked "How close do you feel to your biological mother?" and "How close do you feel to your biological father?" Responses were coded as 4= "Extremely close", 3= "Quite close", 2= "Fairly close", and 1= "Not very close". There were 3 individuals who did not report on the question for their mother and 344 individuals who did not report on the question for their father due to their mother or father being deceased or having no contact with the youth in the past year. To prevent dropping these individuals from complete case analyses, they are coded as "0" to indicate no relationship. These youth likely have significant differences in anxiety and depressive symptoms as well as exposure to material hardship that make their contribution to analyses important. The mean closeness to mothers is 3.43 and the mean closeness to fathers in 2.21. The models are also adjusted for parents' reports of the closeness they feel to the FFCWS youth respondent. Parents were asked, "How close do you feel to youth?" Responses were coded as 4= "Extremely close", 3= "Quite close", 2= "Fairly close", and 1= "Not very close". The average closeness reported was 3.51.

Analytic Strategy

Path analysis was performed to assess the reciprocal effects between material hardship and maternal depression and the subsequent influence of these variables on the depressive symptoms of youth girls and boys. The following analytic strategy diverges from the strictly confirmatory or alternative model testing traditions. In strictly confirmatory approaches, researchers estimate an a priori theoretical model and either accept or reject the theoretical model based on the structural equation model's correspondence to the data. Alternative model testing occurs when a researcher aims to test more than one a priori theoretical model and identify which model is superior based on its correspondence to the data. The model strategy followed in this

study draws on the process of model generation. Model generation occurs when a researcher estimates a structural equation model and relies on statistical estimates to modify the model to meet three key properties: the model makes theoretical sense, it is reasonably parsimonious, and its correspondence to the data is acceptably close (Kline 2011).

First, I estimated a reciprocal model which estimated the simultaneous effects of equation one, which predicted T2 maternal depression by T1 maternal depression and T2 material hardship controlling for income, education, employment, race, and household composition; and equation two, which predicted T2 material hardship by T1 material hardship and T2 maternal depression controlling for income, education, employment, race, and household composition. Next, I retained the reciprocal equations from the first model in addition to estimating the pathways between T2 material hardship and T2 maternal depression on youth depressive symptoms.

Finally, a multi-group path analysis was estimated to determine whether the influence of maternal depression and material hardship on adolescent depressive symptoms varies for adolescent girls and boys. In addition to the reciprocal effect equations between material hardship and maternal depression, an equation predicting adolescent depressive symptoms by T2 material hardship and T2 maternal depression was tested for girls and boys. The multi-sample model was first estimated with the reciprocal effect equations constrained across the samples and with free parameters in the equation estimating adolescent depressive symptoms by maternal depression, material hardship, and control variables. Then, a multi-sample model with free parameters across all equations in both samples was estimated. The model with freed parameters (X^2 = 25.81, DF = 21, p =.21; CFI = 1.00; RMSEA .01) across all equations was significantly different (p<.01) than the constrained model (X^2 = 61.19, DF = 39, p < .01; CFI = .99;

RMSEA=.02) and was also a better fit of the data. The model with freed parameters was maintained in analyses.

Both the chi-squared statistic and goodness-of-fit criteria are included in the tables for each tested model. These test statistics include the root mean square error of approximation, or RMSEA, and the comparative fit index, or CFI (Bentler 1989). The CFI may range in a value of zero to one. Values greater than .90 are indicative of a model that is a good fit for the data. The RMSEA also ranges from zero to one. A model with an RMSEA of less than .05 is considered a good model fit. All analyses were conducted using the CALIS procedure in the SAS statistical software program. The maximum likelihood estimation method was used to estimate path coefficients, and all analyses were performed utilizing the variance-covariance matrix. All tables include standardized path coefficients.

Results

Table 2 tests hypotheses H1a-b. In hypotheses 1a-b, I predicted the relationship between material hardship and maternal depression would be reciprocal such that, material hardships at time two controlling for mothers' depression criteria at time one will lead to a higher likelihood of mothers meeting depression criteria at time two (b) and mothers' depression at time two controlling for material hardship at time one will be associated with increased material hardships at time two. Table 2 includes the results of the reciprocal model which tests hypotheses one and two by assessing the simultaneous effects between T2 material hardship and T2 maternal depression. The chi-squared for the model is not significant, the CFI is .99, and the RMSEA is .00. This indicates that the model corresponds well to the data.

Results from Table 2 provide evidence for the reciprocal relationships among material hardship and maternal depression and provide support for hypotheses 1a-b. In equation one, T2

Table 2. Effects in Linear Equations for the Reciprocal Relationship between Material Hardship and Maternal Depression. Fragile Families and Child Wellbeing Study Wave 5, year 9 and Wave 6, Year 15.

	T2 Maternal Depression			T2 Material Hardship		
Explanatory variables	β	*b*	*se*	β	*b*	*se*
White (1=yes)	.05*	.05	.02	-.06***	-.30	.10
Hispanic (1=yes)	-.00	-.00	.02	-.06***	-.25	.08
College degree or higher (1=yes)	-.01	-.01	.02	-.04	-.16	.09
Employed (1=yes)	-.08***	-.07	.02	-.04	-.14	.08
Household income (logged)	-.01	-.00	.01	-.08***	-.11	.03
Household size				.00	.00	.02
Bio mom and dad household	-.04*	-.04	.02	-.03	-.13	.07
Parent-child closeness	-.07***	-.04	.01			
T1 maternal depression	.25***	.26	.02			
T2 maternal depression				.21***	.97	.30
T1 material hardship				.39***	.38	.02
T2 material hardship	.23***	.05	.01			
Model Statistics						
CFI	.99					
RMSEA	.00					
(CI)	(.00,.03)					
R^2	.17			.30		

Note: A CFI value larger than .9 and an RMSEA less than .05 is indicative of good model fit.
N = 2,378; X^2 = .98, DF = 2, p = .61;
baseline model: X^2 = 3211.10, DF = 66, p = .00;
*p<.05; **p<.01;***p<.001 (two-tailed tests)

maternal depression is the primary endogenous variable. Material hardship at time two is a positive and significant predictor (β = .23) of maternal depression accounting for mother's depression at time one. Time one material hardship also influences maternal depression at time two through material hardship at time two (total effect = .090) The second equation predicts T2 material hardship. T2 maternal depression is a positive and significant predictor (β = .21) of material hardship at time two accounting for time one material hardship. Maternal depression at time one also influences material hardship through maternal depression time two (total effect =

.0525). These results suggest that maternal depression is both a cause and consequences of material hardship. Mothers who can be classified as having depression, have greater incidences of material hardship (β = .21), which subsequently influences maternal depression (β = .23; total effect = .0483).

Additional relationships emerge among control variables included in the model. White and Hispanic families are less likely to experience material hardship than African American families. However, mothers in white families are more likely to experience depression than African American families. There are no differences between Hispanic and African American families in the likelihood of maternal depression. Education has no impact on material hardship or maternal depression. Mothers' employment is not associated with material hardship, but it is associated with a decreased likelihood of being classified as depressed. Income is negatively associated with material hardship but has no influence on maternal depression. Household size and household composition have no effect on material hardship. When the adolescent child's biological father lives in the home, mothers are less likely to be classified as depressed. Mothers' reported closeness to children is negatively associated with depression.

The model estimated in Table 3 includes pathways for both T2 material hardship and T2 maternal depression on youth depressive symptoms in the full sample. Fit indices provide support for the model being a good fit of the data (CFI = .99, RMSEA = .00). I find no support for hypothesis two a or b, which expected that the influence of maternal depression and material hardship would be associated with higher depressive symptoms for adolescents. Adolescent girls report greater depressive symptoms than adolescent boys. Hispanic youth also report greater depressive symptoms than African American youth. Mothers' education and reported household income are negatively associated with adolescent depressive symptoms. Having both biological

parents in the household has no impact on youth's depressed affect, while parent-child closeness does decrease depressive symptoms.

Table 3. Effects in Linear Equations among Material Hardship, Maternal Depression, and Youth Depressive Symptoms. Fragile Families and Child Wellbeing Study Wave 5, year 9 and Wave 6, Year 15.

	Full Sample Indicators								
	Youth Depressive Symptoms			T2 Maternal Depression			T2 Material Hardship		
Explanatory variables	β	*b*	*se*	β	*b*	*se*	β	*b*	*se*
Female (1=yes)	.07**	.45	.12						
White (1=yes)	.02	.18	.17	.05*	-.05	.05	-.06***	-.26	.09
Hispanic (1=yes)	.04*	.27	.14	-.00	-.00	.00	-.06***	-.25	.08
College degree or higher (1=yes)	-.06**	-.42	.16	-.02	-.02	.02	-.04	-.18	.09
Employed (1=yes)				-.08***	-.08	.02	-.04	-.20	.08
Household income (logged)	-.07***	-.15	.05	-.01	-.00	.01	-.09***	-.12	.03
Household size							.00	.00	.02
Bio mom and dad household	-.00	-.02	.15	-.04*	-.04	.02	-.04	-.16	.08
Parent-child closeness	-.06**	-.25	.09	-.07***	-.04	.01			
Youth closeness to mom	-.24***	-.89	.08						
Youth closeness to dad	-.10***	-.21	.05						
T1 maternal depression				.26***	.27	.02			
T1 material hardship							.08***	.38	.18
T2 maternal depression	.03	.29	.16				.41***	.40	.02
T2 material hardship	.03	.05	.03	.17***	.04	.01			
Model Statistics									
CFI	.99								
RMSEA	.00								
(CI)	(.00,.02)								
R^2	.12			.17			.30		

Note: A CFI value larger than .9 and an RMSEA less than .05 is indicative of good model fit.
N = 2,378; X^2 = 14.68, DF = 13, p =.33; baseline model: X^2 = 4514.57, DF = 120, p =.00
*p<.05; **p<.01;***p<.001 (two-tailed tests)

Table 4 includes the findings from the multi-sample structural equation model which assesses the differences in the influence of maternal depression and material hardship on youth

depressive symptoms among adolescent girls and boys. The model fit indices demonstrate that the model is a good fit of the data (CFI = .99, RMSEA .01). In hypothesis three, I expected that the influence of maternal depression would lead to greater depressive symptoms for adolescent girls compared to adolescent boys. I find support for this hypothesis. In fact, there is no direct or indirect relationship between maternal depression and the depressive symptoms of adolescent boys. On the other hand, girls experience elevated depressive symptoms directly related to maternal depression at time two ($\beta = .06$) and even higher depressive symptoms when mothers also met depression criteria at time one (total effect = .075). The relationship between maternal depression and material hardship also varies across families with adolescent girls versus adolescent boys. The reciprocal relationship between material hardship and maternal depression is not present for girls, but it is for boys.

There are also significant effects among control variables that vary for boys and girls. Among girls, both Hispanic and white families are less likely to experience material hardship than African American families. In the sample of boys, only white families report less material

Table 4. Effects in Linear Equations among Material Hardship, Maternal Depression, and Youth Depressive Symptoms by Gender. Fragile Families and Child Wellbeing Study Wave 5, year 9 and Wave 6, Year 15.

	Girls									Boys								
	Youth Depressive Symptoms			T2 Maternal Depression			T2 Material Hardship			Youth Depressive Symptoms			T2 Maternal Depression			T2 Material Hardship		
Explanatory variables	β	*b*	*se*	β	*b*	*se*	β	*b*	*se*	β	*b*	*se*	β	*b*	*se*	β	*b*	*se*
White (1=yes)	.05	.43	.24	.02	.02	.03	-.08**	-.13	.05	-.01	-.09	.22	.09**	.09	.03	-.10***	-.17	.05
Hispanic (1=yes)	.05	.34	.21	.00	.00	.03	-.08**	-.11	.04	.00	.05	.18	.01	.01	.03	-.04	-.06	.04
College degree or higher (1=yes)	-.07*	-.23	.10	-.00	-.00	.01	.00	-.00	.02	-.09**	-.24	.08	.01	.00	.01	.02	.01	.02
Employed (1=yes)				-.09**	-.08	.03	-.06*	-.09	.04				.09**	.07	.02	-.00	-.00	.04
Household income (logged)	-.05	-.10	.07	-.03	-.01	.01	-.05	-.03	.02	-.06*	-.14	.07	.06	.02	.01	-.16***	-.08	.02
Household size							.02	.01	.01							-.02	-.01	.01
Bio mom and dad household	-.02	-.14	.23	-.06*	.05	.03	-.10***	-.15	.04	.01	.06	.20	-.03	-.02	.02	-.00	-.00	.04
Parent-child closeness	-.04	-.19	.13	-.05	-.03	.02				-.08**	-.31	.12	-.08***	-.04	.01			
Youth closeness to mom	-.28***	-1.01	.11							-.19***	-.73	.11						
Youth closeness to dad	-.09**	-.21	.07							-.11***	-.21	.06						
T1 maternal depression				.25***	.27	.03							.23***	.24	.03			
T1 material hardship							.40***	.40	.02							.32***	.31	.03
T2 maternal depression	.06*	.52	.23				.00	.01	.18	.03	.10	.20				.38***	.63	.15
T2 material hardship	.03	.16	.14	.10	.06	.04				.01	.14	.13	.40***	.24	.04			.03
Model Statistics																		
CFI	.99																	
RMSEA (CI)	.01 (.00,.03)																	
R^2	.13			.14			.25			.09			.15			.25		

Note: A CFI value larger than .9 and an RMSEA less than .05 is indicative of good model fit.

N = 2,378; X^2 = 25.81, DF = 21, p = .21; baseline model: X^2 = 4678.37, DF = 210, p = .00

*p<.05; **p<.01;***p<.001 (two-tailed tests).

hardship compared to African American families. Additionally, white mothers are more likely to experience depression compared to African American mothers among boys, but there are no race differences in maternal depression among girls. There are also no differences in youth depressive symptoms across race for boys or girls.

Both girls and boys benefit when their mother has a college degree or higher, which has a negative association with youth depressive symptoms. There are no significant associations with maternal depression or material hardship and education. Mothers' employment is associated with reduced material hardship and maternal depression among adolescent girls, but there is no association with material hardship and employment has a positive association with maternal depression for boys. Income has a negative relationship with material hardship and depressive symptoms among the sample of boys but has no impact on material hardship, maternal depression, or depressive symptoms among girls.

Household size has no relationship with material hardship. Living with both biological parents does not influence outcomes of material hardship, maternal depression, or depressive symptoms in the sample of adolescent boys. Among girls, increased household size is associated with less material hardship and a lower likelihood of mothers being classified as depressed. Parent reports of parent-child closeness was negatively associated with maternal depression and youth depressive symptoms among boys but had no effect among girls. Youths' reports of closeness to mothers or fathers were associated with reduced depressive symptoms and closeness to mothers was associated with the largest reduction in depressive symptoms for both boys and girls (β = -.73 and β = -1.01, respectively).

Discussion

Depression and depressive symptoms have steadily risen in the past three decades among U.S. adults and youth (Collishaw 2004; Merikangas 2010; Mojtebai et al. 2016; BlueCross BlueShield 2018). A primary purpose of this research was to understand how depression impacts mothers and their adolescent children by influencing economic and psychological well-being within the family. I drew upon life course theory and the stress process model to analyze data from the Fragile Families and Wellbeing Survey for the purposes of determining the relationships among maternal depression, material hardship, and youth depressive symptoms. I focus on the mechanisms which transmit depression from mothers to children among a sample of disadvantaged families to underscore how depression can be both a cause and a consequence of economic disadvantage which influences the well-being of adolescent children. The results of this study indicate that maternal depression and material hardship have a mutual influence on one another and their influence on the mental health of adolescents varies for boys and girls. Other scholars have demonstrated economic disadvantage is associated with worse mental health (Horwitz et al. 2007; Pratt and Brody 2014; Brody, Pratt, and Hughes 2018). Findings from this research add to the literature in this area by demonstrating that mental health also influences economic outcomes.

The results from the full sample reciprocal model demonstrate that mothers who are depressed are more likely to experience material hardship which leads to depression. However, maternal depression and material hardship did not transfer stress to adolescent children as I initially expected. The nuances of these relationships were made clear after assessing differences among adolescent girls and boys. Girls with a mother who could be classified as depressed reported higher depressive symptoms, but this effect was unrelated to material hardship. There

was no direct effect of material hardship on the depressive symptoms of adolescent boys or girls. Further, in families with adolescent girls, material hardship and maternal depression did not mutually influence one another. Though the reciprocal effects appear to be primarily driven by families with an adolescent boy, there were no relationships among the depressive symptoms of adolescent boys, material hardship, and maternal depression.

These findings support previous literature which suggests that adolescent girls may be more sensitive to emotional and economic stressors within the family (Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). Not only were girls more likely to experience depressive symptoms when their mother was depressed, but their mothers were also less likely to have depression as a result of material hardship or for material hardship to result in depression. This finding may be related to responsibilities adolescent girls take on in the family. Generally, adolescence is marked by increased household responsibility (Allen and Land 1999; Amato and Fowler 2002). Yet, girls often take on more household chores than adolescent boys (Evertsson 2006). The disparity in household responsibility between girls and boys is starker when mothers are the sole-caregiver or when she works outside the home (Hilton and Halderman 1991). Mothers in these positions have less time to contribute to housework, therefore the responsibility falls to other young women in the household. Similarly, depressed mothers have decreased functioning which can impede their ability to attend to household responsibilities (Kessler 2012). Adolescent girls in low-income households are more likely to contribute to the areas (e.g. ensuring bills are paid or taking care of younger siblings) their depressed mother may be neglecting in ways that adolescent boys are simply not socialized (Dodson and Dickert 2004). Further, other scholars have noted that mothers leverage economic resources to outsource household labor and reduce stress (Amato and Fowler 2002). In families with material hardship

and an older female child, limited resources may not be directly associated with maternal depression because girls freely provide the stress-reducing help (e.g. taking care of younger siblings) mothers would otherwise purchase.

This research demonstrates that adolescent daughters have increased depressive symptoms when their mothers experience depression. Other research suggests young children are harmed by maternal depression regardless of gender and this effect is larger for boys (Turney 2011b). This study offers support that among adolescents, girls are more sensitive to mothers' depression and that it has little influence on the mental health outcomes of adolescent boys. These findings are consistent with a life course framework which posits that the effect of stressors varies at different life course stages (Pearlin et al. 2005; Elder, Johnson, and Crosnoe 2005; Pearlin 2010). As children age into adolescence, they experience increased pressure to conform to gender norms (Hill and Lynch 1983). Girls may experience more depressive symptomology when they observe similar behavior patterns in their mother. They are also socialized to be more sensitive to their family context which intensifies in adolescence (Rosenfeld 2005). Consistent with the discussion above, maternal depression may also be distressing for adolescent girls and not adolescent boys due to girls being more inclined to substitute for mothers who have limited household contribution (Hilton and Halderman 1991). Future research should address the influence of household responsibility in leading to distress when a parent has depression.

Other noteworthy findings emerged from the results of this study. In modeling reciprocal effects, household income only impacted maternal depression through material hardship. This finding confirms other research which suggests that income only influences mental health to the extent that families can purchase all they need (Heflin and Iceland 2009). Parent-child closeness

was also found to be mutually important for the mental health of mothers and her adolescent children. Mothers who reported a close parent-child relationship were less likely to meet the criteria for depression. Additionally, descriptive statistics revealed that adolescent boys reported being closer to their mothers and fathers, but the impact of closeness to mothers and fathers was larger for the depressive symptoms of adolescent girls.

This paper speaks broadly to stress research by demonstrating that poor mental health outcomes related to economic disadvantage can subsequently lead to circumstances which exacerbate stress within a family. For boys, the reciprocal effects of maternal depression and material hardship may lead to cycles of economic precarity, which may strain the relationships they have with their mother and impact their well-being (Turney 2011a). Chronic material hardship is also associated with reduced well-being throughout the life course (Ross and Mirowsky 1999; Heflin and Iceland 2009; Rambotti 2015) For girls, mother's depression may not lead to material hardship, but it does directly lead to increased depressive symptoms. Maternal depression could also mean unexpected increases in household chores and taking on adulthood roles earlier than expected, which may distress adolescent girls. Early adulthood transitions and too much responsibility in adolescence have harmful implications for well-being across time (Thornberry, Freeman-Gallant, and Lovegrove 2009). Future research should continue to explore the implications of maternal depression and material hardship for the well-being of adolescent boys and girls.

Of course, these analyses are not without limitations. The findings presented here examine the influence of mothers who could meet the criteria for having a depressive episode on their adolescent children's mental health. The estimates presented here are partially muted as they only assess the influence of a mother's depressive episode that lasted for at least a two-week

period. There are likely to be large differences in the impact on a family by the length of a mother's depressive episode that lasted beyond two weeks, which cannot be determined in the present research. Additionally, the depression measure here represents a probability that the mother would be diagnosed with Major Depressive Disorder when given a clinical interview. However, this measure cannot capture the depth, history, and context of long-term depression and its full implications for adolescent well-being.

Finally, the Fragile Families data is advantageous for the present research because it is comprised of individuals who are most likely to experience distress related to economic disadvantage, but it prevents the conclusions from being generalized to a broader national population. The results are also limited in that there is no comparable data for fathers. The year 15 survey only interviewed one primary caregiver. Of the parents who completed the survey, 91 percent of them were the child's mother. This limited longitudinal analyses to only assessing the influence of maternal mental health on adolescent children. Future research should address this limitation by incorporating measures of father mental health and how it influences the economic circumstances within the family.

Despite these limitations, this research extends prior research assessing the influence of maternal depression on child well-being. The findings suggest that maternal depression leads directly to heightened depressive symptoms for adolescent girls. While maternal depression did not influence the depressive symptoms of adolescent boys, it was associated with greater material hardship for these families. These analyses extend prior literature by demonstrating that maternal depression plays an important role in shaping the socioeconomic status of her family and the influence of her mental health varies by child gender. Given that adolescent development plays an important role in successful transitions to adulthood, the influence of parent mental

health and family socioeconomic status for adolescent well-being may translate to later disadvantages. Thus, addressing maternal depression may prevent family economic disadvantage and positively influence the mental

IV

THE CONSEQUENCES OF ADOLESCENT POVERTY FOR EDUCATION, MATERIAL HARDSHIP, AND SELF-RATED HEALTH DURING EARLY ADULTHOOD

Abstract

In this study, cumulative disadvantage theory is used to underscore how the number of years spent in poverty during adolescence (ages 12 to 17) shapes years of education, material hardship, and self-rated health in adulthood. This study also explores how the relationships among adolescent poverty, education, material hardship, and self-rated health may be conditioned by race, ethnicity, gender, and parent-child closeness. The data for this study are taken from a sample of adults ages 18 to 34 from the National Longitudinal Survey of Youth – Young Adult Sample (N = 4,372; Observations = 10, 331). Multi-level models are used to demonstrate that the number of years spent in poverty during adolescence are associated with fewer years of education, greater material hardship, and worse self-rated health in adulthood. Results also reveal that high parent-child closeness during adolescence is associated with greater education and better health outcomes, regardless of time spent in poverty during adolescence. Adolescent poverty is also qualified by race, ethnicity, and gender. In early adulthood, whites report the best self-rated health when they experienced low poverty in adolescence, but the worst health when they had experienced high poverty. Adult women have worse self-rated health compared to men at all levels of poverty, but this disparity is larger among those who experienced high poverty during adolescence. These results demonstrate that family material and social resources during adolescence influence adulthood outcomes and are conditioned by race, ethnicity, and gender.

Introduction

How does adolescent poverty influence education, material hardship, and self-rated health in early adulthood? Do these relationships vary across race, ethnicity, or gender? Does being closeness to parents during adolescence reduce any early adulthood disadvantages that may be associated with adolescent poverty? During adolescence, 41% of youth live in low-income families and 19% live in poor families (National Center for Child Poverty 2013). Adolescents who experience poverty are more likely to face economic and social disadvantages as adults (McLeod and Kessler 1990; Murali and Oyebode 2004; Dupree 2008; Duncan et al 2011; Duncan et al. 2012). Childhood poverty is associated with constrained social and material resources that may lead to lower-paying employment, future economic distress, and subsequently harmful health behaviors (Ferraro, Schafer, and Wilkinson 2016). Each additional year in poverty leads to deeper material deprivation and increases the possibility of these adulthood disadvantages (McLeod and Shanahan 1996; McLeod and Nonnemaker 2000).

In addition to duration, the timing of poverty is an important factor in adolescent children's outcomes. Children who experience poverty in early or middle adolescence may face substantial difficulties as they attempt to transition into adulthood (National Institute of Child Health 2005; Duncan, Zial-Guest, Kalil 2010; Duncan et al. 2011). Limited family resources during adolescence are associated with precocious adulthood transitions (e.g. early employment) and a decreased likelihood of gaining resources which could lead to social mobility (e.g. college education or technical degree) (Wickrama, Merten, and Elder 2005). Specifically, individuals transitioning from adolescent poverty into adulthood may face an array of problems associated with low resources, such as fewer years of education, higher incidences of material hardship, and worse physical and mental health.

This paper addresses the influence of experiencing poverty in early and middle adolescence on education, material hardship, and self-rated health in early adulthood. This paper also explores how these relationships may be qualified by race, ethnicity, gender, and parent-child closeness. Poverty status is a classification determined by the total amount of money a given family size is expected to need to cover basic expenses (Center for Poverty Research 2019). Adolescence is a developmental period between early childhood and adulthood. It is characterized into three stages bounded by age and pubertal development (Dornbusch 1989). Early adolescence occurs during the ages twelve to fourteen, middle adolescence occurs from fifteen to seventeen, and most recently added to this period is later adolescence which occurs from age eighteen to twenty-one (Masselink et al. 2018). Though it is some scholars argue that individuals are still in the period of adolescence at age eighteen until age twenty-one, in this paper these ages are considered the beginning of adulthood. For many emerging adults, especially those from lower-class backgrounds, ages eighteen to twenty-one are still marked by expectations of key adulthood transitions such as steady employment or establishing an independent household (Silva 2014; Silva 2012).

Poverty and Education

Early adulthood is typically characterized by completing postsecondary education, securing employment, or establishing an independent household (Eliason, Vuolo, and Mortimer 2015). During adolescence, youth begin the experience of individuation – the process of forming personal identity and independence from the family of origin (Grotevant and Cooper 1986). Individuation is an important catalyst to becoming an independent adult and may happen faster and with greater uncertainty for individuals with disadvantaged families (Crosnoe, Mistry, and

Elder 2002; Melby et al. 2008; Edin and Kissane 2010). Economically disadvantaged adolescents are more likely to take on adult roles (e.g. full-time employment or parenthood) in their late teens and early twenties (Foster, Hagen, Brooks-Gunn 2008). Without family resources to rely on in early adulthood, disadvantaged individuals must seek economic independence quickly (Silva 2012). A fast-paced transition to adulthood may force disadvantaged young adults to compromise higher education, and instead, enter the labor force (Johnson and Mollborn 2009).

Premature adulthood transitions also tend to hinder social mobility (Bozick 2006; McMorris and Uggen 2000). For instance, for the young adult who seeks employment, without completing high school, post-secondary vocational training, or a college degree, her occupational prestige and earnings are likely to be lower throughout her life course compared to her college-educated counterpart (Kerkhoff et al. 2001). Further, among disadvantaged adults who can seek a college education, they are more likely to drop out (Rosenbaum 2011). These educational disparities lead to unequal pathways into adulthood. Some adults can take time to develop skills and knowledge, which secure economic returns later (Ross and Wu 1996). Those who are unable to gain post-secondary schooling may have a higher prevalence of financial precarity and face difficulties meeting other milestones of adulthood such as establishing an independent household (Silva 2014).

Poverty and Material Hardship

Young adults who experienced poverty in adolescence are also more vulnerable to material hardship (Swisher, Kuhl, and Chavez 2013). Material hardship occurs when individuals are unable to purchase necessities such as housing, food, clothing, or medical care (Mirowsky and Ross 1999). Most young adults during the transition to adulthood are in the process of

gaining employment and establishing a steady income (Mirowsky and Ross 1999). When young adults first enter the workforce, they typically occupy low-paying or entry-level positions that do not provide substantial economic resources (Mirowsky and Ross 1999). Given these conditions, most adults in early adulthood do not have large incomes. However, adults from economically disadvantaged backgrounds may face substantially more material hardship during this time because they do not have their family's resources on which they can rely (Toguchi Schwartz et al. 2011; Fingerman et al. 2015).

Poverty and Self-rated Health

Adolescent poverty is associated with worse self-rated health at midlife, but it may begin to noticeably stratify health as early as the transition to adulthood (DiPrete and Eirich 2006; Walsemann, Geronimus, and Gee 2008; Duncan et al. 2010; Edin and Kissane 2010). Self-rated health is a subjective measure of general physical and mental health (Altman, Van Hook, and Hillemeier 2016). Self-rated health is a reliable measure of general health and maps onto other health markers such as mortality (Jylha 2009). The stress that accompanies poverty will likely diminish individuals' interpersonal resources and lead to poor health (Avison 2010). Acute or persistent economic stressors can hinder individuals' ability to effectively respond to a stressor and lead to higher levels of distress and a compromised immune system (Pearlin 1989; Mossakowski 2008; Adkins et al. 2009; Wickrama et al. 2008; Thoits 2010).

Exposure to stressful events can also deteriorate physical health by impacting health behaviors (e.g. excessive drinking or diet changes) (Grzywacs et al. 2004; Foster, Hagan, and Brooks-Gunn 2008; Thoits 2010; Pampel, Krueger, and Denney 2010). The constrained resources which result from adolescent poverty (e.g. lower education and higher material

hardship) will contribute to worse health in early adulthood (Wickrama et al. 2003). A tight budget may mean forgoing medical care completely (Kalousova and Burgard 2010) or living in housing where there is exposure to hazards such as a neighbor's second-hand smoke or asbestos (Fortson and Sanbonmatsu 2010).

Poverty, Race, Ethnicity, and Gender

Based on the current literature, it is likely that the relationships among poverty, education, and material hardship are also going to vary by race and gender (Umberson et al. 2014). African American and Hispanic youth are more likely to experience poverty in their families (Liu and Hummer 2008; Fletcher and Tienda 2010; McLeod 2015; Perkins and Sampson 2015; Semega et al. 2016; Ryan and Bauman 2016). The prevalence of poverty is stratified by race, but poverty for minority families is also more acute and accompanied with greater difficulties. For instance, among families in poverty, African American and Hispanic families are more vulnerable to severe material hardships (e.g. eviction or inability to purchase food) than impoverished white families (McLory 1990; Jackson et al. 1998; Mirowsky and Ross 1999). The stratification of economic disadvantage in families by race will contribute to racial inequalities in education, material hardship, and health (Umberson et al. 2014; Ferraro, Schafer, and Wilkinson 2016).

The harm of poverty may lead to different health outcomes for women than men. Foremost, adolescent girls and boys may be affected by family economic stress (e.g. poverty) in accordance with gendered expectations for how they should deal with problems (Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). These processes have been shown to lead to variations in outcomes by gender. For example, women are socialized to view themselves as

they relate to others, while men are encouraged to be socially independent (Rosenfield, Lennon, and White 2005). Consequently, adolescent girls are likely to experience greater distress in response to family poverty, which can influence health (Reed and Gorman 2010). Additionally, single motherhood is concentrated among young low-income women and is associated with a host of economic and social disadvantages known to influence health (Edin and Kafalas 2008; Edin and Tach 2010; Aiteken 2016). However, regardless of class women are more likely to gain a college degree than men (Liu and Hummer 2008). This may serve as a catalyst for social mobility and escaping poverty.

Poverty and the Parent-child Relationship

The parent-child relationship is likely to also qualify the influence of adolescent poverty on adulthood outcomes. Despite the precarious circumstances economically disadvantaged young adults face, those who held close bonds with their parents during poverty may be better prepared for adulthood obstacles. Maintaining a healthy and close bond with parents is important for adolescent children's well-being and development (Rushing 1964; Allen and Land 1999; Coleman 2011). Youth who maintain a close bond with their parents are less likely to engage in risky behaviors (e.g. drug use) and are more likely to seek out emotionally healthy responses to stress (Ackard et al. 2006).

Parent-child closeness measures the bond parents and children feel in their relationship with each other (Driscoll and Planta 2011). Though not all close parent-child relationships are healthy, previous research has found that these cases tend to be extreme outliers (Steinberg 2003; Duncan, Coatsworth, and Greenburg 2009; Driscoll and Planta 2011). The consequences of poverty during adolescence may be felt less by young adults who had close parent-child

relationships while experiencing poverty. Through social and emotional support, a close parent-child relationship can act as a protective resource and diminish the harmful impact of adolescent poverty on adulthood economic and health outcomes (Lempers, Lempers, and Simons 1989; Whitbeck et al. 1991; Hines 1997; Sobolewski and Amato 2005).

Understanding the links among education, material hardship, and health in early adulthood and how these factors are connected to adolescent poverty extends prior research in three ways. First, I extend the current life course literature that connects inequalities across adolescence and adulthood. The resources available in adolescence will influence the attainment of resources in early adulthood (DiPrete and Eirich 2006; Wickrama, Noh and Elder 2009). The following research highlights that poverty in adolescence influences economic disadvantages during the transition to adulthood and determines if such disadvantage is qualified by race/ethnicity, gender, and parent-child closeness. Second, this research extends current research on the intergenerational transmission of economic disadvantage. It has been documented that young adults who experienced poverty in the family of origin will have limited opportunity to attain resources (e.g. education) which facilitate social mobility (Ross and Wu 1996; Liu and Hummer 2008). The present paper incorporates the duration of years in poverty during adolescence and determines how each additional year leads to more material hardship in adulthood in addition to shaping education outcome.

The third and final purpose is to verify whether economic health inequalities begin to take shape as early as the transition to adulthood. The impact of childhood economic disadvantage on health has been less explored in early adulthood (DiPrete and Eirich 2006; Walsemann, Geronimus, and Gee 2008; Duncan et al. 2010; Edin and Kissane 2010). Generally, young adults should be experiencing some of the healthiest years of their life (Warren 2009).

Even during these years, the health of individuals from economically difficult backgrounds may already be diverging from more advantaged young adults (Pearlin et al. 2005).

Theory

This paper draws on cumulative disadvantage theory. Cumulative disadvantage theory was developed out of the life course perspective. Life course theory considers how events, roles, people, places, and historical conditions of an individual's life shapes outcomes (Elder, Johnson, and Crosnoe, 2003). The circumstances and relationships in one stage of life influence other stages of life which accumulate to create trajectories of varying advantage (Kahn and Pearlin 2006; DiPrete and Eirich 2006; Wilson, Shuey, and Elder 2007).

Cumulative disadvantage theory calls for a specific focus on how limited resources compound to create social and economic deficits that influence life course trajectories (DiPrete and Eirich 2004). The development that occurs in one stage, is largely shaped by the resources and relationships available in an earlier stage. As an example, young adults from disadvantaged backgrounds experience additional economic uncertainty when they enter adulthood (Silva 2014). Lacking economic or social support resources in adolescence can make transitioning into an independent adult difficult due to limited educational opportunities or meek employment options (Melby et al. 2008; Ryan et al. 2009; Wickrama et al. 2009; Silva 2012).

The ability of some individuals to accumulate social and economic resources and the inability of others to do the same creates diverging pathways of advantages or disadvantages (DiPrete and Eirich 2004). Economic resources are particularly influential in life course outcomes. Young adults transitioning from economically advantaged families have their parents' financial support to rely on in times of need (Fingerman et al. 2015). These same young adults also tend to have skills and knowledge which aid in navigating and obtaining a college education

(Rosenbaum 2011). Adults transitioning from economically disadvantaged families commonly experience uncertainty, less stability, and less economic or emotional support from their parents as they transition to adulthood (Silva 2014). Even early on in adulthood, the resources available in adolescence are going to begin shaping unequal life course pathways (Duncan et al. 2012).

The present research uses cumulative disadvantage theory to demonstrate that adults who experienced poverty in adolescence are more likely to have less education, more material hardship, and subsequently worse health in adulthood. The lack of resources in adolescence will constrain opportunities for other resources (e.g. education) in adulthood. This is an important point of cumulative disadvantage theory. Consider adolescent poverty, an individual who comes of age while her family is in poverty likely has little influence to change the economic conditions her family faces. Even if she can attain employment as a teenager, her income will have a marginal impact on her family's financial situation (Paternoster et al. 2003). As the same individual from the previous example enters adulthood, her own ability to change her financial situation becomes more accessible, but it is still hindered by the limited resources she had in adolescence (Kerkhoff et al. 2001). It is also the case that the connection between resources available in a previous life course stage and the associated health outcomes of a future stage are conditioned by the accumulation of other resources (Willson, Shuey, and Elder 2007). In the context of this research, the education and material hardship adults are able or unable to accumulate will influence health outcomes.

Hypotheses

In sum, I expect that adolescent poverty will be linked to lower education, higher frequency of material hardship, and lower self-rated health during the transition to adulthood. Adolescent poverty is going to limit the resources an individual has during the transition to

adulthood which will impact educational achievement and lead to a higher prevalence of material hardship. These economic disadvantages are going to be qualified by race, ethnicity, gender, and the parent-child relationship. Finally, adolescent poverty is a considerable economic disadvantage, which will diminish health indirectly by leading to lower education and greater instances of material hardship. Adolescent poverty will also directly lead to worse self-rated health. Based on previous literature, this research is guided by the following three hypotheses:

H1. Adolescent poverty will be negatively associated with years of education in early adulthood.

H2. Adolescent poverty will be positively associated with material hardship in early adulthood.

H3a-b. Years of education (a) will be positively associated with self-rated health. Material hardship (b) will be negatively associated with self-rated health.

H4. Adolescent poverty will be negatively associated with self-rated health during early adulthood.

Though not explicitly detailed in separate hypotheses, I also explore how each of the relationships specified in hypotheses one, two, and four vary by race, ethnicity, gender, and parent-child closeness.

Data and Measures

Data for this study are drawn from the National Longitudinal Survey of Youth 1979 Original Cohort (NLSY79) and Young Adult sample (NLSY-YA), with 4,372 respondents and 10,331 observations. Children born to women of the NLSY79 were surveyed for the young adult sample, NLSY-YA. The NLSY79 and NLSY-YA are a part of a larger project sponsored by the U. S. Departments of Labor and Defense under a grant to the Center for Human Resource

Research at The Ohio State University (Center for Human Resource Research, 2004). The original cohort (NLSY79) is a nationally representative sample of Americans who were between the ages of 14-22 in 1979. The survey was administered annually until 1992 and then biannually thereafter. In the original cohort sample, African Americans, Hispanics, and economically disadvantaged white youth were overrepresented. In 1994, the children of the women from the NLSY79 sample who were aged 14 and older became the respondents of the NLSY-YA. The NLSY-YA survey gathers information relevant to social, physical, and emotional development, mental health, delinquent activities, substance use, and transitions to adult roles.

To assess the relationships between adolescent poverty and education, economic, and health outcomes during the transition to adulthood, I utilize combined data from the NLSY79 and the NLSY-YA. My data are drawn from the years 1994 through 2014. I include how many years the young adults spent in poverty during adolescence, mother's education and marital status from the original cohort data. To isolate my findings to early adulthood, I limit the young-adult sample and all my outcome variables to the ages of 18 to 34. To take advantage of the longitudinal nature of the data, all variables are constructed as time-varying except for gender, race/ethnicity, poverty during adolescence, and the average score for the parent-child relationship during adolescence.

Dependent variables. Table 1 includes the means and percentages for all study variables. My primary dependent variable is self-rated health. Self-rated health is a subjective measure of health. Respondents were asked to rate their present health as 1(poor) to 5(excellent). Self-rated health is a reliable and valid measure of physical well-being (Milunpalo et al. 2008). Self-ratings of health reliably predict mortality and physician assessments across race-ethnic groups and gender (Chendola and Jenkensen 2000; Benyamini et al. 2003). The average response for

Table 1. Weighted Means, Percentages and Standard Deviations for All Study Variables. National Longitudinal Survey of Youth Young Adult Sample.

	Full Sample	
Variables	Mean/ Percent	SD
Self-rated health	3.76	1.11
Education (years)	13.08	2.55
Perceived material hardship	1.76	1.18
Adolescent poverty, education, and income		
Years of poverty during ages 12 to 17	.29	.71
Mother's education (years)	13.64	2.95
Employed	86.68%	
Household income	24057	37627
Race, gender, and age		
Female	48.05%	
African American	13.42%	
Hispanic	7.10%	
White	79.48%	
Age (years)	23.27	3.99
Family roles, religion, and residence		
Average closeness to mom age 12 to 17	3.37	.75
Average closeness to dad age 12 to 17	2.79	1.15
Lives with family of origin	51.63%	
Mother is married	66.37%	
Married	14.87%	
Cohabitating	14.20%	
Parent	22.18%	
Religious attendance	2.68	1.91
Religious importance	2.95	1.26
Southern residence	35.52%	
Urban residence	75.50%	

Note: N = 4,372 and 10,331 observations.

respondents in the sample was close to "Very good" health (3.76). The analyses also determine the impact of adolescent poverty on education and material hardship. These two variables are also used to predict self-rated health. Education is a continuous measure that captures the number of years of education an individual has. The average years of education is slightly more than a high school degree (13.08). Perceived material hardship was measured by asking respondents to indicate how often they or their household forgoes buying something necessary such as food,

clothing, housing, or medical care. Respondents indicated= “Never”, 2= “Rarely”, 3= “Occasionally”, 4= “Frequently”, and 5= “All of the time”. The mean for material hardship is 1.76.

Independent Variables. My primary independent variable is adolescent poverty. Adolescent poverty is a measure of how many years a person spent in poverty from ages twelve to seventeen (Brady 2003). The average time spent in poverty during adolescence is less than one year (.29). I also test of series of interactions with poverty by race, ethnicity, gender, and parent-child closeness. Race includes African American and white respondents. Ethnic Hispanics are also included in analyses. The sample of respondents is comprised of 13.42 percent African American, 7.10 percent Hispanic, and 79.48 percent white. White and Hispanic respondents are compared to African Americans in all analyses. Gender is coded as 1= “female” and 0= “male”. The sample is 48.04 percent female.

Parent-child closeness is comprised of two variables which ask respondents to indicate how close they are to their biological father and their biological mother. The respondents could indicate that they were 4= “Extremely close”, 3= “Quite close”, 2= “Fairly close”, or 1= “Not very close”. The present analyses incorporate an average measure of closeness during adolescence. This time constraint on the measure ensures that the tests of moderation between adolescent poverty and parent-child closeness assess the relationship the youth had at the time of poverty. All responses a respondent gave for their closeness to mothers or fathers during the ages of twelve to seventeen were added together and divided by the number of waves the respondent responded to the questions. The average closeness to mothers during adolescence was 3.37 and the average closeness to fathers was 2.79.

Control variables. There are additional covariates that will be important to account for in the relationships between adolescent poverty, education, perceived economic, and self-rated health during the transition to adulthood. All analyses account for socioeconomic variables for young adults' mothers and young adults. Mothers' education is included as a control variable. Maternal education is a continuous measure of years of education. The average education of mothers included some college (13.64 years). Adolescent poverty is going to be related to mothers' education, but maternal education will also influence young adult educational attainment. Young adults' employment status and household income are also included in analyses. Employed is a binary variable with 1= "Worked for pay in the past week" and 0= "Not employed/did not work for pay in the past week". Most young adults are employed (86.68%). Household income is the dollar amount of all income from the previous year of the survey year. It applies to only the respondent when they live alone or all adults in the household when applicable. The average household income is $24,057 dollars. Household income is logged in all models to correct for overdispersion.

Age, family roles, religiosity, and geographic context may also influence education, perceived material hardship, and self-rated health. Age ranges from eighteen to thirty-four. The average age of the sample is approximately 23. In analyses, age is centered at age eighteen to ensure the intercept for each model refers to the education level, frequency of material hardship, and self-reported health at eighteen. All analyses are adjusted for whether the adult still lives with the family of origin. A little over 50 percent of young adults still live at home. Young adults who can successfully fulfill adult roles are more likely to leave home than those who do not (Goldscheider et al. 2014). Families with fewer resources may equally benefit from sharing housing with older children who can split housing costs. Mothers' marital status and the parent

and relationship statuses of the young adults are included in all models. Mothers' marital status is a binary variable in which 1= "Married" and 0= "Not married". In the sample, 66.37 percent of the mothers are married. Mothers' marital status will provide context for the household structure of the family of origin. Married mothers may also be better equipped to assist an adult child financially during the transition to adulthood (Fingerman et al. 2015).

Parents make up 22.18 percent of young adults. Parent status is a binary variable where 1= "Parent" and 0= "Non-parent". Young adults who are parents at the beginning stages of adulthood are less likely to gain a college education (Berrington and Pattero 2014). Parents are more likely to experience material hardship (Nomaguchi and Milkie 2003). Young parents are also likely to experience greater stress exposure which diminishes health (Mirowsky 2002). Married and cohabiting are two binary variables coded as 1= "Married" or 1= "Cohabiting" and 0= "Non-married" and 0= "Not-cohabiting". Among young adults, 14.87 percent are married, and 14.20 percent are cohabiting. Those who are married, or cohabiting will have important social support which can alleviate the burden of experiencing material hardship or transitioning to adulthood from poverty.

Religious attendance and religious importance are also included in the models. Religious attendance is an ordinal variable which asks a respondent to indicate how often they attended religious services within the past year. Answers can include 1= "Never", 2= "Several times per year or less", 3= "Once per month", 4= "Two to three times per month", 5= "Once per week", and 6= "More than once per week". The average frequency of attendance was close to once per month (2.68). Religious importance asked respondents to indicate how important their religion is to them. Religious importance options were 1= "Not at all important", 2= "Somewhat important", 3= "Important", and 4= "Very important". Most people consider religion important

to them (2.95). Religiosity is associated with better health outcomes and it may also be an important resource in the face of perceived material hardship. Not only can individuals garner instrumental support from fellow religious peers, but they may also find meaning in their hardship which will offset the stress of that experience (Schieman, Nguyen, and Elliot 2003).

Residential context is accounted for by controlling for region and whether someone lives in an urban or rural setting. Southern respondents (1= "lives in South) are compared to respondents who live in all other regions (0= "Does not live in South") and comprise 35.52 percent of the sample. Respondents who live in an urban setting, which is 75.50 percent of the sample (1= "Urban") are compared to those who live in a rural area (0= "Rural"). Residential context is going to influence economic opportunities. Additionally, the populous in Southern regions have disproportionately worse health compared to other regions of the country (Wickrama et al. 2003).

Analytic Strategy

There are 4,372 subjects with 10,331 observations. To take advantage of the between-person and within-person effects captured in the longitudinal data this research utilizes mixed multilevel models (MLM) with fixed effects and random intercepts. MLM controls for the dependence of repeated measures for the same individuals across time. MLM simultaneously accounts for the variation between different individuals and within individual lives throughout the sample period. This method is advantageous because it ensures the observed differences in the variables of interest include the changes within and between individuals over time. As an example, health during the transition to adulthood differs across people. Some individuals report excellent health, while others report fair health. Health also varies across individuals. For instance, a person observed at 18 will likely report better health than when they are observed

again at age 30. In the context of this research, any observed variations in health need to include the differences in individuals' reports of health across time and the differences observed across people. The basic modeling approach can be summarized by the following equation:

$$\gamma_{ti} = \beta_0 + \beta_1 Adpov_{ti} + \beta_2 Close_{ti} + \beta_3 Edu_{ti} + \beta_4 Hardship_{ti} + \beta_5 Race_i + \beta_6 Gender_{ti} + \beta_6 Control_{ti} + u_i + \varepsilon_{ti}$$

Y_{ti} is the self-reported health for a person *i* at time *t*. $Adpov_{ti}$, $Close_{ti}$, Edu_{ti}, $Hardship_{ti}$, $Race_{ti}$, and $Gender_{ti}$ are my primary independent variables, adolescent poverty, parent-child closeness, education, material hardship, race, and gender. $Control_{ti}$ represents a vector of control variables including age, maternal marital status, young adult family roles, religiosity, geographical context, maternal education, employment, and income.

The analyses are reported in seven tables. The first set of multilevel models evaluate the influence of adolescent poverty on education and whether this effect is qualified by race/ethnicity, gender, and parent-child closeness. All continuous variables included in interaction terms have been centered at their means. Centering variables at the mean allows interaction variables to be interpreted at the mean instead of an arbitrary zero. Mean centering also ensures the main effect coefficients are not impacted by multicollinearity with the interaction term. This adjustment only influences micro-level effects between variables and does not impact model level predictions such as r-squared or fit indices (Iocabuccie et al. 2016; Dalal and Zicker 2012)

The next set of models test the relationship between adolescent poverty and material hardship in adulthood and investigates whether this relationship is qualified by race/ethnicity, gender, and the parent-child relationship. The final set of models assess the role of adolescent poverty in self-rated health outcomes and determines the qualifying influence of race/ethnicity, gender, and parent-child relationships. All analyses are adjusted with nationally representative

sample weights to account for the over-sampling of racial minorities and poor whites in the original sample design.

Results

Table 2. Multilevel Models for Education by Adolescent Poverty, Race, and Gender. National Longitudinal Survey of Youth Young Adult Sample.

	Model 1		Model 2		Model 3	
Variables	*b*	*se*	*b*	*se*	*b*	*se*
Intercept	8.88***	.17	8.87***	.16	8.87***	.16
Gender, race, age						
Female (1=yes)	.58***	.05	.58***	.05	.58***	.05
White (1=yes)	.01	.06	.01	.06	.01	.06
Hispanic (1=yes)	-.07	.07	-.09	.08	-.09	.08
Age (centered at 18)	.27***	.01	.29***	.01	.29***	.01
Family, religion, and residence						
Mother is married (1=yes)	.23***	.04	.23***	.04	.23***	.04
Lives with family of origin (1=yes)	-.34***	.03	-.35***	.03	-.35***	.03
Parent (1=yes)	-.99***	.05	-.99***	.05	-.99***	.05
Married (1=yes)	-.02	.05	-.02	.05	-.02	.05
Cohabitating (1=yes)	-.19***	.04	-.20***	.04	-.20***	.04
Religious attendance	.00	.01	.00	.01	.00	.01
Religious importance	-.06**	.02	-.06**	.02	-.06**	.02
Urban residence	.14***	.04	.14***	.04	.14***	.04
Southern residence	-.14**	.04	-.14**	.04	-.14**	.04
Socioeconomic indicators						
Mother's education (years)	.16***	.01	.16***	.01	.16***	.01
Employed (1=yes)	.30***	.04	.31***	.04	.31***	.04
Income (logged)	.04***	.01	.04***	.01	.04***	.01
Poverty and closeness to parents						
Poverty age 12 to 17 (years)	-.22***	.03	-.24***	.06	-.24***	.06
Closeness to mother age 12 to 17	.01	.04	.01	.04	.01	.04
Closeness to dad age 12 to 17	.13***	.03	.13***	.03	.13***	.03
Interactions						
White*ad poverty			-.06	.07		
Hispanic*ad poverty			.11	.08		
Female*ad poverty					.03	.06
Individual-level error variance	1.57***	.05	1.57***	.05	1.57***	.05
Between-person error variance	1.47***	.03	1.47***	.03	1.47***	.03
-2 Log Likelihood	38350.1		38346.1		38350.0	

Note: *N* = 4,372 and 10,331 observations. *p<.05; **p<.01;***p<.001 (two-tailed tests).

Table 2, Model 1 assesses the main effects of adolescent poverty, race/ethnicity, gender, and parent-child closeness. In support of hypothesis one, adolescent poverty is associated with a decrease in years of education (b= -.22). There are no significant differences in years of education among African American, white, or Hispanic adults. Women report greater years of education than men do. The closer someone is to their father during adolescence is associated with more educational attainment (b= .13). Conversely, closeness to mothers in unrelated to educational outcomes in adulthood.

There are also significant effects on education among control variables. In addition to adolescent parent-child closeness, the respondent's family background influences education. Respondents whose mother is married report more years of education. Adults who reside with their family of origin are less educated. Those who are parents and those who are cohabiting report fewer years of education than non-parents and non-cohabiters. Marriage has no relationship with years of education. Age, religiosity, and geographical context also influences educational attainment. As adults age, they can gain more years of education. Religious attendance has no impact on educational outcomes, but religious importance is associated with reduced years of education. Urban adults are more educated than rural adults. Respondents who live in the South report fewer years of education than those who live in other regions of the U.S.

Table 2, Model 2 introduces the interactions among adolescent poverty and race/ethnicity on education. The interactions by race, ethnicity, and poverty are not significant; the influence of adolescent poverty is not contingent on racial or ethnic identity. The analyses in Model 3 reveal that adolescent poverty does not impact education differently for men or women. The influences of the control variables on education remain consistent with the main effects model.

In Table 3, the interactions between parent-child closeness and adolescent poverty for years of education are included. Though closeness to fathers is associated with increased education, it does not interact with adolescent poverty to influence educational outcomes in early

Table 3. Multilevel Models for Education by Adolescent Poverty and Parent-child Closeness. National Longitudinal Survey of Youth Young Adult Sample.

	Model 1		Model 2	
Variables	*b*	*se*	*b*	*se*
Intercept	8.89***	.16	8.89***	.16
Gender, race, age				
Female (1=yes)	.58***	.05	.58***	.05
White (1=yes)	.01	.06	.01	.06
Hispanic (1=yes)	-.07	.07	-.07	.07
Age (centered at 18)	.29***	.01	.29***	.01
Family, religion, and residence				
Mother is married (1=yes)	.23***	.04	.23***	.04
Lives with family of origin (1=yes)	-.35***	.03	-.35***	.03
Parent (1=yes)	-.99***	.05	-.99***	.05
Married (1=yes)	-.03	.05	-.03	.05
Cohabitating (1=yes)	-.19***	.04	-.19***	.04
Religious attendance	.00	.01	.00	.01
Religious importance	-.06**	.02	-.06**	.02
Urban residence	.14***	.04	.14***	.04
Southern residence	-.14**	.04	-.14**	.04
Socioeconomic indicators				
Mother's education (years)	.16***	.01	.16***	.01
Employed (1=yes)	.30***	.04	.30***	.04
Income (logged)	.04***	.01	.04***	.01
Poverty and closeness to parents				
Poverty age 12 to 17 (years)	-.21***	.03	-.23***	.03
Closeness to mother age 12 to 17	.03	.04	.01	.04
Closeness to dad age 12 to 17	.12***	.03	.13***	.03
Interactions				
Close to mother*ad poverty	-.14***	.05		
Close to father*ad poverty			-.01	.03
Individual-level error variance	1.57***	.05	1.57***	.05
Between-person error variance	1.47***	.05	1.47***	.05
-2 Log Likelihood	38340.9		38350.0	

Note: *N* = 4,372 and 10,331 observations. *p<.05; **p<.01;***p<.001 (two-tailed tests).

adulthood. Closeness to mothers does moderate the influence of adolescent poverty (*b* = -.14). At low adolescent poverty, those who were close to their mother in adolescence benefit from greater educational returns compared to those who are less close with their mother. At high adolescent poverty, those who reported high closeness to their mother during adolescence report fewer years of education than those who were less close to their mothers during this time. This finding is driven by the slope differences between those who reported high closeness to mothers in adolescence compared to those who reported low closeness. The education of adults who were close to their mothers in adolescence is more sensitive to changes in poverty than it is for those who were less close to their mothers at youth (slopes = -.31 and .11, respectively).

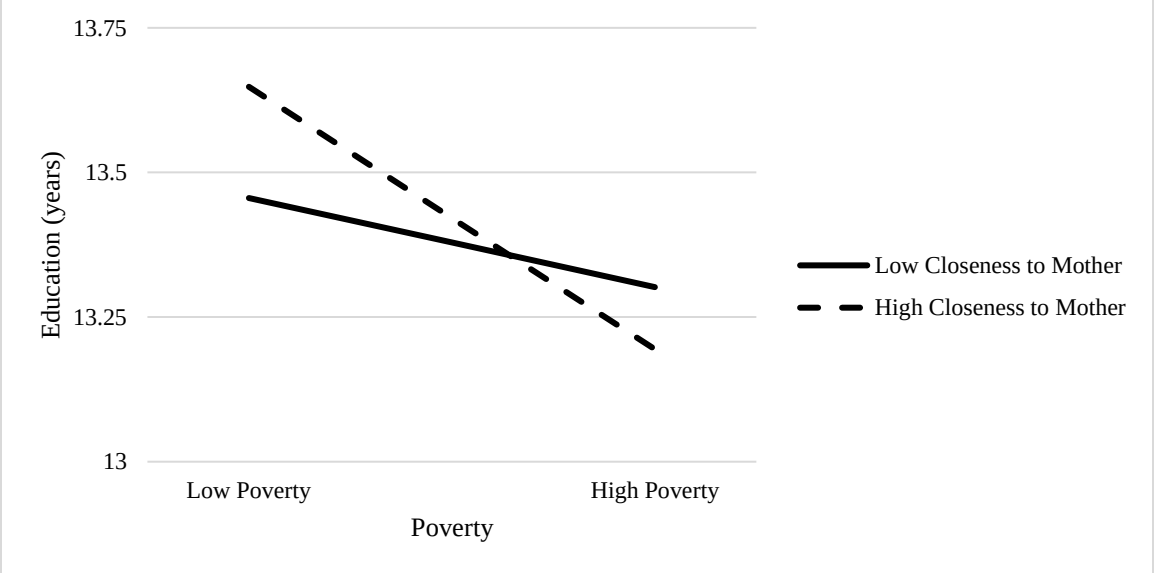

Figure 1. Education in Early Adulthood by Adolescent Closeness to Mother and Adolescent Poverty. National Longitudinal Survey of Youth Young Adult Sample.

Table 4. Multilevel Models for Perceived Material hardship by Adolescent Poverty, Race, and Gender. National Longitudinal Survey of Youth Young Adult Sample.

	Model 1		Model 2		Model 3	
Variables	*b*	*se*	*b*	*se*	*b*	*se*
Intercept	3.13***	.11	3.14***	.11	3.13***	.11
Gender, race, age						
Female (1=yes)	.04	.03	.04	.03	.04	.03
White (1=yes)	-.17****	.04	-.18****	.04	-.18****	.04
Hispanic (1=yes)	-.08	.05	-.09	.05	-.09	.05
Age (centered at 18)	.02***	.00	.02***	.00	.02***	.00
Family, religion, and residence						
Mother is married (1=yes)	-.12***	.03	-.11***	.03	-.11***	.03
Lives with family of origin (1=yes)	-.27***	.02	-.27***	.02	-.28***	.02
Parent (1=yes)	.10**	.03	.10**	.03	.11**	.03
Married (1=yes)	-.16***	.03	-.16***	.03	-.16***	.03
Cohabitating (1=yes)	.00	.03	.01	.03	.01	.03
Religious attendance	-.03***	.01	-.03***	.01	-.03***	.01
Religious importance	.01	.01	.01	.01	.01	.01
Urban residence	-.02	.03	-.02	.03	-.02	.03
Southern residence	-.03	.03	-.03	.03	-.03	.03
Socioeconomic indicators						
Mother's education (years)	-.02***	.00	-.02***	.00	-.02***	.00
Education (years)	-.05***	.01	-.05***	.01	-.05***	.01
Employed (1=yes)	-.04	.03	-.05	.03	-.05	.03
Income (logged)	-.02***	.00	-.02***	.00	-.02***	.00
Poverty and closeness to parents						
Poverty age 12 to 17 (years)	.10**	.01	.07**	.03	.13**	.03
Closeness to mother age 12 to 17	-.05*	.02	-.05*	.02	-.05*	.02
Closeness to dad age 12 to 17	-.06***	.01	-.06***	.01	-.06***	.01
Interactions						
White*ad poverty			.07	.04		
Hispanic*ad poverty			.04	.05		
Female*ad poverty					-.06	.04
Individual-level error variance	.31***	.01	.31***	.01	.31***	.01
Between-person error variance	.85***	.01	.85***	.01	.85***	.01
-2 Log Likelihood	30038.2		30035.5		30034.7	

Note: N = 4,372 and 10,331 observations. *p<.05; **p<.01;***p<.001 (two-tailed tests).

The models in Table 4 assess the relationship between adolescent poverty on material hardship. In Model 1, I find support for hypothesis 2; adolescent poverty is associated with an increase in material hardship during adulthood (b=.10). Closeness to mothers and closeness to

fathers are both associated with a reduction in material hardship for young adults. Closeness to mothers leads to a .05 decrease in material hardship during adulthood and closeness to fathers leads to a .06 decrease. Though the direction is positive, women do not report significantly more material hardship than men. Whites report less material hardship than African Americans (*b* = -.17), but there are no significant differences between African American and Hispanic adults.

Additional relationships with material hardship emerge with control variables. As adults age into adulthood, they report greater material hardship. Adults whose mother is married report less material hardship than those whose mother is not married. Adults who live with reside with their family report less material hardship. Parents report greater material hardship than non-parents. Marriage is associated with reduced material hardship and there is no association with cohabitation. Religious attendance is also associated with decreased material hardship, however, religious importance has no influence on material hardship. There are no relationships with geographical context and experiencing material hardship.

Table 4, Model 2 includes the interaction between adolescent poverty and race and ethnicity. The influence of adolescent poverty on material hardship does not vary by race/ethnicity. Model 3 in Table 4 includes the interaction between adolescent poverty and gender on material hardship in early adulthood. The impact of adolescent poverty on material hardship also does not vary by gender. The effects of control covariates in the interaction models are consistent with the findings from the main effects model.

Table 5 introduces the interactions between adolescent poverty and parent-child closeness on material hardship in early adulthood. The results of Model 1 demonstrate that the level of closeness to mothers during adolescent does not moderate the influence of adolescent poverty on material hardship in early adulthood. In Model 2, similar findings for closeness to fathers are

Table 5. Multilevel Models for Perceived Material hardship by Adolescent Poverty, and Parent-child Closeness. National Longitudinal Survey of Youth Young Adult Sample.

	Model 1		Model 2	
Variables	*b*	*se*	*b*	*se*
Intercept	3.13***	.11	3.13***	.11
Gender, race, age				
Female (1=yes)	.04	.03	.04	.03
White (1=yes)	-.17****	.04	-.17****	.04
Hispanic (1=yes)	-.08	.05	-.08	.05
Age (centered at 18)	.02***	.00	.02***	.00
Family, religion, and residence				
Mother is married (1=yes)	-.12***	.03	-.12***	.03
Lives with family of origin (1=yes)	-.27***	.02	-.27***	.02
Parent (1=yes)	.10**	.03	.10**	.03
Married (1=yes)	-.16***	.03	-.16***	.03
Cohabitating (1=yes)	.01	.03	.00	.03
Religious attendance	-.03***	.01	-.03***	.01
Religious importance	.01	.01	.01	.01
Urban residence	-.02	.03	-.02	.03
Southern residence	-.03	.03	-.03	.03
Socioeconomic indicators				
Mother's education (years)	-.02***	.00	-.02***	.00
Education (years)	-.05***	.01	-.05***	.01
Employed (1=yes)	-.04	.03	-.05	.03
Income (logged)	-.02***	.00	-.02***	.00
Poverty and closeness to parents				
Poverty age 12 to 17 (years)	.10**	.02	.11**	.02
Closeness to mother age 12 to 17	-.05*	.02	-.04*	.02
Closeness to dad age 12 to 17	-.06***	.01	-.06***	.01
Interactions				
Close to mother*ad poverty	.01	.03		
Close to father*ad poverty	.		.02	.02
Individual-level error variance	.31***	.01	.31***	.01
Between-person error variance	.85***	.01	.85***	.01
-2 Log Likelihood	30038.1		30036.0	

Note: *N* = 4,372 and 10,331 observations. *p<.05; **p<.01;***p<.001 (two-tailed tests).

revealed. The interaction between closeness to fathers during adolescence and adolescent poverty is not significantly associated with material hardship.

Table 6. Multilevel Models for Self-Rated Health by Adolescent Poverty, Education, Material Hardship, Race, Ethnicity, and Gender. National Longitudinal Survey of Youth Young Adult Sample.

	Model 1		Model 2		Model 3	
Variables	*b*	*se*	*b*	*se*	*b*	*se*
Intercept	3.20***	.11	3.19***	.11	3.20***	.11
Gender, race, age						
Female (1=yes)	-.12***	.03	-.11***	.03	-.11***	.03
White (1=yes)	.00	.03	.01	.03	.00	.03
Hispanic (1=yes)	-.04	.04	-.02	.04	-.02	.04
Age (centered at 18)	-.04***	.00	-.04***	.00	-.04***	.00
Family, religion, and residence						
Mother is married (1=yes)	.00	.02	.00	.02	.00	.02
Lives with family of origin (1=yes)	-.02	.02	-.02	.02	-.02	.02
Parent (1=yes)	-.04	.03	-.04	.03	-.03	.03
Married (1=yes)	.01	.03	.01	.03	.01	.03
Cohabitating (1=yes)	-.05*	.02	-.05*	.02	-.05*	.02
Religious attendance	.02**	.01	.02**	.01	.02**	.01
Religious importance	.01	.01	.01	.01	.01	.01
Urban residence	-.02	.02	-.02	.02	-.02	.02
Southern residence	-.00	.02	-.00	.02	-.01	.02
Socioeconomic indicators						
Mother's education (years)	.02***	.00	.02***	.00	.02***	.00
Education (years)	.04***	.00	.04***	.00	.04***	.00
Material hardship	-.08***	.01	-.08***	.01	-.08***	.01
Employed (1=yes)	.10***	.00	.09***	.00	.09***	.00
Income (logged)	-.00	.00	-.00	.00	-.00	.00
Poverty and closeness to parents						
Poverty age 12 to 17 (years)	-.04**	.02	-.02	.02	-.01	.02
Closeness to mother age 12 to 17	.09***	.01	.09***	.01	.09***	.01
Closeness to dad age 12 to 17	.04**	.01	.04**	.01	.04**	.01
Interactions						
White*ad poverty			-.09**	.04		
Hispanic*ad poverty			.02	.04		
Female*ad poverty					-.07*	.03
Individual-level error variance	.36***	.01	.36***	.01	.36***	.01
Between-person error variance	.58***	.01	.58***	.01	.58***	.01
-2 Log Likelihood	27237.0		27229.2		27227.7	

Note: N = 4,372 and 10,331 observations. *p<.05; **p<.01;***p<.001 (two-tailed tests).

The main effects of adolescent poverty, education, and material hardship on self-rated health are included in Table 6, Model 1. I find support for hypotheses 3 a-b, which stated that

education would positively increase self-rated health (H3a) and material hardship would be negatively associated with self-rated health (H3b). Each year of education is associated with a .04 increase in self-rated health. Further, each unit increase in material hardship is associated with a .08 reduction in self-rated health. I also find support for hypothesis four, in which I predicted that adolescent poverty would reduce self-rated health. Indeed, adolescent poverty is associated with a -.04 decrease in self-rated health in early adulthood. Women also report worse self-rated health than men in early adulthood. There are no significant race differences in self-rated health.

Additional relationships emerge in self-rated health by control variables. Older adults report worse health than younger adults. Few family context variables significantly impact self-rated health. Mother's marital status, whether the respondent lives with their family of origin, being a parent, and being married all have no impact on self-rated health. Those who cohabit, however, report worse health than single adults. Religiosity also influences self-rated health. Religious attendance is associated with increased self-rated health. Religious importance has no impact on self-rated health. Variations in self-rated health are also uninfluenced by residential context. Socioeconomic status plays an important role in shaping self-rated health. Mother's education and employment both increase self-rated health.

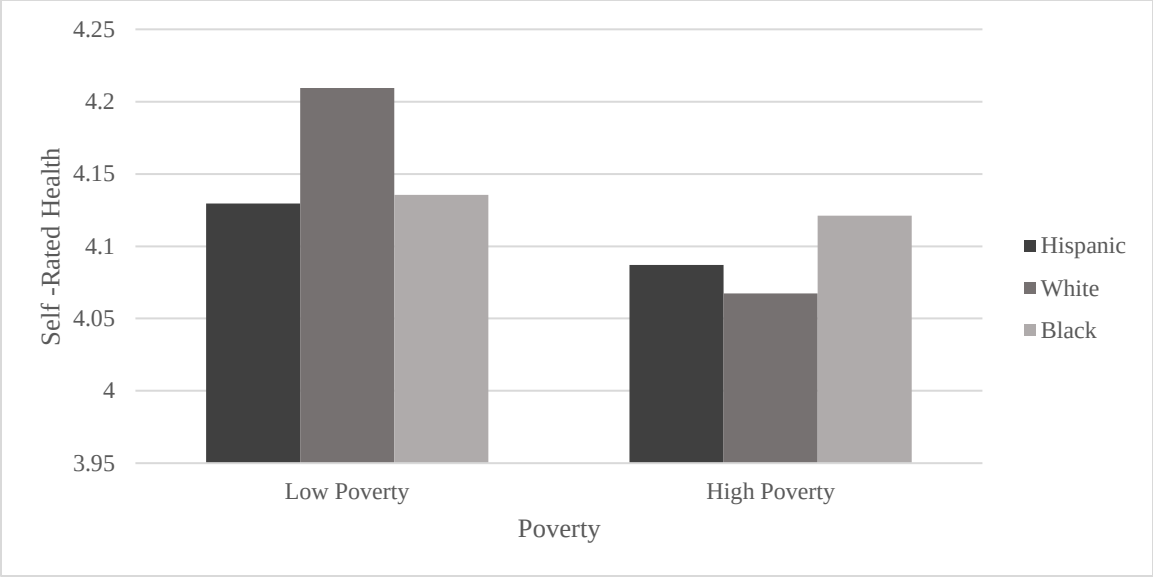

Figure 2. Self-Rated Health by Race and Adolescent Poverty. National Longitudinal Survey of Youth Young Adult Sample.

Model 2 in Table 6 introduces the interactions among race, ethnicity, and adolescent poverty on self-rated health. There are no differences in self-rated health between Hispanic and African American adults by poverty status, but there are differences between whites and African Americans (*b* = -.09). Among those who experienced high poverty in adolescence, whites have worse self-rated health than African American adults. The results of this interaction have been graphically depicted in Figure 2. At low poverty, whites have the best self-rated health, while African American and Hispanic adults have similar levels of health. At high poverty, African American adults have the best self-rated health. African American's average health at high poverty is only .01 worse and not significantly different than the health of African Americans who experienced low poverty in adolescence. Hispanic adults who experienced high adolescent poverty have worse self-rated health than African Americans and other Hispanic who experienced low poverty in adolescence. Whites who experienced high poverty have the worst self-rated health among all racial and ethnic groups by poverty level in adolescence.

The influence of the interaction between gender and adolescent poverty on self-rated health is included in Table 6, Model 3. The interaction is negative and significant, which suggests women are more likely to report worse health when they experienced poverty during adolescence compared to men (*b*= -.07). Figure 6 includes the predicted values of self-rated health by gender and poverty. Men report higher self-rated health regardless of poverty experienced in adolescence. At high poverty, the disparity between men and women is amplified.

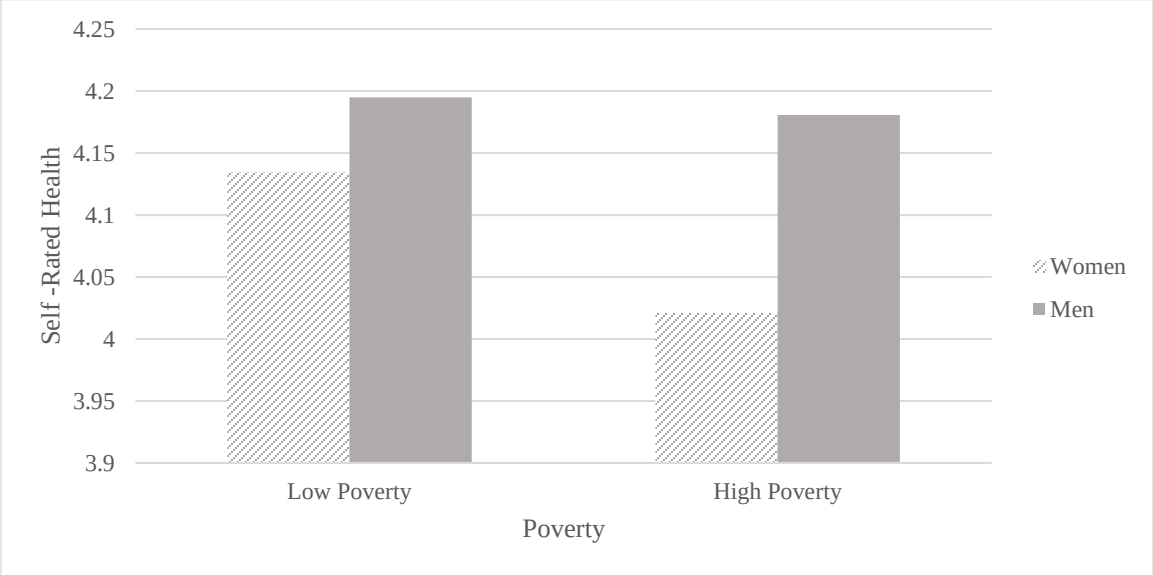

Figure 3. Self-Rated Health by Gender and Adolescent Poverty. National Longitudinal Survey of Youth Young Adult Sample.

Table 7, Model 1 and Model 2 include the interactions adolescent closeness to mother, adolescent closeness to father, and adolescent poverty on self-rated health in early adulthood. Model 1 demonstrates that closeness to mothers interacts with adolescent poverty to influence self-rated health (*b* = -.05). Those who are closer to their mother report worse health at higher

Table 7. Multilevel Models for Self-Rated Health by Adolescent Poverty, Education, Material Hardship, Race, Ethnicity, and Gender. National Longitudinal Survey of Youth Young Adult Sample.

	Model 1		Model 2	
Variables	*b*	*se*	*b*	*se*
Intercept	3.20***	.11	3.20***	.11
Gender, race, age				
Female (1=yes)	-.12***	.03	-.11***	.03
White (1=yes)	.00	.03	.00	.03
Hispanic (1=yes)	-.02	.04	-.02	.04
Age (centered at 18)	-.04***	.00	-.04***	.00
Family, religion, and residence				
Mother is married (1=yes)	.01	.02	.01	.02
Lives with family of origin (1=yes)	-.02	.02	-.02	.02
Parent (1=yes)	-.04	.03	-.04	.03
Married (1=yes)	.01	.03	.01	.03
Cohabitating (1=yes)	-.05*	.03	-.05*	.03
Religious attendance	.02**	.01	.02**	.01
Religious importance	.01	.01	.01	.01
Urban residence	-.02	.02	-.02	.02
Southern residence	-.00	.02	-.00	.02
Socioeconomic indicators				
Mother's education (years)	.02***	.00	.02***	.00
Education (years)	.04***	.00	.04***	.00
Material hardship	-.08***	.01	-.08***	.01
Employed (1=yes)	.09***	.00	.09***	.00
Income (logged)	.00	.00	.00	.00
Poverty and closeness to parents				
Poverty age 12 to 17 (years)	-.04**	.02	-.06**	.02
Closeness to mother age 12 to 17	.10***	.01	.09***	.01
Closeness to dad age 12 to 17	.04***	.00	.05***	.00
Interactions				
Close to mother*ad poverty	-.05*	.02		
Close to father*ad poverty			-.04*	.02
Individual-level error variance	.36***	.01	.36***	.01
Between-person error variance	.58***	.01	.58***	.01
-2 Log Likelihood	27232.4		27231.1	

Note: *N* = 4,372 and 10,331 observations. *p<.05; **p<.01;***p<.001 (two-tailed tests).

poverty compared to those who reported lower levels of closeness to their mothers during adolescence. A similar pattern emerges for the interaction between closeness to fathers and

adolescent poverty on self-rated health depicted in Model 2 (*b* = -.04). Self-rated health is reduced at higher levels of closeness to fathers and at high poverty in adolescence.

The patterns of self-rated health by adolescent poverty and closeness to mother and closeness to father are depicted in Figure 4 and Figure 5. Low closeness to mother was associated with consistently worse self-rated health across all levels of poverty. The health of those who reported high closeness to their mother was much more sensitive to the influence of poverty. The slope of the line for high closeness to mothers is .08, whereas the slope for those who report low closeness rounds to -.00 at the two decimal places (.003).

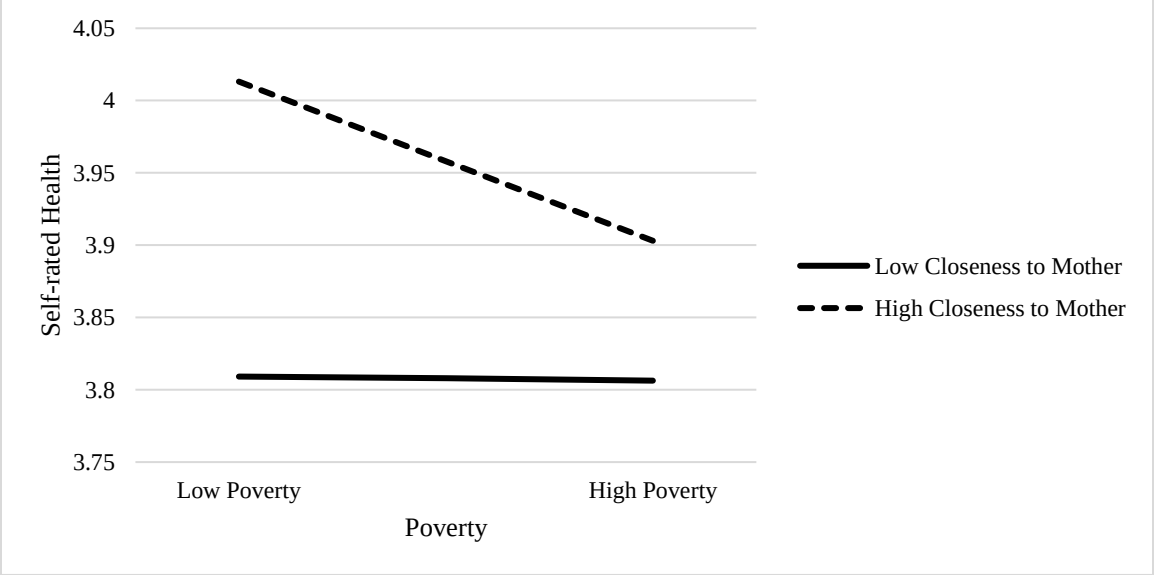

Figure 4. Self-Rated Health by Mother Closeness and Adolescent Poverty. National Longitudinal Survey of Youth Young Adult Sample.

The patterns among adolescent closeness to fathers, adolescent poverty, and self-rated healthy are comparatively similar to the patterns for adolescent closeness to mothers, adolescent poverty, and self-rated health. Figure 5 depicts self-rated health in adulthood predicted by

adolescent closeness to fathers and adolescent poverty. Regardless of poverty experienced in adolescence, those who reported a close relationship with their father in adolescence remain healthier in early adulthood. Among adults who reported being less close to their father in adolescence, their health is marginally worse at high poverty than it is at low poverty. The influence of poverty is more substantial for those who report a closer relationship with their father. The health of those who report high closeness to their father in adolescence decreases at a rate of .11 from low to high poverty. At low closeness to father, self-rated health decreases at a rate of .01 when comparing those who had low adolescent poverty to those who had high poverty.

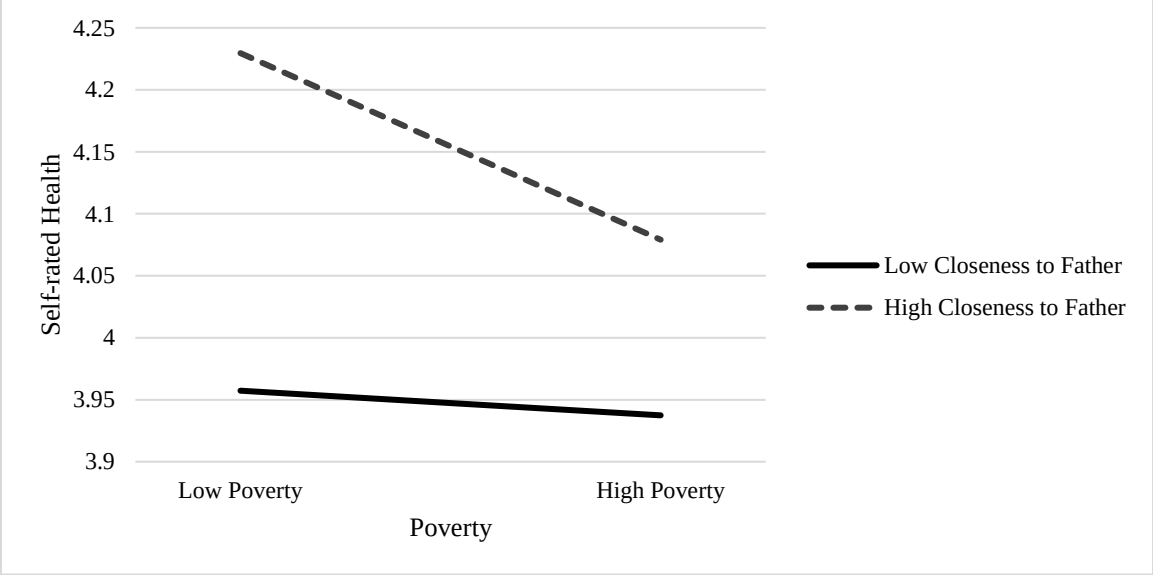

Figure 5. Self-Rated Health by Father Closeness and Adolescent Poverty. National Longitudinal Survey of Youth Young Adult Sample.

Discussion

The purpose of this research was to understand how experiencing poverty during adolescence influences outcomes in early adulthood. I examined this relationship using a nationally representative sample of adults ages 18 to 34, which allowed me to determine how adolescent poverty influences education, material hardship, and self-rated health in early adulthood. Consistent with other scholarship results from this study demonstrate that economic disadvantage in early life leads to fewer accumulated resources and subsequently worse self-rated health (DiPrete and Eirich 2006; Walsemann, Geronimus, and Gee 2008; Duncan et al. 2010; Edin and Kissane 2010). The results of this study build upon this literature by also exploring whether the influence of adolescent poverty on economic and self-rated health outcomes in adulthood is moderated by sociodemographic characteristics and the level of closeness to parents during adolescence. The findings of this research affirm cumulative disadvantage theory (Elder, Johnson, and Crossnoe 2003) by demonstrating the importance of economic and social resources in a preceding life course stage for determining future outcomes. Adolescent poverty was associated with lower education and more material hardship. Lower education and more material hardship were subsequently associated with low self-rated health. These findings also demonstrate that the impact of resources or lack of resources, do not lead to the same economic or health outcomes across social identity and family connectedness. Specifically, the influences of adolescent poverty on material hardship and self-rated health in early adulthood were qualified by race, ethnicity, gender, and closeness to mothers and fathers.

Regardless of adolescent poverty, African American, Hispanic, and white adults report similar levels of education. I expected to find that African American adults would have lower education than their white and Hispanic counterparts and that this disparity would be amplified

by experiences of adolescent poverty. The lack of evidence for this claim suggests that high poverty is equally disadvantageous across race/ethnicity. Racial and ethnic differences in education did not vary across experiences of adolescent poverty and they also did not differ in main effect models. This finding provides evidence contrary to extensive literature which has documented that whites gain more education than African Americans and Hispanics (Ross and Wu 1996; Kerckhoff et al. 2001; Liu and Hummer 2008; Umberson et al. 2014). Women earned greater years of education in adulthood than men, but there were no differences in men and women's education outcomes across levels of adolescent poverty. This finding supports recent research which has demonstrated that in younger generations women are surpassing men in years of education (Liu and Hummer 2008). However, the differences in men's educational attainment and women's educational attainment do not appear to be driven by variations in adolescent poverty.

The relationship between adolescent poverty and education was also qualified by how close adults were to their mothers during adolescence. High closeness to mothers was associated with greater educational attainment at low poverty. At high poverty, the years of education attained by those who were less close to their mothers in adolescence surpassed their high closeness counterparts. Despite the benefits of a close maternal relationship, the impact of poverty on years of education was larger for those who reported high closeness to their mother. Considering research has demonstrated that close parent-child relationships are important for development and can also prevent risky behaviors (Allen and Land 1999; Ackard et al. 2006; Sobolewski and Amato 2005), it is surprising that those with closer mother-child relationships experienced a greater loss in education moving from low poverty to high poverty compared to those with less close maternal relationships. I suspected that among those who reported high

closeness to mothers during adolescence, their years of education would remain robustly high across levels of poverty. Conversely, I anticipated that those who reported low closeness to mothers would experience educational disadvantages, which would be amplified among those who experienced high adolescent poverty. The educational advantages of having a close mother-child relationship were not only reduced at high poverty, but they were also lower than the educational outcomes of those with a less close mother-child relationship but who had experienced low poverty in adolescence. Relationships with fathers were significant direct predictors of years of education in adulthood, but they did not moderate the impact of adolescent poverty for educational attainment. These patterns suggest that the impact of poverty on adolescents' future education is considerable, regardless of the relational resources they have available in their family.

Adolescent poverty was also linked to greater material hardship in adulthood. The relationship between adolescent poverty and early adulthood material hardship was unqualified by race, ethnicity, gender, or parent-child closeness. This finding supports other research which demonstrates that early family economic context is an important predictor of economic stability in early adulthood, regardless of other social resources and identities (Silva 2012).

Adolescent poverty, education, and material hardship were all found to influence self-rated health in adulthood. Adolescent poverty was associated with lower self-rated health, fewer years of education lead to worse self-rated health, and material hardship was also associated with reduced self-rated health. These findings demonstrate that adolescent poverty is an important determinant of adulthood economic achievement, which influences self-rated health. Adolescent poverty also remained an important predictor, regardless of educational outcomes and material hardship in adulthood. These findings speak broadly to cumulative disadvantage theory by

demonstrating the role resources in a preceding life stage play in the attainment of resources in a proceeding life stage (Wilson, Shuey, and Elder 2006).

The influence of adolescent poverty on self-rated health was qualified by race, gender, and parent-child closeness. In fact, self-rated health did not vary across race or ethnicity until accounting for adolescent poverty. There were no significant differences in the influence of adolescent poverty for Hispanic and African American adults' self-rated health. However, there were variations in the impact of adolescent poverty for whites' self-rated health compared to African American's self-rated health. Whites at low poverty had the highest self-rated health compared to Hispanic and Black adults. At high poverty, whites had the worst self-rated health. The interactions among race/ethnicity and adolescent poverty also revealed that poverty is not an important determinant for health differences among African American and Hispanic adults. In general, whites are disproportionately less likely to experience poverty or severe economic disadvantage (McLoyd 1990; Jackson et al. 1998; Bonilla-Silva 2015). Research has demonstrated that whites often have better self-reported health than African Americans (Reynolds and Ross 1998; Umberson et al. 2014; Beck et al. 2014). However, this research has primarily connected these differences to variations in social adversities and economic status. Past research has shown whites are less likely to experience the economic disadvantages that largely contribute to worse health among racial and ethnic minorities (Williams and Mohammed 2013). The present research expands upon these findings by demonstrating that high adolescent poverty may be more damaging to the self-rated health of whites than it is for African American and Hispanic adults.

The effects of adolescent poverty on self-rated health were also qualified by gender. Consistent with other research, I found that women reported worse self-rated health than men,

regardless of poverty in adolescence (Read and Gorman 2010). At high poverty, the health differences between men and women were amplified. Women reported considerably lower self-rated health when they experienced high poverty in adolescence compared to women who reported low poverty. The self-rated health of men was marginally influenced by adolescent poverty and men reported slightly better health at high poverty than they did at low poverty. Combined with the findings that women and men report similar years of education and material hardship across poverty, the health patterns by gender and poverty are perplexing. On the one hand, women appear to be no more economically advantaged than men when they both experienced high adolescent poverty. On the other hand, at high adolescent poverty, adult women report worse self-rated health than men. This finding supports the notion that women's health is more sensitive to economic disadvantages in adolescence than men's (Hamil-Luker and O'Rand 2007).

The impact of adolescent poverty on self-rated health was also moderated by closeness to mothers and to fathers. Regardless of poverty in adolescence, those who were close to their mothers of fathers in adolescence reported better health in adulthood than those who were less close. The differences in self-reported health across high and low poverty were larger for those who reported high father closeness than those who reported low closeness. Those with more distant relationships with their mothers or fathers experienced consistently worse health across all levels of poverty than those with closer relationships. These findings confer with other scholarship that demonstrates the important role mothers and fathers play in the long-term well-being of their children (Fingerman et al. 2015), but also demonstrated that the closest parent-child relationship does not fully diminish the harmful impact of experiencing poverty in adolescence.

This research speaks broadly to cumulative disadvantage theory. Adolescent poverty is an important predictor of education and material hardship in adulthood, which both predict self-rated health. Poverty in adolescence also independently predicts health in adulthood. The results of this study underscore the importance of structural inequalities and family relationships for determining how resources translate across the life course. The influence of adolescent poverty on self-rated health varies across race, gender, and parent-child closeness. Extensive research has demonstrated that the resources within the family of origin remain influential throughout the life course (Carr and Springer 2010; Elder, Johnson, and Crosnoe 2003). The findings from this study expand on this literature by showing that the influence of poverty varies across race, ethnicity, gender, and father-child closeness.

This study explored how adolescent poverty influences education, material hardship, and self-rated health in adulthood. Understanding the role of poverty in shaping adulthood outcomes is important to the extent that economic resources in the family of origin have profound impacts on the life course trajectory of children in these families (Umberson et al. 2014). These results, however, are limited in some respects. First, the measures of material hardship and self-rated health rely on respondents' best guess about their present economic and health circumstances. Though these measures are reliable (Jylha 2009), they cannot reveal the specific types of material hardship or health-related complications an individual may be experiencing. Young adults are likely to experience financial setbacks as they begin establishing independent households. Future research investigating the influence of childhood poverty of material hardship in adulthood should asses what kinds of hardship adults are experiencing in addition to how often they experience them. For instance, the inability to afford clothes has very different consequences than the inability to afford food. Self-rated health is advantageous because it can

capture a multitude of illnesses and health problems into a single measure, however, it is also important to know which kinds of ailments may be more prevalent among adults who experienced poverty versus those who did not.

Second, this research cannot attest to other adversities individuals may have faced in adolescence which are often confounded by poverty and influence future economic opportunities. For instance, Umberson and colleagues (2014) demonstrate that health differences across can be partially explained by the number of supportive social relationships one had as a child and continue to have during adulthood. The present research demonstrates that parent-child relationships can offer marginal protection in the face of poverty, but it is limited in the ability to extend findings to other relationships such as teachers or peers. Significant mentors or friends may be important resources for children in poverty and provide the support that can aid social mobility.

In the future, researchers should continue to explore the role of adolescent poverty in determining how individuals fair in early adulthood. In addition to my findings that confirm the harmful consequences of adolescent poverty, these results demonstrate the role of race/ethnicity, gender, and parent-child relationships in qualifying the impact of adolescent poverty. This study contributes to life course and cumulative disadvantage research by highlighting how early life course experiences are translated into adulthood and how such experiences are variant across groups of people.

V

CONCLUSION

The purpose of this dissertation was to understand the ways economic resources and family relationships influence the short- and long-term well-being of older children. This dissertation incorporated three interconnected studies to establish how adolescent children are influenced by their family's material disadvantage and the relationship they have with their parents. Each study also aimed to demonstrate the importance of race, ethnicity, and gender in shaping the influence of family resources for well-being outcomes.

The family of origin provides resources in the early life course and it is also the primary agent of socialization. It is no surprise then, that the economic conditions of a family have a surmountable impact on the well-being of older children and remain influential well into early adulthood (Melby et al. 2005; Sobolewski and Amato 2005; DiPrete and Eirich 2006; Duncan et al. 2010; Augustine and Crosnoe 2010; Umberson et al. 2014). As influential as material resources are in the family, families are also dynamic and provide more than economic assets to children. The role of parents in the lives of their adolescent children is important for encouraging healthy behaviors and adulthood development (Rushing 1964; Allen and Land 1999; Ardelt and Day 2002; Coleman 2011).

The social and material resources in one's childhood family have consequences for well-being throughout the life course. Scholars have noted the direct importance of material resources and family relationships for children's well-being (Barrett and Turner 2005; Gerschoff et al. 2007; Edin and Kissane 2010), but less attention has been paid to how family relationships and material resources interact. Family economic and social resources do not act independently but work together to produce varying life course trajectories. The scholarship that has considered

both material and relational conditions within a family has primarily focused on how limited material resources in families with young children lead to strained parent-child interactions (Mcloyd 1990; Thompson, Hanson, McLanahan 1994; Conger et al. 1994; Whitbeck et al. 1997; Shelleby 2018). Parent-child relationships may be more resilient in the face of few material resources, especially among older children who are generally less dependent on parents (Collins and Russel 1991). Further, in a society stratified by race, ethnicity, and gender, the influence of economic characteristics within a family varies by racial, ethnic, or gender identity (Neblett et al. 2009; Smith 2010; Rosenfield, Lennon, and White 2005; Groben and Linberg 2016). The overall aim of this research was to engage family, stress, and life course research by establishing the connection between material resources, parent-child relationships, race, ethnicity, and gender for the well-being of adolescent children over time (Pearlin et al. 1981; Thoits 2010; Simons et al. 2016; Elder, Johnson, and Crosnoe 2003).

Several theories guided the research of this dissertation. Life course theory (Elder, Johnson, and Crosnoe 2003), cumulative disadvantage theory (Wilson, Shuey, and Elder 2007), and the stress process paradigm (Pearlin et al. 1981; Pearlin 1989; Pearlin 2010). Each theory provides an explanation for the aspects of the family which translate into the short- and long-term well-being of adolescent children. Each of these theories acknowledges both the individual and structural domains of life. These frameworks allowed me to assess how economic conditions (e.g. material hardship or poverty) interacted with family connectedness (e.g. parent-child closeness) to shape personal outcomes (e.g. mental health or self-rated health).

Life course theory considers the historical conditions which structure lives and accounts for the events, roles, people, and places embedded within an individual lifespan. There are five life course principles, but the dissertation research focused on the principles of life-span

development and linked lives. Life span development contests that life course stages do not exist in a vacuum and the experiences in an earlier stage are influential for later stages (Kahn and Pearlin 2006; DiPrete and Eirich 2006). While development and aging are life-long processes, life courses are marked by stages generally defined by age (Mayer 2009). Life course stages are characterized by certain role expectations and the ability to meet expectations has consequences for future stages. As adolescent children transition to adulthood, they are expected to make strides towards economic independence by gaining employment and/or a post-high school education and establish their own family relationships (Hogan and Astone 1986; Melby et al. 2008; Goldscheider, Hofferth, and Curtin 2014; Eliason et al. 2015). However, meeting these expectations is largely contingent on the family resources available to adolescents prior to their entrance into adulthood.

Lives are also characterized by the quality and multitude of connections individuals have with others. The principle of linked lives accounts for the relationships within individual life courses (Mayer 2009; Elder, Johnson, and Crosnoe 2003). The experiences of others with whom an individual is close to can have a profound influence on an individual's life course. One's relationships and social network can influence health and health behaviors or psychological well-being (Umberson and Montez 2010; Umberson, Crosnoe, and Reczek 2011; Umberson et al. 2014; Roberts and Bengston 1993; Evensen and Simon 2005; Krause 2009). There are few more influential people in an individual life course than parents. The nature of relationships individuals foster with their parents has a considerable impact on development and behavior (Rushing 1964; Lempers and Lempers 1989; Allen and Land 1999; Ardelt and Day 2002; Coleman 2011). Further, the mental health of parents can also influence the mental health of their children (Turney 2011a; Turney 2011b).

Life courses are also affected by historical, institutional, and structural contexts. Resources are not distributed equally, and as such life courses are conditioned based on the position one occupies within society. Individuals also experience different socialization processes based on their racial, ethnic, or gender identity, which they carry with them throughout their life courses (Bonilla-Silva 2015; Hill and Needham 2013). For instance, African American and Hispanic youth are more likely to receive preparation for bias that prepares them to deal with the stress of racial discrimination (Smith 2010). African American and Hispanic adolescents are also more likely to grow up in a household without both biological parents (Hummer and Hamilton 2010). Women are socialized to view themselves in relation to others, especially the family, while men are encouraged to be socially independent (Rosenfield, Lennon, and White 2005). These varying experiences also translate to different life span developments across race, ethnicity, and gender.

Cumulative disadvantage theory builds upon life course perspectives by considering how resources additively influence life course trajectories (Diprete and Eirich 2004; Wilson, Shuey, and Elder 2007). Life spans are characterized by the availability of resources which accumulate and influence individual outcomes. Adolescents in families with limited resources emerge into adulthood with different circumstances than those from economically advantaged families (Silva 2012). Varying resources in adolescence can limit future educational opportunities, structure differences in material disadvantage, and impact health in adulthood (Melby et al. 2008; Ryan et al. 2009; Wickrama et al. 2009).

Mental and physical health outcomes are also structured by individuals' responses to stressors. The stress process model is a paradigm which considers stress as dependent upon the interactions among stressors, mediators/moderators, and outcomes (Pearlin et al. 1981; Pearlin

1989; Pearlin 2010). Life events and chronic strains are the two types of stressors individuals experience (Thoits 2010). When families experience material hardship and are unable to purchase what they need (e.g. food or medical care), parents and children experience stress related to this life event. Economic disadvantage may also persist in the lives of families and act as a chronic strain. For example, families who experience material hardship once are likely to experience it again, which can lead to depression in mothers. Families may also be exposed to poverty over time, which can significantly reduce the ability of adult children from these families to attain social mobility.

The extent to which stressors shape individual outcomes is dependent upon interpersonal resources that individuals have available to cope with stressors (Pearlin et al. 1981). These resources are considered the mediators or moderators of stress and how it influences outcomes. Parent-child closeness is an important moderator for adolescent children's mental health when undergoing family disadvantage. Further, the long-term reach of economic disadvantage in adolescence is influenced by the relationship individuals had with their parents during this time. Stress outcomes include any variable which is conditioned by experiences of stress and range from mental and physical health to economic attainments such as education and material hardship.

Guided by these theories, the studies in Chapters 2 through 4 were driven by three research questions that asked if economic and relational processes within the family influenced the well-being of adolescent children immediately and overtime. Summaries of each of the studies principal and supplementary findings can be found in Table 1.

1. Does material hardship influence adolescent anxiety and depressive symptoms? Are these relationships qualified by race, ethnicity, gender, or the level of closeness between parents and adolescent children?

Table 1. Summary of Principal and Supplementary Findings by Study

Study	Principal Findings	Supplementary Findings
Chapter 2, Study 1	• Material hardship is most prevalent for African American Youth • Parent-child closeness reduces anxiety and depressive symptoms • Material hardship increases anxiety and depressive symptoms • The impact of material hardship for anxiety or depressive symptoms is not qualified by race/ethnicity, gender, or parent-child closeness	• Compared to income, material hardship is a significantly better predictor of anxiety symptoms, but not depressive symptoms
Chapter3, Study 2	• Maternal depression is a cause and a consequence of material hardship • Material hardship leads to maternal depression, which subsequently leads to additional material hardship in families with adolescent girls, but not in families with adolescent girls • Maternal depression influences adolescent girls' depressive symptoms, but not adolescent boys' depressive symptoms	
Chapter4, Study 3	• Adolescent poverty leads to fewer years of education and greater material hardship in early adulthood • The impact of adolescent poverty on education is qualified by closeness to mothers • Whites have the worst self-rated health at high poverty • Women have worse self-rated health compared to men, which is amplified at high poverty • Closeness to mothers and closeness to fathers protects self-rated health, regardless of poverty status	• Closeness to fathers protects self-rated health against poverty greater than closeness to mothers

2. Are depressed mothers more likely to experience material hardship and does material hardship influence maternal depression? Does this relationship between maternal depression and material hardship influence adolescent depressive symptoms?
3. Does experiencing poverty during adolescence influence education, material hardship, and health in early adulthood? Are these relationships qualified by race, ethnicity, gender, or parent-child closeness?

Chapter 2, study 1 tested question 1 by using a sample of adolescent children (age 15-17) in fragile families to test who is more likely to experience material hardship and determine the conditions which qualify the influence of material hardship on adolescent mental health. Adolescent mental health was operationalized in two different ways: as anxiety symptoms and as depressive symptoms. Anxiety symptoms were primarily concerned with worry or fear, whereas depressive symptoms were characteristic of sadness and feeling that life is not worth living. I assessed how material hardship was directly related to adolescent depressive and anxiety symptoms and identified whether it was qualified by race, ethnicity, gender, or parent-child closeness.

The study in chapter 2 found evidence that African American adolescents were more likely to experience material hardships than Hispanic or white youth. Material hardship was subsequently associated with greater anxiety and depressive symptoms. Contrary to my hypotheses, the influence of material hardship was equally distressing across race, ethnicity, and gender. I anticipated that African Americans and adolescent girls would have higher depressive and anxiety symptoms when experiencing material hardship compared to whites, Hispanics, or boys, respectively. Closeness to mothers and to fathers were both associated with reduced

anxiety and depressive symptoms. However, these relationships did not buffer the harmful impact of material hardship for adolescents' depressive or anxiety symptoms.

Several conclusions can be drawn from this study regarding the influence of material hardship, race, ethnicity, gender, and parent-child relationships on adolescent distress. Among economically disadvantaged families and across race and ethnicity, African American adolescents are more likely to be exposed to material hardships. However, the influence of material hardship is equally distressing for adolescent whites, Hispanics, and African Americans. While the impact of material hardship is not worse for African American youth's mental health, they are more likely to experience this disadvantage and for this reason, material hardship is an important determinant of African American adolescents' mental health. The influence of material hardship also did not vary by gender. At least among fragile families, adolescent girls are no more likely to have heightened depressive or anxiety symptoms than adolescent boys in the face of material hardships. Closeness to mothers and closeness to fathers did not diminish the harm of experiencing material hardship in the family. There were also no associations between material hardship and parent-child closeness. Taken together, these findings highlight that parent-child relationships remain close even when the family is experiencing material hardship, but that these relationships cannot undo the psychological distress and uncertainty associated with a family being unable to cover necessary expenses.

Research question 2 was addressed in chapter 3, study 2, which drew on longitudinal data of fragile families and utilized structural equation modeling to analyze the reciprocal effects of maternal depression on material hardship. Analyses also tested whether the relationship between mothers' depression and material hardship could influence the depressive symptoms of their adolescent children. Mothers were considered depressed if they indicated experiencing a severe

depressive episode which lasted two weeks or more within the past year. Analyses in this chapter assessed whether the reciprocal effects of maternal depression on material hardship would lead to differences in the depressive symptoms of adolescent girls compared to adolescent boys.

The results from chapter 3 provided support that maternal depression is both a cause and a consequence of material hardship, but this relationship did not carry for both boys and girls. In families with boys, maternal depression leads to material hardship, which in turn, influenced maternal depression. However, maternal depression and material hardship had no impact on the depressive symptoms of boys. Among adolescent girls, their mother's depression was unrelated to material hardship and material hardship had no influence on maternal depression. Yet, mothers' depression did lead to heightened depressive symptoms in adolescent girls.

The results did not provide full support for my hypotheses that the relationship between maternal depression and material hardship is responsible for variations in adolescent children's depressive symptoms. These findings do provide evidence for the dynamic way families operate and how they can vary dependent on adolescent children's gender. These results demonstrated that adolescent girls are more sensitive to the affect of their mothers, which translate to their own depressive symptom outcomes. While maternal depression is not a determinant of adolescent boys' depressive symptoms, it does lead to greater material hardship in their families.

Chapter 4, study 3 expands on the results from studies 1 and 2 by investigating how economic resources during adolescence influence economic attainment and health in adulthood. Research in chapter 4 utilized a nationally representative sample of adults and assessed the influence of adolescent poverty on adulthood outcomes. The study conceptualized adolescent economic disadvantage as the number of years spent in poverty from the ages of 12 to 17. The primary outcomes of interest were years of education, the frequency of material hardship, and

self-rated health at the ages of 18 to 34. In addition to understanding the direct impact of adolescent poverty on adulthood outcomes, analyses also explored whether these relationships were qualified by race, ethnicity, gender, or parent-child closeness.

Chapter 4 expanded upon research interested in the long-term influence that the resources in the family of origin have on well-being (Thompson, Hanson, McLanahan 1994; Whitbeck et al. 1997; Gershoff et al. 2007; Mustillo et al. 2011; Simons et al. 2016) by including multiple measures of economic standing in adulthood in addition to a measure of general health. Education and health have both been extensively covered in scholarship that has assessed the long-term outcomes of children from disadvantaged families (Ross and Wu 1996; Wilson, Shuey, and Elder 2007). This study also incorporated a measure of material hardship and assessed the importance of parent-child relationships.

The study in chapter 4 corroborates findings from chapters 2 and 3 by demonstrating that economic disadvantage experienced in adolescence is an influential determinant for long-term well-being. Adolescent poverty was associated with fewer years of education, greater material hardship, and worse self-rated health in early adulthood. Both education and material hardship were also prominent influencers of adulthood self-rated health. The results of this study also elucidated findings from the previous chapters. In chapter 2, race, ethnicity, and gender were not significant moderators for the influence of material hardship on adolescent mental health among fragile families. Chapter 4 reveals that in the general population, there are no racial, ethnic, and gender differences in the impact of adolescent poverty on adulthood education or material hardship, but there are significant differences in self-rated health.

In both chapter 2 and chapter 3, there was mixed support for the role parent's play in shaping the well-being of their children. Parent-child closeness did not protect the mental health

of adolescents in families experiencing material hardship. Further, mothers' depression was found to only influence the mental health of adolescent girls. In chapter 4, there were educational and health benefits to having a close parent-child relationship during adolescence, but these benefits were felt most by those who had little to no poverty during adolescence. This finding explains why the parent-child relationship did not appear to significantly buffer the impact of material hardship among the disadvantaged families included in chapter 2. Adolescent children coming of age in disadvantaged households, such as those with high poverty or unmarried parents, may benefit less from a close relationship with their parents. The stressful circumstances these children likely face daily may overshadow the relationship they have with their mother or father.

Taken together, all three studies demonstrate the influence of families in shaping children's well-being and how these experiences accumulate throughout the life course. Adolescence is a critical period of development which sets a foundation for the transition to adulthood (Steinberg 2005; Steinberg 2010; Fuhrmann, Knoll, and Blakemore 2015). Among families experiencing material hardship, adolescent children are likely to experience heightened levels of anxiety and depressive symptoms. Mothers with depression are more likely to have material hardship in their families, which are likely to limit the resources adolescent boys have available to successfully transition to adulthood. Adolescent girls whose mothers have depression are more likely to experience depressive symptoms, which may shade their outlook about their venture into adulthood. Adolescents who have constrained resources, grow up with less educational opportunity and are less likely to purchase all they need in adulthood. These limited economic opportunities directly diminish health and create a trajectory which is likely to be marked by future disadvantages.

There remains a great deal of future research needed to better understand the influence of family economic disadvantages, parent-child relationships, and well-being. Though family resources have a profound impact on older children's well-being, it remains unclear how children can gain the social and material advantages that should allow them to have social mobility (Avison 2010; Ferraro and Shippee 2009). The research in this dissertation demonstrated that the closest parent-child relationships are unable to fully reduce the disadvantage felt by adolescents whose families have constrained economic resources. A breadth of policy and research has been dedicated to understanding the role of family relationships in ameliorating the harmful impact of growing up economically disadvantaged (Berger 2017; Edin and Kissane 2010; Umberson et al. 2014). Indeed, the central purpose of this work was to identify if parent-child relationships could diminish the harm to well-being caused by economic disadvantage. Though the findings of this dissertation demonstrate that close parent-child relationships positively impact the well-being of children, these studies also demonstrate that parent-child relationships should not be the only answer to aid children growing up in poverty. The most helpful solution for children growing up economically disadvantaged is to provide them and their families opportunities for economic social mobility.

The findings of chapter three confer with other research which demonstrates that limited economic resources in the early life course reduce the accumulation of other resources such as education in adulthood (Thompson, Hanson, McLanahan 1994; Whitbeck et al. 1997; Gershoff et al. 2007; Mustillo et al. 2011; Simons et al. 2016). Not only did these adults have less education, but they also reported more material hardship. The constraints felt by adults who experienced adolescent poverty limited social mobility. Future policy should focus on targeting economically disadvantaged adolescents and help them to gain skills which will allow them to

successfully transition to college or the workforce as adults. Additionally, parents experiencing economic disadvantage are more likely to be distressed which can impact the interpersonal relations within the family. While healthy and close parent-child relationships are important for both parents and children, government policies should focus on providing families economic support in addition to encouraging strong-parent child bonds (Berge 2017). Helpful policy programs may give parents access to job training or provide community-based safety net programs for needy families.

Future research and policy should also incorporate the role of significant relationships outside of the immediate family such as those with extended family, teachers, mentors, and peers to identify the importance of these relationships in achieving social mobility (Ardelt and Day 2002). The distress experienced by parents in the face of material hardship, particularly among mothers, likely diminish the ability of parents to fully engage children and help with tasks such as homework. Having access to other actors who can help adolescents in the face of their families' economic disadvantage may be a key impetus to achieving social mobility in adulthood.

In conclusion, this dissertation has demonstrated how the structural position of a family can lead to mental and physical health disparities throughout the life course. The material resources available within a family are intimately linked to the development and well-being of children. Individuals do not directly interact with the structural forces which shape income inequality, but they do feel the effects of constrained resources within their family. Opportunities are shaped by the material resources available within the family, and unfortunately, even the closest parent-child relationship cannot love away the harmful impact of coming of age poor. As

long as economic resources are unequally distributed, they will continue to be a prominent force in reproducing economic and health disparities within families.

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