

2011

a comparison of adolescent mothers and adult mothers with low levels of education

Lindsey Erin Brown
Iowa State University

Follow this and additional works at: <http://lib.dr.iastate.edu/etd>



Part of the [Family, Life Course, and Society Commons](#)

Recommended Citation

Brown, Lindsey Erin, "a comparison of adolescent mothers and adult mothers with low levels of education" (2011). *Graduate Theses and Dissertations*. 12169.

<http://lib.dr.iastate.edu/etd/12169>

This Thesis is brought to you for free and open access by the Graduate College at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

A comparison of adolescent mothers and adult mothers with low levels of education

by

Lindsey Brown

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Human Development and Family Studies

Program of Study Committee:
Kere Hughes-Belding, Major Professor
Kimberly Greder
Gayle Luze

Iowa State University

Ames, Iowa

2011

Copyright © Lindsey Brown, 2011. All rights reserved

TABLE OF CONTENTS

LIST OF TABLES	iii
CHAPTER 1. GENERAL INTRODUCTION	1
Introduction	1
CHAPTER 2. REVIEW OF LITERATURE PURPOSE	5
Literature Review	5
Guiding Research Questions	15
CHAPTER 3. METHODS AND PROCEDURE	16
Participants	16
Measures	19
Design and Procedures	23
CHAPTER 4. RESULTS	25
Results	25
CHAPTER 5. SUMMARY AND DISCUSSION	32
Discussion	32
Limitations	36
Implications	36
Future Research	38
REFERENCES	40
APPENDIX	48

LIST OF TABLES

Table 1 Adolescent and Adult Mothers with Low Levels of Education Demographic Information.	17
Table 2 Means and Standard Deviations for Adolescent and Adult Mothers with Low Levels of Education on Measures	18
Table 3 Number of Unmet Financial Needs.	20
Table 4 Independent samples t-test comparison of variables for Adolescent Mothers and Adult Mothers with Low Levels of Education	26
Table 5 Correlations for independent and dependent variables (HOME and Landry) with Adolescent Mothers.	29
Table 6 Correlations for independent and dependent variables (HOME and LANDRY) with Adult Mothers with Low Levels of Education.	30
Table 7 Model Effects for Adolescent Mothers.	31
Table 8 Univariate Effects for Adolescent Mothers.	31

CHAPTER 1: GENERAL INTRODUCTION

Introduction

Adolescents in the United States are giving birth to infants at higher rates compared to other developed countries (Long, 2009). A majority of these births are not planned, wanted or came sooner than planned (CDC, 2009). Adolescent mothers commonly with live in poverty; have parents who have low education levels and growing up in single-parent families (CDC, 2009). They are also more likely to be single, attain lower education levels and have lower paying jobs than their non-parent counterparts (Jaffee, Caspi, Moffitt, Belsky & Silva, 2001). Emotionally, they struggle with higher levels of maternal depression compared to adult mothers (Lanzi, Bert, Jacobs & Centers for the Prevention of Child Neglect, 2009).

Generally, adolescent mothers have a lack of cognitive readiness to parent (Sieger & Renk, 2007). Young mothers are still developing themselves and caring for a newborn can be very challenging when trying to balance their lifestyle. Interactions between an adolescent mother and her infant are often times more negative than adult mothers (Jaffee et al., 2001). Adolescent parents are more likely to use harsher discipline techniques, engage less, and are less sensitive with their infants compared with adult parents (Emery, Pquette & Bigras, 2008; Lee, 2009).

Younger mothers tend to have higher rates of maternal depression than adult mothers (Lanzi et al., 2009). Maternal depression is also associated with lower parenting capabilities in adolescent mothers (Cox, Buman, Valenzuela, Pierre, Mitchell & Woods, 2008). Compared with adult mothers, adolescent mothers who are depressed are less sensitive to their infants when interacting and are less likely

to have a routine including reading books and talking to their infants (McLearn, Minkovitz, Strobino, Marks & Hou, 2006).

Raising a child takes considerable financial resources and adolescent mothers typically do not have the finances that adult mothers do. They are more likely to depend on public assistance (Pogarsky, Thornberry & Lizotte, 2006). There is an association between financial strain and parenting styles (Mistry, Vandewater, Houston & McLoyd, 2002). Mothers are less affectionate than if they have financial strain (Mistry, 2002).

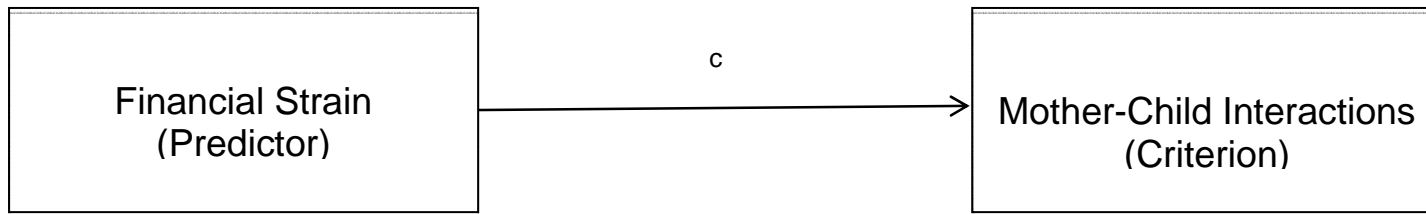
Mother-child interactions, maternal depression and mothers' financial strain all impact the development of the child. Children are at risk for developmental delays and behavioral problems (Ashman, Dawson & Panogiotides, 2008). Children of mothers who are depressed and who have financial strain also show higher levels of depressive symptoms (Graham & Easterbrooks, 2000). It is not only important to consider the adolescent mother's well being but also how her life situation impacts her child's development.

The current study is based on these main principles: adolescent mothers are at risk for financial strain (Pogarsky et al., 2006), adolescent mothers are at risk for depression (Lanzi et al., 2009), and these risks can influence the interactions a mother has with her child (Jaffee et al., 2001). This study will consider current research in the area of adult mothering and teen mothering, maternal depression and financial strain. The purpose of the study will be to examine the relationship between financial strain, depression and mother-child interactions with adolescent and adult mothers with low levels of education.

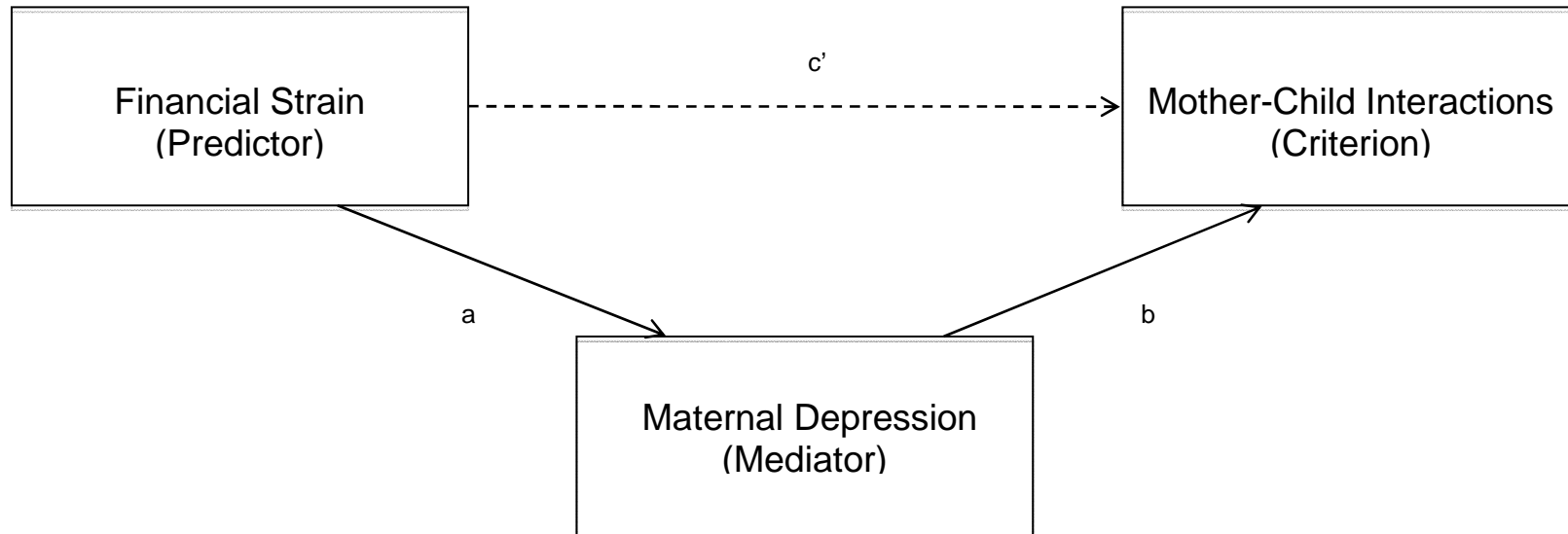
Analytical Model

The current literature on adolescent parenting shows there seems to be a consistent relationship between maternal depression and poor parenting practices for these mothers. In addition, there is a relationship between experiencing financial strain and depression. What is currently lacking is a thorough understanding of how these three constructs relate to each other. It can be hypothesized that experiencing financial strain increases the likelihood of maternal depression, which then has a negative impact on mother-child interactions. Figure 1 shows a mediating model for this hypothesis.

The findings from this study can help advance the field by identify meaningful ways to intervene with families, specifically adolescent mothers, who are experiencing or have potential to experience either one or both, financial strain and depression. Focused interventions could help increase the positive mother-child interactions, which would lead to better outcomes for their children.



a) Direct



b) Indirect or Mediated Pathway

Figure 1 Analytical Model

CHAPTER 2: REVIEW OF LITERATURE

Literature Review

Having a new baby can be a very happy and fulfilling time in a woman's life. The mother's age and the timing of a first child can have significant impacts on the mother and her child. Although many adolescent mothers grow into competent parents, research has shown that within U.S. culture, there are potential risk factors for the child's well being and developmental trajectory if they are born to adolescent mothers (Pogarsky, Thornberry & Lizotte, 2006; Sommer et al., 2000).

Children of adolescent mothers are at risk for adverse developmental outcomes (Jaffee, Caspi, Moffitt, Belsky & Silva, 2001). As early as three years of age, there are signs that children of adolescent mothers are at risk or are already experiencing atypical development (Sommer et al, 2000). These children are more likely to enter Kindergarten with lower cognitive attainment and mastery scores. They are also more likely to have behavior problems and chronic medical conditions according to the Center for Disease Control and Prevention (CDC) in 2009. Research suggests that children of adolescent mothers are at higher risk to use drugs, join gangs, engage in violent behavior, drop out of school, be unemployed, and/or enter parenthood early (Jaffee et al., 2001; Pogarsky et al., 2006). Children born to adolescent mothers are at risk for continuing the cycle of adolescent parenting (Pogarsky et al., 2006).

Adolescents in the United States are giving birth to infants in high numbers. The United States has the highest percentage of adolescent births (15-19 yr) compared with other developed countries (Long, 2009). There were a total of

435,436 infants born to these young mothers in 2008 (CDC, 2009). The major factors associated with adolescent pregnancy and childbirths are being sexually active, lack of access to or poor use of contraception, living in poverty, having parents with low levels of education, poor performance in school and growing up in a single-parent family (CDC 2009). A majority of adolescent pregnancies were not planned, not wanted or came sooner than the mothers had wished. In 2008, 22% of adolescents who gave birth were not married (CDC, 2009).

Adolescent mothers are more likely to be single, to have lower education levels and reading levels, lower paying jobs, poorer family relationship styles and parent-child relationship quality, greater chance to be living in poverty, higher family instability and greater likelihood to be receiving government assistance (Emery et al., 2008; Jaffee et al., 2001; Pogarsky et al., 2006; Sieger & Renk, 2007). Taking into account the rates of adolescent pregnancy and births, the well being of adolescent mothers and related impact on their children's development is a significant topic for research and intervention.

Parenting Quality

Adolescent mothers face unique circumstances when raising a child. They are still developing and maturing themselves. Caring for a newborn can be a huge challenge for an adolescent who is trying to complete school, be involved in activities, and balance time with friends and family. Also, their knowledge of child development is often limited (Emery et al., 2008; Sieger & Renk, 2007) and they have significantly more negative parenting styles than adult mothers (Jaffee et al, 2001; Pogarsky et al., 2006).

Adolescent mothers have been shown to be less engaged and talk less frequently with their infants (Emery et al., 2008). The interactions they do have are often harsher and more negative than adult mothers. Adolescent mothers get annoyed easier with their infant and use communication with their infants that is less emotionally positive when compared to adult mothers (Emery et al., 2008). They are also more likely to use physical punishment so children receive higher levels of inconsistent and harsh discipline with an adolescent mother compared to an adult mother (Jaffee et al, 2001; Lee, 2009).

A mother who is sensitive is less likely to use less harsh discipline methods compared to an insensitive mother (Alink et al., 2008). Although adolescent mothers tend to be less sensitive with their infants, mothers who show sensitivity with their infant can protect against consequences of negative discipline (Alink et al., 2008). Being sensitive means that the mother has the ability to adequately recognize the child's signals and responds to them appropriately. It also involves displaying warmth and providing emotional support to the child (Stams, Juffer & Van IJzendoorn, 2002). Mothers who use negative discipline techniques and are insensitive have children who have a higher chance to be aggressive (Alink et al., 2008).

Maternal Depression

The majority of research examining the risks related to adolescent parenting has emphasized the cognitive readiness of these mothers to parent (O'Calloghan, Borkowski, Whitman, Maxwell & Keogh, 1999; Sommer et al., 2000; Tamis-Lemonda, Shannon & Spellmann, 2002), maternal depression (Ashman, Dawson &

Panagiotides, 2008; Cohn, Campbell, Moscardino, Axia & Altoè, 2006; Friedman, Beebe, Jaffe, Ross & Triggs, 2010; Lanzi et al., 2009; Ramos-Marcuse et al., 2009; Zajicek-Farber, 2009) and social support they receive (Lee, 2009; Riggs, Holmbeck, Paikoff & Byant, 2004).

Cognitive readiness has been defined as the knowledge of infant and child development, parenting styles and parenting attitudes (O'Calloghan et al., 1999). Poor cognitive readiness to parent is related to lower confidence in parenting, over or underestimating developmental milestones and less desirable parenting attitudes (Tamis-Lemonda et al., 2002; O'Calloghan, et al., 1999). Mother's attitudes and knowledge of child development affects parenting practices, specifically their interactions with their infants (Sommer et al, 2000).

Maternal depression can be defined as a clinical diagnosis or a self-reported depression. Adolescent maternal depression is associated with lowered maternal confidence in the mother's parenting capabilities and decreased perceived maternal social support in adolescent mothers (Cox et al., 2008). Mothers who are younger, unmarried, have low educational levels or fewer financial resources tend to have higher rates of depressive symptoms compared to mothers who are older, married, have a higher educational level mothers and lower financial resources (Rich-Edwards et al., 2006). One of the highest predictors of postnatal depression in mothers is depression while the mother was pregnant (Rich-Edwards et al, 2006).

Depression influences interactions between mothers and infants (Leadbeater, Bishop, & Raver, 1996). Depressed mothers express more irritation and intrusiveness when they are interacting with their infants (Cohn et al., 1990). They

are less sensitive, express fewer affirmations and are less positive during feedings and in face-to-face and toy play (Campbell, Cohn, & Meyers, 1995; Murray, Fiori-Cowley, Hooper & Cooper, 1996a; Murray, Stanley, Hooper, King & Fiori-Cowley, 1996b). In addition, depressed mothers are less likely to follow a daily routine, play, show picture books, and talk to their infants (McLearn, Minkovitz, Strobino, Marks & Hou, 2006).

An example of a poor interaction between a depressed mother and an infant is when an infant needs her routine vaccinations. The infant will feel pain and a mother can soothe her infant. It was found that a mother who is depressed does not express those emotionally soothing behaviors, such as holding and face-to-face contact, with her infant like a non-depressed mother would, and instead stayed at a distance (Moscardino, Axia & Altoè, 2006).

Consequently, there are many risks for children being cared for by a depressed mother including developmental delays and social or behavioral problems. For example, children are more likely have reduced generalized frontal brain activation or externalizing problems such as Attention Deficit Hyperactivity Disorder (ADHD) (Ashman, et al., 2008). Internalizing symptoms can be present when infants are exposed to maternal depression (Essex, Klein, Miech & Smider, 2001) and they may show low social competence compared to children of non-depressed mothers (Ashman et al., 2008; Essex et al., 2001). During face-to-face play, infants of depressed mothers tend to express more vocal distress by crying and fussing when compared to infants without a depressed mother. These infants also use more negative vocalizations to communicate with their depressed mother

(Field, Healy, Goldstein, & Guthertz, 1990; Friedman, Beebe, Jaffe, Ross & Triggs, 2010). In addition, children of depressed mothers are more likely to have depressive symptoms themselves (Graham & Easterbrooks, 2000).

Adolescent mothers are at particular risk for depression. Compared to adult mothers between the ages of 22 to 35, younger mothers, ages 15 to 18 years old are more likely to be depressed (Whitman, Borkowski, Keogh & Weed, 2001). Lanzi and colleagues (2009) included adolescent and adult mothers in a study with the purpose to document the number, correlates and consequences of depression with these mothers. Adolescent mothers were found to have significantly higher prenatal rates of depression. They were also more apt to be depressed after the birth of their newborn than adult mothers who had low or high amounts of resources (Lanzi et al., 2009). When an adolescent mother is depressed, it affects multiple aspects of parenting. Adolescent mothers who are depressed have been shown to display less positive parenting practices toward their newborns and their newborns have increased maladaptive behaviors toward the mother (Lanzi et al., 2009). In a study with African American adolescent mothers, it was found that the mothers who have higher depressive symptoms also had lower self-esteem, parenting satisfaction and reported fewer positive life events than mothers who are not depressed or have fewer symptoms of depression (Ramos-Marcuse et al., 2009).

Essential parenting practices include maternal warmth, sensitivity, verbalness and responsiveness. Positive interactions, such as sensitivity and responsiveness, are crucial to the formation of child well being and positive interactions between mother and infant (Lanzi et al., 2009). Sommer and colleagues found that

adolescent mothers with depression showed emotional unavailability and self-preoccupation (Sommer et al., 2000). When a mother is not emotionally available and is preoccupied with herself, it is difficult to express those essential parenting practices.

These interactions and parenting practices influence the relationship that a mother and infant create (Emery et al., 2008). Cox and colleagues (2008) found that adolescent mothers clearly showed an association between the mother's depressive symptoms and decreased perceived maternal care-taking ability. Many times, these depressed mothers do not respond to their infant's cues and have lower cognitive preparations for being a mother (Cox et al., 2008). Even if adolescent mothers are depressed and do not have positive interactions with their infants, the presence of social support has been associated with positive impacts on adolescent parenting (Ghazarian & Roche, 2010).

Social Support

Social support involves attachment, social integration, chance for nurturance, support for self-worth and problem solving management (Weinert & Brandt, 1987) In measuring social support, other aspects can be captured such as the size of the social network, conflicts and satisfaction with received social support (Emery et al., 2009).

In looking at moderating relations between parenting support, age of a mother at childbirth and parental responsiveness and monitoring, Riggs and colleagues found that younger mothers who also perceive receiving little parental support, monitor (knows where the child is when outside the home, what the child is doing,

and with whom the child associates their children less (Riggs, et al., 2004).

Adolescent mothers who have a supportive relationship with their mothers feel more competent in their parenting (Oberlander, Black & Starr, 2007). In addition, adolescent mothers who receive the support of their baby's father are less likely to use physical aggression toward their children (Lee, 2009). Mothers who perceive their social supports to be positive and sufficient do not have as high as depressive rates as mothers who do not feel like they are getting adequate support (Cox et al., 2008).

From a resilience perspective, the social support a mother receives can buffer the negative impacts of maternal depression either directly or indirectly. Resilience refers to "positive adaptation during or following exposure to adversities that have the potential to harm development" (Masten, 2007; Luthar, Cicchetti & Becker 2000). Resilience can be looked at through different lenses, different times and different disciplinary perspectives (Masten, 2007). A lot of focus is at the individual level but it may also be focused on family as well (Patterson, 2002).

Children also benefit from receiving social support. Guest and Biasini (2001) found that children, living in poverty, who received increased social support showed gains in their self-esteem, school performance and goal achievement effort. Social support can promote resiliency in children who are at-risk. There has been considerable research on the emotional aspects of social support. Much less is known about the effect of financial support on adolescent mothers and their children.

Financial Strain

Financial strain is experienced when individual's income does not match their

needs. Raising a child involves considerable financial resources. This can have a significant impact on the family when the mother is an adolescent (Pogarsky et al., 2006). Young mothers and families tend to be less educated and are more likely to depend on public assistance for support compared to adult mothers and families (Pogarsky et al., 2006). From October 2007 to September 2008, the U.S. Department of Health and Human Services reported a total number of 71,759 adolescent parent status receiving Temporary Assistance for Needy Families (TANF) across the United States (US Administration of Health and Human Services, 2009).

There have been numerous studies with mothers, establishing a link between financial strain and depressive symptoms. Longitudinal studies have shown that mothers who have ongoing economic stress are at a greater risk for experiencing depressive symptoms (Dearing, Taylor & McCartney, 2004). Mothers' economic well-being influences their psychological well-being (Dearing et al., 2004). A meta-analysis of 60 studies looking at socioeconomic inequality and depression found that compared with higher socioeconomic status (SES) groups, low SES groups had almost double the chance to experience depression. In addition, when the mother's age is lower there is a larger effect (Lorant et al., 2003).

Psychological stress can result from limited resources (Mistry, Stevens, Sareen, De Vogli & Halfon, 2007). As more parenting stressors accumulate, the poorer the mother's mental health becomes (Mistry et al., 2007). Mothers who experience a greater number of stressful life events, are dissatisfied with their current housing condition and report transportation problems as a barrier to work,

have higher rates of depression (Kalil, Born, Kunz, and Caudill, 2001). In studies, it is not uncommon for 50% or more of the sample of adolescent mothers to experience at least mild depressive symptoms (Cox et al., 2008; Secco, et al., 2007).

There is also an association between economic risk, parenting, and children's development. Parents who are stressed because of their economic situation often feel less effective in disciplining their child. Their interactions are also less affectionate than if they did not have financial strain (Mistry et al., 2002).

Children who are at higher levels of economic risk, because they live in families with low income, have higher levels of depression symptoms (Graham & Easterbrooks, 2000). Children of adolescent mothers who are at a socioeconomic disadvantage received harsher discipline and later showed increased externalizing problems (Mistry et al., 2002; Scaramella, Neppl, Ontai & Conger 2008). Although contrary to some previous studies, Conger and colleagues found that children's receptive vocabulary, academic success and prosocial behavior were directly predicted from financial strain (Conger, Schofield, Conger & Neppl, 2010). This is important to consider because financial strain not only affects a mother and her parenting but also impacts her child's development.

Guiding research questions

Research Question 1: Do adolescent and adult mothers with low levels of education differ in their levels of financial strain, depression and parenting quality?

Research Question 2: Does maternal depression mediate the relationships between financial strain and parenting quality?

CHAPTER 3: METHOD AND PROCEDURE

Participants

Participants were 344 mothers from the Parenting for the First Time Project, which was a multi-site longitudinal study of first-time mothers. Mothers and children were followed from the third-trimester of pregnancy until the child was 3 years old. The current study includes 242 adolescent mothers with an age range from 14.81 to 19.60 years ($M = 17.37$, $SD = 1.16$). Also included is a group of 102 adult mothers with low levels of education, who are defined as having a high school diploma or less. Their ages ranged from 21.72 to 36.02 ($M=25.55$, $SD=3.29$). The mothers and children were recruited from four sites: Birmingham, Alabama; South Bend, Indiana; Washington, DC; and Kansas City (both Missouri and Kansas). Mothers and children were recruited from primary care facilities and education centers during the third trimester of their first baby (that they plan to carry to term). See Table 1 for mother demographic information.

Table 1

Adolescent and Adult Mothers with Low Levels of Education Demographic Information

	Adolescent Mothers (Percentages)	Adult Mothers with Low Levels of Education (Percentages)	Total (Percentages)
Marital Status			
Single	68.0%	52.4%	63.9%
Divorced	0.0%	1.0%	.3%
Married	2.1%	21.4%	7.9%
With Partner	28.6%	23.3%	27.3%
Widowed	0.0%	1.0%	.3%
Separated	0.0%	1.0%	.3%
Total	98.8%	100.0%	100.0%
Ethnicity			
Black	64.7%	57.3%	62.5%
Non-Hispanic White	14.5%	18.4%	15.7%
Hispanic	19.0%	23.3%	20.4%
Other	1.6%	1.0%	1.5%
Total	*100.0%	100.0%	100.0%

Table 2

Means and Standard Deviations for Adolescent and Adult Mothers with Low Levels of Education on Measures

	Adolescent Mothers					Adult Mothers with Low Levels of Education				
	<i>N</i>	<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>SD</i>
Financial Strain	242.00	0.00	4.00	.68	.97	102.00	0.00	3.00	.71	.91
Maternal Depression	183.00	.00	47.00	9.87	8.33	73.00	.00	34.00	7.74	6.50
Quality of Parenting										
HOME	225.00	16.00	44.00	32.46	5.64	96.00	19.00	45.00	34.70	5.14
Landry	223.00	1.00	5.00	3.24	.94	98.00	1.00	5.00	3.62	.89

Measures

Financial Strain (8 months).

Financial Strain was defined for this study as receiving one or multiple forms of support. This includes public or private services involving income assistance such as Temporary Assistance for Needy Families (TANF), Supplemental Nutrition Assistance Program (SNAP), utility bill, rental or housing assistance and/or emergency housing. Mothers' financial strain was taken from the Community Support measure in the Community Support interview at 8 months. Mothers were asked what financial services they were receiving. The questions that were asked were the following:

1. Housing or rental assistance - Service(s) needed? Service(s) received?
2. Assistance with utility bills - Service(s) needed? Service(s) received?
3. Income/welfare assistance - Service(s) needed? Service(s) received?
4. Emergency housing - Service(s) needed? Service(s) received?

The participant answered yes or no to the question if the service was needed and/or if the participant was receiving the particular service. These were not questions about the participant's perceptions on financial well-being but rather concrete answers to whether the participant was actually needing and receiving financial assistance. The mothers were asked if each item was a need and also if the need was being met. These questions were made into a composite score ranging from 0 to 4, where 0 is no Financial Strain and 4 is the highest Financial Strain on the mother. The mother received a score of 1 if she had one need and the

need was not being met. See table 3 for the number of unmet financial needs for adolescent mothers and adult mothers with low levels of education.

Table 3

Number of Unmet Financial Needs

	Adolescent Mothers Adolescents (Percentages) <i>N</i> = 242	Adult Mothers with Low Levels of Education (Percentages) <i>N</i> = 102
# of Unmet Needs		
0	58.1%	55.3%
1	24.1%	23.3%
2	10.4%	16.5%
3	6.2%	4.9%
4	1.2%	0.0%
Total	100.0%	100.0%

Parenting Quality.***HOME (8 months).***

Infant/Toddler Home Observation Measure of the Environment (IT-HOME; Bradley & Caldwell, 1984) measures the quality of the home environment for infant and toddlers. This instrument measures, in natural contexts, the quality and quantity of the child's available stimulation and support in the home. The data were collected from the mother and baby at the 8-month interview. This measure is a 45-item scale

where each question is answered as 'yes' or 'no'. Examples of the yes/no questions are, "Parent spontaneously vocalizes to the child at least twice during the visit," "Parent caresses or kisses child at least once during the visit" and "Parent keeps child in visual range and looks at him/her often." Lower scores indicate a poorer home environment. Lower scores would indicate that the home environment might create a risk to some aspect of the child's development. Interviewers in this study were trained at a minimum of 80% concordance with a master coder. The internal consistency coefficient was 0.81, with reliabilities ranging from 0.80 to 0.84.

Landry (8 months).

Parent-child interactions were observed in the home when the baby was 8 months old. The Landry system, developed by Landry, Smith, Miller-Loncar & Swank (1997) was used to code after observing the positive and negative aspects of parent-child interactions. The scale is 1-5 where a 5 represents more optimal parenting. The mothers were observed during a 30-minute time frame. This included a 2-minute adjustment period, four 5-minute observation periods, and periods between each observation for the coders to write notes about behaviors they observed. Mothers were instructed to act as they usually would during the day and to keep their children where they could see them. Mothers were asked to play with their children like they usually play, using age-appropriate research toys. Playing with a child takes more attention and cognitive demands. The mothers were coded on their behaviors toward their child including display of positive affect, warmth or sensitivity, contingent responsiveness, physical intrusiveness, punitive tone, verbal content and general verbalness (amount of time spent talking to their child). General verbalness

was not originally part of the observation developed by Landry and Colleagues, but it was added to this present study. An example of Contingent Responsiveness is that the coder would rate this with a number 1 through 5. 1= Almost completely uninvolved or controlling, 2= <Half of the time (content baby with uninvolved mom or 1-2 very controlling harsh behaviors), 3= Half the time (consistently moderately flexible), 4= Mostly flexible with 1 or 2 negative behavior(s) or 5= Almost always. The interviewers were trained to a minimum of 80% agreement. The master coder was on video-tape and on-site for all of the categories that were coded. Originally, the rating system had an internal consistency coefficient of .81 for mothers' behaviors and reliabilities ranging from .80 to .84 (Hammond, Landry, Swank & Smith, 1999). The present study summed the average ratings on each of the behaviors, display of positive affect, warmth or sensitivity, contingent responsiveness and general verbalness to get the score for positive parenting. Summing the average ratings for physical intrusiveness, punitive tone and verbal content made the negative parenting score.

Maternal Depression

The revised Beck Depression Inventory is a self-report questionnaire that measures if depressive symptoms are present and to what degree but it does not specify clinical diagnosis (Beck, Steer & Garbin, 1988). It consists of 21 questions which the respondent best describes their feelings over the last 2 weeks. For example, a few of the items are: lack of enjoyment, self-blame, crying and loss of interest in people (Uher et al., 2008). The respondent chooses from several options, ranging from 0 to 3, which best describes how they feel. It takes about 5 minutes to

complete. An example of one of the questions asks about pessimism. The response to this are 0 = I am not discouraged about my future, 1 = I feel more discouraged about my future than I used to be, 2= I do not expect things to work out for me or 3= I feel like my future is hopeless and will only get worse. After the BDI is administered, the responses are added to get the total BDI score ranging from 0 to 63. Higher scores indicate more severe Depression (Beck, Steer & Garbin, 1988). The estimated internal consistency reliability (coefficient alpha) is .80 across populations (Beck & Steer, 1984). The data were collected from the mothers at the child's 6th month interview.

Procedure

First time mothers were interviewed to collect data about demographics, financial strain, mother-child interactions and depression. Interview data were conducted when the children were 6 and 8 months. Direct observation of the parent-child interactions using the Landry (Landry, Smith, Miller-Loncar & Swank, 1997) and the Home Observation Measurement of the Environment (HOME; Bradley & Caldwell, 1984) were collected when the children were 8 months old. There was a Community Support section in the interview that was collected at the 8-month interview. The financial strain composite was taken from the Community Support Interview. The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961) measuring self-reported maternal depression was collected at the 6-month interview.

This study used four different measures at two different interview months. First, the BDI is used at 6 months. The 6-month (+/- 2 weeks) interview lasted about

2 hours and was conducted either in the lab or at home. Then, at 8 months, the three other measures were used. At 8 months (+/- 2 weeks) the interview lasted around 2 hours and was conducted in the home. In the 8th month, the HOME, Landry and Financial Strain measures are used. The HOME and Landry are used to observe the interactions between the mother and the child. The Community Support interview was used to get the composite score for Financial Strain. See Table 2 for descriptive data on the different measures used in this study for adolescent mothers and adult mothers with low levels of education.

CHAPTER 4: RESULTS

Results

Question 1. Do adolescent and adult mothers with low levels of education differ in their levels of financial strain, depression and parenting quality?

Independent sample t-tests were run to check if the two groups of mothers differed significantly on variables used in the subsequent tests of mediation for Question 2. Table 4 shows the results for the t-tests. The t-tests revealed that adolescent mothers had significantly lower scores on the HOME ($M = 32.46$, $SD = 5.64$) than those of adult mothers with low levels of education ($M = 34.70$, $SD = 5.14$). Adolescent mothers' Landry scores were significantly lower ($M = 3.24$, $SD = 0.94$) than those of adult mothers with low levels of education ($M = 3.62$, $SD = .89$). Also, Depression scores for Adolescent mothers were significantly higher ($M = 9.87$, $SD = 8.33$) compared to adult mothers with low levels of education ($M = 7.74$, $SD = 6.50$). There was not a significant difference for the number of unmet financial needs between adolescent mothers ($M = .68$, $SD = .97$) and adult mothers with low levels of education ($M = .71$, $SD = .91$).

Table 4

Independent samples t-test comparing adolescent mothers and adult mothers with low levels of education

Variables for t-tests	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Quality of Parenting			
HOME	-3.35	319	.001
Landry	-3.40	319	.001
Maternal Depression	1.96	254	.051
Financial Strain	-.21	342	.831

Question 2. Does maternal depression mediate the relationships between financial strain and parenting quality?

Because the two mother groups were significantly different on the HOME and Landry scores, correlations were conducted separately to look at relationships. Correlations were run to verify if the three variables were significantly correlated with each other before the regression analyses were run. Correlations including the HOME and then the Landry were run separately with the adolescent mothers and then adult low-education mothers. They were run listwise (the analysis will not include any of the participants if there was missing data in any of the fields so that the correlations represented the samples in the corresponding regressions).

The first correlation results indicated that all three variables were significant for the adolescent mothers. Adolescent mothers who had a higher Depression scores had lower scores on the HOME. The higher the Financial Strain, the lower the HOME score. The higher the Financial Strain, the higher the Depression score. The results indicated one significant positive correlation for the adolescent mothers when the correlations included the HOME. Adolescent mothers who scored higher on Financial Strain also had higher the Depression score. See Table 5 for correlations.

The results for the adult mothers with low levels of education indicated that there were no significant correlations between the three variables. Adult mothers with low levels of education indicated one significant correlation when the correlations included both the HOME and the Landry. As the Depression score went higher, adult mothers with low levels of education's Landry scores went lower. See

Table 6 for correlations.

The results in only one set of correlation analyses indicated a possible mediation for the adolescent mother group; Financial Strain, Depression scores and HOME were all correlated. Thus a test of mediation was conducted. A regression analysis was run to determine if maternal depression mediated the relationship between Financial Strain and HOME scores for adolescent mothers. Two models were run in the linear regression analysis. The first model included Financial Strain, and the second model included financial strain and the depression. See Tables 7 and 8 for Model and Univariate Effects for adolescent mothers.

The first model had an R^2 of .031. The second model had an R^2 of .048 and an R^2 of .017. The R^2 of .017 indicated that the inclusion of the second variable (depression) explains an additional 1.7% of the variance, which was not statistically significant ($p = .09$). The results indicate that Financial Strain (the number of unmet financial needs) independently predicted HOME scores. Also, Depression independently predicted HOME scores. Taken together, Financial Strain and Depression significantly predicted HOME scores. However, the analysis did not support that maternal depression is the mechanism by which financial strain affected the HOME scores. There was not a significant mediating effect. When depression was entered into the model to determine if it served as a mediator, the significant relationship between the mother's financial strain and mother-child interactions was still significant.

Table 5.

Correlations for independent and dependent variables (HOME and LANDRY) with Adolescent Mothers.

	6-month Beck Inventory: Total Score (N = 183)	Number of unmet financial needs (N = 242)	8-Month Infant HOME: Total for HOME (N = 225)	8-Month LANDRY (N = 223)
6-month Beck Inventory: Total Score	1.00	.15*	-.15*	-.12
Number of unmet financial needs		1.00	-.18*	.01
8-Month Infant HOME: Total for HOME			1.00	
8-Month LANDRY				1.00

** Correlation is significant at the 0.01 level (2-tailed)
 * Correlation is significant at the 0.05 level (2-tailed)
 Empty cell due to the different numbers of subject on each outcome variable

Table 6.

Correlations for independent and dependent variables (HOME and LANDRY) with Adult Mothers with low levels of education.

	6-month Beck Inventory: Total Score (N = 73)	Number of unmet financial needs (N = 102)	8-Month Infant HOME: Total for HOME (N = 96)	8-Month LANDRY (N = 98)
6-month Beck Inventory: Total Score	1.00	.11	-.15*	-.34*
Number of unmet financial needs		1.00	-.19	-.06
8-Month Infant HOME: Total for HOME			1.00	
8-Month LANDRY				1.00

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Empty cell due to the different numbers of subject on each outcome variable

Table 7
Model Effects for Adolescent Mothers

Model	F	Sig.
1 Regression Unmet Financial Needs	5.53	.02*
2 Regression Unmet Financial Needs and Beck Depression Inventory	4.28	.02*

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 8
Univariate Effects for Adolescent Mothers

Model	Beta	t	Sig.
1 Regression Unmet Financial Needs	-.18	-2.35	.02*
2 Regression Unmet Financial Needs and Beck Depression Inventory	-.16 -.13	-2.08 -1.72	.04* .08

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed).

CHAPTER 5: SUMMARY AND DISCUSSION

Discussion

The goal of the current study was to determine if maternal depression acts as a mediator between financial strain and parenting quality. The first research question looked at the difference between the two groups of mothers to analyze if the relationship is the same for adolescents as the adult low-education mothers who are experiencing some of the same risk factors.

There are many risks associated with giving birth at a younger age (Pogarsky et al., 2006). Adolescent mothers are more likely to have lower education levels, higher depression rates, to be single, receive public assistance and have lower parent-child relationship quality than mothers who wait until adulthood to have children (Jaffee et al., 2001). Results from the current study indicated a significant difference between adolescent mothers and adult low-education mothers in their mother-child interactions and the home environment (HOME and Landry scores) and their depression scores. These results support previous research comparing adolescent mothers and adult mothers. Research has shown that adolescents lack child development knowledge, which impacts the quality of their mother-child interactions and parenting (Pogarsky et al., 2006; Sieger & Renk, 2007). Maternal depression rates have been shown to be higher in adolescent mothers compared to adult mothers (Lanzi et al., 2009; Rich-Edwards et al., 2006); this finding was upheld in the current study. Because the interactions between a depressed mother can be less positive compared to a non-depressed mother, this can pose potential risks for their children (McLearn, et al., 2006; Graham & Easterbrooks, 2000).

Results from the t-tests do not show a significant difference between how adolescent mothers and adult mothers with low levels of education reported their financial strain. This is contrary to established research on adolescent mothers and their financial situation. Raising a child demands a significant amount of money. Previous research indicates that adolescent mothers are more likely to have lower education levels, which impacts their income. Young mothers are more likely to depend on financial assistance compared to adult mothers (Pogarsky et al., 2006).

There could be explanations as to why in this sample, adolescent mothers and adult low-education mothers do not differ significantly in their reported financial strain. This sample could have included adolescent mothers who came from households that supported them financially. Over half of the adolescent mothers involved in this study reported to have a score of 0 for Financial Strain. Even though an adolescent has a child it does not mean their parents will make them move out of the house and support themselves financially. The adolescent's parent may support her to complete school and allow them to move when they have become financially stable. The adolescents' parent could also be a consistent caregiver alleviating the burden of childcare cost. The adolescent parent could be very resourceful and so they would not need the items that were defined for financial strain. The adolescent mothers could need different financial needs than the items that were asked in the interview. Even though the financial strain questions were more concrete adolescent mothers could perceive that they do not have financial problems.

The purpose of the second research question was to see if financial strain impacts depression and predict negative mother-child interactions. This included the

two mother groups, adolescent mothers and adult mothers with low levels of education, and their relationships with financial strain, depression and the quality of parenting. Results indicated a possible mediating model for the adolescent mothers. The regressions indicated that for adolescent mothers, financial strain predicts parenting quality and depression predicts parenting quality independently. Also, financial strain and maternal depression together predict parenting quality. However, the analysis does not support that maternal depression is the mechanism by which financial strain affects parenting quality. The mediating model was not supported. Financial strain in adolescent mothers is associated with parenting quality but it seemed there was an aspect missing from that direct link. Depression seemed to be what was missing from the relationship predicting the increased negative mother-child interactions. Depression is associated with parenting quality so depression was the possible mediator in the relationship between financial strain and parenting quality for adolescent mothers (Lanzi et al., 2009).

A mother's amount of financial strain can affect interactions with her infant, and thus the child's development. This is especially true for adolescent mothers who are more likely to be single, have lower paying jobs and to receive public assistance (Emery et al., 2008; Jaffee et al., 2001; Pogarsky et al., 2006; Sieger & Renk, 2007). The interactions between an adolescent mother and her infant become less positive; she becomes more irritated and disciplines more harshly (Jaffee et al., 2001). This is also true if an adolescent mother is depressed. Younger mothers who do not have higher education levels and few financial resources are more likely to have higher rates of depression (Rich-Edwards et al., 2006). Her mental health impacts the

interactions that she has with her child, and interactions become less positive. Depressed mothers also express less sensitivity and are less positive with their infants (Cohn et al., 1990).

There may be some explanations as to why depression in this sample of adolescent mothers was not a mediator in the relationship between financial strain and parenting quality. One explanation could be that adolescent mothers in this sample were, for the most part, not depressed. The mean score for the depression score was 9.87, which falls into the category of no to minimal depression. These adolescent mothers could be receiving support and services that would intervene with potential mental health issues. In the sample in the current study, there was a limited amount of adolescent mothers who were depressed, thus possibly affecting the analysis of depression being a mediator.

Another possible explanation for the lack of a mediating model is that adolescent mothers lack full responsibility of their financial situation. Over half of the sample of adolescent mothers reported no unmet financial needs. Adolescent mothers often still living with at least one of their parents. This eliminates any need for housing/rental assistance or emergency housing. This would also take away the financial responsibility of paying for utilities so they would not be receiving utility assistance. The adolescents living with their parent could still receive income/welfare assistance but it would be limited. The adolescent mothers could have been receiving positive social and financial support from family members of the fathers of their children, which would eliminate stress and possibly depression symptoms. This could also increase the amount of positive interactions with their infants.

Limitations

Several limitations are to be considered when interpreting these results. The first limitation of this study is that financial strain may not capture the full extent to which adolescent and adult mothers with low levels of education are experiencing their financial situation. Research has shown there are many factors that are included in financial strain and stress for mothers and families.

No inferences can be made about child outcomes from this study as all measures concentrated on maternal variables. There were no child outcome measures considered in the context of this study. Implications about child outcomes can only be discussed based on previous research on this topic. This study gives suggestions for future research that can include child outcomes. The current study only considers a small aspect of financial strain, which was more concrete than the mother's perception of financial strain.

Implications

The current study provides direction for intervention that will benefit adolescent mothers and their children's development. The findings presented here have implications for the development of programs to improve parenting, including mother-child interactions. The findings did suggest that adolescent mothers' interactions with their children might benefit from improvements in their psychological well-being. Adolescent mothers are not as equipped to parent as adult mothers because of their cognitive readiness (Emery et al., 2008; Sieger & Renk, 2007). They have limited experience in parenting and parenting knowledge because of their level of development. Their lives are full of adolescent issues like going to

school, hanging out with friends, and activities in which they are involved.

Interventions for adolescent mothers should take into consideration the adolescent mother's cognitive ability and build upon that. Meeting the mother at her readiness and working with her from that point could improve the interactions with her infant.

Adolescent mothers who experience depressive symptoms may not be as equipped to create positive interactions with their children including being nurturing, sensitive, showing patience, and being emotionally available as adult mothers.

Programs that involve working with young mothers need to be aware of the participant's mental state by doing short assessments or getting other records. By doing assessments the adolescent mother could be offered the assistance she needs to work through depressive symptoms. Adult mothers with low levels of education can also benefit from screenings of mental state as well. Also, getting mothers help for depression can help their children's mental and developmental outcomes.

The findings also highlight the importance of adequate financial resources for adolescent mothers. This would benefit the adolescent mother's psychological well-being and the quality of the interactions she creates with her child. Given that financial strain increases the chances of experiencing depressive symptoms and that experiencing depressive symptoms is associated with less positive mother-child interactions, an intervention program which includes helping mothers find resources and services in their community such as mental health providers and subsidized housing is important to reducing their risks. With a decreased amount of financial

strain and depressive symptoms, mother-child interactions could also improve and create more optimal outcomes for adolescent mothers and their children.

The idea that an adolescent would be involved with a program to help her out gives her social support. The professional working with the young mother builds another layer of support for her. Social support is important as well as getting help for depressive symptoms, parenting information and financial resources. Overall, identifying creative and effective ways for adolescent mothers to transition into their new role, cope with stressful financial demands and prevent or work through depressive symptoms are important to possibly eliminate poor parenting quality and increasing positive child outcomes.

Future research

Future research will be able to further the findings of this study by expanding the sample of adolescent mothers. Research could also include expanded samples of adult mothers with low levels of education to see if there is a difference in a wider sample. Future studies could include an expanded measure of Financial Strain whether it is the mother's perception of their financial strain or concrete aspects of financial strain. Questions could include housing problems such as (1) "Did the participant move to a cheaper living location?" (2) "Did the participant move in with other people?" (3) "Did the participant send her child to live with someone else?" There could also be questions asking if the participant (1) delayed healthcare, (2) borrowed money from friends or family, (3) fell behind on bills, and (4) had a creditor call because of her financial situation. There could also be a question asked to the participants about their current living situation. For example the question could ask if

they are living with someone such as a parent or relative who is financially supporting them. The situation could make a difference in the outcome of the analysis of the mediator.

A larger sample including a wider range of geographic location could influence the different outcomes as well. The participants in this study were recruited from bigger cities where there are a lot of accessible resources. Future studies including rural areas where there are limited resources might give different aspects of adolescent parenting. Because of a lack of resources or social stigma with receiving services in a rural area, adolescents could report higher rates of depression in those locations. They might also have higher financial strain because of the limited resources and available jobs in a rural area.

To conclude, adolescent mothers face a unique set of challenges and potential risks in which they need support, especially for their children's well being. This study has shown an impact that both depression and financial strain can have on the mother-child interactions with adolescent mothers. This study also gives a glimpse into potential implications, intervention and future research, which could help outcomes for adolescent mothers and their children.

REFERENCES

- Alink, L. R. A., Mesman, J., van Zeijl, J., Stolk, M. N., Juffer, F., Bakersmans-Kranenburg, M. J., van Ijzendoorn, M. H. & Koot, H. M. (2008). Maternal sensitivity moderates the relation between negative discipline and aggression in early childhood. *Social Development, 18*(1), 99-120.
- Ashman. S. B., Dawson, G., & Panagiotides, H. (2008). Trajectories of maternal depression over 7 years: Relations with child psychophysiology and behavior and role of contextual risks. *Development and Psychopathology, 20*, 55-77.
- Beck, A. T. & Steer R. A. (1984). Internal consistencies of the original and revised Beck Depression Inventory. *Journal of Clinical Psychology, 40*(6), 1365-1367.
- Beck, A. T., Steer, R. A. & Garbin. M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock J., & Erbaugh, J. (1961). An Inventory for measuring depression. *Archives of general Psychiatry, 4*.
- Bradley, R. H. & Caldwell, B. M. (1984). The HOME inventory and family demographics. *Developmental Psychology, 20*(2), 315-320.
- Campbell, S. B., Cohn, J. F., & Meyers, T. (1995). Depression in first time mothers: Mother–infant interaction and depression chronicity. Special Section: Parental depression and distress: Implications for development in infancy, childhood, and adolescence. *Developmental Psychology, 31*(3), 349–357.
- Centers for Disease Control (2009). National Vital Statistics Reports, Volume 58, Number 16, April 2010. Retrieved from

http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_16.pdf, May, 2010.

Centers for Disease Control (2009). Preventing Teen Pregnancy: an update in 2009.

<http://www.cdc.gov/reproductivehealth/AdolescentReproHealth/AboutTP.htm>

Cohn, J. F., Campbell, S. B., Matias, R., & Hopkins, J. (1990). Face-to-face interactions of postpartum depressed and non-depressed mother–infant pairs at 2 months. *Developmental Psychology*, 26,15–23.

Conger, R. D., Schofield, T. K., Conger, K. J. Neppi, T. K. (2010). Economic Pressure, parent personality and child development: An interactionist analysis. *National Hist Soz Forsch*, 35(2), 169-195.

Cox, J. E., Burman, M., Valenuela, J., Joseph, N. P., Mitchell, A. & Woods, E. R. (2008). Depression, Parenting Attributes, and Social Support among Adolescent Mothers Attending a Teen Tot Program. *Journal of Pediatric & Adolescent Gynecology*, 21(5).

Dearing, E., Taylor, B. A., & McCartney, K. (2004). Implications of family income dynamics for women's depressive symptoms during the first 3 years after childbirth. *American Journal of Public Health*, 94, 1372-1377.

Emery, J., Pquette, D. & Bigras, M. (2008). Factors predicting attachment patterns in infants of adolescent mothers. *Journal of Family Studies*, 14(1) 65-90.

Essex, M. J., Klein, M. H., Miech, R., & Smider, N. A. (2001). Timing of initial exposure to maternal major depression and children's mental health symptoms in kindergarten. *British Journal of Psychiatry*, 179, 151–156.

Field, T., Healy, B., Goldstein, S., & Guthertz, M. (1990). Behavior state matching and synchrony in mother–infant interactions of non-depressed versus

- depressed dyads. *Developmental Psychology*, 26, 7–14.
- Figueiredo, B., Pacheco, A., Costa, R. (2007). Depression during pregnancy and the postpartum period in adolescent and adult Portuguese mothers. *Archives of Women's Mental Health*, 10(3), 103–109.
- Friedman, D. D., Beebe, B., Jaffe, J., Ross, D. & Triggs, S. (2010). Microanalysis of 4-Month Infant Vocal Affect Qualities and Maternal Postpartum Depression. *Clinical Social Work Journal*, 38, 8-16.
- Ghazarian, S. R. & Roche, K. M. (2010). Social support and low-income, urban mothers: Longitudinal associations with adolescent delinquency. *Journal of Youth and Adolescence*, 39, 1097-1108.
- Goodman, S. H. (2007). Depression in mothers. *Annual Review of Clinical Psychology*, 107-135.
- Graham, C. A. & Easterbrooks, M. A. (2000). School-aged children's vulnerability to depressive symptomatology: The role of attachment security, maternal depressive symptomatology, and economic risk. *Development and Psychopathology*, 12, 201-213.
- Guest, K. C. & Biasini, F. J. (2001). Middle childhood, poverty and adjustment: Does social support have an impact? *Psychology in the Schools*, 38(6).
- Hammond, M. V., Landry, S. H., Swank, P. R., & Smith, K. E. (1999). Relation of mothers' affective development history and parenting behavior: Effects on infant medical risk. *American Journal of Orthopsychiatry*, 70, 95-103.
- Jaffee, S., Caspi, A., Moffitt, T. E., Belsky J., & Silva, P. (2001). Why are children born to teen mothers at risk for adverse outcomes in young adulthood?

- Results from a 20-year longitudinal study. *Development and Psychopathology*, 13, 377-397.
- Kalil, A., Born, C. E., Kunz, J. & Caudill, P. J. (2001). Life stressors, social support, and depressive symptoms among first-time welfare recipients. *American Journal of Community Psychology*, 29(2).
- Landry, S. H., Smith, K. E., Miller-Loncar, C. L., & Swank, P. R. (1997). Predicting cognitive-linguistic and social growth curves from early maternal behaviors in children at varying degrees of biological risk. *Developmental Psychology*, 33, 1040–1054.
- Lanzi, R. G., Bert, S. C., Jacobs, B. K. & Centers for the Prevention of Child Neglect (2009). Depression among a sample of first-time adolescent and adult mothers. *Journal of Child and Adolescent Psychiatric Nursing*, 22(4), 194-202.
- Leadbeater, B. J., Bishop, S. J., & Raver, C. C. (1996). Quality of mother–toddler interaction, maternal depressive symptoms, and behavior problems in preschoolers of adolescent mothers. *Developmental Psychology*, 32(2), 280–288.
- Lee, Y. (2009). Early Motherhood and harsh parenting: The role of human, social and cultural capital. *Child Abuse & Neglect*, 33, 625-637.
- Long, M. S. (2009). Disorganized attachment relationships in infants of adolescent mothers and factors that may augment positive outcomes. *Adolescence*, 44(175).
- Lorant, V., Deliege, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003).

- Socioeconomic inequalities in depression: A meta-analysis. *American Journal of Epidemiology*, 7, 98-112.
- Luthar, S. S. (2006). Resilience in development: A synthesis of research across five decades. In D. Cicchetti and D. J. Cohen (Eds.), *Developmental Psychopathology* (2nd ed.): Vol. 3 Risk, Disorder, and Adaptation (739-795). Hoboken, NJ: Wiley and Sons.
- Masten, A. S. (2007). Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology*, 19, 921-930.
- McLearn, K. T., Minkovitz, C. S., Strobino, D. M., Marks, E. & Hou, W. (2006). Maternal Depressive Symptoms at 2 to 4 months post partum and early parenting practices. *Archives of Pediatrics & Adolescent Medicine*, 160.
- Mistry, R., S., G. D., Sareen, H., De Vogli, R. & Halfon, N. (2007). Parenting-related stressors and self-reported mental health of mothers with young children. *American Journal of Public Health*, 97(7).
- Mistry, R. S., Vandewater, E. A., Houston, A. C. & McLoyd, V. (2002). Economic well-being and children's social adjustment: The role of family process in an ethnically diverse low-income sample. *Child Development*, 73(3), 935-951.
- Moscardino, U., Axia, G. & Altoè, G. (2006). The role of maternal depressed mood and behavioral soothing on infant response to routine vaccination. *Acta Paediatrica*, 95(12) 1680-1684.
- Murray, L., Fiori-Cowley, A., Hooper, R., & Cooper, P. (1996a). The role of postnatal depression and associated adversity on early mother-infant interactions and later infant outcome. *Child Development*, 67, 2512-2526.

- Murray, L., Stanley, C., Hooper, R., King, F., & Fiori-Cowley, A. (1996b). The role of infant factors in postnatal depression and mother–infant interaction. *Developmental Medicine and Child Neurology*, 38, 109–119.
- Oberlander, S. E., Black, M. M., & Starr Jr., R. H. (2007). African American adolescent mothers and grandmothers: A multigenerational approach to parenting. *American Journal of Community Psychology*, 39, 37-46.
- O’Calloghan, M. F., Borkowski, J. G., Whitman, T. L., Maxwell, S. E., & Keogh, D. (1999). A model of adolescent parenting: The role of cognitive readiness to parent. *Journal of Research on Adolescence*, 9(2), 203-225.
- Patterson, J. M. (2002). Understanding family resilience. *Journal of Clinical Psychology* 58(3), 233-246.
- Pogarsky, G., Thornberry, T. P. & Lizotte, A. J. (2006). Developmental outcomes for children of young mothers. *Journal of Marriage and Family*, 68, 332-344.
- Ramos-Marcuse, F., Oberlander, S. E., Papas, M. A., McNary, S. W., Hurley, K. M. & Black, M. M. (2010). Stability of maternal depressive symptoms among urban, low-income, African American adolescent mothers. *Journal of Affective Disorders*, 122, 68-75.
- Rich-Edwards, J. W., Kleinman, K., Abrams, A., Harlow, B. L., McLaughlin, T. J., Joffe, H. & Gillman, M. W. (2006). Sociodemographic predictors of antenatal and postpartum depressive symptoms among women in a medical group practice. *Journal of Epidemiology and Community Health*, 60(3), 221-227.
- Riggs, L., Holmbeck, G., Paikoff, R. & Bryant, F. B. (2004). Teen mothers parenting their own teen offspring: The moderating role of parenting support. *Journal of*

Early Adolescence, 24(3), 200-230.

Scaramella, L. V., Neppl, T. K., Ontai, L. L. & Conger, R. D. (2008). Consequences of socioeconomic disadvantage across three generations: Parenting behavior and child externalizing problems. *Journal of Family Psychology*, 22(5), 725-733.

Secco, L. M., Profit, S., Kennedy, E., Walsh, A., Letourneau, N. & Stewart, M. (2007). Factors Affecting Postpartum Depressive Symptoms of Adolescent Mothers. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 36(1).

Sieger, K., & Renk, K. (2007). Pregnant and parenting adolescents: A study of ethnic identity, emotional and behavioral functioning, child characteristics, and social support. *Journal of Youth and Adolescence*, 36, 567-581.

Sommer, K. S., Whitman, T. L., Borkowski, J. G., Gondoli, D. M., Burke, J., Maxwell, S. E. & Week, K. (2000). Prenatal and maternal predictors of cognitive and emotional delays in children of adolescent mothers. *Adolescence*, 35(137).

Stams, G. J. J. M., Juffer, F., & Van IJzendoorn, M. H. (2002). Maternal sensitivity, infant attachment, and temperament in early childhood predict adjustment in middle childhood: The case of adopted children and their biologically unrelated parents. *Developmental Psychology*, 38, 806–821.

Tamis-Lemonda, C. S., Shannon, J. & Spellmann, M. (2002). Low-Income adolescent mothers' knowledge about domains of child development. *Infant Mental Health Journal*, 23(1/2).

Uher, R. A., Farmer, W. Maier, M. Rietschel, J. Hauser, A. Marusic, O. Mors, A. Elkin, R. J. Williamson, C. Schmael, N. Henigsberg, J. Perez, J. Mendlewicz,

- J. G. E. Janzing¹, A. Zobel, M. Skibinska, D. Kozel, A. S. Stamp, M. Bajs, A. Placentino, M. Barreto, P. McGuffin & K. J. Aitchison, (2008). Measuring depression: Comparison and integration of three scales in the GENDEP study. *Psychological Medicine*, 38, 289-300.
- U.S. Administration of Health and Human Services, Administration for Children & Families, 2009. Table 11, Temporary Assistance for Needy Families-active cases, percent distribution of TANF recipients teen parent by relationship to head of household, October 2007- September 2008. Retrieved from <http://www.acf.hhs.gov/programs/ofa/character/FY2008/tab11.htm>
- Weinert, C., & Brandt, P. (1987). Measuring social support with the PRQ. *Western Journal of Nursing Research*, 9(4), 589-602.
- Whitman, T., Borkowski, J., Keogh, D., & Weed, K. (2001). *Interwoven Lives: Adolescent Mothers and their Children*. Mahwah, N.J.: Lawrence Erlbaum Associates, Inc.
- Zajicek-Farber, M. L. (2009). Postnatal depression and infant health practices among high-risk women. *Journal of Children and Family Studies*, 18, 236-245.

APPENDIX

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 6/8/2010
To: Lindsey Brown
2310 Mortensen Pkwy Unit 19
Ames, IA 50014
CC: Dr. Kere Hughes-Belding
2362 Palmer
From: Office for Responsible Research
Title: Adolescent Maternal Attributions and Infant Attachment

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

- Does not meet the definition of research according to federal regulations.
- Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

Please also know that any change to this project must be communicated to the IRB to determine if the project has become research with human subjects requiring IRB approval.