

4-2018

Differences in the Development of Internalizing and Externalizing Behaviors in Offspring of Depressed Mothers

Hannah Jackson

Follow this and additional works at: https://ecommons.udayton.edu/uhp_theses



Part of the [Psychology Commons](#)

eCommons Citation

Jackson, Hannah, "Differences in the Development of Internalizing and Externalizing Behaviors in Offspring of Depressed Mothers" (2018). *Honors Theses*. 162.

https://ecommons.udayton.edu/uhp_theses/162

This Honors Thesis is brought to you for free and open access by the University Honors Program at eCommons. It has been accepted for inclusion in Honors Theses by an authorized administrator of eCommons. For more information, please contact frice1@udayton.edu, mschlangen1@udayton.edu.

Differences in the Development of Internalizing and Externalizing Behaviors in Offspring of Depressed Mothers



Honors Thesis

Hannah Jackson

Department: Psychology

Advisor: Jackson Goodnight, Ph.D.

April 2018

Differences in the Development of Internalizing and Externalizing Behaviors in Offspring of Depressed Mothers

Honors Thesis

Hannah Jackson

Department: Psychology

Advisor: Jackson Goodnight, Ph.D.

April 2018

Abstract

This study examines the development of internalizing and externalizing behaviors in offspring raised by mothers with depression. Specifically, it explores mediating variables that explain differential associations of maternal depression with the offspring outcomes of internalizing problems and externalizing problems. Previous research has established that there is an association between maternal depression and the development of emotional and depressive (internalizing) behaviors as well as delinquency and antisocial (externalizing) behaviors in children. This study evaluates factors such as family instability, parental patterns and behaviors, and mother-offspring relationships in order to better understand the intervening processes that explain the link from maternal depression to childhood internalizing and externalizing problems. This study does so by using bi-generational data from the United States Department of Labor National Longitudinal Survey of Youth, which collected data from 1979 to 2014. It is important to understand the environmental factors that may affect a child's mental health in order to educate families and to know which resources would be beneficial for a child in these circumstances to avoid adverse effects and continue to thrive.

Acknowledgements

I wish to express my sincere gratitude to Dr. Jackson Goodnight in the Department of Psychology for all of the time, effort, and support he has given during the thesis-writing process. This thesis would not have been possible without his guidance, advice, and expertise. I would also like to thank Dr. Mary Wagner Fuhs in the Psychology Department and Dr. Drew Barzman at Cincinnati Children's Hospital for providing me with opportunities that allowed my interests to flourish and eventually develop into this thesis.



Table of Contents

Abstract	Title Page
Introduction	1
Methods	8
Results	13
- Table 1	13-14
- Table 2	15
Discussion	17
Conclusion	23
References	24

Introduction

There is a growing body of research exploring the development of various psychopathologies in children and adolescents. While it is difficult to determine the exact etiologies of atypical psychological development, recent research has shown that environmental factors play a large role. One environmental factor that has a significant impact on children and adolescents is maternal depression, as it can affect parenting practices and mother-child relationships. Maternal depression can also affect and be affected by family instability and divorce or separation (Burke, 2003). Previous research has determined that there is an association between maternal depression and offspring internalizing and externalizing problems; however, the variables that mediate the association between maternal depression and offspring outcomes have yet to be fully explored (Goodman et al., 2011). Potential factors that will be explored include family instability, maternal/child relationship, and parenting practices.

The present study seeks to expand upon previous research and determine variables that account for differences in the development of internalizing and externalizing problems in offspring of depressed mothers. Internalizing [ig1]problems refer to difficulties with mood and anxiety or maladaptive emotions, feelings, and cognitions; depression and anxiety disorders are good examples. Externalizing problems include difficulties with behavior or maladaptive emotions, feelings, and cognitions that are outwardly manifested and often towards other people or things; oppositional defiant disorder, conduct disorder, psychopathy, and antisocial personality traits are good examples. Some studies, such as Patterson, DeBarshye, and Ramsey (1990), have indicated that family stressors, like parental relationship instability or marital discord,

contribute to externalizing behavior problems, like risk for delinquency. Other studies, such as Zalewski, Thompson, and Lengua (2015), found that maternal rejection moderated the relationship between maternal depression and the development of internalizing behaviors in offspring.

Although it is known that many different factors influence maternal depression and that each mother's depression presents itself differently, there are gaps in the literature when it comes to explaining why some children develop externalizing problems and why some develop internalizing problems when exposed to maternal depression. This study uses data from the United States Department of Labor National Longitudinal Survey of Youth (NLSY) dataset in order to investigate links from maternal depression to offspring depression and delinquency assessed in late adolescence. This dataset allows for exploration of specific measures such as maternal depression, relationship transitions, youth- and mother-reported delinquency, youth depression, and maternal parenting.

Maternal Depression. Between 6 and 17% of all women experience major depression in their lifetime, which is one-and-a-half to three times the rate for men (Kessler, 2003). Depression is defined by the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) as depressed mood or anhedonia for more than two weeks that causes impaired function and differs from a person's baseline. The diagnosis must include at least five of the following symptoms almost daily in the same two-week period: depressed mood, anhedonia, decrease or increase in daily appetite, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, feelings of worthlessness or inappropriate guilt, diminished ability to concentrate, and/or recurrent thoughts of death, suicidal ideation with or without a specific plan, or a suicide attempt

(American Psychiatric Association 2013). Mothers with depression may develop the disorder prenatally, postnatally, or both, and fewer than 25% of those affected will seek treatment for their depression (Johnson & Flake, 2007). Depression can also be in remission, or it can be recurrent or chronic.

There is not a certain type of mother that is more vulnerable to developing major depressive disorder, and its etiology is influenced by biological, psychological, and social factors (Gotlib & Hammen, 2002). There are several factors that may make some mothers more susceptible to developing the disorder, such as experiencing socioeconomic disadvantage, having children young, losing a mother in their own childhood, and experiencing relationship problems with their partner (Burke 2003). Depression also exists on a continuum, and symptomatology can be present in different degrees and in different ways for mothers experiencing clinical levels of depression.

Depression, along with other mood disorders, can change a person's behaviors and abilities to cope with life stressors. Mothers are often the anchors of a family and are caretakers, teachers, and role models for their children. When depression directly affects a mother, it can strongly affect her ability to effectively play those roles in her children's lives, and it can lead to diminished mother-offspring relationship quality and a lower level of parenting quality (Harnish, Dodge, & Valente, 1995 as cited in Robila & Krishnakumar, 2006). Robila and Krishnakumar (2006) also suggest that there is a significant association between high scores on depression measures and less engagement, less affection, less sensitivity, and more rigidity in mothers. This information allows for speculation that relationship and parenting quality may act as mediating variables between maternal depression and offspring behavioral and psychological outcomes.

Effects of Maternal Depression on Children. While some children with depressed mothers are able to cope well and avoid negative effects, many offspring of depressed mothers show deficits in social, psychological, and cognitive skills, and they are also at an increased risk for developing their own psychiatric illnesses, such as depression or conduct disorder (Burke, 2003). In fact, children of parents with a mood disorder are three times more likely to develop depression than children of parents without psychopathology (Johnson & Flake, 2007). Previous research has demonstrated that parental depression increases adolescent risk for developing internalizing and externalizing behaviors, with some studies showing that paternal depression increases the risk of children developing externalizing behaviors (Gartstein & Fagot, 2003) and maternal depression increasing the risk of child and adolescent internalizing behaviors (Connell & Goodman, 2002; Kuckertz, Mitchell, & Wiggins, 2017). By middle school, children with depressed mothers have higher rates of emotional regulation difficulties and disruptive behaviors in addition to higher risk of mood disorders and other internalizing and externalizing symptoms (Beardslee, 1988; Goodman, 2007; Goodman et al., 2011).

While depression is a highly heritable disorder (Johnson & Flake, 2007), genetics may not fully explain why children of depressed mothers are at increased risk for internalizing and externalizing problems. Maternal depression often disrupts the home environment and can have a significant effect on the quality of parenting practices and mother-offspring relationships. According to Bronfenbrenner (1986), the microsystem, including family, has profound influence over child development, and it can be detrimental for a child to be exposed to negative affect, cognitions, and behaviors.

Depressed mothers have also been shown to exhibit less responsive parenting as characterized by less structure, monitoring, and discipline (Goodman, 2007). Poor mother-offspring interaction quality and difficult or hostile mother-offspring relationships can be created by lesser maternal mental and emotional presence. Negative mood, thinking, and behavior modeling by mothers may also be the culprit for the inadequate nature of these relationships. Another important parenting practice, parental social support, is often negatively impacted by maternal depression, and lower maternal social support can lead to emotional dysregulation, externalizing problems, disruptive behavior problems, internalizing problems, and negative self-concept in offspring (Goodman, 2007).

Letourneau, Salmani, and Duffitt-Leger (2010) studied key parenting behaviors, including positive discipline, warmth and nurture levels, and firmness and consistency between depressed and non-depressed mothers. Unfortunately, depressed mothers reported less firm, warm, and nurturing as well as more inconsistent parenting behaviors, and their discipline practices were less positive than those of nondepressed mothers. Prinzie et al. (2004) found that both mothers and fathers with dysfunctional parenting behaviors, specifically coercion and over-reactivity, correlated with externalizing problem behaviors in their offspring. On the other hand, Griffin, Botvin, Scheier, Diaz, and Miller (2000) found that greater parental monitoring is associated with less delinquency in both male and female adolescents, which is very relevant as adolescents in the target age range (14-17) are prone to exhibiting risk-taking behaviors in a time of peer pressure and curiosity. When these findings are considered together, it is clear that depressed mothers often have dysfunctional and inconsistent parenting behaviors that are

less firm, warm, and nurturing, and therefore most likely practice lesser parental monitoring as compared to their non-depressed mother counterparts. Overall, a mother's ability to parent and form positive and supportive relationships with her offspring can be largely affected by her depressive symptoms and can contribute to various unfavorable outcomes in her children, depending on the other variables that may also be affecting them.

Effects of Family Instability. In order to understand further how maternal depression affects child psychological outcomes, it is important to consider other variables typically related to mothers and their offspring, such as family instability. In this case, family instability for a mother refers to separation or divorce from their partner. For a child, it refers to unstable father figures, single-parent households, and a lack of support. It can mean going from having a single mother to living in a co-habitation situation (living with a partner that is not the biological father of her children) or from having two parents at home to having divorced parents living apart. Regardless of the type of change, children are at risk for being negatively impacted by instability in their family.

Poor marital relationships can contribute to maternal depression, and marital discord and maternal depression often co-occur. On the other hand, maternal depression can also contribute to marital discord or be a factor in relational separation. Relationship instability can be caused by factors such as poor self-esteem, uncertainty in self and partner, and negatively-valenced behaviors (i.e. fear, sadness, and/or anger) in relationships where one or both partners is depressed (Knobloch & Knobloch-Fedders, 2010). Overall, depressed individuals experience lower relationship satisfaction and quality, and the effects of which are often modeled to offspring in the home or are carried

over into a parent's relationship with their offspring. This means that children often see consistent frustrations, anger, fighting, and lack of support demonstrated to them when their parents or parental figures are in low-quality relationships. Another negative effect of relational discord is that frequently, a mother is faced with a sudden lack of material and social resources when a separation occurs, causing an increase in stress and a decrease in successful functioning of the mother (Osborne & McLanahan, 2007). These adverse effects frequently do more than impact the mother – they impact the entire family as well, specifically their children.

It has been well-established that family instability and marital discord can have unfavorable effects on children and adolescents' behavioral and emotional well-being. Many studies have found that offspring exposed to changes in family structure, specifically parental partnership instability, have poorer outcomes than those with stable families (e.g., Osborne & McLanahan, 2007). Waldfogel, Craigie, and Brooks-Gunn (2010) also emphasized that single mothers and cohabitating mothers report more psychological and depressive symptoms than married mothers, which are likely to interfere with their ability to parent well. The effects of instability on a mother's ability to parent well have been repeatedly found to correlate with the development of behavioral problems (externalizing behaviors) in children and adolescents (Cooper et al., 2008; Craigie, 2008; Fomby & Osborne, 2008; Osborne & McLanahan, 2007). Martinez and Forgatch (2002) also found that children may develop school problems, act out, or even withdraw as a response to family transitions. Ultimately, the negative effect that relational instability has on a mother will likely translate to a negative effect on her offspring. Because family instability has adverse effects on mothers' parenting patterns,

which then have a profound effect on offspring outcomes, it is important to consider this variable when identifying differences in psychological development.

Research findings also suggest that maternal depression affects offspring outcomes in many different ways, specifically by affecting parenting practices and patterns as well as mother-offspring relationship quality; however, the role of mediators in explaining the link between maternal depression and child have yet to be adequately explored (Goodman et al., 2011). Therefore, the proposed study will examine specific parenting behaviors, aspects of mother and offspring relationships, and parental relational instability as variables that mediate the link between maternal depression and offspring internalizing and externalizing problems. I hypothesize that the association between maternal depression and adverse child outcomes will be mediated by family instability and parenting behaviors that involve cognitive stimulation, emotional support, and spanking or high levels of restriction.

Methods

Sample. The National Longitudinal Survey of Youth 1979 (NLSY79) is a part of the National Longitudinal Surveys program, which is funded by the Bureau of Labor Statistics and is an ongoing and longitudinal study. The cohort of this survey consists of three subsamples – one to represent people living in the noninstitutionalized civilian segment of the United States, one to represent Hispanic, Latino, black, and economically disadvantaged civilians of the United States, and one to represent those in one of the four branches of the United States military (National Longitudinal Survey, n.d.). Due to ineligibility of the latter two subsamples, this study will focus on the sample of people from the noninstitutionalized civilian segment, which also includes oversampling of

African-Americans and Hispanics. Assessments occurred annually from 1979 to 1994, then biennially from 1994 to present day and have expanded to include the offspring of the first generation of respondents, making this a two-generation study.

The first generation of respondents includes individuals born between January 1, 1957 and December 31, 1964, making them 14-21 during recruitment for the study in 1978. Information that was gathered from participants included family life, health issues (including psychological issues), educational experiences, labor market behavior, assets and income, etcetera (National Longitudinal Survey, n.d.). Information from the second generation of respondents began in 1986, when the number of children born to assessed mothers was 5,255. As of 2014, the most recent year of assessments, there were 11,521 offspring (51% male, 49% female; 53% non-black/non-Hispanic, 28% African-American, and 19% Hispanic or Latino by mother self-report) born to mothers in the NLSY79 sample. The assessments of the offspring generation include behavior problems, cognitive ability, temperament, motor and social development, self-competence, and quality of home environment (National Longitudinal Survey, n.d.).

This study will specifically examine variables surrounding parent-offspring interaction, peer relationships, school behavior, attitudes, and antisocial behaviors of offspring with depressed mothers, with a focus on 14 to 17 year old adolescents. In order to ensure that the offspring of interest were born before maternal depression was first assessed in 1992 but were still young enough to be included in the measurement of parenting variables, the sample for this study will be restricted to adolescents born between 1985 and 1991. The sample size for each variable varies due to occasional attrition, so the range for the variables of interest to this study is 1,299 to 2,044 (Table 1).

Measures:

Maternal Depression. A twenty-item measure called the Center for Epidemiologic Studies - Depression (CES-D) Scale (Radloff 1977) was utilized to assess levels of maternal depression. The full twenty items were administered in 1992. The mothers self-reported on this measure by scoring each item as rarely or none of the time (less than one day), some or little of the time (1-2 days), occasionally or a moderate amount of time (3-4 days) or most or all of the time (5-7 days) during the last week. The items refer to sadness, anhedonia, appetite, sleep, concentration, worthlessness, fatigue, agitation, and suicidal ideation. They include: (1) being bothered by things that are usually not bothersome, (2) having poor appetite, (3) being unable to shake the “blues,” even with help of family and friends, (4) having feelings of being just as good as everyone else, (5) having trouble concentrating, (6) feeling depressed, (7) feeling that everything done was an effort, (8) feeling hopeful about the future, (9) thinking that their life had been a failure, (10) feeling fearful, (11) sleeping restlessly, (12) feeling happy, (13) talking less than usual, (14) feeling lonely, (15) experiencing others being unfriendly, (16) enjoying life, (17) having crying spells, (18) feeling sad, (19) feeling that others disliked them, and (20) not being able to get “going”. Items 2, 6, 7, 11, 18, and 20 were included in the short version in order to analyze the varying aspects of depression. Scores ranged from 0-3 for each item, with positive items being reverse-scored, and 0-60 for the overall measure with higher scores indicating more depressive symptoms present.

While the CESD was a newer measure when it was first used in the NLSY79, it was developed from longer, well-known assessments and has been shown to be both reliable and valid within many populations over the past few decades (e.g., Hann, Winter,

& Jacobsen, 1999, Carleton et al., 2013; Gonzalez et al., 2017). Measures of internal consistency found Cronbach's alpha (α) to be close to what it was in the original Radloff study, which was about .90 (Radloff 1977). Other studies found Cronbach's α to range between .82 and .94, which are well above the acceptable range of 0.70-0.80 (Nunnally & Bernstein 1994).

Marital Transitions. The NLSY has collected extensive data on marital history and transitions as well as on cohabitation patterns. Questions reflecting the beginning and ending dates of marriages were first implemented in 1982 and expanded in 1988 and beyond to include room for up to three marriages as well as a series of relationship satisfaction questions. Created variables include marital status, collapse of marital status, age at times of beginning and end of marriages, and number of spouses or partners reported to date. Beginning in 1990, questions regarding cohabitation patterns of mothers became available to include information about cohabitation experiences, specifically with regards to unmarried cohabitation that lasted three months or longer. This measure has since expanded to allow for data on up to seven past spouses. This study will specifically be examining family instability with regards to mother relationship status, so the number of marital transitions that a child has experienced by age 14, both into and out of the home, will be considered. In this case, transition means changing from single/divorced to cohabitating/married, cohabitating to single, and married to divorced/separated/widowed.

Parenting Behaviors and Parent-Child Interaction. The Home Observation Measurement of the Environment – Short Form (HOME-SF), which involves a semi-structured interview and home observation modified from the original HOME inventory by Caldwell and Bradley (1984), was used to measure parenting behaviors and parent-child

interaction. Three scales related to parenting have been derived from this measure: learning/cognitive stimulation, emotional support, and spanking/restricting behaviors. Examples of items included in these three scales are the frequency of which a mom reads to/with her child(ren), praises her child(ren), and takes away her child(ren)'s privileges.

The HOME measurement has been in use for decades and looks to assess a wide variety of activities in a child's home environment in a reliable and easy way (Elardo & Bradley, 1981). Around the time this assessment was being used in the NLSY79 interviews, researchers were finding high interrater reliability and internal consistency for the measure; Elardo and Bradley (1981) found the interrater reliability to range between 75-95% in 6 different studies with 0.44-0.89 internal consistency among the measurement's subscales.

Adolescent Internalizing and Externalizing Problems. Multiple measures have been used in the NLSY79 dataset to evaluate various internalizing and externalizing behavior problems among the offspring generation. The researchers for this study combined all relevant items for 14-17 year olds from diversified assessments (Rosenberg Self-Esteem Scale, Pearlin Mastery Scale, CES-D) into the Young Adult Self-Report (YASR) questionnaire in order to be concise. The YASR has questions that go into great depth about adolescent perceptions of themselves and their families, delinquent behavior, and risk-taking, all with Likert-style response options. The YASR also includes a modified version of the CES-D, which is of particular interest to this study, with questions about anhedonia and poor appetite, to investigate depressive symptoms and other mood-related problems in the offspring population. The YAS-R includes some items measuring delinquency from the adolescent's point of view, such as "have you ever been in a

physical fight at school or work” or “how many times have you lied to your parents about something important”.

Results

Table 1 shows the notable descriptive statistics for this study, including the sample size for each variable of interest, the range of scores for the measures related to each variable, the means, and the standard deviations. It is important to note that while the scores on the maternal C-ESD range from 0.00 to 59.00 out of 60.00, scoring a 16.00 or higher is the clinical marker for diagnosing depression. In this sample, about 25% of all mothers who participated scored a 16.00 or higher. It is also important to note that the data were averaged across siblings in the same household in order to avoid violating the assumption of independence of data; therefore, each child was not considered an independent data point, but all siblings within a single household were. This decreased the sample size slightly but was a necessary step to control for confounds as children within the same household interact with and have an influence on each other, as well as share the same or similar genes with each other.

Table 1
Descriptive Statistics

Variable	n	Minimum	Maximum	Mean	SD
Offspring Delinquency (ages 14-17)	1558	.00	7.00	1.20	1.23
Offspring Depression (ages 14-17)	1299	.00	21.00	4.30	3.18
Spank/Restrict (ages 6-9)	1761	.00	6.00	0.35	0.71

Learning Stimulation (ages 6-9)	1765	.00	1.00	0.86	0.21
Emotional Support (ages 6-9)	1859	.00	1.00	0.60	0.29
Family Transitions by age 14	2044	.00	6.00	0.59	0.94
Maternal Depression	1932	.00	59.00	9.95	9.31

Note. n = number of participating households; SD = standard deviation.

Preliminary Analysis. Before running the analyses to determine if family instability and parenting behaviors mediate the effects between maternal depression and child outcomes, it was necessary to test for possible correlations between the variables of interest, especially between maternal depression and offspring depression and maternal depression and offspring delinquency. Through SPSS Statistics software by IBM, a two-tailed Pearson correlation test was run on the relevant variables. The results, found in Table 2, show that there is a significant correlation between maternal depression and offspring delinquency ($r = .08; p < 0.01$) but not between maternal depression and offspring depression ($r = .04; n.s.$). Although the lack of a significant correlation between maternal depression and offspring depression is inconsistent with most of the literature and is unexpected, it does not rule out the possibility of mediation, which is explored in the primary analyses. Other important significant correlations to note are those between offspring delinquency and offspring depression ($r = .25, p < 0.01$) and family transitions and maternal depression ($r = .19, p < 0.01$).

Table 2
Bivariate Correlations

	1	2	3	4	5	6	7
1. Offspring Delinquency (ages 14-17)	--						
2. Offspring Depression (ages 14-17)	.25**	--					
3. Spank/Restrict (ages 6-9)	.04	-.02	--				
4. Emotional Support (ages 6-9)	-.06*	.00	-.05*	--			
5. Learning Stimulation (ages 6-9)	-.11**	-.04	-.19**	.12**	--		
6. Family Transitions by age 14	.20**	.08**	.09**	-.03	-.18**	--	
7. Maternal Depression	.08*	.035	.11**	-.04	-.18**	.19**	--

Note. * $p < 0.05$
** $p < 0.01$

Primary Analyses. As the two variables of delinquency and depression are the main outcome variables of interest in this study, the results will be presented in two respective sections. In order to test mediation for emotional support, learning stimulation, and spanking/restricting behaviors, bootstrapping was conducted in SPSS (Hayes, 2013). In these analyses, confidence intervals for each indirect/mediation effect are computed, and statistical significance is achieved if the span of the 95% confidence intervals does not intersect zero.

Maternal Depression and Offspring Delinquency. It was originally hypothesized that the association between maternal depression and adverse child outcomes, in this case,

specifically externalizing problems/delinquency, will be mediated by family instability and parenting behaviors that involve cognitive stimulation, emotional support, and spanking or high levels of restriction. Before mediation is analyzed, it is useful to report the range of effects for maternal depression on family instability, cognitive stimulation, emotional support, and spanking/restriction related to offspring delinquency ($bs = -.01 - .02$, n.s.).

Consistent with my hypothesis, there was evidence of mediation by family transitions on the relationship between maternal depression and offspring delinquency ($b=.0048$, 95% CI [.0030, .0071]). This was also true of learning stimulation ($b=.0023$, 95% CI [.0011, .0041]), which had evidence of mediation between maternal depression and offspring delinquency. Inconsistent with my hypothesis, neither emotional support ($b=.0004$, 95% CI [.0000, .0012]) nor spanking and restricting behaviors ($b=.0005$, 95% CI [-.0001, .0016]) had a mediating effect on the relationship between maternal depression and offspring delinquency.

Maternal Depression and Offspring Depression. The original hypothesis states that the association between maternal depression and adverse child outcomes, in this case, specifically internalizing problems/depression, will be mediated by family instability and parenting behaviors that involve cognitive stimulation, emotional support, and spanking or high levels of restriction. Like before, it is useful to report the range of effects for maternal depression on family instability, cognitive stimulation, emotional support, and spanking or high levels of restriction as individual variables related to offspring depression before mediation is analyzed ($bs = -.01 - .02$, n.s.).

Consistent with my hypothesis, there was evidence of mediation by family transitions on the relationship between maternal depression and offspring depression ($b=.0058$, 95% CI [.0016, .0107]). Contrary to my hypothesis, neither learning stimulation ($b=.0023$, 95% CI [-.0013,.0061]) nor emotional support ($b= -.0002$, 95% CI [-.0020, .0015]) provided a mediating effect on the relationship between maternal depression and offspring depression as the span of the confidence intervals both cross over zero. This was also true for spanking or restricting behaviors ($b= -.0014$, 95% CI [-.0047, .0013]).

As previously discussed, the results show some mediation effects on variables that did not have significant correlations between them on their own. For example, maternal depression and offspring depression were not significantly correlated (see Table 2); however, when family transitions is analyzed as a mediating variable, we see a significant effect. For this specific example, this means that there will not be an effect unless maternal depression leads to family instability, which then leads to offspring depression.

Discussion

The present study sought to expand upon and fill gaps in previous research and determine variables that account for differences in the development of internalizing and externalizing problems, specifically delinquency and depression, in offspring of depressed mothers. The NLSY79 dataset allowed for the exploration of maternal depression, relationship transitions, youth- and mother-reported delinquency, youth depression, and maternal parenting practices. Our findings from the analyses of this data led to some significant effects, meaning that mediation, or an influence, on the variables occurred. In other words, we found that family instability can explain why there is a

relationship between maternal depression and adolescent depression/internalizing behaviors. We also found that family instability and learning stimulation can explain why there is a relationship between maternal depression and adolescent delinquency/externalizing behaviors.

Overall, there are many factors that play an important role in a child's psychological and behavioral development, but some were found to be more meaningful than others. Family instability is the only variable that was found to mediate, or explain, the relationship between maternal depression and adolescent depression as well as between maternal depression and adolescent delinquency. Learning stimulation behaviors mediate the relationship between maternal depression and adolescent delinquency, but these parenting variables do not mediate the relationship between maternal depression and adolescent depression. The original hypothesis stated that the association between maternal depression and adverse child outcomes will be mediated by family instability and parenting behaviors that involve cognitive stimulation, emotional support, and spanking or high levels of restriction. This hypothesis was developed as previous literature has found that mothers with depression are more likely to have relationship difficulties and deficits in parenting; however, it was only partially supported in this study. The results are interesting as they may give insight on the effects of family instability and the role of parental emotional support, learning stimulation, and spanking/restricting behaviors as well as what may be helpful for families in the future.

Based off of the findings from this study, it is becoming increasingly important to be aware of how different environmental factors are affecting the development of children. The variables of interest in this study will presumably be present forever; no

one can prevent divorce or death of a parent, and new parental figures are often present in these situations. It would be much more useful for parents to be aware of the effects that these transitions can have on their children so that they can focus on preventing the adverse outcomes that are associated with higher numbers of family transitions, especially when maternal depression is present.

Findings from this study can be considered alongside findings from the ongoing Adverse Child Experience (ACE) Study began by the Center for Disease Control in the late 1990s. This study focused on collecting information about household challenges, child abuse and neglect, and other socio-behavioral factors in the lives of children. While it did not focus specifically on children with depressed mothers, it found that children exposed to more adverse childhood experiences tended to have more negative health and well-being outcomes throughout their lifetimes (Adverse Childhood Experiences, n.d.). The variables in this study, including high number of family transitions, lack of emotional support and learning stimulation, and prevalent spanking or restricting behaviors could all be considered adverse childhood experiences. According to the CDC's study results, the more "ACEs" that a child or adolescent is exposed to, the higher their risk is for the following: alcoholism, depression, unintended pregnancies, sexually-transmitted diseases, poor academic achievement, financial stress, poor work performance, liver disease, risk for intimate partner violence, suicide attempts, etc. (Kaiser ACE Study, n.d.). When the results from this study and the ACE Study are considered in tandem, the findings demonstrate the imperative and serious nature of promoting healthy development in children with disadvantaged environments.

Depressed mothers and their children have more going against them than families with non-depressed mothers, which is a fact that has been well-established in literature long before this study; however, this study brings to light some targets of intervention that would be especially useful and should be implemented by physicians, schools, and families. When a mother is diagnosed with depression, or when a woman previously diagnosed with depression has children, the facts about how the combination of their depression and parenting behaviors can affect their children should be presented to them. If a mother is aware that her depression can cause deficiencies in her ability to parent, by nature of the illness and extenuating environmental circumstances, then she can be ready with available resources when she feels unable to emotionally support her children or stimulate their minds with different activities. It is important that a mother knows it is perfectly acceptable to reach out for help, so being told this from the beginning may be the most beneficial.

With all of this in mind, physicians, counselors, therapists, communities, etcetera should be aware of the most easily-accessible resources for mothers and families – books, magazines, support groups, and online communities. There are countless books for depressed mothers, spouses of depressed women, and children of all ages of depressed mothers that provide guidance and support for coping with a mental illness in the family. Another example of a resource that almost everyone has access to is the Parenting Well Project, which serves as an online community full of stories of parents and families with the same struggles and tips and tools on how to cope more successfully for parents and their children. With the findings of this study, it is easy to see how important maternal involvement is in the lives of her children, so being aware of the resources that can help a

mother be involved successfully while coping with depression is crucial in her child(ren)'s development.

With regards to social, emotional, and cognitive development, which are heavily affected by the mediating variables explored in this study (emotional support and learning stimulation), schools are also an important target of intervention for many reasons. The findings of this study show that the emotional and cognitive development in children of depressed mothers can be impaired, so it is imperative that teachers are trained to see warning signs of delinquency and depressive behaviors as they spend as much or even more time with the children at school than their parents do at home. When the people involved in a child's microsystem (Bronfenbrenner, 1986) are aware of potential adverse child behaviors and outcomes, early prevention becomes much more possible, which previous research suggests is the best way to protect against the development of chronic, adverse behaviors (e.g. Yoshikawa, 1995; Webster-Stratton & Taylor, 2001; Mann & Reynolds, 2006; Calfar & Christensen, 2010).

Classroom support for social, emotional, and cognitive development can also be an effective strategy for promoting healthy thoughts, feelings, and behaviors in all children, but especially those with risk factors like maternal depression. Programs focused on classroom behavior management and curriculums with social competence promotion can provide kids with the skills they need to develop holistically in a healthy way. An example of these programs that has been supported by research is the PATHS (Promoting Alternative Thinking Strategies) curriculum, which boosts children's self-efficacy when it comes to understanding and articulating emotions in themselves and in others (Greenberg, Kusche, Cook, & Quamma, 2009). When a mother and/or family is

aware of the effects of maternal depression, parenting deficiencies, and family transitions, they will understand the importance of going an extra step to find their child the support they need.

This research study was not without its limitations. The measure used to assess parenting variables is somewhat brief; the HOME-SF was utilized by researchers to save time and money, but a fuller version or inclusion of a supplemental measure could be helpful in gaining a more holistic vision of each parent's behaviors along with their reports of their child(ren)'s behaviors. Also, although we were able to assure the direction of effects by limiting the child population to those born between 1985 and 1991, we cannot infer causality, meaning that we cannot be sure that maternal depression, family instability, or parenting behaviors caused offspring to engage in delinquent and risk-taking behaviors.

There is plenty of room for expansion off of this project as many other variables and participant characteristics could be considered. The literature is slightly inconsistent when it comes to the difference of effects of certain parenting variables on boys versus girls. Looking at the strengths of the associations between maternal depression and delinquency and depression in male children and delinquency and depression in female children as well as family transitions, emotional support, learning stimulation, and spanking or restricting behaviors as potential mediators for both could be an important next step. Another future direction that this research could take is testing if the effects of family instability and parenting behaviors carry over into adulthood, which could be feasible if the NLSY continues to collect data in this study. On the other hand, in the

future, effects on delinquency behaviors earlier than 14 could be considered as an expansion to this project as the HOME-SF begins to measure them at age 6.

Conclusion

Studying the effects of family transitions and parenting behavior patterns on children with depressed mothers holds great promise for understanding how and why children develop adverse internalizing and externalizing outcomes. While understanding these effects will not eliminate adolescent delinquency and depression, it will certainly allow for psychologists, families, schools, and communities to gain the understanding needed to support mothers and children. Hopefully, this study will highlight the needs of depressed mothers and children with depressed mothers so that they can cope and develop healthily.

References

- About the CDC-Kaiser ACE Study. (n.d.). Retrieved from
<https://www.cdc.gov/violenceprevention/acestudy/about.html>
- American Psychiatric Association. (2013). Depressive disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC.
<https://doi.org/10.1176/appi.books.9780890425596.dsm04>
- Beardslee, W. R., & Podorefsky, D. (1989). Resilient adolescents whose parents have serious affective and other psychiatric disorders: Importance of self-understanding and relationships. *The American Journal of Psychiatry*, *145*(1), 63-69.
<https://doi.org/10.1176/ajp.145.1.63>
- Beck, A. N., Cooper, C. E., McLanahan, S., & Brooks-Gunn, J. (2010). Partnership transitions and maternal parenting. *Journal Of Marriage And Family*, *72*(2), 219-233. <https://dx.doi.org/10.1111/j.1741-3737.2010.00695.x>
- Bradley, R. H., & Caldwell, B. M. (1984). The HOME Inventory and family demographics. *Developmental Psychology*, *20*(2), 315-320.
<http://dx.doi.org/10.1037/0012-1649.20.2.315>
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723-742.
<http://dx.doi.org/10.1037/0012-1649.22.6.723>

- Burke, L. (2003). The impact of maternal depression on familial relationships. *International Review of Psychiatry, 15*(3), 243-255.
<https://doi.org/10.1080/0954026031000136866>
- Calear A.L., & Christensen H. (2009). Systematic review of school-based prevention and early intervention programs for depression. *Journal of Adolescence, 33*(3): 429-438. 10.1016/j.adolescence.2009.07.004
- Carleton, R. N., Thibodeau, M. A., Teale, M. N., Welch, P. G., Abrams, M. P., Robinson, T., & Asmundson, G. G. (2013). The Center for Epidemiologic Studies Depression Scale: A review with a theoretical and empirical examination of item content and factor structure. *Plos ONE, 8*(3).
<https://doi.org/10.1371/journal.pone.0058067>
- Connell, A. M., & Goodman, S. H. (2002). The association between psychopathology in fathers versus mothers and children's internalizing and externalizing behavior problems. *Psychological Bulletin, 128*(5), 746-773.
<http://dx.doi.org/10.1037/0033-2909.128.5.746>
- Elardo, R., & Bradley, R. H. (1981). The home observation for measurement of the environment (HOME) scale: A review of research. *Developmental Review, 1*(2), 113-145. [http://dx.doi.org/10.1016/0273-2297\(81\)90012-5](http://dx.doi.org/10.1016/0273-2297(81)90012-5)
- Fomby, P., & Osborne, C. (2017). Family instability, multi-partner fertility, and behavior in middle childhood. *Journal of Marriage And Family, 79*(1), 75-93.
<https://doi.org/10.1111/jomf.12349>

- Gartstein, M. A., & Fagot, B. I. (2003). Parental depression, parenting and family adjustment, and child effortful control: Explaining externalizing behaviors for preschool children. *Journal of Applied Developmental Psychology, 24*(2), 143-177. [https://doi.org/10.1016/S0193-3973\(03\)00043-1](https://doi.org/10.1016/S0193-3973(03)00043-1)
- González, P., Nuñez, A., Merz, E., Brintz, C., Weitzman, O., Navas, E. L., & ... Gallo, L. C. (2017). Measurement properties of the Center for Epidemiologic Studies Depression Scale (CES-D 10): Findings from HCHS/SOL. *Psychological Assessment, 29*(4), 372-381. <https://dx.doi.org/10.1037/pas0000330>
- Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review, 14*(1), 1-27. <https://doi.org/10.1007/s10567-010-0080-1>
- Goodman, S. H. (2007) Depression in mothers. *Annual Review of Clinical Psychology, 3*, 107-135. <https://doi.org/10.1146/3.022806.091401>
- Gotlib, I. H., & Hammen, C. L. (2002). Handbook of depression. New York: Guilford Press.
- Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychopathology, 7*(1), 117-136. <https://doi.org/10.1017/S0954579400006374>
- Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among

urban minority youth: Moderating effects of family structure and gender.

Psychology Of Addictive Behaviors, 14(2), 174-184.

<https://dx.doi.org/10.1037/0893-164X.14.2.174>

Hann, D., Winter, K., & Jacobsen, P. (1999). Measurement of depressive symptoms in cancer patients: Evaluation of the Center for Epidemiological Studies Depression Scale (CES-D). *Journal of Psychosomatic Research*, 46(5), 437-443.

[https://dx.doi.org/10.1016/S0022-3999\(99\)00004-5](https://dx.doi.org/10.1016/S0022-3999(99)00004-5)

Harnish, J., Dodge, K., Valente, E., & Conduct Problems Prevention Research Group. (1995). Mother-child interaction quality as a partial mediator of the roles of maternal depressive symptomatology and socioeconomic status in the development of child behavior problems. *Child Development*, 66(3), 739-753.

<https://doi.org/10.1111/j.1467-8624.1995.tb00902.x>

Johnson, P. L., & Flake, E. M. (2007). Maternal depression and child outcomes.

Psychiatric Annals, 37(6), 404-410. [https://doi.org/10.3928/0090-4481-](https://doi.org/10.3928/0090-4481-20070401-08)

20070401-08

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K.R., ... Wang, P.H. (2003). The epidemiology of Major Depressive Disorder: Results from the National Comorbidity Survey Replication (NCS-R). *The Journal of the American Medical Association*, 289(23), 3095-3105.

<http://dx.doi.org/10.1001/jama.289.23.3095>

Knobloch, L. K., Knobloch-Fedders, L. M. (2010). The role of relational uncertainty in depressive symptoms and relationship quality: An actor—partner interdependence

model. *Journal of Social and Personal Relationships* 27(1), 137 – 159.

<https://doi.org/10.1177/0265407509348809>

Kuckertz, J. M., Mitchell, C., & Wiggins, J. L. (2018). Parenting mediates the impact of maternal depression on child internalizing symptoms. *Depression and Anxiety*, 35(1), 89-97. <https://dx.doi.org/10.1002/da.22688>

Letourneau, N., Salmani, M., & Duffett-Leger, L. (2010). Maternal depressive symptoms and parenting of children from birth to 12 years. *Western Journal Of Nursing Research*, 32(5), 662-685. <https://dx.doi.org/10.1177/0193945909359409>

Mann, E., & Reynolds, A. (2006). Early intervention and juvenile delinquency prevention: evidence from the Chicago Longitudinal Study. *Social Work Research*, 30(3), 153-167. <https://doi.org/10.1093/swr/30.3.153>

Martinez, C. R., Jr., & Forgatch, M. S. (2002). Adjusting to change: Linking family structure transitions with parenting and boys' adjustment. *Journal of Family Psychology*, 16(2), 107-117. <http://dx.doi.org/10.1037/0893-3200.16.2.107>

National Longitudinal Survey of Youth 1979. (n.d.). Retrieved from <https://www.nlsinfo.org/content/cohorts/nlsy79>

Osborne, C., & McLanahan, S. (2007). Partnership instability and child well-being. *Journal Of Marriage And Family*, 69(4), 1065-1083. <https://doi.org/10.1111/j.1741-3737.2007.00431.x>

Patterson, G. R., DeBaryshe, B., & Ramsey, E. (1990). A developmental perspective on antisocial behavior. *American Psychologist*, 44, 239-335.

- Prinzle, P., Onghena, P., Hellinckx, W., Grietens, H., Ghesquière, P., & Colpin, H. (2004). Parent and Child Personality Characteristics as Predictors of Negative Discipline and Externalizing Problem Behaviour in Children. *European Journal of Personality, 18*(2), 73-102. <https://dx.doi.org/10.1002/per.501>
- Nunnally, J. C., & Bernstein, I. H. (1994) *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill, Inc.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385-401. <https://doi.org/10.1177/014662167700100306>
- Robila, M., & Krishnakumar, A. (2006). The impact of maternal depression and parenting behaviors on adolescents' psychological functioning in Romania. *Journal of Child And Family Studies, 15*(1), 71-82. <https://doi.org/10.1007/s10826-005-9009-6>
- Rosenberg, M. (1965). Society and the adolescent self-image. *Science, 148*(3671). 804-806. <http://doi.org/10.1126/science.148.3671.804>
- Waldfoegel, J., Craigie, T., & Brooks-Gunn, J. (2010). Fragile families and child wellbeing. *The Future of Children, 20*(2), 87-112. <https://dx.doi.org/10.1353/foc.2010.0002>
- Webster-Stratton, C., & Taylor, T. (2001). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0-8) years. *Prevention Science, 2*(3). <http://doi.org/10.1023/A:1011510923900>

Yoshikawa, H. (1995). Long-term effects of early childhood programs on social outcomes and delinquency. *The Future of Children*, 5(3), 51-75.

Zalewski, M., Thompson, S.F., Lengua, L.J. (2015). Parenting as a moderator of the effects of maternal depressive symptoms on preadolescent adjustment. *Journal of Clinical Child and Adolescent Psychology*, 46(4), 563-573.

<https://doi.org/10.1080/15374416.2015.1030752>