

Drinking Mothers, Schooling Kids: The Effects of Maternal Alcohol Consumption on Later  
Educational Attainment

By

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## **Introduction**

Children of alcoholics (COAs) are often believed to be an “at risk” population. It is estimated that 10 percent of children in this country live with an alcohol abusing parent (SAMHSA, 2012), and recent statistics indicate that one in five children under the age of 18 is exposed to some degree of family alcohol abuse (Grant, 2000; Mupier, Rodney, Samuels, 2002). A quick internet search of the terms “children,” “alcoholic,” and “parents” reveals a plethora of popular media outlets with articles about the influence of parental drinking on the current and future drinking patterns of their children. Until recently, scholars, too, were invested in illuminating the effects of parental drinking on children and their longitudinal nature. In the 1970s and 1980s, scholars began to give much attention to adult children of alcoholics (ACOAs) as they sought to empirically validate claims that the COAs eventually became a distinct population with universal characteristics. These early literatures certainly painted a bleak picture of COAs and ACOAs and were dominated by studies on the familial transmission of alcoholism (Devor, 1994; Hill et al., 1997; Mathew et. al., 1993; McGue, 1994; Sher et al., 1991; Tartar & Vanyukoc, 1994; Wright & Heppner, 1993).

Most scholars, however, have moved away from simply labeling COAs as at risk for becoming heavy-drinking ACOAs with many concomitant psychosocial problems, and toward developing models that articulate mediating factors contributing to the negative consequences of parental alcoholism. This project is one of them. Compromised parenting, which has long been known to affect children, is one of most prominent proclaimed mediators to the relationship between a problem-drinking parent and negative child outcomes. Parenting practices in families with an alcohol-abusing parent have been considered negative and inconsistent, in turn leading to problems with child development (Patterson, DeBaryshe, & Ramsey, 1989; Obuchowska, 1974; Seilhammer, Jacob, & Dunn, 1993; Wahler & Dumas, 1987). Regardless of the mediator of choice, extant literatures demonstrate that parental problem drinking leads to negative child outcomes.

Few studies have extended this relationship to examine whether and how parental alcohol consumption affects the educational attainment of ACOAs. Child abuse and neglect, forms of impaired parenting that are linked to parental problem drinking, are associated with low educational achievement (Boden et al., 2007; Currie and Widom, 2010; Widom et al., 2013). It seems plausible that these academic issues would still be present in children's lives in later years -- that is, unless there was some buffer shielding the child from the negative effects of parental problem drinking. Scholars have identified children's relationship with the non-alcohol abusing parent as a buffer and, further, a cause of resilience for COAs (Cicchetti & Garmezy, 1993; Masten, Best, & Garmezy 1990; Rangarajan, 2008; Roosa et al., 1993; Rutter, 1990; Werner, 1986).

This study extends current literature on the effects of parental alcohol consumption in several ways. First, this project does not examine problem drinking as a dichotomous independent variable. Instead it uses a continuous measure of alcohol consumption, which has the potential to capture the effects of subclinical levels of alcohol consumption. Second, as suggested above, this project focuses on educational attainment as the outcome of interest, whereas previous literatures have focused on psychosocial functioning. Educational attainment is strongly linked to future socioeconomic status and children of alcoholics could, in theory, use education as a way to even the playing field. Lastly, this project challenges current literature by checking for mediation. More specifically, in this project, I examine whether having a father in the household is a buffer, or mechanism for resiliency, or whether a father is likely to even be present in the household of a drinking mother. Therefore, I have two main research questions: 1) is there a relationship between maternal drinking patterns and educational attainment, and 2) is this relationship mediated by the presence of the father in the household? By answering these questions, I move one step closer to understanding the conditions under which parental drinking may or may not lead to negative outcomes for children.

## Literature Review

### *Drinking and Parenting*

Since the 1970s and 1980s there has been an upsurge in literature seeking to empirically validate claims that ACOAs are a distinct population. These early literatures certainly painted a bleak picture of COAs and ACOAs and were dominated by studies on the familial transmission of alcoholism, emphasizing later alcohol use as the outcome of interest (Devor, 1994; Hill et al., 1997; Mathew et. al., 1993; McGue, 1994; Sher et al., 1991; Tartar & Vanyukoc, 1994; Wright & Heppner, 1993). Overall, studies consistently find that ACOAs exhibit increased substance use and abuse and they link this increased abuse to comorbidity with various dimensions of psychosocial functioning such as antisocial personality disorder (McCue, 1994; Sher, 1991; Sher et al. 1991; Windle et al., 1995), depression (Hawkins, 1997; Hinkin & Kahn, 1995; Jones & Zaleski, 1994; Lipman, 1990; Tweed & Ryff, 1991; Sher et al., 1991), and anxiety (Harman & Arbona; 1991; Knowles & Schroeder, 1990; Mathew et al., 1993). As I alluded to earlier, scholars have moved away from seeking to find evidence for a specific “ACOA syndrome” and toward developing models that articulate factors contributing to the negative consequences of parental alcoholism. For example, scholars have focused on parenting practices as one of these mediating factors. In theorizing about a model for educational attainment in the face of parental alcohol consumption, compromised parenting in the homes of COAs is a critical piece of the puzzle.

Though I do not analyze parenting practices in this paper, I review the literature on impaired parenting as background for understanding how maternal alcohol consumption might impact child educational attainment. Inconsistent and negative parental discipline results in negative development for children (Patterson, DeBaryshe, & Ramsey, 1989; Wahler & Dumas, 1987). Parental discipline in families with an alcohol-abusing parent has fallen on the negative and inconsistent side of the spectrum. Scholars report that heavy drinking is related to poor parental monitoring and less parental involvement (Baumrind, 1991; Patterson, 1986; Roosa et al., 1993; Wenar & Kerig, 2000). Roosa and colleagues (1993) found that parent problem drinking was related to less supportive parenting practices and

inconsistent discipline. A number of studies also conclude that impaired parenting in alcoholic families leads to diminished functioning of the family, characterized by marital conflict, parent-child conflict, and, in some cases, neglect and/or child physical abuse (Black, 2001; Dube et. al., 2001; Hall, 2004; Hall 2013; Reich et al., 2006). For example, Dube and colleagues (2001) conclude that persons growing up with an alcohol abusing parent(s) are 2 to 13 times more likely to be subjected to childhood abuse and/or neglect, depending on whether the mother, the father, or both were the alcohol abusing parent. Similarly, Walsh, MacMillan, & Jamieson (2003) find that parental substance abuse is associated with a more than two times greater odds of being exposed to both childhood physical and sexual abuse, both clear forms of impaired parenting. These authors conclude that these impaired parenting practices lead to decreased psychosocial functioning in children with parents who drink and lend themselves to describing how children's education might be impacted by parental alcohol consumption. However, this connection is missing from the literature.

#### *Impaired Parenting and Children's Education*

Impaired parenting practices play a critical role in the formation of psychosocial developmental problems such as aggression and antisocial behavior (Farrington, 1987; Kazdin, 1987; Patterson, Reid, & Dishion, 1992; Rutter & Giller, 1983). For the purposes of this project, I consider childhood abuse and/or neglect to be the key forms of impaired parenting that problem drinking parents exhibit. Again, though I do not analyze these impaired parenting practices, I review the literature to demonstrate how maternal alcohol consumption might be linked to child educational attainment. Scholars conclude that children who experience abuse and/or neglect are at risk for low academic achievement.

For example, Boden and colleagues (2007) examined the relationship between exposure to sexual and physical abuse during childhood and later educational outcomes in late adolescence and early adulthood. They found that increasing exposure to sexual and physical abuse was significantly linked to failing to achieve secondary school qualifications, attending a university, and gaining a university degree. They also found that these relationships are conditional on social, familial and individual contexts. This



finding is bolstered by findings in another article, which assert that the degree of academic detriment depends on race and ethnic background (Widom et al., 2013). Similarly, Currie and Widom (2010) found that adults with childhood histories of abuse and/or neglect have, among other detrimental long-term consequences, lower levels of education. Another study that assessed the per victim cost of abused and neglected children found that these children are likely to have educational achievement problems and estimated that average lifetime cost for special education is \$7,999. These studies are recent examples of the expansive body of literature that link abuse and neglect to low academic achievement. They demonstrate that this relationship is contextual and long-term.

While the literatures in the previous section has efficiently moved us from attempting to generalize the symptoms of ACOAs to uncovering specific mechanisms that lead to the negative outcomes for children into their adult lives, there is still a sizeable gap to be filled. Further, while we can conclude that parental alcohol abuse is associated with impaired parenting and that impaired parenting is linked to low educational achievement, few studies have examined whether problem drinking impacts educational attainment. Furthermore, given the literature explaining that familial problem drinking leads to child abuse and/or neglect as well as the literature that links child abuse and/or neglect to low achievement, an in-depth conversation concerning educational outcomes for children in the face of parental alcohol consumption is pertinent. This project aims to spark that conversation. By building a model that examines educational attainment as a function of parental alcohol consumption.

This project deviates slightly from these literatures. Moreover, extant work focuses on problem drinking as the source of developmental problems but neglects to demonstrate whether a parent's number of drinks exhibits a linear relationship with educational attainment. Therefore, as I mentioned earlier, this project, though it is grounded in literatures on problem drinking, is not specifically concerned with problem drinking per se. Rather, it is concerned with whether the relationship between maternal drinking patterns and later educational attainment aligns with the relationships between problem-drinking, impaired parenting, and educational achievement as outlined in extant literatures. Even by considering this model, which lacks variables for impaired parenting and captures subclinical levels of alcohol

consumption, we still lack a clear picture of how, even in the face of parent who drinks often, effective parenting strategies and, thus, unscathed and/or positive educational outcomes can persist.

### *Buffers to Parental Problem Drinking*

So far, it is apparent that parental drinking is linked to impaired parenting and that impaired parenting is linked to poor academic outcomes. Therefore, I would expect there to be a relationship between parental drinking and educational attainment, that is unless one non-drinking parent in the household can buffer the impaired parenting practices of the problem-drinking parent. In the extensive amount of research that exists on alcoholism and COAs, scholars have concluded that not all children in problem drinking households experience negative outcomes (Berlin & Davis, 1989; Heitzeg et al., 2008; McCord, 1972; Seilhamer & Jacob, 1990; Zucker et al., 2003). In fact, children of alcoholics have been used as one of the most prominent examples of resiliency amidst a high-risk environment. Several researchers have documented positive outcomes and resilience in children growing up with alcoholic family members (Berlin & Davis, 1989; Bernard, 1991; McCord, 1972). Since parental problem drinking operates indirectly through parenting practices, there is room for variables to buffer the effects of parental alcoholism on child outcomes. Several scholars have suggested that the presence of another supportive person in the life of a child of an alcoholic may, indeed, help buffer the adverse consequences of parental problem drinking (Hall, 2004; Hall, 2013; Howes, 1999; Werner, 1999).

Scholars assert that supportive parental relationships and communication with the non-alcohol abusing family members can serve as a buffer for some COAs (Cicchetti & Garmezy, 1993; Masten, Best, & Garmey 1990; Rangarajan, 2008; Roosa et al., 1993; Rutter, 1990; Werner, 1986). According to the literature, having an emotionally satisfying and supportive relationship with non-substance-abusing parents leads to higher social and academic competence across the lifespan for the negative effects of parental alcoholism (Obuchowska, 1974; Seilhammer, Jacob, & Dunn, 1993) as well as higher self-esteem as compared to those lacking such a parental relationship (Masini, 1996). In an experimental study

comparing children without problem drinking parents, children with two problem drinking parents, and children with only one problem drinking parent, Obuchowska (1974) found that in families with only a problem drinking mother, without positive father contact, children showed the same negative attitudes toward social values and aggressive behavior as children with two problem drinking parents. Positive emotional contact with either parent proved to be an important compensatory factor for children in problem drinking households, as these children demonstrated less negative behavior and needs, especially at school.

However, due to the lack of confinement of the effects of problem drinking, the non-problem-drinking parent is often unable to buffer the adverse parenting of the psychologically impaired parent (Hall, 2007). More specifically, since spouses of alcohol abusing persons also suffer psychological, emotional, and spiritual deterioration, they may not be well suited to provide the parenting style that is optimal for the outcome of the child. This is one reason that this project questions whether the presence of another family member in the household actually buffers the effect of parental alcohol use. Ostermann, Sloan, and Taylor (2005) found a rather complex relationship between alcohol consumption and marital dissolution by assessing a nationally representative survey of middle-aged persons in the U.S. Specifically, they found that drinking between couples is highly correlated. This finding supports previous literatures that suggest that the effects of problem drinking are not typically confined to one parent. Additionally, the authors found that when there are discrepancies in alcohol use between couples, meaning one partner drinks more than the other, likelihood of divorce increases significantly. While the presence of a non-problem drinking parent in the household may indeed buffer children from the consequences of another parent's alcohol consumption, this study questions how common such a scenario is in practice, because parental drinking is often correlated and when it is not, marital dissolution is more likely. Furthermore, women who drink more are less likely to be in a traditional (two-parent) household (Ostermann, Sloan, & Taylor, 2005). Therefore, this project fills existing gaps in the literature by testing whether parental alcohol consumption is associated with a specific negative outcome, later child

educational attainment, and also questions whether it is plausible that father presence in the household of the mother can buffer this relationship.

### **Study Questions and Hypotheses**

This project examines the relationship between maternal alcohol consumption and child educational attainment. A few different but related bodies of literature must be linked in order to build hypotheses about this relationship. However, as demonstrated above, numerous studies that link problem drinking and parenting have helped us understand that parental problem drinking leads to impaired parenting. In fact, it has become taken for granted that impaired parenting leads to negative child outcomes. While the early literature focused on outcomes such as the child's likelihood to also develop problem-drinking habits, the more recent literature has focused on developmental issues such as antisocial behavior, irresponsibility, and lack of empathy. Bringing in yet another body of literature, scholars have pointed to educational achievement as a critical outcome in the lives of children who are the recipients of impaired parenting practices. Lastly, moving one step closer to the model being tested in this study, scholars have noted that not all children respond negatively to having problem-drinking parents. Scholars have focused children's relationship with the non-alcoholic parent in trying to uncover why all children do not respond the same to problem drinking.

While most of the pieces necessary to theorize about the relationship between parental alcohol consumption and child educational outcomes are present, the pieces have yet to coherently come together in one study. Additionally, these literatures do not adequately provide a foundation for understanding whether this relationship has any longitudinal effects. Thus, this research project succinctly explores the effects of maternal alcohol consumption on later educational attainment and assesses whether maternal alcohol consumption has main effects and/or indirect effects (through father presence) on educational attainment. I developed two main hypotheses for this study.

- 1) Since previous research suggests that parental problem-drinking leads to impaired parenting and negative child outcomes, I expect that increased maternal alcohol consumption would be associated with fewer years of schooling obtained by the child.
  
- 2) Previous research claims that children's relationship with a non-alcoholic parent is a key factor leading to divergent outcomes for COAs. However, since previous research demonstrates that parental-problem drinking does not occur in isolation meaning that parental problem-drinking affects both parents, I suspect that **mothers** who drink more are less likely to have the father of their children present, which decreases educational attainment. This hypothesis can provide clues about the conditions under which the relationship in hypothesis 1 may exist.

## **Data and Measures**

### *Data and Sample*

Data for this study were extracted from the National Longitudinal Survey of Youth Mother (NLSY 79) and Young Adult (NLSY-YA) samples. The NLSY is a nationally representative sample of Americans, and is part of a larger project sponsored by the U.S. Departments of Labor and Defense under a grant to the Center for Human Resource Research at The Ohio State University (Center for Human Resource Research 2004). The survey researchers have included measures of respondents' labor market experience, family life, cognitive and behavioral functioning, and demographic factors. The original sample over-represents African American, Hispanic, and economically disadvantaged white youth. Respondents were interviewed annually from 1979 to 1994 and biennially after 1994. Initial ages ranged from 14 to 22 years old.

In 1986, children born to the women of the NLSY sample were surveyed. These children have been interviewed biennially since 1986, collecting measures of cognitive ability, motor and social

development, behavior problems, and quality of the home environment. In 1994 and every two years after, youth who were at least 15 years of age were surveyed separately (NLSY-YA) than those younger than 15. This survey gathered information such as delinquent activities, substance use, employment, marriage, and parenthood. This data set was a perfect fit for this study as I was able to merge the data from the NLSY and NLSY-YA using the identification codes that link information about mother and child. In this paper I use the term child and young adult interchangeably as the NLSY-YA respondents in this study are indeed the children of the mothers in the NLSY although they are at the time of the outcome measurement. From the NLSY-YA, I utilized information from various waves of data for the children as well as various waves of data for their mothers. In the outcome year of this study 2010, the mothers were 45-53 years old while their children's ages vary. With regard to this project, only complete cases analyses (N = 781) are presented below as the results of the "complete cases" and multiple imputations analyses did not differ substantially. Additionally the results are weighted to correct for the oversampling of poor and minority youth. Since the weighted and unweighted analyses did not differ substantially, only the weighted results are presented.

### *Dependent Variable*

I analyze one main dependent variable for this study: educational attainment in 2010. The survey item on educational attainment queried the highest grade completed by the young adults at the time of the survey. This measure is coded as simply 1 through 20 with each number corresponding to the number of years of education fully completed at the time the question was asked. Therefore, the unit of analysis for this project is the young adults and for independent variables I use young adult data. I also utilize the mother-child component of the NLSY and NLSY-YA to incorporate measures for the young adults' mothers.

### *Independent, Mediating, and Control Variables*

*Alcohol Consumption.* The main independent variable for this study is maternal alcohol consumption. Alcohol consumption is measured as number of drinks per occasion. The survey question for number of drinks per occasion asked respondents to report how many drinks they typically had on days that they

drank. This measure is coded as a simple count. Previous studies have considered a dummy variable for problem-drinking as opposed to a simple count. To do this, I could code the mother as having drinking problem if she responded that she had more than 5 drinks in one sitting in the past 30 days . However, I am seeking to uncover a more conservative relationship and determine whether alcohol consumption as opposed to the binary variable problem-drinking impacts child outcomes. I did run analyses with problem-drinking as a binary measure (problem-drinking or not). However, the results did not differ substantially. Therefore, in this project I stick with the count variable. The information for alcohol consumption came from the 1988 wave of the NLSY. By measuring the key independent variable in 1988 and the main dependent variable in 2010, I am able to test whether the effects of having a problem-drinking parent are present in the respondents' young adult years. I logged the variable to account for over-dispersion. More specifically, all drinking variables included in these models exhibited high levels of over-dispersion. The over-dispersion is likely due to the fact that many respondents choose zero or one with regards to drinking variables which causes the mean (around zero or one) to be less than the standard deviation. Failing to log the drinking variables would impact the analysis. One additional point is that I increased the robustness of this measure by averaging this variable over a ten-year period (1988, 1990, 1992, 1994, and 1996). Therefore the final dependent variable used in this study is the average of the number of drinks per occasion over a period of ten years.

*Father Presence.* The critical mediator in this model is father presence. The survey question for father presence asked whether the father of the child was living in the household of the mother and child in 1988, when the first measure of alcohol consumption was collected. I coded respondents whose father was present in the household as 1 and compared them to respondents whose father was not present in the household (coded 0). Measuring this variable over the same years as the maternal drinking variable increases the number of missing cases and creates issues with multicollinearity.

*Individual Characteristics.* I controlled for a number of individual characteristics. To the extent that age would be highly correlated with educational attainment, I controlled for respondents' age, measured in years. There is a vast body of literature that demonstrates a racialized gap in educational

achievement. Additionally, race-ethnicity is known to affect levels of alcohol consumption (Barnes et al. 2002). Therefore, I also control for race in this project. I created two dummy variables that distinguish African Americans and Hispanics and compared them to whites (reference in regressions). Similarly to race and ethnicity, there is a vast body of literature that demonstrates gender differences in educational outcomes. Additionally, there is some literature that suggests gender differences in alcohol consumption (Christie-Mizell & Peralta, 2009). Therefore, I control for gender. I coded males as 1 and compared them to females (coded 0). Given the extensive amount of literature highlighted in the literature review which aims at understanding with COAs will become alcoholics themselves, I controlled for their alcohol consumption. The survey question on respondent alcohol consumption is very similar to the survey question for maternal alcohol consumption. The measure was taken in 2008, lagged two years behind the outcome measure. I logged this variable to account for over-dispersion due to being a count variable. Lastly, I controlled for individual academic achievement to the extent that it is highly correlated with educational attainment. I include two measures of achievement: the PIAT Math Score and the PIAT Reading Recognition Score. The PIAT test measures academic achievement of children ages five and over. It is among the most widely used brief assessments of academic achievement, with demonstrably high test-retest reliability and concurrent validity (Markwardt, 1998). Both measures are from 1996. This limits our sample to children who were between 5 and 14 during this time period and are, thus, between the ages of 19 and 28 in 2010 when the outcome is measured. For both math and reading recognition, I utilized the age-specific raw score, which is a continuous variable that ranges from 0 to 84.

*Family characteristics.* In order to test whether family characteristics accounted for discrepancies in educational attainment I used a number of control variables. Mother's years of education is critical in predicting a child's educational attainment (Davis, 2005; Haveman & Wolfe, 1995; Magnuson, 2007; Sirin, 2005). Mother's years of education is measured the same as the dependent variable of the study. Specifically, this measure is coded as simply 1 through 20 with each number corresponding to the number of years of education fully completed at the time the question was asked. The remaining variables that describe the respondent's family characteristics are number of children in the mother's home, the



mother's age at the birth of the respondent, the mother's expectations for the respondent's educational attainment, and the mother's poverty status. Number of children in the family is measured in 1988, the same time as the first measure of alcohol consumption. It is a simple count of the number of biological children of the mother present in the household. The mother's age at the birth of the respondent is measured in years. The variable for mother's educational expectations for the child is from a 1996 supplemental survey item that asked the mother, "Looking ahead how far do you think your child will go in school?" Answer choices to this question were: leave high school before graduation, graduate from high school, get some college or other training, graduate from college, take further training after college, and other. I considered those who answered "other" to be missing and coded the others from 1 to 5 such that the variable is ordinal with higher values representing higher expectations. If a respondent's mother was experiencing poverty in 1989, I coded them 1 and compared them to mothers who were not experiencing poverty.

### **Analytic Strategy**

In order to test an empirical model of the effects of maternal alcohol consumption on educational attainment, first I produced a matrix of correlations between each variable used in the study (not included in results). Then, I estimated a series of multiple linear regression models using educational attainment (years of schooling completed) as the outcome. The first model is an ordinary least squares regression analysis that tests whether maternal alcohol consumption exhibits any main effects on young adults' educational attainment, controlling for individual demographic characteristics, academic ability, and drinking patterns. To be sure that this relationship is not impacted by variables that were highly correlated with maternal alcohol consumption, I then estimate a model with additional controls for correlated family characteristics<sup>1</sup>. These two models test hypothesis 1, that increased maternal alcohol consumption would be associated with few years of schooling obtained by the child. Next, I estimate a model in which I add a

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<sup>1</sup> This model serves as the test between the main independent variable and the dependent variable in testing for mediation

variable for the presence of the child's father in the household in the same year that the mother reported drinking to test hypothesis 2, that the presence of the father in the household of the mother would mediate the relationship between maternal alcohol consumption and child educational attainment<sup>2</sup>. I estimated a separate model, a logistic regression, to test for a main effect between maternal drinking and presence of a father in the household in order to complete the test for mediation. Lastly, along with the additive linear regressions, I test for interaction effects between maternal alcohol consumption and father presence on educational attainment as extant literatures suggest that the effects of alcohol consumption should be different in homes where the father is present as compared to homes where the father is not present.

## **Results**

Table 1 presents descriptive statistics for all study variables. With regard to the main dependent variable of the study, the mean educational attainment is 13.02 years. I also created a set of dichotomized variables to illuminate potential differences in educational attainment at traditional attainment markers. A breakdown of educational attainment reveals that 10 percent of the sample have less than ten years of education, 18 percent of the sample has less than the number of years traditionally required for a high school diploma, 82 percent of the sample has only the number of years traditionally required for a high school diploma, and 54 percent of the sample has more years of schooling than what is traditionally required for a high school diploma. With regard to the main independent variables for the study, the logged mean number of drinks mothers had over a period of ten years 1.45 (about four drinks per occasion). Additionally, regarding the proposed buffer, about 67 percent of mothers reported that the father of the respondent was living in the household at the time when the mother was first asked about her drinking habits.

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<sup>2</sup> This model serves as the test for the lack of a main effect between the independent variable and the dependent variable when the mediating variable is included in the model.

The mean age for the sample was about 23 years and a little less than half the sample is male (49.81%). A little less than one-third of the sample is Black (27.27%). About twenty percent of the sample is Hispanic (19.85%). Over half of the sample is white (52.88%). The mean PIAT Math Score in 1996 is 39.12. The mean PIAT Reading Recognition Score in 1996 is 41.55. Rounding out the individual characteristics, the mean logged number of drinks respondents reported drinking themselves on days when they drank is 1.02 (about 3 drinks per sitting). With regard to family characteristics, the mean highest year of education reported for respondents' mothers is 13.27 years. On a scale of 1 (less than a high school degree) to 5 (more than a college degree) the mean educational attainment expectation of mothers for their children is 3.68. The mean number of children in the home of the mother is about 2. The mean age of the mother at the birth of the respondent is roughly 26 years of age. And, lastly, 21% of mothers reported being in poverty at the time she was first asked about her drinking patterns.

The models presented in this paper test the relationship between maternal drinking and educational attainment. The models also test for mediational effects of father presence in the household on this relationship. Table 2 presents the ordinary least squares regression results for educational attainment. In model 1, which includes the status of having a family history of alcoholism and controls for individual demographic characteristics, academic ability, and drinking patterns, I confirm that there is a significant negative relationship between educational attainment and maternal problem drinking ( $b = -.18$ ,  $se = .04$ ,  $p < .001$ ). All control variables have a significant effect except the respondent's own drinking patterns ( $b = .04$ ,  $se = .11$ ,  $p = n.s.$ ). Model 2 includes controls for family characteristics in order to ensure the effect of maternal drinking on educational attainment is not explained away by variables that are highly correlated with maternal drinking. All family characteristic predictors are significant except for the number of children reported in the home in 1988 ( $b = .04$ ,  $se = .07$ ,  $p = n.s.$ ). Even after controlling for these characteristics, the relationship between maternal problem drinking and educational attainment is negative and significant ( $b = .58$ ,  $se = .15$ ,  $p < .001$ ). Model 3 includes the presence of the respondent's father in the home of the mother in 1988. There is a significant positive effect of presence of the father on educational attainment ( $b = -.08$ ,  $se = .04$ ,  $p < .05$ ). In this model, the relationship between maternal drinking and

educational attainment is no longer significant ( $b=-.07$ ,  $se=.04$ ,  $p=n.s.$ ). The results of a logistic regression to test for main effects between the presence of the respondent's father in the home of the mother in 1988 and maternal drinking are presented in table 3. After controlling for all variables that are included in the final model of additive ordinary least squares regression models, increased maternal alcohol consumption is associated with lesser odds of father presence in the household (Odds Ratio = .85,  $se=.05$ ,  $p<.01$ ).

In terms of my hypotheses, model 1 and model 2 demonstrate support for hypothesis 1 that higher alcohol consumption would be associated with a decrease in educational attainment. The significant negative slope for the relationship between maternal problem drinking and educational attainment demonstrates this. Model 3 demonstrates support for hypothesis 2 that the presence of the father in the household of the mother would mediate the relationship between maternal alcohol consumption and child educational attainment. Model 1 in table 3 completes the necessary steps to test for mediation and thereby demonstrates that the effect of maternal drinking on educational attainment is mediated by father presence in the home. Lastly, the nonsignificant interaction term in model 4 of table 2 demonstrates that the effects of maternal alcohol consumption are the same for children in homes where the father is present and those in homes where the father is not present. The implications of these results are explained in the discussion and conclusion section.

## **Discussion**

This study extends existing research by exploring the effects of maternal alcohol consumption on child educational attainment. Specifically, using number of drinks per occasion as the measure of alcohol consumption, I sought to understand whether and how the effects of maternal alcohol use linger into the young adult years of the respondents in this sample, affecting their educational attainment. This study was fruitful in a number of ways.

First, in this study maternal alcohol consumption is negatively associated with child educational attainment, albeit indirectly. Much of the previous literature surrounding parental alcohol consumption and child outcomes has focused exclusively on parental problem-drinking, typically defined as more than

5 or 6 drinks per sitting. These studies take an all or nothing approach to studying the effects of parental alcohol consumption, either problem drinking or not. This project explores a linear relationship between maternal alcohol consumption and educational attainment. Exploring alcohol consumption as a continuous measure as opposed to a binary measure has the potential to extend the understanding of the effects of parental drinking to subclinical levels of drinking. An increase in roughly three drinks reported on occasions when mothers drink is associated with a significant decrease in educational attainment. This decrease is about one-fifth of a school year. This finding is in line with literatures that focus on problem drinking but it also engenders a more complete understanding.

Second, this project examines educational attainment as the child outcome of interest. Educational attainment is strongly linked to future socioeconomic status and general wellbeing. Furthermore, children of alcoholics could, in theory, use education as a way to overcome the otherwise deleterious effects of parental alcohol consumption. While previous literature has examined an array of negative outcomes such as future alcohol use, anti-social disorders, depression, and anxiety, few studies have focused specifically on how the educational attainment of children is impacted by parental alcohol use. The findings in this project are in line with previous literature inasmuch as increased maternal alcohol use is associated with fewer years of education attained. Just like the developmental issues that have been examined in previous studies, the effects linger into respondents' adult lives. The measurement of the initial maternal alcohol consumption measure in 1988 and the measurement of the young adults educational attainment in 2010 support this claim. Having averaged the maternal drinking variable over a period of ten years, it is apparent that this relationship is not the result of a cross-sectional snapshot. Additionally, the detrimental effects of educational attainment persist even after controlling for individual characteristics of the child and most family characteristics.

However, there is one family characteristic that I find is critical in understanding the relationship between maternal alcohol consumption and child educational attainment. This family characteristic is the presence of the respondents' fathers in the home of the mothers when the mothers reported drinking. The finding in this project, that father presence mediates the relationship between maternal alcohol

consumption and educational attainment, allows me to revisit the oft-cited literature seeking ways to explain the nuance in outcomes for COAs. As with all social phenomena, scholars have found that not all children are negatively impacted by parental problem-drinking and, in fact, many scholars use COAs as an example of resiliency amidst a high-risk environment (Berlin & Davis, 1989; Bernarnd, 1991; Heitzeg et al., 2008; McCord, 1972; Seilhamer & Jacob, 1990; Zucker et al., 2003). Scholars assert that supportive parental relationships and communication with the non-alcohol abusing family members can serve as a buffer and thus source of resilience for some COAs (Cicchetti & Garnezy, 1993; Masten, Best, & Garmey 1990; Rangarajan, 2008; Roosa et al., 1993; Rutter, 1990; Werner, 1986). However, since the side effects of problem drinking are often not confined to one parent (Hall, 2007) and since alcohol consumption between partners is highly, positively correlated (Ostermann, Sloan, & Taylor, 2005), I questioned whether the presence of another parent in the household of the mother would buffer the detrimental effects of increased alcohol consumption. The findings in this study suggest that the relationship between maternal alcohol consumption, father presence, and educational attainment is a bit different than what one might glean from previous literatures.

In this study, I found that increased maternal alcohol consumption is associated with a lesser odds of being in a two-(biological)parent household, which in turn is associated with fewer years of education attained. Scholars have found for some time now that children in traditional families have higher test scores, have steeper learning trajectories, and complete more years of education relative to children in divorced, single-parent, and stepparent families (Heard, 2007; Lareau, 2003; Sun & Li, 2011). I tested for moderation/interaction effects between father presence and maternal alcohol consumption on educational attainment. The interaction was not significant, meaning that the effect of maternal alcohol use on educational attainment for children with just the mother present is no different from the effect of maternal alcohol for children where both the mother and father are present. What I have found, then, is that it is unlikely that father presence can serve as a buffer to the detrimental effects of maternal alcohol consumption on educational attainment. Instead higher levels of maternal alcohol consumption leads to a greater likelihood that the child is not in a traditional two(biological)-parent household, which, in turn,

decreases educational attainment. While I cannot be certain, based on the models in this project, that increased alcohol consumption causes fathers to leave, this project demonstrates that mothers who drink more are less likely to have the father of their child present which has ramifications for child outcomes.

Notwithstanding the strengths of this study, the results are limited in a few ways. To begin with, this project uses the presence of the child's biological father as the mediating variable. In many cases there may still be a non-problem drinking adult present in the home who could, indeed, buffer the negative effects of the other parents alcohol consumption. Still, this project has uncovered that drinking leads to a lesser odds of being in a traditional two (biological)-parent household, which has ramifications for the educational attainment of the children. Next, the age range for the respondents in this sample when educational attainment is measured is 19-28 years old. This limits the study in two ways. First, by the age of 19, a large number of respondents likely have not finished all of the schooling they will eventually attain and some respondents have had much longer than others to finish school compared to others. Second, the results of this study may not be applicable to younger respondents and or older respondents. Though the literature would suggest otherwise, perhaps younger children's educational attainment is not impacted, or, perhaps, the effects of maternal alcohol consumption do not linger into later stages of the life course. Although I control for factors related to educational attainment and factors that are correlated with maternal drinking, there may be other factors (e.g. how much communication the child has with each parent and support from extended family and friends) that may also be important factors in shaping whether and how maternal alcohol consumption impacts educational attainment. This leads to the final limitation of this study. Though I review literature that links parental problem drinking to impaired parenting as background material for understanding why maternal alcohol consumption might impact educational attainment, I do not analyze impaired parenting as a factor that impacts educational attainment.

## Conclusion

Early research on the effects of parental drinking on child outcomes sought to empirically validate claims that the COAs eventually became a distinct population with universal characteristics. These early literatures were dominated by studies on the familial transmission of alcoholism (Devor, 1994; Hill et al., 1997; Mathew et. al., 1993; McGue, 1994; Sher et al., 1991; Tartar & Vanyukoc, 1994; Wright & Heppner, 1993). Since then scholars have moved beyond trying to ascribe a rigid set of characteristics to COAs and, later, ACOAs, toward identifying a mechanism for how and why parental drinking matters for children. Scholars have landed on impaired parenting practices as one of many key factors contributing to developmental problems for children of alcoholics and problem drinkers (Black, 2001; Dube et. al., 2001; Hall, 2004; Hall, 2013; Walsh, MacMillan, & Jamieson 2003; Reich et al., 2006). Similarly, as research on COAs and ACOAs built, scholars noted that not all children respond negatively to having a heavy-drinking parent. Scholars have suggested that supportive parental relationships and communication with the non-alcohol abusing family members can serve as a buffer for some COAs (Cicchetti & Garmezy, 1993; Masten, Best, & Garmezy 1990; Rangarajan, 2008; Roosa et al., 1993; Rutter, 1990; Werner, 1986). The findings in this project extend this literature in several ways. Initially I found that increased alcohol consumption by respondent's mothers, not just problem-drinking, leads to a specific negative child outcome; fewer years of education attained. As suggested by the literature I examined father presence as a key factor in this relationship. Contrary to extant literatures, I find that the presence of a father in the household does not buffer the negative effects of maternal alcohol consumption on education attainment. Instead, respondents with mothers who drink more frequently are less likely to be in a traditional two-parent household, which negatively impacts educational attainment, likely due to decreased transfers of social capital (Heard, 2007; Lareau, 2003; Sun & Li, 2011). Future work in this area should explore whether the relationship I have uncovered holds true for various familial configurations. Specifically, this project -- and frankly, the structure of the NLSY and NLSY-YA combination -- lend themselves to mother-blame, the idea that mothers are responsible for family problems (McGuffey, 2005). Future projects could explore whether educational attainment is impacted by



how much the father drinks and whether the presence of the mother mediates this relationship. Work of this nature is important not only because it illuminates the processes that shape educational trajectories, but also because of its implications for the larger body of work which seeks to close the bottle on whether parental alcohol consumption negatively impacts children.

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## Appendix A

### Tables and Figures

**Table 1. Means, Percentages, and Standard Deviations (SD) for All Study Variables**

Variables	Mean/ Percent	Total Sample (N=781)		Min	Max
		SD			
<b>Dependent Variable</b>					
Education (years)	13.02	2.10		7.00	20.00
% Completed 10 <sup>th</sup> Grade or Less	10.37	-		-	-
% Completed less than High School	18.18	-		-	-
% Completed High School	81.82	-		-	-
% Completed Some College	53.91	-		-	-
<b>Independent and Control Variables</b>					
<b>Young Adult Characteristics</b>					
Age	22.53	1.89		19.00	26.00
% Male	49.81	-		-	-
% Black	27.27	-		-	-
% Hispanic	19.85	-		-	-
% White	52.88	-		-	-
PIAT Math Score	39.12	14.58		7.00	81.00
PIAT Reading Recognition Score	41.55	15.66		5.00	84.00
Number of Drinks (logged)	1.02	.69		0.00	3.42
<b>Family Characteristics</b>					
Mean Number of Drinks (logged)	1.45	.64		1.00	3.43
Mother's Education (years)	13.27	2.46		1.00	20.00
Mother's Expectation for Child's Educational Attainment (1=less than high school to 5=beyond college)	3.68	.97		1.00	6.00
Number of Children in Home	2.01	1.05		0.00	6.00
Mother's Age at Birth of YA	25.66	2.75		19.00	33.00
% In poverty	21.00	-		-	-
% Father Lived Home	66.97	-		-	-

**Table 2. Maternal Drinking Regressed on Educational Attainment, NLSY (N=781).**

Independent Variables	Highest Grade Completed in 2010							
	Model 1		Model 2		Model 3		Model 4	
	b	se	b	se	b	se	b	se
Mother's Mean Number of Drinks per Occasion over 10 years (logged)	-1.8***	.04	-.08*	.04	-.07	.04	-.01	.03
<b>Individual Characteristics</b>								
Age (years)	.49***	.06	.17	.07	.15	.06	.16*	.06
Black (1=yes)	-.54**	.17	-.37*	.17	-.18	.17	-.20	.17
Hispanic (1=yes)	-.62***	.18	-.49**	.18	-.43**	.18	-.44**	.18
Male (1=yes)	-.43**	.15	-.37**	.14	-.37**	.14	-.37**	.14
PIAT Math Score (1996)	.05***	.01	.04***	.01	.04***	.01	.04***	.01
PIAT Reading Recognition Score (1996)	.04***	.01	.03***	.01	.03***	.01	.03***	.01
Number of Drinks per Occasion-Child (logged) (2009)	.04	.11	.04	.11	.03	.10	.03	.09
<b>Family Characteristics</b>								
Mother's Highest Grade Completed (1=yes) (2009)			.13***	.03	.12***	.03	.12***	.03
Number of Children in Home (1988)			.04	.07	.03	.06	.03	.06
Mother's Age at Birth of Respondent (years)			.09**	.03	.08**	.03	.08**	.03
Mother's Expectation for Child's Educational Attainment (1996)			.37***	.08	.34***	.07	.34***	.07
Poverty Status (1=in poverty) (1988)			-.50**	.18	-.34*	.19	-.34*	.17
Father Lived in Home (1=yes) (1988)					.58***	.15	.70***	.19
Mother's Drinking (logged) X Father Lived in Home (1=yes)							-.05	.05
Constant	19.81***	1.02	8.87***	1.72	8.73***	1.70	8.88***	1.71
Adjusted R Squared	.26		.35		.36		.36	

\*p<.05; \*\*p<.01; \*\*\*p<.001.



**Table 3. Maternal Drinking Regressed on Father Presence in the Home. Test for mediation. NLSY (N=781).**

	Model 1	
	O.R.	se
<b>Independent Variables</b>		
Mother's Mean Number of Drinks per Occasion over 10 years (logged)	.85**	.05
<b>Individual Characteristics</b>		
Age (years)	.85	.09
Black (1=yes)	.16**	.24
Hispanic (1=yes)	.50**	.24
Male (1=yes)	1.11	.19
PIAT Math Score (1996)	1.01	.01
PIAT Reading Recognition Score (1996)	1.00	.01
Number of Drinks per Occasion-Child (logged) (2009)	1.16	.14
<b>Family Characteristics</b>		
Mother's Highest Grade Completed (1=yes) (2009)	1.10*	.05
Number of Children in Home (1988)	1.21	.10
Mother's Age at Birth of Respondent (years)	1.17***	.05
Mother's Expectation for Child's Educational Attainment (1996)	1.37***	.11
Poverty Status (1=in poverty) (1988)	.30***	.23
Constant	-1.55**	.55
Pseudo R Squared		.29

\*p<.05; \*\*p<.01; \*\*\*p<.001.