THE INFLUENCE OF MOTHER-DAUGHTER COMMUNICATION IN ADOLESCENCE ON UNINTENDED PREGNANCY DURING ADULTHOOD

a thesis presented by

Kirsten Paulus

to

The University of North Carolina Department of Sociology

in partial fulfillment for the degree of

Bachelor of Arts

with Honors in Sociology

The University of North Carolina

Chapel Hill, North Carolina

April 23, 2019

Approved:

_____

Liana Richardson, Thesis Advisor

Carolyn Halpern, Reader

ACKNOWLEDGEMENTS

I gratefully acknowledge the infrastructure and financial support provided by the Carolina Population Center and the Office of the Vice Chancellor for Research at the University of North Carolina at Chapel Hill, and the guidance and mentoring of Dr. Howard Aldrich, Dr. Liana Richardson, Dr. Carolyn Halpern, Melissa Manzanares, and Max Reason. This research also received support from the Population Research Infrastructure Program awarded to the Carolina Population Center (P2C HD050924) at The University of North Carolina at Chapel Hill by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.

TABLE OF CONTENTS

ABSTRACT

While a great deal of research has been devoted to examining the high unintended pregnancy rate in the United States, few studies of this outcome have used longitudinal data to examine the long-term influence of parent-child relationships during adolescence. To fill this gap, I used data from a sample of 3,517 female respondents in Wave 1 (1994 – 1995) and Wave 4 (2008 – 2009) of the National Longitudinal Study of Adolescent to Adult Health to estimate the association between their reports of satisfaction with communication with their mothers during adolescence as well as mothers' sexual behavior attitudes and whether or not their first pregnancy during adulthood was intended, net of sociodemographic characteristics. Results from logistic regression analyses revealed no association between their perception of mother-daughter communication in adolescence and unintended first pregnancy in adulthood. Similarly, there was no association between their perception of mothers' attitudes toward adolescent engagement in sexual activity and unintended first pregnancy. These null findings suggest that contemporaneous factors may offer better explanations for pregnancy intendedness than adolescent factors or that other aspects of parent-child relationships during adolescence may be more pertinent to subsequent sexual behavior.

INTRODUCTION

Becca ran out of the examination room in panic and disbelief, screaming at the nurse that she was a liar and had no idea what she was doing. What was supposed to be an annual routine checkup at her local internal medicine doctor turned into one of the worst days of her life as she found out she was pregnant. Becca finally got outside of the office and fell to the ground, as she began to have a panic attack; she had not planned to be having a baby now. Although it is now 2018 and it is not as atypical for a single woman to become pregnant, growing up in a strict catholic family left her with very little family support because premarital sex—and consequently, unintended pregnancy—was considered one of the worst sins. Additionally, as a recent graduate with a PhD in psychology, not only did Becca not expect to be pregnant, but she did not want to be pregnant as she was just beginning to jumpstart the career of her dreams How could this have happened to her? Was it due to her being careless about using contraceptives correctly? Had she simply missed taking a birth control pill, or had she had a little too much to drink one night and engaged in unprotected sex?

Thousands of women in the United States, like Becca, experience an unintended pregnancy. In fact, the United States has the highest unintended pregnancy rate across industrialized countries worldwide, with about 49% of all pregnancies in the nation classified as unintended—either as unplanned or unwanted (Finer et al. 2011). Additionally, rates of unintended pregnancy differ greatly across race and socioeconomic status groups in the United States, with minority and low-income women experiencing much higher rates than white and high-income women (Ayoola et al. 2014; Chen et al. 2011; Dehlendorf et al. 2015). Unintended pregnancies, if they result in a live birth, can lead to many short- and long-term health problems for both the mother and child, including but not limited to lack of prenatal care, mental health issues such as depression and anxiety, premature birth, low birth weight, lack of breast feeding, and physical and mental health disabilities for the child (Finer et al. 2011). In addition, unintended pregnancies cost taxpayers and public health institutions about $11 billion per year (Bond 2013). Consequently, the U.S. Department of Health and Human Services has identified the reduction of the rate of unintended pregnancies as one of—if not arguably the most—important reproductive health goals for the country (Finer et al. 2011).

Toward this end, a considerable amount of research attention has been devoted to trying to understand the factors that lead to unintended pregnancy. The most commonly studied factors include: contraception use, sex education, religion, and access to care. However, seemingly obvious explanations, such as whether or not contraception was used or how much knowledge a person has about sex and pregnancy, offer a limited explanation. Thus, our understanding of unintended pregnancy remains incomplete. In part, this may be due to the limitations of previous studies. While scholars have looked at early life factors, the trend in literature has tended to focus on contemporaneous factors that may be instrumental in shaping people's subsequent sexual attitudes and behaviors. This study attempted to address this limitation by identifying whether early life experiences within families play a role in unintended pregnancy. Specifically, I used data from National Longitudinal Study of Adolescent to Adult Health to answer the following two research questions: (1) Does adolescent girls' satisfaction with the communication between them and their mothers predict their first pregnancy intentions when they are adults? and (2) Does their perception of their mothers' attitudes about adolescent engagement in sexual activity predict their first pregnancy intentions when they are adults?

In the sections that follow, I provide more details about the basis for these questions, my approach to answering them, and the results. First, I review the literature. Then I describe the methodology that I used to investigate the research questions. Next, I present the results of my analyses. Finally, I discuss the results in the context of the extant literature and the study's limitations, as well as their implications for future research.

LITERATURE REVIEW

Contraceptive Use and Sex Education

Failure to use contraceptives (at all or effectively) during sex is the most direct proximal cause of unintended pregnancy. Indeed, about one in four women in the United States considered at-risk of unintended pregnancy report at least one month of contraceptive nonuse every year (Ayoola et al. 2014). Differential rates of consistent contraceptive use also are considered to be one reason for racial/ethnic and socioeconomic status group-level differences in unintended pregnancy; minority and low-income women are more likely to report using contraceptives inconsistently or not at all (Ayoola et al. 2014; Chen et al. 2011). However, well-known barriers to effective contraceptive use, such as lack of health care access or money to purchase contraceptives, inability to negotiate contraceptive use with partners, and religious opposition to premarital sex and contraceptives do not fully explain rates of unintended pregnancy nor the differential rates of unintended pregnancy across groups (Ayoola et al. 2014). Therefore, researchers have turned to the identification of other cognitive, behavioral, and social factors that reduce effective contraceptive use and contribute to the occurrence of unintended pregnancy.

For example, inadequate sexual education for adolescents in middle and high schools has garnered a considerable amount of research attention (Espey et al. 2016). Brown et al. (2014) report that 46% of males and 33% of females who are sexually active did not receive any education about contraception or pregnancy. There has also been a general decrease in adolescents' receipt of formal sex education; in a nationally representative study from the National Surveys of Family Growth, the receipt of sex education for boys has decreased from 81% to 62% and girls 87% to 70% from 2006 to 2013 (Boonstra et a. 2016; Bader et al. 2014).

However, there are many controversies regarding the proper or appropriate content of school-based sex education programs (Brown et al. 2014). Throughout the last decade, sex education programs that advocate for teens to delay sexual encounters have decreased and programs that improve usage of contraception if sexually active and prevent teenage pregnancy have increased (Brown et al. 2014). However, limited budgets and political opposition have gotten in the way of the introduction of these programs in many schools, especially in communities with at-risk adolescents. In states with incredibly high teenage pregnancy rates, such as Oklahoma and Alabama, sex education programs are not required in schools, which is problematic on its own (Brown et al. 2014). Nonetheless, research about the association between variations in sex education and unintended pregnancy suggests that the contribution of this factor to high unintended pregnancy rates in the United States is fairly limited (Brown et al. 2014). Recent unpublished research using data from a nationally representative study even suggests that level of knowledge about contraception and pregnancy during adolescence is not associated with subsequent pregnancy intention (Paulus 2018).

Finally, other factors to which unintended pregnancy in the United States has been attributed include: the use of sex for advertising and other media outlets, which has made images of sex and sexual behaviors readily available to people of any age; current cultural attitudes about sex and young parenting; cultural norms and unconscious bias impacting the patient-provider relationship; what people believe the correct form of parenting looks like; religiously motivated activism including the conflating of contraception with abortion and framing IUDs and emergency contraception as “abortifacients,”; and reduced access to health care and burdensome contraceptive dispensing (Espey et al. 2016).

Although efforts to address these factors are believed to have contributed to a 6% reduction (from 51% to 45%) in the number of unintended pregnancies in 2011, the unintended pregnancy rate is still significantly higher than those in comparable industrialized countries, such France and Sweden (Espey et al. 2016). Additional research on other contributors to the high rate of unintended pregnancy in the U.S. is, therefore, warranted. A wealth of scholarship in sociology on other social and health outcomes, for example, point to social relationships and especially early life family dynamics as being instrumental.

Early Life Family Dynamics

Our health and well-being are shaped by the social networks to which we belong, and, particularly, our relationships with significant others. Previous research has found, for example, that history of a troubled past—including family instability and poor parent-child relationships—may impact unintended pregnancy indirectly through their effect on pregnancy ambivalence (Barenson et al. 2015), which is inversely associated with contraceptive use. However, there is a dearth of research on how parent-child relationships in adolescence could affect a woman's pregnancy outcome later in the life course in adulthood, particularly if the nature or dynamics of the parent-child relationship has lasting effects on pregnancy intentions in adulthood.

The life course perspective on health highlights the potential importance of such research. In broad terms, it is the study of life patterns in the context of sociocultural environments that are changing over time (Elder & Rockwell 1979). As a result of events that occur over a person's life course, the consequences or individual experiences vary according to the context and the timing during which these events occur. Similarly, health and well-being are affected by lifelong processes, and they can be fully understood only within the context of experiences across one's

entire life span. With regard to unintended pregnancy, for example, previous scholars have argued that its determinants and consequences vary with age and where a woman is in her life course—or in other words, her life stage status which is often reflected by age— especially due to life-stage dependent characteristics (Helfferich et al. 2013).

Early life family dynamics may be among the life-stage dependent characteristics that matter for adult pregnancy intentions. Lareau's (2003) work on unequal childhoods, for example, reveals how social class influences parenting styles, which in turn shape a child's future, and how class differences in parenting styles may reinforce class and racial divisions in the next generation. Depending on whether parents engage in concerted cultivation parenting—high involvement with kids—or natural growth parenting—less structure and involvement—kids reach adulthood with different personalities and abilities to challenge authority, navigate bureaucracy, and manage their time (Lareau 2003). By extension, parenting styles may impact children's ability to control other aspects of their lives, such as family planning, when they reach adulthood.

In fact, previous research has shown that parent-child relationship quality impacts early sex initiation, contraception use, STIs, pregnancy, smoking, alcohol and drug use (Harville et al. 2014). Additionally, strong family bonds and effective parent-child communication—as perceived by the child and measured by level of satisfaction with the communication and relationship with a parent—in adolescence is shown to be positively related to condom use in adulthood (Chen et al. 2011). Additionally, parental communication about sex has been shown to lead to delayed sexual activity, the practice of abstinence, fewer sexual partners, and use of contraceptives. Similarly, Alexopovlos et al.'s (2017) study on risky behaviors has shown parent communication impacts children's decisions to engage in sex during adolescence. However, we

still do not know whether parent-child communication shapes sexual behaviors in adulthood, especially insofar as those behaviors lead to unintended pregnancy. We also do not know what it is about parent-child communication that matters for sexual behaviors in adulthood – is it communication quality or content? And is parent-child communication what is most important or could parents' attitudes towards their children's engagement in sexual activity matter too? This study sought to answer these questions.

Study Overview

Based on the life course perspective and Lareau's work, I used a population and longitudinal approach to examine the relationships between adolescent females' relational experiences with their mothers and unintended pregnancy in adulthood. I hypothesized that girls who perceived good communication between themselves and their mother will be less likely to experience an unintended pregnancy when they become adults. Additionally, I hypothesized girls with mothers whom they perceive to disapprove of early sex initiation are less likely to experience unintended pregnancies in adulthood. I expected the findings of this study to be useful to public health practitioners for developing new efforts to further decrease the rate of unintended pregnancy in the United States.

METHODS

Data and Sample

Data for the study were drawn from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Add Health was initiated in 1994 as a mandate from the United States Congress to find a way to monitor adolescent health, as well as the risk behaviors and social contexts within which they develop over time. Adolescents in Add Health have been interviewed five times over the life course, beginning in 1994-95 (Wave I) when they were ages 12-20 through the years 2016 - 2018 (Wave V) when they were ages 32-40. This study used data from the Wave I and Wave IV in-home interviews. The sampling frame for the study consisted of women who, in their Wave IV interview, reported experiencing at least one pregnancy after the date of their Wave III interview and who had valid sampling weights (n= 4, 262). Women were selected from this sampling frame for the study if they had complete data for all study variables (n = 3,517). Thus, the analytic sample consisted of 3,517 female respondents who reported having a pregnancy some time after the date of the Wave III interview and who had complete data for all variables of interest. However, as discussed below, data on only one of their pregnancies – i.e., the first after Wave III – served as the basis for the dependent variable.

Measures

Unintended Pregnancy. The dependent variable of unintended pregnancy was measured retrospectively in Wave IV based on responses to the question: "Thinking back to the time just before this pregnancy with (partner name), did you want to have a child then?". The response associated with the first pregnancy experienced after Wave III, i.e., the first wave

of data collected after respondents reached adulthood, was used for this measure. It was coded 1 for women who reported an unintended pregnancy and 0 for women who reported an intended pregnancy.

Mother-Daughter Communication. A measure of the general communication between mother and respondent called "Satisfaction with mother-daughter communication" was constructed from adolescents' responses to an item in the Wave I interview that asks about their level of satisfaction with the way they communicate with their mothers. Specifically, they were asked to use a 5-point likert scale ranging from strongly agree to strongly disagree to rate their level of agreement or disagreement with the following statement: "You are satisfied with the way your mother and you communicate with each other." The response options for each of these items were combined and collapsed into 2 categories—i.e., 0 = neutral or dissatisfied (i.e., the respondent said she felt neutral, disagreed, or strongly disagreed) and 1= satisfied (i.e., the respondent said she agreed or strongly agreed in response).

Mothers' Sexual Behavior Attitudes. A measure of mothers' attitudes about their child's sexual behavior was constructed from adolescents' response to question "How would your Mom feel about you having sex at this time in your life?" which was also assessed on a 5-point likert scale, ranging from strongly disapprove to strongly approve. The responses were combined and collapsed into 2 categories—0 for neutral, approve, or strongly approve (i.e., the respondent said she felt her mother was neutral, approving, or strongly approving of adolescent sexual initiation) and 1 for strongly disapprove or disapprove (i.e., the respondent said she felt her parents were disapproving or strongly disapproving of early sexual initiation).

Covariates. Other variables known to have an effect on unintended pregnancy, mother-daughter communication, or both also were included in the study to isolate the potential

relationship between the independent and dependent variables. They include: age at the time of the reference pregnancy (in years), race dummy-coded as Black, Native American, and Asian, with White as the omitted (reference) category), and education level of mothers reported by the adolescents at Wave I (dummy-coded as "high school," "some college," and "college degree" with "less than high school" as the omitted (reference) category).

Analytic Strategy

Descriptive and logistic regression analyses were conducted using Stata 15.0. Logistic regressions were used to assess the relationships between respondent's satisfaction with mother-daughter communication and whether or not her first pregnancy in adulthood was unintended, as well as between her perception of her mothers' attitudes towards her engagement in sex during adolescence and intention of first pregnancy in adulthood, while controlling for age at first pregnancy, gender, race, and mothers' education level. All analyses accounted for Add Health's complex survey design, i.e., the clustering of respondents within schools, the stratification of schools by region, and unequal probability of selection.

RESULTS

Of the 3,517 respondents included in the sample, about two thirds experienced intended pregnancies (62%) while one-third experienced unintended pregnancies (38%) (Table 1). The race and ethnic distribution of the respondents was White (77%), Black (19%), Native American (1%), and Asian (3%). Only a small proportion of respondents reported having mothers with less than a high school education (18%), while almost half reported mothers to have a high school diploma or GED (41%), a portion with some college education or vocational training (22%), and almost half with a college degree or more (19%).

Table 1. Descriptive Statistics for the Sample (N = 3,517)

			First Pregnancy Outcome	
		Total (N = 3,517)	Intended (n = 2,166)	Unintended (n = 1,351)
Variable	Values	Mean (SE) or % [a]	Mean (SE) or % [a]	Mean (SE) or % [a]
Age at Pregnancy	19-33	25 (0.13)	26 (0.12)	24 (0.16)
Mother-Daughter Communication	0-1			
Satisfied		74%	75%	74%
Neutral or Unsatisfied		26%	25%	26%
Mothers' Sexual Behavior Attitudes	0-1			
Disapprove		82%	81%	84%
Neutral or Approve		18%	19%	16%
Race				
White		77%	82%	69%
Black		19%	14%	27%
Native American		1%	1%	1%
Asian		3%	3%	3%
Mother's Education Level				
Less than HS		18%	19%	17%
HS diploma or GED		41%	40%	41%
Some college/vocational training		22%	22%	22%
College degree or more		19%	19%	20%

Abbreviations: *SE,* standard error; %, percent

[a] % reported for categorical variables; mean (SE) reported for continuous variables

With respect to the independent variables, almost three-quarters of the respondents reported in adolescence that they were satisfied or very satisfied with the communication they

had with their mothers (74%), while only about a fourth reported feeling neutral or unsatisfied (26%). For the perceived mothers' sexual behavior attitudes, a majority of respondents reported their mothers strongly disapproved or disapproved of adolescent sexual initiation (75%) while only a fourth reported their mothers were either neutral or approving of sexual behaviors in adolescence (25%).

Table 2. Odds Ratios[a] and Standard Errors for Models of Unintended Pregnancy on Mother-Child Relationship and Communication (N =3,517)

Variable	Model 1	Model 2	Model 3	Model 4
Mother-Child Communication				
Neutral or Unsatisfied [b]	---	---		---
Satisfied	0.95 (0.09)	0.88 (0.09)		
Mothers' Sexual Behavior Attitudes				
Neutral or Approve [b]	---	---	---	---
Disapprove			1.16 (0.13)	0.96 (0.11)
Race				
White [b]	---	---	---	---
Black		2.22 (0.28) **		2.22 (0.27) **
Native American		0.93 (0.36)		0.93 (0.36)
Asian		1.42 (0.26) *		1.45 (0.26) **
Mother's Education Level				
Less than HS [b]	---	---	---	---
HS diploma or GED		1.16 (0.14)		1.15 (0.15)
Some college/vocational training		1.20 (0.17)		1.21 (0.17)
College degree or more		1.41 (0.19) **		1.41 (0.19) **
Pregnancy Age	---	0.83 (0.02) **	---	0.83 (0.02) **

[a] Odds ratios are based on weighted data; standard errors are in parentheses
[b] Reference category
* $p < .05$; ** $p < .01$

Table 2 provides the results of the logistic regression analyses to determine if there is a relationship between perception of mother-daughter communication in adolescence and whether a pregnancy is unintended in adulthood, as well as a relationship between mothers' sexual behavior attitudes and pregnancy intention. In neither Model 1 (uncontrolled) nor Model 2 (controlled) was there an association between satisfaction with mother-daughter communication and having an unintended pregnancy. In Models 2 and 4, the relationship between age at the time

of pregnancy and unintended pregnancy is statistically significant. For every year increase in age, there is a 17% lower odds of having an unintended pregnancy than an intended one. Additionally, Models 2 and 4 reveal a 122% greater odds of having an unintended pregnancy among African Americans, and a 42% greater odds among Asians, compared to Whites. Furthermore, Models 2 and 4 reveal a 41% greater odds for women with mothers who have a college degree to experience an unintended pregnancy compared to women with mothers who are high school dropouts.

DISCUSSION

This study aimed to assess whether or not there were relationships between either (or both) satisfaction with mother-daughter communication and mothers' sexual behavior attitudes in adolescence and whether a woman's first pregnancy in adulthood was unintended. I began with the attempt to establish whether adolescent females who reported being neutral or unsatisfied with the communication between them and their mothers had higher risk of unintended pregnancy in adulthood compared with adolescent females who reported being satisfied with the communication. The results did not support my hypothesis that better quality mother-daughter communication during adolescence would lead to a lower likelihood of having an unintended pregnancy during adulthood. Second, I tested whether daughters' reports of mothers' sexual behavior attitudes in adolescence affect the odds of their first pregnancies in adulthood being unintended. Similar, to the results for mother-daughter communication satisfaction, there was no significant relationship between these attitudes and unintended pregnancy.

These null results are not consistent with previous literature, which has stated that adolescent experiences impact other sex-related health behaviors in adulthood, such as the use of contraception. My results could be different from this literature because, unlike the nationally representative longitudinal data I used (i.e., Add Health), previous studies have often relied on cross-sectional data collected from interviews and samples of smaller size. Although there are a few studies that did use Add Health data, they analyzed data from different waves than the ones I used. In addition, pregnancy intention may be related to aspects of parent-child communication other than the questions I used from the Wave I interviews or outside of the life course period during which the interviews were conducted (Helfferich et al., 2013). For example, a respondent

may have reported being highly satisfied with the communication between her and her mother in Wave I, but by Wave II she no longer had a good quality relationship with her mother. Similarly, health and well-being are lifelong processes, and they can be fully understood only within the context of experiences across one's entire life span (Helfferich et al., 2013); this study truncated the life span to a period between adolescence and early adulthood.

In the models for both independent variables, age at the time of the reference pregnancy (i.e., the first pregnancy in adulthood) was significantly associated with unintended pregnancy. Specifically, as age increases, risk of unintended pregnancy decreases. The findings from my study thus are consistent with previous analyses that have shown women who have experienced unintended pregnancies in the United States tend to be younger and that the older a woman is, the less likely she is to have an unintended pregnancy (Ahrens et al., 2018). Findings for the other two control variables, race and parents' education, revealed that women classified as African American and Asian are more likely to experience an unintended pregnancy and women with mothers that have a college education are more at risk for unintended pregnancy as well. The results for African American women are consistent with previous literature, which has found about a 22% higher rate of unintended pregnancy compared to Whites in the United States (e.g., Bader et. al 2014). However, the results for Asians are not consistent with previous literature, in which women identifying as Asian did not have a statistically significant higher risk of unintended pregnancy than White women (e.g., Hall et al. 2017). Additionally, the results for females with college educated parents are also not consistent with previous literature, where the association between unintended pregnancy and educational level is significant among those with parents who have less than a high school education; the lowest rates of unintended pregnancy have been shown to be associated with having parents with college degrees (Finer & Zolna 2014;

Chen et al. 2011), As I discuss below, my anomalous findings may be due to methodological and conceptual differences between my study and previous studies

Limitations

This study is not without limitations. First, the analytic sample was small due to the restriction of available data on all variables of interest. Thus, there may not have been sufficient statistical power to detect effects of the independent variables on unintended pregnancy (if one exists), particularly if the effect is small. In addition, there may have been other factors influencing whether or not a pregnancy was unintended that were not accounted for, such as knowledge and contraceptive use, leading to biased or flawed associations and results.

Another limitation of the study was restricting parent-child communication and parent sexual behavior attitudes to the mother instead of analyzing the relationship of the respondents with their mothers and fathers in adolescence. Because of demographic differences in father presence, the study focused on relationships with mothers only. However, it is crucial to note there may have been an association between the combined communication and sexual behavior attitudes of both parents instead of solely with the mother, which was not measured in this study.

Finally, the study did not consider whether or not the mother was a resident parent. While the impact of whether or not the mother and daughter lived with each other is likely captured in my measure of the quality of communication between them, whether or not a mother resided in the home with the respondent could have affected pregnancy intention in other ways outside of communication quality, such as through its impact on family instability or social class (Barenson et al. 2015; Lareau 2003).

Conclusion

Despite these limitations, the results that are presented in this study have potential implications for future research on unintended pregnancies, particularly with a social science and public health approach. Although there were no significant associations between perceived parent-child communication and sexual behavior attitudes, there was a significant association between pregnancy age and unintended pregnancy, which should be explored further. Additionally, larger studies to increase the sample size could help detect possible associations that could not be detected with a smaller sample size (and some cell sizes). Future research should also explore the aspects of parent-child communication further than what was explored in this study, such as through answering the questions that address some of my limitations: does parent-child communication differ between a resident and non-resident parent and, if so, how does the difference affect pregnancy intention? This research could add to efforts to understand why certain women experience unintended pregnancy and some do not, and to improve the outcomes of unintended pregnancy for both the mother and the child.

BIBLIOGRAPHY

Ahrens, Katherine A., Casey E. Copen, Emily J. Decker, Brittni N. Frederikson, Susan Moskosky, and Marie E. Thoma. 2018. "Unintended pregnancy and interpregnancy interval by maternal age, National Survey of Family Growth." *Contraception* 98(1):52-55.

Alexopoulos, Cassandra, and Jaeho Cho. 2017. "A Moderated Mediation Model of Parent-Child Communication, Risk Taking, Alcohol Consumption, and Sexual Experience in Early Adulthood." *Archives of Sexual Behavior*: 1-9.

Ayoola, Adejoke B., Emily Johnson, Kendra Pennings, and Gail L. Zandee. 2014. "Contraceptive Use among Low-Income Women Living in Medically Underserved Neighborhoods." *Journal of Obstetric, Gynecologic and Neonatal Nursing* 43: 455-464.

Barenson, Abbey B., Tabassum H. Laz, and Pooja R. Patel. 2015. "Patient Characteristics Associated with Pregnancy Ambivalence." *Journal of Women's Health* 24: 37-41.

Bond, Sharon. 2013. "No-Cost Contraception Reduces Unintended Pregnancies and Abortion Rates at a Population Level." *Journal of Midwifery & Women's Health* 58 (2): 226-230.

Chen, Angela-Chia, Mary Rogers Gillmore, Steven A. Haas, Albert M. Kopak, and Alyssa G. Robillard. 2011. "Do Family and Parenting Factors in Adolescence Influence Condom Use in Early Adulthood in a Multiethnic Sample of Young Adults?" *Journal of Youth and Adolescence* 40: 1503-1518.

Costanzo, Phil, Bernard F. Fuemmeler, Rick H. Hoyle, Truls Ostbye, Ilene C. Siegler, and Redford B. Williams. 2012. "Parenting Styles and Body Mass Index Trajectories From Adolescence to Adulthood." *American Psychological Association*: 31 (4): 441- 449.

Elder, G. H., & Rockwell, R. C. (1979). "The Life-Course and Human Development: An Ecological Perspective." *International Journal of Behavioral Development*, *2*(1), 1–21.

Espey, Eve, and Lauren Thaxton. 2018. "Family Planning American Style Redux: Unintended Pregnancy Improves, Barriers Remain." *Obstetrics and Gynecology Clinics of North America*: 41-56.

Finer, Lawrence B. and Mia R. Zolna. 2011 "Unintended pregnancy in the United States: incidence and disparities, 2006." *Contraception* 84:478-485.

Finer, Lawrence B. and Mia R. Zolna. 2014. **"**Shifts in Intended and Unintended Pregnancies in the United States, 2001-2008**"** *American Journal of Public Health* 104 (1): S43-S48.

Frost, Jennifer, Rachel K. Jones, Laura D. Lindberg, and Athena Tapales. 2015. "Using Longitudinal Data to Understand Changes in Consistent Contraceptive Use." *Perspectives on Sexual and Reproductive Health* 43 (3): 131-139.

Hall, Kelli Stidham, Kathleen Mullan Harris, and Jennifer L. Richards. 2017. "Social Disparities in the Relationship Between Depression and Unintended Pregnancy in Adolescence and Young Adulthood." *Journal of Adolescent Health* 60(6): 688-697.

Harville, Emily W., Aubry Spriggs Madkour, and Yiqiong Xie. 2014. "Parent-Child Relationships, Parental Attitudes towards Sex, and Birth Outcomes among Adolescents." *Journal of Pediatric and Adolescent Gynecology* 27: 287-293.

Helfferich, Cornelia, Angelika Hessling, Heike Klindworth, and Ines Wlosnewski. 2013. "Unintended pregnancy in the life-course perspective." *Advances in Life Course Research* 21: 74-86.

Lareau, Annette. 2003. *Unequal Childhoods: Class, Race, and Family Life*. Berkeley: University of California Press.

Paulus, Kirsten. 2018 "The Relationships Among Adolescent Knowledge and Moral Judgment of Contraceptives and the Effectiveness of Contraceptive Use During Adulthood." Unpublished manuscript, The Carolina Population Center, The University of North Carolina Chapel Hill, NC.