Adolescents' perceptions of parental communication and perception of contraceptive knowledge: the effects on subsequent contraceptive use

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Adolescents’ perceptions of parental communication and perception of contraceptive knowledge: The effects on subsequent contraceptive use

By

Danielle Kai Grabe

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

MASTER OF SCIENCE

Major: Human Development and Family Studies (Marriage and Family Therapy)

Program of Study Committee:
Sedahlia Jasper Crase (Major Professor)
Cathy Hockaday
Mack Shelley

Iowa State University

Ames, Iowa

2006
This is to certify that the master’s thesis of

Danielle Kai Grabe

has met the thesis requirements of Iowa State University
DEDICATION

to my parents, Gary and Sue,
for believing in me my whole life,

to my graduate school cohort,
for supporting me and for many, many memories,

to my major professor, Dr. Sedahlia Jasper Crase,
for helping me complete this project,

THANK YOU!
YOUR LOVE, SUPPORT, ENCOURAGEMENT, & PATIENCE
WILL NEVER BE FORGOTTEN.
# TABLE OF CONTENTS

## ABSTRACT

## GENERAL INTRODUCTION

## LITERATURE REVIEW
- Theoretical Framework
  - Effects of Parental Communication on Adolescent Behaviors
  - Adolescent Perceptions of Quality and Content of Parental Communication
- Knowledge of Contraceptives and Contraceptive Use
- Demographic Influences
- Self-Esteem

## METHODOLOGY
- Adolescent Health (Add Health) Data Set
  - Wave I
  - Wave II
  - Wave III
- Instruments
- Research Questions and Data Analysis

## RESULTS AND DISCUSSION
- Frequency/Internal Consistency
- Parental Communication and Contraceptive Knowledge
- Predicting Contraceptive Use
- Racial/Ethnic Differences
- Maternal and Paternal Differences in Communication
- Limitations

## GENERAL CONCLUSION

## APPENDIX A: Communication Composite

## APPENDIX B: Knowledge of Contraceptive Composite

## APPENDIX C: Self-Esteem Composite

## APPENDIX D: Contraceptive Use Composite

## APPENDIX E: IRB Approval Form

## REFERENCES
The purpose of this study was to examine the quality of parental communication between parents and adolescents at ages 13 and 14. Variables such as self-esteem, gender of parents, race, contraceptive knowledge, and contraceptive use at ages 19 and 20 were investigated in relation to the quality of parental communication at the earlier age. Participants (n = 642, male = 270, female = 372) were 13-14 year olds in Wave II of the national longitudinal study Adolescent Health (Add Health) and 19-20 years old in Wave III.

Results of this study indicate adolescents' knowledge of contraceptives at age 19-20 was not associated with quality of parental communication at ages 13-14. However, high quality of parental communication at ages 13-14 was predictive of effective contraceptive use at ages 19-20. Self-esteem at ages 13-14 was not a significant predictor of effective contraceptive use at ages 19-20. There were significant differences in quality of parental communication when racial groups were examined separately. White and Asian adolescents reported significantly higher quality of parental communication when compared to African-American adolescents. In addition, there were significant differences between the reported qualities of mother communication compared to father communication; adolescents reported a significantly higher quality of communication for mothers than for fathers.

Recommendations for future researchers are to study the specific differences in communication in an attempt to identify the unique characteristics that adolescents view as positive communication. This study has implications for how practitioners educate parents about communication skills and their influence on adolescent behaviors.
GENERAL INTRODUCTION

Adolescents are having sex earlier and with more partners than ever before. For these reasons, it is important to study adolescent sexual behavior. Early sexual behavior can have dire consequences, such as adolescent pregnancy or sexually transmitted diseases, including HIV/AIDS. According to the Alan Guttmacher Institute (2000), a large proportion of adolescents are sexually active; 75% report having engaged in sexual activity by the age of 19, with a large number reporting sexual debut at 12, 13, and 14 years of age. Many adolescents report having had multiple sexual partners, with approximately 15% reporting 6 or more partners by age 19. The Alan Guttmacher Institute reports 18.9 million STDs were diagnosed in 2000; about half of those cases were people between the ages of 15 and 24. In addition, adolescent females who engage in sexual intercourse and do not use any form of contraception have a 90% chance of becoming pregnant within one year. Babies born to adolescent mothers are more likely to have low birth weight and have childhood health problems, among other risks, than those born to older mothers (Alan Guttmacher Institute). Therefore, researching factors that contribute to and prevent early adolescent sexual debut may help us understand the causes of and thus find ways to decrease these serious consequences.
LITERATURE REVIEW

Theoretical Framework

The fields of humanistic psychology and social-learning theory focus on the impact of relational dynamics, such as quality of parental communication, on individual outcomes. Professionals from a humanistic psychology perspective believe psychological problems derive from a lack of unconditional positive regard, which lead to problem behavioral outcomes. Social learning theorists have examined the connection between self-esteem and problem outcomes with the conclusion from this perspective that higher self-esteem is associated with fewer problem behavior outcomes (Rosenberg, 1965).

Effects of Parental Communication on Adolescent Behaviors

Positive adolescent sexual development relies heavily on positive family relationships. Most research indicates the more positive an adolescent perceives a familial connection, the less likely he or she is to engage in risky sexual behaviors (Meschke, Bartholomae, & Zentall, 2002). However, there are mixed findings about the association between parental communication and adolescent sexuality. Most commonly, it has been found that the more frequent and positive the parental communication, the fewer the sexual partners and the later and less frequent are the sexual behaviors of adolescents (Karofsky, Zeng, & Kosorok, 2000; Ketterlinus, Lamb, Nitz, & Elster, 1992; Measor, 2004).

Many studies have examined the connection between the amount, in terms of the frequency, of parent-child communication and sexual outcomes (DiLorio, Kelley, & Hockenberry-Eaton, 1999; DiLorio, Pluhar, & Belcher, 2003). The results confirm an association between increased parental communication with later ages of sexual debut, consistent condom use, and fewer sexually transmitted diseases (Hutchinson, 2002; Karofsky
et al., 2000). In the majority of these studies, the frequency of communication was
determined by the adolescents’ answers to questionnaires (DiIorio et al., 1999, 2003;
Hutchinson; Karofsky et al.).

Along with the sheer frequency of communication, both the type and style of
communication have been shown to be important in predicting adolescent sexual outcomes.
Several previous researchers hypothesized that positive communication is a function of
positive parent-adolescent relationships; therefore, several researchers have examined
whether relationship dynamics are predictive of adolescent behaviors. One study (Guijarro,
Naranjo, Padilla, Gutierez, Lammers, & Blum, 1999) found that non-pregnant adolescents
tended to have higher family cohesion, connectedness, and life satisfaction than did pregnant
adolescents. Similarly, the lack of family emotional bonding has been identified as a risk
factor related to teenage pregnancy. Negative relationships have been associated with teenage
pregnancy at a younger age, and relationships with increased levels of reported parental-
adolescent intimacy have been associated with non-pregnant status in adolescence (Rogers &
Lee, 1992; Scott, 1993). A close father-daughter relationship has been associated with
female adolescents with higher self-esteem were more likely to be confident and discourage
unwanted sexual encounters.

The amount of communication and the quality of the parent-child relationship have
served as topics for much research in the area of adolescent development. However, no facet
of parent-adolescent communication has contributed to this area as much as the quality of
communication. Many researchers have chosen to examine the relationship between the
quality of parental communication and adolescent sexual behaviors. Researchers have
reported that the presence of open communication about a broad range of topics seems to protect adolescents from risky sexual behaviors (Perrino, Gonzalez-Soldevilla, Pantin, & Szapocznik, 2000). Guijarro et al. (1999) found that poor communication between parents and daughters was associated with adolescent pregnancy. The type of communication appears to be important, in that parents who are open and receptive during discussions with adolescents and do not dominate conversations are more likely to transmit values and messages that impact the behavior of their adolescent (Perrino et al.). Other researchers have found an association between parents being open, skilled, and comfortable discussing sexual issues with their adolescent children and those teens discussing and using condoms with their sexual partners (Dittus, Miller, Kotchick, & Forehand, 2004).

Lefkowitz, Sigman, and Kit-fong Au (2000) examined how mothers’ conversation styles regarding sexuality and AIDS affected the adolescents’ attitudes and comfort levels related to discussions about sexuality. The results indicated those mothers who received communication training dominated conversations less, asked more open-ended questions, acted less judgmental, and talked about sexuality and dating more than did mothers in the control group who did not receive communication training. In addition, the adolescents whose mothers received communication training showed increased discussions about birth control. These findings are important because other research indicates that mothers who do not dominate conversations about sexuality transfer more knowledge about sexuality and AIDS than do mothers who dominate (Lefkowitz, Boone, Kit-fong Au, & Sigman, 2003).

**Adolescent Perceptions of Quality and Content of Parental Communication**

Diorio et al. (2003) discovered that most parents reported talking about sex with their children, but fewer children reported having received adequate information. In addition,
King and Lorussi (1997) found that more than 50% of college students reported never having had a meaningful discussion about sex with their parents; however, 60% of parents indicated they had. When parents were asked about sexual topics discussed with their children, the most frequent responses were: menstruation, reproduction, pregnancy, birth, HIV/AIDS, and sexual values. On the other hand, the topics children identified were menstruation and dating relationships (Dilorio et al.).

Fitzharris and Werner-Wilson (2004) examined the differences in reports between adolescents and parents about sexuality communication. The authors suggested that a major barrier in sexuality communication between parents and adolescents might be the Rashoman effect, a social psychological term that refers to the possibility of different interpretations of the same events because of the perception of multiple realities. For example, if parents perceive they have discussed sexuality with adolescents adequately, they may feel that further discussions may be unwarranted. Therefore, the perception of sufficiently addressing sexuality acts as a barrier to further discussions. Fitzharris and Werner-Wilson’s findings indicate a Rashoman effect does exist between parents and adolescents. Many adolescents in the focus groups in their study reported their perception of communication about sexuality with parents was minimal, even when parents reported a perception of adequate communication.

These studies have important implications for those researching and interpreting research results in the area of parental communication and adolescent sexuality. The findings imply adolescent perceptions of both familial relationships and the amount and quality of parental communication are important to consider. It is the adolescent’s reality, not the parent’s reality, that will affect the adolescent’s choices regarding sexual behaviors.
Knowledge of Contraceptives and Contraceptive Use

Many studies have shown that parental communication has an impact on adolescents’ knowledge of contraceptives and subsequent contraceptive use. One study in particular (Werner-Wilson, Fitzharris, & Morrissey, 2004) found that those teens with higher parental communication regarding sexuality had more knowledge of birth control. According to Dittus et al. (2004), family discussions about sexuality have been connected to correct knowledge about HIV/AIDS and contraceptives and less risk-taking behaviors for adolescents. Similarly, Somers and Paulson (2000) examined the association between both parent-adolescent closeness and parental communication and the adolescents’ sexual knowledge, attitudes, and behaviors. The results suggested that less maternal communication is related to the adolescent having less sexual knowledge.

One way researchers measure adolescent contraceptive use is by using adolescent pregnancy rates. Baumeister, Flores, and Marin (1995) explored differences in perceived parental communication between adolescents who were either pregnant or parenting and adolescents who had never been pregnant. Both groups were questioned concerning the depth in which their parents communicated about birth control and other areas of sexuality. The score, which reflected the overall amount of parent-child communication, was significantly higher for the never-pregnant group compared with the pregnant/parenting group. This was true even when controlling for other variables, such as age and parents’ marital status.

Demographic Influences

Several researchers have examined the role race plays in parental communication styles and subsequent adolescent sexual outcomes. O’Sullivan, Meyer-Bahlburg, and Watkins (2001) used qualitative methods to examine the content of mother-daughter
communication about sexuality in urban African-American and Latina dyads of lower socioeconomic status. Three typical themes were found. The first theme was mothers warning daughters of dire consequences associated with sexual activity. The second theme was mothers focusing on the daughter’s responsibility in sexual encounters, for example, avoiding sex or using contraception. The third prevalent theme was daughters reassuring mothers they would avoid sexual encounters. The adolescents in the O’Sullivan et al. study tended to have higher rates of pregnancy and sexually transmitted diseases, including HIV/AIDS, when compared to Caucasian adolescents in similar studies. There may be an association between the higher prevalence rates and the themes present in discussion about sexuality and risky sexual behavior. This may be because the themes dealt with more of the negative aspects of sexuality and did not address the positive themes, which were more familiar to the adolescents. A comparison of the content of urban lower socioeconomic African-American and Latina mother-daughter dyad sexuality communication with urban lower-socioeconomic Caucasian mother-daughter dyads, thus controlling for important variables, would be more helpful than comparing across studies.

The previous finding by O’Sullivan et al. (2001) also suggested a difference in parent-adolescent communication based on race; African-American and Latina mothers tended to use negative connotations when discussing sexuality compared with Caucasian mothers in other studies. Lehr, DiIorio, Dudley, and Lipana (2000) found that while openness of parental communication was a significant predictor of age at sexual debut, the primary factor in determining age at sexual debut was race, with African-Americans more likely to initiate sex before the age of 18 than any other race in their study. Latina mothers dominated conversations more than did mothers from a European background. The adolescents from a
Latina background whose mothers dominated the conversations reported fewer discussions about sexuality and less knowledge about AIDS (Lefkowitz et al., 2000; Romo, Nadeem, Au, & Sigman, 2004). These findings confirm the idea that a domineering communications style contributes to less open communication about sexuality.

Several studies that specifically examine minority samples had similar outcomes. Baumeister et al. (1995) found that adolescents from a Latino background who received more information regarding sexuality from parents were less likely to be pregnant. Similarly, mothers from a Latina background who were more confident in their communication skills with their adolescents were more likely to initiate discussions about sexuality and therefore the adolescents were more responsive verbally and non-verbally to those discussions (Romo et al., 2004). Likewise, positive maternal relationships and increased maternal communication between African-American mothers and daughters has been associated with sexual debut at later ages and pregnancy later in adolescence or not at all (Bynum, 2001; Rogers & Lee, 1992; Scott, 1993).

Researchers also have examined the influence of mother versus father communication with adolescents. Dilorio et al. (1999) found that both males and females are more likely to discuss sexual issues with mothers than with fathers. Additionally, adolescents who reported discussing a wider range of sexual topics with their mothers were more likely to have conservative, non-risk taking, sexual values. Lehr et al. (2000) found that openness of parental communication was significant regardless of race; however, importance of mother versus father communication varied by race. Lehr et al. found that mother-adolescent communication was a predictor of later sexual debut for Whites, while father-adolescent communication predicted later sexual debut for African-Americans.
It is clear from this review of research concerning the influence of parental communication on adolescent sexual behavior outcomes that the findings are not always consistent. Many of the studies found a positive correlation between parent-adolescent communication and low sexual risk-taking behaviors. However, several studies found outcomes were often moderated by other variables.

**Self-Esteem**

Currently there is a debate in the literature regarding the association between self-esteem and problem behaviors. One side of the controversy believes there is a link between low self-esteem and problem outcomes for adolescents (Fergusson & Horwood, 2002; Sprott & Doob, 2000). Other findings have not established a significant relationship between self-esteem and problem outcomes (Jang & Thornberry, 1998; Kirkpatrick, Waugh, Valencia, & Webster, 2002; Twenge & Campbell, 2003).

Donnellan, Trzesniewski, Robins, Moffitt, and Caspi (2005) point out that there is merit for the hypothesized link between self-esteem and problem outcomes from at least two theoretical perspectives. The ideas of humanistic psychology operate under the hypothesis that a deficiency of unconditional positive regard is associated with psychological problems (Rogers, 1961). Another example of theory-driven linkages between self-esteem and problem outcomes is the social-learning theory, which states low self-esteem can weaken an individual's ties to society. Moreover, weak societal ties are associated with antisocial behaviors (Rosenberg, 1965).

The most current research indicates an association between self-esteem and problem outcomes. Donnellan et al. (2005) found a strong relationship between low self-esteem and externalizing problems when externalizing problems were defined as aggression, antisocial
behavior, and delinquency. Furthermore, current research supports the notion that relationships with parental figures influence adolescents’ self-esteem. Luke, Maio, and Carnelley (2004) examined whether experiences with parents in childhood predicted self-esteem in adolescence. As expected, a positive self-reported relationship with parents was associated with higher self-esteem.

Similarly, Hay and Ashman (2003) studied the affects of the child-parent relationship on the development of the adolescent’s emotional stability and self-esteem. There is a well accepted notion that parents directly and indirectly influence and shape the formation of adolescents’ self-esteem. This study supports that idea, indicating a relationship between self-esteem and emotional stability mediated by the parental relationship. Finally, Laible, Gustavo, and Roesch (2004) found that a secure parental attachment style was most directly associated with high self-esteem for the adolescent child. These findings indicate a possible connection between parental relationship and communication and risky sexual behaviors in adolescents.
METHODOLOGY

Adolescent Health (Add Health) Data Set

This study utilized the Adolescent Health (Add Health) data set, a national longitudinal study of adolescent health, from the University of North Carolina at Chapel Hill. The Add Health data explore adolescent attitudes and behaviors and their outcomes in late adolescence or early adulthood. The premise of this longitudinal study is that families, friends, and communities play roles in the lives of adolescents that can lead to either healthy choices or unhealthy destructive behaviors (University of North Carolina at Chapel Hill, 2004).

Initially, 90,118 adolescents from 145 representative junior high and high schools across the United States completed a 45-minute in-school questionnaire. In addition, each participating school completed a School Administrator Questionnaire. The in-school questionnaire contained questions about the student's family background, friends, school life, school work and school activities, and health and health-related behaviors. The School Administrator Questionnaire asked about the school setting and environment.

The schools provided a roster of the 90,118 who participated in the initial survey, and 27,000 adolescents in grades 7 through 12 were randomly selected from that roster to participate in the subsequent in-home interviews. Information letters about the study, along with informed consent forms, were sent to the homes of the randomly selected adolescents. If the adolescents and their parents agreed to take part in the study, they contacted the researchers by completing and returning the informed consent to the researchers.
Wave I

All interviews were conducted on an individual basis in the adolescent’s home; only one interviewer and one adolescent were present during the interview. In the first wave of data collection, 20,745 of the 27,000 adolescents from the sampled population of the in-school questionnaire agreed to participate in the in-home interview. As previously indicated, written informed consent was obtained from both the adolescents and the parents or legal guardians before scheduling the interview. Once researchers received the informed consent, they set up the interviews in the adolescent’s home via phone. A Computer-Assisted Personal Interview (CAPI)/Audio Computer-Assisted Self Interview (ACASI) was self-administered by the adolescent on laptop computers for sections that included more sensitive questions—for example, sections about sexual behaviors. Before beginning the CAPI/ACASI portion of the interview, practice questions were designed to ensure each adolescent knew how the program worked. For sections of the interview that did not require use of the CAPI/ACASI programs, interviewers asked questions and showed the adolescent response cards; therefore, the interviewer did not have to read all the response options. For the current study, only data related to race/ethnicity were taken from the Wave I data collection.

Wave II

Participants in the second phase of the survey were re-interviewed one year after the initial interview. Another informed consent form was obtained from both the adolescents and the parents or legal guardians. The sample included mostly those from the original pool of participants in Wave I. However, participants who were in 12th grade during Wave I were excluded from Wave II because they exceeded the grade eligibility requirement. A small number of adolescents were included in Wave II who did not participate in Wave I. The new
Participants were randomly selected from the remaining pool of original (90,118) participants. The same CAPI/ACASI program was self-administered by the adolescents for sections that included more sensitive questions. Before beginning the CAPI/ACASI portion of the interview, the same practice questions were used to ensure the adolescent knew how the program worked. For sections of the interview that did not require the use of the CAPI/ACASI programs, interviewers asked the same questions as in Wave I and showed the adolescent the same response cards; therefore, the interviewer did not have to read all the response options. For the current study, data related to self esteem, communication, and knowledge of contraceptives were taken from Wave II.

Wave III

The sample for the third phase of the survey included 15,197 respondents who were drawn mostly from the pool of participants in Waves I and II of data collection, including the students who had left grade 12 after wave I. Wave III interviews took place approximately 6 years after the initial interviews. Respondents were required to be 18 years of age or older and informed written consent was obtained. All respondents who agreed to participate in the survey received an incentive payment of $20 for doing so. The same CAPI/ACASI program that was used in both Waves I and II was self-administered by the participants for sections that included more sensitive questions. Before beginning the CAPI/ACASI portion of the interview, the same practice questions were given to ensure the participant knew how the program worked. For sections of the interview that did not require the use of the CAPI/ACASI programs, interviewers asked questions and showed the participant response cards; therefore, the interviewer did not have to read all the response options. For the current study, data related to contraceptive use came from Wave III.
In addition to the interview, respondents in Wave III were asked to provide a urine and/or saliva sample. Those that agreed to the urine and/or saliva sample were given another informed consent form to sign, and were given an additional incentive of $20 for these samples. The samples were collected by the interviewer at the participant’s home.

*Instruments*

The communication and knowledge of contraception composites are made up of questions each using a 5-point Likert-type range (see Appendices A and B). The communication and knowledge of contraception composites were taken from the personality and family sections of the interview at Wave II. In this section, the adolescent was asked questions about his/her personality, communication with parents, patterns of decision making, knowledge of contraception, and general life satisfaction in Waves I and II of data collection. However, this study only utilized data collected in Wave II in these areas.

The self-esteem composite is composed of questions from the feelings scale section of the interview used at both Waves I and II of data collection; however, this current study utilized the self-esteem data from Wave II only. The questions in this section used a 5-point Likert-type range (see Appendix C). The adolescents were asked to answer the questions based on how they felt emotionally and in general over the past 7 days.

In Wave III of data collection, participants were asked questions about condom and birth control usage in a section titled Contraceptive Use (see Appendix D). Participants answered questions about their own contraceptive use along with their partner’s use. Any birth control method reported that has a typical effectiveness rate of 80% and above, according to Planned Parenthood statistics (2005), was included in the interview. The 80% effectiveness rate is considered an effective form of contraception for purposes of this study,
consistent with the Planned Parenthood definition of effective contraception. The Institutional Review Board (see Appendix E) reviewed and approved these instruments and this research. Table 1 summarizes the source (Wave of data collection) of each variable included in the current study.

Table 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Wave I</th>
<th>Wave II</th>
<th>Wave III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem composite</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Communication composite</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Knowledge of contraception composite</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Contraceptive use</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Research Questions and Data Analysis**

The primary research questions that guided this research project are:

1. Is there an association between perceived quality of parental communication and perceived contraceptive knowledge at ages 13 and 14?
2. Is adolescent self-esteem at ages 13 and 14 predictive of effective contraceptive use at ages 19 and 20?
3. Is the perceived quality of parental communication at ages 13 and 14 predictive of effective contraceptive use at ages 19 and 20?
4. Does adolescent perceived quality of parental communication differ by race?
5. Is adolescent perceived quality of parental communication different for mothers than for fathers?

To use the data to answer question 1, Pearson product moment correlations were used to estimate the relationship between the parental communication composite and the contraceptive knowledge composite in Wave II. To answer question 2 and 3, logistic regression analysis was used to estimate the relationship between the self-esteem composite and the relationship between the parental communication composite in Wave II with reports of contraceptive use in Wave III. To answer question 4, a one-way ANOVA was used to examine racial differences in mean parental communication composite in Wave II. To answer question 5, a paired samples t-test was used to examine parental gender differences in the mean parental communication composite in Wave II.
RESULTS AND DISCUSSION

Frequencies/Internal Consistency

Frequencies for demographic variables, including age, race, and gender for participants in this study, are located in Table 2. This study utilized four composites comprised of questions regarding self-esteem and communication (self-esteem, communication, mom-only communication, and dad-only communication. Cronbach’s alpha values were examined for all four composites as a measure of internal consistency. All composites had adequate internal consistency, indicating all the items within the instruments were measuring the same thing (see Table 3). The means of the self-esteem, communication, and perceived knowledge of contraceptive composites are displayed by race/ethnicity and gender in Table 4.

Table 2

Frequencies for Demographic Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender at Wave II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>270</td>
<td>42.1%</td>
</tr>
<tr>
<td>Female</td>
<td>372</td>
<td>57.9%</td>
</tr>
<tr>
<td>Total</td>
<td>642</td>
<td></td>
</tr>
<tr>
<td>Age at Wave II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 years old</td>
<td>168</td>
<td>26.2%</td>
</tr>
<tr>
<td>14 years old</td>
<td>474</td>
<td>73.8%</td>
</tr>
<tr>
<td>Age at Wave III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 years old</td>
<td>419</td>
<td>65.3%</td>
</tr>
<tr>
<td>20 years old</td>
<td>223</td>
<td>34.8%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>55</td>
<td>8.6%</td>
</tr>
<tr>
<td>White</td>
<td>459</td>
<td>71.5%</td>
</tr>
<tr>
<td>African American</td>
<td>139</td>
<td>21.7%</td>
</tr>
<tr>
<td>Native American</td>
<td>24</td>
<td>3.7%</td>
</tr>
<tr>
<td>Asian</td>
<td>28</td>
<td>4.4%</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
<td>4.4%</td>
</tr>
</tbody>
</table>
Table 3

Internal Consistency of Self-esteem and Communication Composites

<table>
<thead>
<tr>
<th>Variables</th>
<th>Standardized Cronbach’s alpha</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem composite</td>
<td>.703</td>
<td>7</td>
</tr>
<tr>
<td>Communication composite</td>
<td>.876</td>
<td>15</td>
</tr>
<tr>
<td>Mom-only communication composite</td>
<td>.774</td>
<td>5</td>
</tr>
<tr>
<td>Dad-only communication composite</td>
<td>.837</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4

Means for Variables by Race/Ethnicity and Gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>Self-esteem (range = 5-35)</th>
<th>Communication (range = 5-75)</th>
<th>Contraceptive Knowledge (range = 5-15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>18.10</td>
<td>63.05</td>
<td>10.25</td>
</tr>
<tr>
<td>Black</td>
<td>18.07</td>
<td>57.83</td>
<td>10.8</td>
</tr>
<tr>
<td>Hispanic</td>
<td>16.55</td>
<td>60.05</td>
<td>10.7</td>
</tr>
<tr>
<td>Native American</td>
<td>17.66</td>
<td>61.17</td>
<td>11.61</td>
</tr>
<tr>
<td>Asian</td>
<td>17.43</td>
<td>61.82</td>
<td>10.08</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18.11</td>
<td>61.66</td>
<td>10.69</td>
</tr>
<tr>
<td>Female</td>
<td>17.92</td>
<td>62.22</td>
<td>10.19</td>
</tr>
</tbody>
</table>
Parental Communication and Contraceptive Knowledge

A bivariate correlation was used to demonstrate any association between perceived quality of parental communication and perceived contraceptive knowledge at ages 13 and 14. Parental communication and perceived contraceptive knowledge were not significantly correlated, $r(n = 628) = -.012, p = .773$.

This finding is contrary to the current literature in this area. Many studies have shown that parental communication has an impact on adolescents' knowledge of contraceptives and subsequent contraceptive use (Dittus et al., 2004; Sommers & Paulson, 2000; Werner-Wilson et al., 2004). However, the previous research focused on either the amount of parent-adolescent communication specifically regarding sexuality (Dittus et al.; Werner-Wilson et al.) or the quality of communication was a combination of adolescent and parent reports. However, because of research indicating that the adolescent's perspective is influential in his or her decisions (Fitzharris & Werner-Wilson, 2004), the parental communication composite for this study contained information about the quality of parental communication as perceived solely by the adolescents. These differences in data collection could serve as an explanation for differences in findings.

Predicting Contraceptive Use

Logistic regression was used to test the predictive value of adolescent self-esteem and parental communication at ages 13 and 14 (Wave II) of effective contraceptive use at ages 19 and 20 (Wave III). Individuals who reported being married or never engaging in sexual intercourse in Wave III were excluded from these analyses to predict more accurately contraceptive use of individuals who were single and sexually active. However, to be sure that this particular selection did not lead to bias based on potentially different levels of self-
esteem and parental communication for adolescents who had not become sexually active at Wave II, the means for all the variable composites were examined to determine if there were significant differences between those who reported being sexually active versus not sexually active at Wave III. The means were similar for all composites for both of these groups so it was logical to exclude them from these analyses.

Parental communication was found to be a significant predictor of contraceptive use, but self-esteem was not a significant predictor (see Table 5). The model chi-square was 11.73 ($df = 2, p < .005$). In the classification analysis, with a cut value of .89, 62.9% of all cases were classified correctly. However, both parental communication, $t (df = 57) = -2.65, p < .05$, and self-esteem, $t (df = 46) = -2.25, p < .05$, were significantly different between adolescents who were sexually active at Wave III and those who were not sexually active, even though self esteem was not predictive of contraceptive use.

Table 5
Logistic Regression Predicting Contraceptive Use at Ages 19-20 from Parental Communications and Self-esteem at Ages 13-14.

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>$p$ value</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental communication</td>
<td>.034</td>
<td>.013</td>
<td>7.49</td>
<td>.006</td>
<td>1.035</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.066</td>
<td>.052</td>
<td>1.587</td>
<td>.208</td>
<td>1.068</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.13</td>
<td>.998</td>
<td>1.278</td>
<td>.258</td>
<td>.324</td>
</tr>
</tbody>
</table>

The results indicate that perceived parental communication at ages 13 and 14 are significant in predicting contraceptive use at ages 19 and 20. The higher the adolescent rated his or her quality of communication with parents, the higher the likelihood of effective
contraceptive use. This finding is consistent with current research in which high quality of parental communication has been associated with non-pregnant status of adolescent girls or the partners of adolescent boys (Baumeister et al., 1995; Guijarro et al., 1999; Rogers & Lee, 1992; Scott, 1993). In addition, positive communication has been associated with fewer sexual partners and later and less frequent risky sexual behaviors of adolescents (Karofsky et al., 2000; Ketterlinus et al., 1992; Measor, 2004).

These communication findings have implication for preventative family interventions. Professionals working with adolescents and parents in a counseling capacity should be aware of and educate parents about the connection between quality of communication with their adolescent children and those children’s later contraceptive use. In addition, it would be beneficial to assess for quality of communication between adolescents and parents at the beginning of therapy in order to be able to work on skills accordingly. Using this and similar research findings to endorse preventative treatment options for adolescents and parents may help reduce risky sexual behaviors.

The logistic regression results reveal that self-esteem at ages 13 and 14 is not statistically significant in predicting effective contraceptive use at ages 19 and 20. This finding is contrary to some of the current literature and consistent with other studies on this area. A debate in the literature continues related to the association between self-esteem and problem behaviors. Some researchers believe there is a link between low self-esteem and problem outcomes, especially negative externalizing behaviors, such as risky sexual activity, for adolescents (Donnellan et al., 2005; Fergusson & Horwood, 2002; Sprott & Doob, 2000). Other findings, including the current finding, have not established a significant relationship
between self-esteem and problem outcomes (Jang & Thornberry, 1998; Kirkpatrick et al., 2002; Twenge & Campbell, 2003).

One possible explanation for the lack of significant predictive value of self-esteem on contraceptive use may be the age that self-esteem was measured. Current research supports the notion that relationships with parental figures influence adolescents’ self-esteem. Luke, Maio, and Carnelley (2004) examined whether experiences with parents in childhood predicted self-esteem in adolescence. As expected, a positive self-reported relationship with parents was associated with higher self-esteem. Interestingly, the current study found a significant association between quality of parental communication and self-esteem, $r(n = 640) = .278, p < .01$. Perhaps it is important to measure the quality of parent-adolescent communication early in adolescence and test the association with self-esteem in later adolescence. It may be that self-esteem changes through adolescence; therefore, measuring the levels at the same time as reported effective contraceptive use is more accurate. Future research should measure self-esteem at the same time as contraceptive use. Another possible concern with self-esteem is the particular measures and their validity and reliability. This is an ongoing concern and is beyond the scope of this research.

Racial/Ethnic Differences

To examine mean differences in parental communication between racial groups (Hispanic, $n = 21$; White, $n = 402$; African-American, $n = 122$; Native American, $n = 40$; and Asian, $n = 18$), a one-way analysis of variance model was estimated. Respondents who indicated membership in more than one racial group were excluded from this analysis to avoid confounding errors. Results of the analysis of variance revealed a statistically significant difference, $F(4, 562) = 5.814, p < .0005$, in the means of at least two groups.
Further examination of the multiple comparisons showed a significant difference between Whites and African-Americans and between African-Americans and Asians (see Table 6). Separate independent t-tests conducted between each racial/ethnic group showed statistically significant differences between Whites and African Americans, $t(df=177) = 4.14, p < .01$ and between African-Americans and Asians, $t(df=23) = -2.61, p < .05$.

From these results, it can be concluded that there are differences in parental communication between some racial groups. Both Whites and Asians tended to have higher parental communication scores than did African-Americans. These communication patterns for African-American adolescent-parent dyads are consistent with previous research on the role of race in parental communications styles and subsequent adolescent sexual outcomes. O'Sullivan et al. (2001), using qualitative methods to examine the content of African-American mother-daughter communication about sexuality, found three typical themes: mothers warning daughters of dire consequences associated with sexual activity, mothers focusing on the daughter's responsibility in sexual encounters, for example, avoiding sex or using contraception, and daughters reassuring mothers they would avoid sexual encounters. The racial differences found in the current study may relate to the content of these themes; the themes have a negative connotation of sexuality, which possibly are interpreted as negative communication and thus reported as such by the adolescents. Other factors such as socioeconomic status or education level of the parents may influence these results. Future research should control these factors and investigate interactions.
Multiple Comparisons for Parent Communication Between Racial Groups

<table>
<thead>
<tr>
<th>Racial Comparisons</th>
<th>Mean Differences</th>
<th>Std Error</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic w/White</td>
<td>-2.37</td>
<td>2.51</td>
<td>.88</td>
</tr>
<tr>
<td>w/Black</td>
<td>2.87</td>
<td>2.65</td>
<td>.82</td>
</tr>
<tr>
<td>w/Asian</td>
<td>-5.37</td>
<td>3.61</td>
<td>.57</td>
</tr>
<tr>
<td>w/Native American</td>
<td>.86</td>
<td>6.13</td>
<td>1.00</td>
</tr>
<tr>
<td>White w/Black</td>
<td>5.25*</td>
<td>1.16</td>
<td>.00*</td>
</tr>
<tr>
<td>w/Asian</td>
<td>-2.99</td>
<td>2.71</td>
<td>.80</td>
</tr>
<tr>
<td>w/Native American</td>
<td>3.23</td>
<td>5.64</td>
<td>.98</td>
</tr>
<tr>
<td>Black w/Asian</td>
<td>-8.29*</td>
<td>2.84</td>
<td>.031*</td>
</tr>
<tr>
<td>w/Native American</td>
<td>-2.02</td>
<td>5.71</td>
<td>.99</td>
</tr>
<tr>
<td>Asian w/Native American</td>
<td>-6.22</td>
<td>6.21</td>
<td>.85</td>
</tr>
</tbody>
</table>

*Mean difference is significant ($p < .05$).

Maternal and Paternal Differences in Communication

To examine differences in communication scores between mothers and fathers, a paired-samples \( t \)-test was conducted. The results indicated that for the 510 participants who had both a mother and a father, the mean score for mothers’ communication (\( M = 22.78 \)) was significantly greater ($p < .01$) than the mean score for fathers’ communication (\( M = 21.98 \)). In addition, there was a significant correlation between the adolescents’ reports of mother and father communication (\( r = .455, p < .001 \)) indicating that those who gave their mothers high scores (or low scores) on communication also tended to do the same for fathers.
Regardless of the degree of quality, adolescents reported mothers' communication as significantly higher than fathers' communication. This finding reflects a common theme in this area of research, especially regarding sexuality; both males and females are more likely to discuss sexual issues with mothers than fathers (DiIorio et al., 1999). However, this finding may vary depending on family demographic factors. Openness of parental communication was found to be a significant protective factor against risky sexual behaviors regardless of race; however, importance of mother versus father communication varied by race. Lehr et al. (2000) found that positive mother-adolescent communication was a predictor of later sexual debut for Whites, while positive father-adolescent communication predicted later sexual debut for African-Americans. This is an important point to consider when interpreting such findings. The increased quality of mother communication compared with father communication may be significant; however, the implications for adolescent sexual outcomes may vary by race.

Limitations

There are several advantages to the Add Health dataset. One of the major benefits is the large, nationally representative, ethnically diverse sample included in this study. In addition, the longitudinal form of data collection allows the possibility to follow the same participants over a span of several years.

However, there are many disadvantages to the Add Health study. One disadvantage is the instruments used, which relied heavily on self-reports. Even though the data collectors attempted to minimize this problem by specifying the period for participants' recall, reading the questions to participants, and having specific tabulated answers from which the participants chose, self-reports are always subject to errors in memory and bias of the
participants. In addition, using an existing dataset does not allow the individual researcher control over how data collection was handled.

Another major disadvantage specific to this study is the relatively low number of items included in the self-esteem and communication composites (see Appendices A-D). Even though the internal consistency of each of the composites were found to be acceptable, increasing the number of items included in each composite would increase the overall validity of this study and add to the generalizability of the results. Finally, readers need to be cautioned when interpreting the significant differences of the means for quality of communication. As mentioned previously, there were statistically significant differences between some racial groups and between mothers and fathers based on communication scores; however, examining the actual scores and the scales may reveal a less important difference in reality. The increments of the communication scale are ambiguous and may lead to confounding results. There may be little difference in the quality of communication between someone who tended to answer strongly agree or strongly disagree with someone who tended to answer just agree or disagree.

Ideally, a sample would include an equal number of males and female. The sample utilized in this study had more females \((n=372)\) than males \((n=270)\). An equal representation of gender would increase the generalizability of the results.
GENERAL CONCLUSION

This study examined characteristics that may influence the quality of parental communication. Sociodemographic variables, contraceptive knowledge, gender of parents, and race were compared to determine differences in quality of parental communication. In addition, quality of parental communication and self-esteem at ages 13-14 were used to predict those using effective contraceptives at ages 19-20. Participants were drawn from Wave II of data collection in the Add Health study.

A correlation analysis used to determine the relationship between the parental communication composite and the contraceptive knowledge composite in Wave II. Logistic regression analysis was performed to determine the predictive value of quality of parental communication and self-esteem on effective contraceptive use 6 years later. Analysis of variance was conducted to examine racial differences in quality of communication. A paired samples t-test was used to examine mean differences for mothers and fathers for the parental communication composite in Wave II.

Adolescents’ knowledge of contraceptives was not associated with quality of parental communication in this study. Regression analyses revealed that high quality of parental communication at ages 13-14 was predictive of effective contraceptive use at ages 19-20; however, self-esteem was not a significant predictor. Following the significant analysis of variance examining racial differences in quality of parental communication, compared comparisons showed significant differences between Whites and African-Americans and between African-Americans and Asians. White and Asian adolescents reported significantly higher quality of parental communication when compared to African-American adolescents. In addition, there were significant differences between the adolescents’ reported qualities of
mother communication compared to father communication, with significantly higher quality of communication for mothers than for fathers.

In summary, the major conclusion from this study is the importance of high quality of parental communication for effective contraceptive use in late adolescence. Moreover, the parents’ gender and some racial differences appear to influence the perceived quality of parental communication at ages 13-14.
APPENDIX A

Communication Composite

The following 11 questions are included in the communication composite from the Add Health codebook. The following questions were answered based on the following 5 responses: strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree.

- Most of the time your mom is warm and loving to you.
- Most of the time your dad is warm and loving to you.
- You are satisfied with how your mom and you communicate.
- You are satisfied with how your dad and you communicate.
- Overall, you are satisfied with your relationship with your mom.
- Overall, you are satisfied with your relationship with your dad.
- Your mom encourages you to be independent.
- When you do something wrong your mom talks about it with you.
- You usually tell your mom where you are going after school.
- Your mom usually knows what is going on in your life.
- You usually tell your parents where you go on weekends.

The following 4 questions were answered based on the following five responses: not at all, not very close, somewhat close, quite close, and extremely close.

- How close do you feel to your mom?
- How much do you think she cares about you?
- How close do you feel to your dad?
- How much do you think he cares about you?
APPENDIX B

Knowledge of Contraception Composite

The following 3 questions are included in the knowledge of contraception composite from the Add Health codebook. All questions were answered based on the following 5 responses: strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree.

- You are quite knowledgeable about how to use a condom correctly.
- You are quite knowledgeable about the rhythm method.
- You are quite knowledgeable about the withdrawal method.
APPENDIX C

Self-Esteem Composite

The following 7 questions are included in the self-esteem composite from the Add Health codebook. All questions were answered based on the last 7 days using the following 5 responses: never or rarely, sometimes, a lot of the time, most of the time, or all of the time.

- You felt you were just as good as other people.
- You thought your life had been a failure.
- You felt lonely.
- You were happy.
- People were unfriendly to you.
- You enjoyed life.
- You felt people disliked you.
APPENDIX D

Contraceptive Use

Following are the questions included in the contraceptive use portion of the interview derived from the Add Health codebook. Participants were asked to mark all responses that apply.

- In the past 12 months, which of the following methods of birth control have you/a female partner of yours used? (Mark all that apply)
  - Birth control pills
  - Norplant
  - Depo Provera
  - A diaphragm

- In the past 12 months, which of the following methods of birth control have you/a male partner of yours used? (Mark all that apply)
  - Condom
The Institutional Review Board has reviewed the project, "Adolescents' perceptions of parental communication and contraceptive knowledge: The effects on subsequent contraceptive use" requirements of the human subject protections regulations as described in 45 CFR 46.101(b)(4). The applicable exemption category is provided below for your information. Please note that you must submit all research involving human participants for review by the IRB. Only the IRB may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.

The IRB determination of exemption means that this project does not need to meet the requirements from the Department of Health and Human Service (DHHS) regulations for the protection of human subjects, unless required by the IRB. We do, however, urge you to protect the rights of your participants in the same ways that you would if your project was required to follow the regulations. This includes providing relevant information about the research to the participants.

Because your project is exempt, you do not need to submit an application for continuing review. However, you must carry out the research as proposed in the IRB application, including obtaining and documenting (signed) informed consent if you have stated in your application that you will do so or required by the IRB.

Any modification of this research must be submitted to the IRB on a Continuation and/or Modification form, prior to making any changes, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.
REFERENCES


