

5-2009

# Grandparents as Adult Mentors on Reported Adolescent Risk-Taking Behaviors

Thane R. Goodrich  
*Utah State University*

Follow this and additional works at: <http://digitalcommons.usu.edu/etd>

---

## Recommended Citation

Goodrich, Thane R., "Grandparents as Adult Mentors on Reported Adolescent Risk-Taking Behaviors" (2009). *All Graduate Theses and Dissertations*. Paper 354.

This Dissertation is brought to you for free and open access by the Graduate Studies at DigitalCommons@USU. It has been accepted for inclusion in All Graduate Theses and Dissertations by an authorized administrator of DigitalCommons@USU. For more information, please contact [dylan.burns@usu.edu](mailto:dylan.burns@usu.edu).



GRANDPARENTS AS ADULT MENTORS ON REPORTED ADOLESCENT RISK-  
TAKING BEHAVIORS

by

Thane R. Goodrich

A dissertation submitted in partial fulfillment  
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Family and Human Development

Approved:

---

Troy E. Beckert, Ph.D.  
Major Professor

---

Randall M. Jones, Ph.D.  
Committee Member

---

Thomas R. Lee, Ph.D.  
Committee Member

---

Maria C. Norton, Ph.D.  
Committee Member

---

Brian K. Warnick, Ph.D.  
Committee Member

---

Byron R. Burnham, Ed.D.  
Dean of Graduate Studies

UTAH STATE UNIVERSITY  
Logan, Utah

2009

Copyright © Thane R. Goodrich 2009

All Rights Reserved

## ABSTRACT

The Influence of Grandparents as Adult Mentors on Reported  
Adolescent Risk-taking Behaviors

by

Thane R. Goodrich, Doctor of Philosophy

Utah State University, 2009

Major Professor: Troy E. Beckert, Ph.D.  
Department: Family, Consumer, and Human Development

Adolescent risk-taking behaviors, both negative and positive, continue to be a point of interest for researchers and of concern for society. Negative risk-taking behaviors threaten healthy adolescent development and may have deleterious effects on the remainder of the adolescent's life. Positive risk-taking behaviors promote healthy development and can aid in pro-social outcomes. Mentoring has been an established means of assisting adolescents through this sometimes difficult stage of life. Researchers have identified those elements which tend to make the greatest impact in mentoring programs. Among those known elements are adults who are found in "naturally" occurring settings. Teachers in schools, religious leaders in church, coaches from athletic teams, rather than programmed or structured mentoring organizations, are most effective at having a lasting impact on adolescent risk-taking behaviors.

This study examined grandparents as potential adolescent mentors who could be utilized to make significant and important differences in adolescent risk-taking behaviors. Using the National Longitudinal Study of Adolescent Health (Add Health), this study compared adolescents who self-reported not having any adult mentors in their life against adolescents who self-reported having a grandparent mentor in their life on various negative (i.e., sexual attitudes and behaviors, cigarette, marijuana, and alcohol use) and positive (i.e., popularity and educational issues) risk-taking behaviors. Differences between male and female adolescents were also explored as well as differences observed when looking at maternal and paternal grandparents. Results indicated that overall, adolescents with a grandparent mentor had better mean scores on risk-taking outcomes than adolescents without any mentors. Several differences were observed between males and females when comparing those without mentors to those with a grandparent. Few differences were observed in outcomes between males and females when comparing maternal and paternal grandparents. Discussion addressed results, theoretical implications, study limitations, and directions for future research related to grandparents as mentors of adolescents.

(159 pages)

## ACKNOWLEDGMENTS

It is nothing short of an incredible endeavor when one makes the decision to tackle a doctoral degree. The rigors of such I will never forget, nor again repeat. Those who have persevered, endured, and literally survived have my utmost respect and admiration. However, three years later my reading skills are improved, I think more critically, truth is more discernable from fiction, my writing is more proficient, and appreciation for others has increased.

Particular thanks must go to Dr. Troy E. Beckert. Dr. Beckert has shown masterful skill in guarding the line of professionalism while simultaneously making me feel he is my friend and colleague. Saying what needed to be said, critiquing what needed critiquing, and offering compliments when merited, made the process productive and meaningful. He has my utmost admiration and appreciation for all he is.

To all the professors from whom I took courses and who served on my committee, thank you. Each of you had a unique way of teaching, stretching, supporting, and improving my doctoral experience and my life. Dr. Jones, oh Dr. Jones!

Not many experiences in life that have real meaning can be accomplished alone. For nearly sixteen years I have had the support of my sweetheart, Kathy. This doctoral experience put a lot of responsibility and pressure on her. Amidst the challenges of graduate school, especially the first year, rearing six children with another on the way, she was always supportive and encouraging. I love and thank you for all you have done, for all you do, and for all you are. Thanks to all my family and friends for everything.

Thane R. Goodrich

## CONTENTS

	Page
ABSTRACT .....	iii
ACKNOWLEDGMENTS .....	v
LIST OF TABLES .....	viii
CHAPTER	
I. INTRODUCTION .....	1
Adolescence .....	1
Mentoring .....	4
Grandparents .....	6
Theory .....	7
Purpose Statement and Research Questions .....	9
II. REVIEW OF LITERATURE .....	11
Introduction .....	11
Negative Risk-Taking Behaviors and Attitudes .....	11
Positive Risk-Taking Behaviors .....	19
Mentoring.....	27
Grandparents .....	33
Conclusion .....	44
III. METHODS .....	50
Data.....	50
Add Health Design .....	51
No Mentor Versus Grandparent Mentor Groups .....	54
Risk-Taking Behaviors .....	56
Negative Risk-Taking Behaviors .....	58
Positive Risk-Taking Behaviors .....	61
Gender Differences .....	62
Maternal Versus Paternal Grandparent Differences .....	63
Statistical Analyses .....	63
IV. RESULTS .....	65

Research Question 1 .....	66
Research Question 2 .....	73
Research Question 3 .....	85
V. DISCUSSION .....	100
Adolescents with No Mentor Versus Adolescents with a Grandparent Mentor .....	102
Males Versus Females without Mentors and with a Grandparent Mentor.....	104
Maternal Versus Paternal Grandparent Mentors.....	106
Theoretical Implications .....	109
Implications for Research and Education .....	111
Limitations .....	114
Conclusion .....	116
REFERENCES .....	118
APPENDICES .....	136
Appendix A: Comparisons of Frequencies and Percentages of Study Sample Participants Involved in Adolescent Risk-Taking Behavior .....	137
Appendix B: Add Health Questions .....	143
CURRICULUM VITAE.....	148



## LIST OF TABLES

Table	Page
1	Demographic Characteristics of Add Health Participants Without Mentors and Those With a Grandparent Mentor During Adolescence.....57
2	Mean Scores Comparison of Adolescent Sexual Attitudes and Behaviors of Youth Without a Mentor and Youth With a Grandparent Mentor.....67
3	Mean Scores Comparison of Adolescent Cigarette and Marijuana Use for Youth Without a Mentor and Youth With a Grandparent Mentor.....69
4	Mean Scores Comparison of Adolescent Alcohol Use for Youth Without a Mentor and Youth With a Grandparent Mentor.....71
5	Mean Scores Comparison of Adolescent Popularity and Education Issues for Youth Without a Mentor and Youth With a Grandparent Mentor.....72
6	Mean Scores Comparison of Adolescent Male Sexual Attitudes and Behaviors Without a Mentor and With a Grandparent Mentor.....74
7	Mean Scores Comparison of Adolescent Female Sexual Attitudes and Behaviors Without a Mentor and With a Grandparent Mentor.....75
8	Mean Scores Comparison of Adolescent Male Cigarette and Marijuana Use Without a Mentor and With a Grandparent Mentor.....77
9	Mean Scores Comparison of Adolescent Female Cigarette and Marijuana Use Without a Mentor and With a Grandparent Mentor.....78
10	Mean Scores Comparison of Adolescent Male Alcohol Use Without a Mentor and With a Grandparent Mentor.....80
11	A Comparison of Adolescent Female Alcohol Use Without a Mentor and With a Grandparent Mentor.....81
12	Mean Scores Comparison of Adolescent Male Popularity and Education Issues Without a Mentor and With a Grandparent Mentor.....83
13	A Mean Scores Comparison of Adolescent Female Popularity and Education Issues Without a Mentor and With a Grandparent Mentor.....84

14	Mean Scores Comparison for Adolescent Male and Female Sexual Attitudes and Behaviors on Maternal Grandparent Side.....	87
15	Mean Scores Comparison for Adolescent Male and Female Sexual Attitudes and Behaviors on Paternal Grandparent Side.....	88
16	Mean Scores Comparison of Adolescent Male and Female Cigarette and Marijuana Use on Maternal Grandparent Side.....	90
17	Mean Scores Comparison of Adolescent Male and Female Cigarette and Marijuana Use on Paternal Grandparent Side.....	91
18	Mean Scores Comparison of Adolescent Male and Female Alcohol Use on Maternal Grandparent Side.....	93
19	A Comparison of Adolescent Male and Female Alcohol Use on Paternal Grandparent Side.....	94
20	A Mean Scores Comparison of Adolescent Male and Female Popularity and Education Issues on Maternal Grandparent Side.....	96
21	Mean Scores Comparison of Adolescent Male and Female Popularity and Education Issues on Paternal Grandparent Side.....	97

# CHAPTER I

## INTRODUCTION

### Adolescence

The period of adolescence is often characterized by dramatic increases in risk-taking behaviors, some of them positive, but many of them negative (Fischer, Pidcock, & Fletcher-Stephens, 2007). Some of these negative behaviors include early sexual experience, cigarette or tobacco use, marijuana use, and alcohol consumption.

In 1992, over 60% of never-married youth ages 14 to 21 reported having had sexual intercourse (U.S. Department of Health and Human Services, 1995). More recent national data show that 18 to 19% of adolescents have engaged in sexual intercourse prior to age 15 (Brown & Flanigan, 2003), and approximately 76% of girls and 85% of boys by age 19 (Schvaneveldt, Miller, Berry, & Lee, 2001). In the United States, 48.5 births per 1,000 unwed adolescents occur each year posing biological, emotional, and social challenges for both boys and girls and often carry negative consequences for the children they bear (Lohman & Billings, 2008).

Tobacco use among tenth and twelfth graders has increased from 22% to 23% between 2003 and 2005 (Centers for Disease Control and Prevention, 2006). A recent National Institute on Drug Abuse report indicated that approximately 65% of high school seniors had smoked cigarettes, 23% had experimented with marijuana, and 80% of high school aged adolescents surveyed had consumed alcoholic beverages (Johnston, O'Malley, & Bachman, 2001). In 2004, 22% of drivers ages 16 to 20 involved in fatal crashes had been consuming alcoholic beverages (NHTSA; National Highway Traffic

Safety Administration, 2006). The National Youth Risk Behavior Survey of 2003 reported that 12% of 9-12 graders in the United States had engaged in driving under the influence of alcohol and approximately 30% of surveyed adolescents had traveled in a car with someone else who was drinking within 30 days of taking the survey (Chen, Grube, Nygaard, & Miller, 2008). Young people ages 18 to 29 have the highest rates of past-year alcohol abuse and dependency (Grant, Dawson, & Stinson, 2004).

In 1904, G. Stanley Hall coined the phrase “storm and stress” to describe this sometimes tumultuous period of adolescent development. Although Hall was primarily addressing the biological changes taking place during adolescence, “storm and stress” may also be an appropriate phrase to help explain the documented increases in parental conflict, mood disruptions, and risk-taking behaviors associated with the second decade of life. Certainly “storm and stress” is not universal to all adolescents. For many, if not most adolescents, the teen years pass rather smoothly (Ayman-Nolley & Taira, 2000). Researchers should take into account individual differences in adolescents’ genetics, their varied environments, as well as uniqueness between cultures. However, evidence suggests that “storm and stress” is more likely during adolescence than at any other time in the life cycle (Arnett, 2007).

Not all of the risks taken by adolescents are negative. Many risks, although still difficult and stressful, are positive. Examples include: choosing to take a difficult class and prepare for college and career; trying out for an athletic team; acting on stage before peers; and gaining new friends. These risk-taking behaviors can lead to good outcomes and are generally considered healthy activities (Arnett, 2007). However, adolescence often has a negative connotation perpetuated by the negative adolescent risk-taking

behaviors which seem prevalent and according to some researchers, are on the rise (Moore & Haggerty, 2001).

Numerous national efforts have been designed to assist adolescents by reducing their participation in negative risk-taking behaviors and thus decrease or altogether eliminate contributors to “storm and stress.” At the same time, those national programs encourage participation in positive risk-taking activities such as improving popularity and increasing educational attainment. Those programs have helped in a variety of ways: building self-confidence, improving communication skills, providing alternatives to difficult situations, exposing adolescents to new opportunities, creating new friendships, setting goals, and planning for the future. However, many programs are struggling to sustain the reductions in adolescent negative risk-taking behaviors (i.e., early sexual behavior and drug use) and maintain adolescent participation in positive risk-taking activities (i.e., popularity and educational attainment; Forster, Chen, Blaine, Perry, & Toomey, 2003). Federally funded anti-drug campaigns such as “Just Say No” and “Scared Straight,” although initially impactful and attention getting, are not having the long-term results program developers hoped (Petrosino, Turpin-Petrosino, & Buehler, 2002). There is a need for more effective techniques or programs.

It is easy to see a number of environmental and social challenges contributing to the problems which are affecting adolescents (Vazsonyi, Trejos-Castillo, & Young, 2008). More adolescent children are growing up in single parent homes (Padilla-Walker, Nelson, Madsen, & Barry, 2008). A significant number of those single parent homes are low income families. Smaller household incomes and minimal flexibility in schedules allow parents less time to enjoy with their family and less availability to monitor

adolescent behaviors (Martins, Storr, Alexandre, & Chilcoat, 2008). Low parental monitoring has been correlated with increased negative risk-taking behaviors in adolescence (Fergusson, Boden, & Horwood, 2008; Oman et al., 2007).

Concern for neighborhood safety decreases the amount of time parents permit their children to participate in unstructured play and associations with other neighborhood adults. This limited time spent with adolescents among non-parent adults is important in the context of their overall healthy development because significant reductions in adolescent risk-taking behaviors are shown if adolescents have a close, long lasting relationship with a non-parent adult figure (DuBois & Silverthorn, 2005). Providing opportunities to form these relationships between adults and adolescents is valuable to the development of young people, but available adult resources are limited and already stretched thin. Adults are often caught up in other important life cares such as work schedules, educational pursuits, volunteer efforts, and their own personal social interests making it difficult to give more to any capacity no matter how important.

One means of connecting non-parent adults with children and adolescents is through mentoring. Carefully developed and maintained mentoring programs provide significant and important means of assisting adolescents in avoiding negative risk-taking behaviors and encouraging participation in positive activities. However, staffing mentoring programs with reliable adults is becoming more and more challenging.

### Mentoring

Social theorists contend that many basic needs of individuals are not, and arguably cannot be, met without the influence of others who are more experienced, more

capable, and willing to fulfill them (Bandura, 2002; Vygotsky, 2004). Mentoring is designed on that premise. Mentoring is generally accepted as the process by which an older individual, usually a non-parental adult, provides guidance and counsel to a younger person. Numerous success stories of adolescents who have fought through challenging life circumstances indicate the involvement of at least one influential non-parental adult.

Mentoring has evolved from working with a known and trusted party to a variety of programs where adult volunteers are recruited and trained to become mentors of youth in need of adult influence. These adults may or may not have any prior connections or associations with the youth they mentor nor their families, although the most influential adults seem to have a personal, “natural,” intimate connection such as extended family members, neighbors, teachers, and coaches (Beam, Chuansheng, & Greenberger, 2002; Zimmerman, Bingenheimer, & Notaro, 2002). Recently, scholars have shown small but positive results in formal volunteer mentoring programs, however, those results are not as impactful on adolescents as informal, “natural,” supportive mentoring relationships with non-parent adults. Researchers have found that adolescents with “natural” mentors, or mentors whose relationship occurs outside of formal mentoring programs (i.e., extended family members, neighbors, teachers, and coaches), were more likely to exhibit favorable outcomes in the areas of education, work, problem behavior, psychological well-being, and physical health (DuBois & Silverthorn, 2005) and thus appear more effective at shaping adolescent behaviors than do volunteers in formal mentoring capacities.

Better quality mentoring is most helpful. Researchers have found that the most effective mentoring relationships are correlated with the interactional styles of

participants. The more aligned mentoring program participants are on family, social class, and culture, the better the impact on adolescents (Herrera, Sipe, & McClanahan, 2000). Grandparents are a group of potential mentors of adolescents who meet all of the criteria for being “naturally” apt and aligned on family, social class, and culture to make a significant long-term difference in the lives of their adolescent grandchildren. Very little research has considered grandparent potential as mentors of adolescent youth. As a potential to benefit adolescents, grandparents as mentors merit careful consideration.

### Grandparents

The number of grandparents in the United States has increased tremendously during the past century (Spence, Black, Adams, & Crowther, 2001). Grandparents are living longer and in better health than ever before. Substantial historical shifts in numerous sociodemographic characteristics of grandparents (i.e., mortality, fertility, marital status, numbers of grandchildren, general health, income, level of education), have influenced a redefinition of grandparenting today. These changes have led many grandparents to assume more salient roles in the lives of their grandchildren (Crosnoe & Elder, 2002; Hayslip, Henderson, & Shore, 2003) even providing primary care to their grandchildren.

In situations where grandparents are not the primary caregivers of grandchildren, their potential as effective mentors is easily understood. Their intimate familial connection, love, commitment, and vested interest in the success of their grandchildren, along with similar status in social class and culture make them a “natural” fit with their adolescent grandchildren. Years of life experiences can provide them with wisdom and



information which may be passed on to their adolescent grandchildren providing them with hope, comfort, and insight towards successfully managing their life experiences whether described as “storm and stress” or not.

Often, grandparents of adolescents are retired from full-time employment which provides them the critical element of time which may be used to interact with their adolescent grandchildren. Those interactions may occur in a variety of ways such as, face-to-face, telephone, text-messaging, postal communications, or e-mail. With ever increasing numbers of dual-income families, more and more children and adolescents find themselves with unstructured and unsupervised time alone. Researchers have identified troubling trends of increasing adolescent negative risk-taking behaviors during this unstructured and unsupervised time (Park, Lee, Bolland, Vazsonyi, & Fei, 2008). Grandparents may be a valuable tool for parents and adolescents alike to assist in reducing today’s negative risk-taking trends and increasing those risk-taking behaviors identified as more positive and pro-social. Grandparents may also be a resource in providing the needed structured and supervised time in which adolescents benefit by interacting with a responsible non-parental adult.

### Theory

Urie Bronfenbrenner (1917-2005) is credited with developing what today is referred to as ecological systems theory (Bronfenbrenner, 1979). In his theory, Bronfenbrenner detailed the key circles of influence which surround an individual and contribute to their development. The most influential circle is comprised of family, school, and peer groups and is called the microsystem. Outside of the microsystem are

elements of the mesosystem which involve neighborhood and community organizations which interact with one another. The mesosystem may also include work, church groups, and youth clubs. Beyond these circles of individual influence are broadening cultural, economic, and political forces referred to as the exosystem and macrosystem (Brendtro, 2006). The chronosystem is an overarching component included in this theory of human development to understand changes which occur in individuals and/or environments in and over moments and/or periods of time.

Bronfenbrenner stated:

In order to develop – intellectually, emotionally, socially, and morally – a child requires participation in progressively more complex reciprocal activity, on a regular basis over an extended period in the child’s life, with one or more persons with whom the child develops a strong, mutual, irrational, emotional attachment and who is committed to the child’s well-being and development, preferably for life. (Bronfenbrenner, 1991, p. 2)

Bronfenbrenner also stated that every child needs at least one adult who is irrationally crazy about him or her. He also suggested that to meet a child’s needs, the primary caregiver should also have the support of another adult, such as a spouse or even a grandparent (Bronfenbrenner).

Grandparents as mentors of adolescent grandchildren are potentially a good fit with Bronfenbrenner’s ecological systems theory. A grandparent as a mentor may often fit Bronfenbrenner’s criteria of being another caring adult committed to the child’s well-being and development for life. A grandparent as a mentor falls within the most

influential circle of influence, the microsystem, and has the potential to make a significant and important difference in their adolescent grandchild's life.

### Purpose Statement and Research Questions

The purpose of this study was to explore outcomes in adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and education issues) for adolescents without a grandparent mentor and adolescents who identify having a grandparent mentor. This study hoped to determine whether grandparents could be a statistically significant and socially important means of assisting adolescents to cope with or altogether avoid issues which may contribute to “storm and stress.”

Beginning in 1994, researchers from the Carolina Population Center at the University of North Carolina at Chapel Hill led a team of investigators in conducting Wave I through Wave III of the National Longitudinal Study of Adolescent Health (Add Health). Various questions were asked in each wave of data collection relating to behavioral and social topics pertinent to adolescent development. In the third wave of data collection, a series of questions were asked relating to adolescents having mentors in their lives. Respondents first acknowledged whether or not they had an influential mentor in their life since age 14 and then second, identified the nature of that relationship with them (i.e., grandparent, teacher, coach, minister; Udry, 2003). This line of questioning about mentors, specifically involving grandparents, and the various questions associated with adolescent risk-taking behaviors make this data set an interesting source of research

information to aid our understanding of human development. It is for these reasons that this study utilized the Add Health data and addressed the following research questions:

1. What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) between adolescent groups without any mentors and those with a grandparent mentor?
2. What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) when comparing adolescents indentified without any mentors and those with a grandparent mentor, stratified by adolescent gender?
3. What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) when comparing adolescent males and females self-identified as having a maternal grandparent mentor versus adolescent males and females self-identified as having a paternal grandparent mentor?

## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

This chapter provides a brief review of the literature as it pertains to trends and issues relative to negative adolescent risk-taking behaviors involving sex, cigarette and marijuana use, and alcohol consumption. This chapter also briefly reviews the literature related to the positive adolescent risk-taking behaviors as seen in adolescent popularity and issues relating to education. After reviewing specific risk-taking behaviors, detailed information is shared relating to mentoring and grandparenting. Finally, the chapter summary connects grandparents as mentors and introduces their potential to assist in reducing negative adolescent risk-taking behaviors and increasing adolescent positive risk-taking behaviors in accordance with the research questions stated for this study.

#### Negative Risk-Taking Behaviors and Attitudes

##### *Sexual Behaviors*

As is observed with many negative risk-taking behaviors, adolescence is the time when most individuals first experience sexual intercourse (Lohman & Billings, 2008). The age for adolescent first time sexual intercourse is decreasing as well (Lohman & Billings). In 1992, over 60% of never-married youth ages 14 to 21 reported having had sexual intercourse (U.S. Department of Health and Human Services, 1995). National data showed that 18 to 19% of adolescents had engaged in sexual intercourse prior to age 15 (Brown & Flanigan, 2003) and approximately 76% of girls and 85% of boys by age 19

had engaged in sexual intercourse (Schvaneveldt et al., 2001). In the United States, 5% of adolescents experience an unwed birth each year and those unwed births are associated with a variety of challenges for both boys and girls affecting their home life, educational pursuits, and social lives (Lohman & Billings). Those individual challenges not only impact adolescents, but carry over into many realms of society. Social problems associated with unwed births include abortion, child welfare, healthcare, government welfare assistance, single-parenting, and overall wellness of the adolescents and their babies. Each is a concern for the general public. Finding ways to reduce the incidence of sexual intercourse is an important step in addressing these subsequent challenges. Sexual behavior, like any other behavior, is not an isolated experience, but a combination of various bi-directional developmental domains. Those domains include biological factors, psychological influences, and social elements of development.

Biological maturation initiates the adolescent phase of life known as puberty. Pubertal development begins with the production of hormones which have a direct influence on the sexual drive called libido. Indirectly, hormones exert an influence on sexual involvement by initiating changes in physical appearance through the development of secondary sex characteristics such as breasts for young girls and deepening of the voice for boys (Brooks-Gunn & Graber, 1994; Meschke, Zweig, Barber, & Eccles, 2000). The pubertal changes and their influence on sexual behavior vary by gender and are influenced by a number of other biological contributors (i.e., genetics, body composition, health) and environmental factors (i.e. diet, family type, parenting practices, and education).

Psychological factors influencing the timing of first intercourse include attitudes, values, and emotional adjustment (Martino, Elliott, Collins, Kanouse, & Berry, 2008; Miller, Norton, Fan, & Christopherson, 1998). Sexual behaviors may be employed as a tool when developing friendships, as a method of fighting loneliness, and researchers have indicated that both boys and girls have sex in response to peer pressure or desires to be popular (Meschke et al., 2000). Sexual activity may be used as a coping mechanism to assist adolescents to “feel better” about themselves or their situations.

Social influences on adolescent sexual attitudes and behaviors are most seen in the areas of family and peers. Parental control and regulation has consistently been related to adolescent sexual behaviors (Miller et al., 1998). More control by parents is correlated with later age of first intercourse for both boys and girls. In a study using waves 4, 5, and 7 of the Michigan Study of Adolescent Life Transitions (MSALT, 1983-1993) involving a subsample of 157 boys and 268 girls, it was found that peers tend to provide information to each other about sexual attitudes, act as role models of behaviors, and provide opportunities to participate in sexual experiences (Meschke et al., 2000). In their four wave study of 1,591 adolescent participants who completed all four waves conducted in 1989-1992, Costa and colleagues showed that peers are often more influential than parents in predicting earlier initiation of sexual intercourse at the .001 alpha level of statistical significance (Costa, Jessor, Donovan, & Fortenberry, 1995).

This study suggests that grandparents, who are closely connected to their grandchildren, could assist in reducing the risky sexual behaviors of those adolescent grandchildren. Grandparents, if geographic proximity allows, can act as an adult presence in parental absence or neglect. Grandparents could act as a source of

information and support for their adolescent grandchildren as they experience changes in their biological, psychological, and social development affecting sexual behaviors.

### *Cigarette, Marijuana, and Alcohol Use*

A recent National Institute on Drug Abuse report indicated that approximately 65% of high school seniors had smoked cigarettes, 23% of high school seniors had experimented with marijuana, and approximately 80% of high school seniors had consumed alcoholic beverages (Johnston et al., 2001). Although substance use for many adolescents only lasts for a brief period of experimentation, any use of tobacco, marijuana, and alcohol may lead to addiction (Oman et al., 2007).

Similar to sexual behaviors, first use of tobacco, marijuana, and alcohol occurs most often during adolescence in the United States and other western countries (Oman et al., 2007; Wittchen et al., 2008). Substance use is related to negative outcomes affecting overall health and emotional wellness, social competence, and correlates with problems in academics, family, and workplace (Palmer & Liddle, 1996). Researchers also note that adolescent substance use is generally associated with a number of risk-factors: Family history of substance use, preexisting mental health problems (depression), low levels of self-regulation, non-traditional family make-up, parental absence and/or parents who monitor behavior poorly, deviant peer pressure and models, having been victims themselves of sexual or physical abuse, popularity status, and beliefs which encourage substance use (Brown et al., 2008; Kandel, Johnson, Bird, & Camino, 1997). The literature abundantly outlines the deleterious effects of drug use during adolescence.



Specific issues related to each substance of consideration in this study are discussed below.

*Cigarette use.* In recent years there has been a slight decline in smoking prevalence among adults in western countries, however, during the late 1990's, smoking prevalence increased among adolescents (Burt, Dinh, Peterson, & Sarason, 2000; Shadel, Shiffman, Niaura, Nichter, & Abrams, 2000). Some researchers claim these increases are likely to continue worldwide over the next two decades as tobacco industry advertising targets adolescents in developing countries (King et al., 2003). Tobacco use among tenth and twelfth graders increased from 21.9 to 23.0 % between 2003 and 2005 (Centers for Disease Control and Prevention, 2006). It is estimated that more than 3 million U. S. adolescents younger than 18 years of age smoke cigarettes. Almost one fourth of adolescents smoke by the time they graduate from high school, and nearly 90% of adults indicate they started before they were 18 years old (Centers for Disease Control and Prevention). It is reported that approximately 4,400 teenagers try their first cigarette each day and contribute to the estimated 1.5 million adolescents who begin smoking regularly every year (Rosen, Maurer, & Darnall, 2008).

There are a variety of personal factors influencing smoking among children and adolescents: rebelliousness (Burt et al., 2000), risk-taking, fragile self-esteem, weak refusal skills (Stead, Hastings, & Tudor-Smith, 1996), intention to smoke, poor academic performance (Hanson, 1999), establishing personal identity, and stress and coping strategies (Falkin, Fryer, & Mahadeo, 2007; Fothergill et al., 2008; Koval, Pederson, Mills, McGrady, & Carvajal, 2000). A majority of researchers identify rebellion, stress and smoking by peers, siblings, and parents as the most influential risk factors (Baillie,

Lovato, Johnson, & Kalaw, 2005; Eisenberg & Forster, 2003; Forster et al., 2003). The most commonly stated reasons for experimentation and initiation of tobacco use are curiosity, social norms, being offered or pressured by others, relaxation, desire, and self-image (Von Bothmer & Fridlund, 2001). All these issues are relevant to individuals in the stage of adolescent development.

Several environmental factors influence adolescent smoking behaviors. They include availability, affordability, and advertising (Stead et al., 1996). Smoking has been connected to adolescent illicit drug use and decreases in positive risk-taking such as educational goal-setting and attainment (Fergusson et al., 2008; Hanson, 1999; Von Bothmer & Fridlund, 2001; Wittchen et al., 2008). Students who report an interest in attending a four year college have significantly lower smoking rates than those who do not plan to attend (Rosen et al., 2008).

*Marijuana.* In a study by the U.S. Department of Health and Human Services called “Monitoring the Future,” over 45,000 youth in grades 8, 10, and 12 were examined and found that:

Marijuana is the most widely used illicit drug. The annual prevalence rates in grades 8, 10, and 12, respectively, are 16%, 32%, and 37%.

Current daily prevalence rates (defined as the proportion using it on 20 or more occasions in the prior 30 days) are 1.3%, 3.8%, and 6.0%. Annual prevalence peaked in 1996 for 8<sup>th</sup> graders and a year later in the upper grades. There has been a steady, but gradual decline in 8<sup>th</sup> grade since 1996, but not much change in grades 10 and 12. (Johnston et al., 2001, p.

3)

Important to understand is that approximately 30% of all marijuana users in the United States are teenagers (Johnston, O'Malley, & Bachman, 2005; National Institute on Drug Abuse, 2004) and peak rise for marijuana dependence occurs at age 17 (Wagner & Anthony, 2002) making early intervention more valuable. Researchers suggest that adolescence may be a high risk period for marijuana exposure, heavy marijuana use, and perhaps a period of peak vulnerability to negative drug effects (Fergusson, Horwood, Lynskey, & Madden, 2003; Kelly, Schochet, & Landry, 2004). Some studies have found that chronic use and abuse of marijuana, among other drugs, during adolescence likely impacts behavioral, social, and cognitive functioning, not only in adolescence, but may affect ongoing neural and behavioral development in adulthood (Fergusson, Horwood, & Beautrais, 2003; Iversen, 2005; Kelly et al.).

There is considerable recent evidence which suggests that marijuana smoking is correlated with both acute and long-term negative consequences on human behavior and brain functions (Bolla, Brown, Eldreth, Tate, & Cadet, 2002; Gruber & Yurgelun-Todd, 2005; Kalant, 2004; Lane, Cherek, Tcheremissine, Steinberg, & Sharon, 2007). Although marijuana is the most common illicit drug used by adolescents and most users do not become addicted or abusive in its use, those adolescents who use marijuana are 2.1-5.2 times more likely to use other illicit drugs (Fergusson et al., 2008) thus compounding the deleterious effects of this type of risk-taking behavior. Some researchers claim there is very little information available as it relates to the specific consequences of adolescent marijuana use (Johnston et al., 2005; Lane, Cherek, Pietras, & Steinberg, 2005; Vandrey, Budney, Kamon, & Stanger, 2005), however, few challenge evidence suggesting

marijuana use as a potential gateway drug increasing the risk of other forms of illicit drug use during that developmental period.

*Alcohol.* Most individuals who consume alcohol begin in early adolescence with peak use occurring in late adolescence and into emerging adulthood (Brown et al., 2008; Johnston, O'Malley, Bachman, & Schulenberg, 2006; White & Jackson, 2004). Young people ages 18 to 29 have the highest rates of past-year alcohol abuse and dependency (Grant et al., 2004). Grant and colleagues, in their 12-month prevalence and trends study in 1991-1992 and 2001-2002 of nearly 43,000 participants interviewed, found that 9.4 % of males and 4.6 % of females ages 18-29 abuse and depend on alcohol. By any measure, alcohol use and problem drinking are widespread among U. S. high school students and young adults.

Consequences for adolescent drinking appear to have unique effects from those experienced by adults (Brown et al., 2008), especially in the areas of biological and social functioning. Alcohol related challenges have been shown to have long-term effects on physical and psychological well-being and to have implications on educational attainment which in turn may lead to less favorable occupational outcomes (White & Jackson, 2004). Summary findings from several studies which surveyed between 120 and 146 different high schools across the United States indicate that by the time young people reach the tenth grade, almost two thirds have tried alcohol at least once, and more than two fifths reported being drunk at least once. By the twelfth grade those numbers increase to three fourths trying alcohol at least once and three fifths reporting being drunk at least once (Johnston et al., 2006). This negative risk-taking behavior can have significant impacts on healthy adolescent physical, mental, and social development.

Adolescent alcohol use has the potential to create or exacerbate adolescent “storm and stress” they may experience through early, mid, and later adolescence.

For this study it is proposed that grandparents, if available and willing, may be a meaningful resource to assist adolescents in reducing their incidence of and participation in negative risk-taking behaviors.

### Positive Risk-Taking Behaviors

Risk-taking is predominantly viewed by researchers as a negative behavior most likely seen during adolescence (Ayman-Nolley & Taira, 2000). There are however, risks which an adolescent may take that have the potential to promote healthy development (Ayman-Nolley & Taira). Stepping onto a stage in high school to act out or recite a scene from one of Shakespeare’s famous works is a positive risk-taking behavior. The act of going on stage has the potential to instill confidence in self, increase popularity status among peers, develop skills and talents, and direct learning in a given field of interest. Although one may fail in the attempt, it is less likely to have the deleterious developmental effects of sexual behaviors, cigarette, marijuana, and alcohol use. This study views popularity and educational attainment as positive risk-taking behaviors and suggests they are risks worth taking to help promote healthy adolescent development.

#### *Popularity*

The importance of peer relationships increases significantly as adolescence progresses (McElhaney, Antonishak, & Allen, 2008). Relationships with peers offer a potentially rich environment for learning and increasing interpersonal skills which

contribute to making friends and later developing romantic relationships. Sociological theories on the organization of peer groups during adolescence focus their attention on popularity as an indicator of social standing. These theories portray popularity as a congruent recognition among peers that a particular adolescent has achieved prestige, visibility, or high social status (Adler, Kless, & Adler, 1992) on characteristics such as physical attractiveness, intelligence, friendliness, and aggressiveness (Hartup, 1996).

Popularity, however, is not only seen as an indication of liking by peers, but also as a reputational construct demonstrating power and status in a given group (Lease, Kennedy, & Axelrod, 2002; Schwartz & Gorman, 2006). Researchers de Bruyn and Cillessen (2006) referred to relational popularity as judgmental, perceived, or consensual. The reputation of popularity is upheld by a consensus of an adolescents' peer group, although the individual group members may show a wide array of feelings in their personal liking of the perceived popular party member. Results of their research including 287 youth ages 13 to 14 indicated that adolescents identify two types of popularity: a popular but not particularly well-liked type, and a popular as well as well-liked and accepted type. Either popular status had many positive impacts on those adolescents deemed as popular (de Bruyn & Cillessen), although popular status does not necessarily equate to positive outcomes for teenagers, nor does a lesser degree of popularity lead only to negative results. Researchers de Bruyn and Cillessen also discovered that adolescents who were identified as popular but not well-liked were also seen as aggressive, stuck up, vulgar, bullies, arrogant, and academically disengaged. However, they too were seen as leaders and influential. Of those recognized by peers as popular and well-liked adolescents, their peers labeled them as affiliative, helpful, and

academically engaged. Both groups were attractive and fashionable (de Bruyn & Cillessen). In another study of adolescent popularity, McElhaney et al. (2008) reported,

During adolescence, teens' perceptions of their own social success may be a crucial predictor of long-term social functioning, such that even teens who are not broadly popular may demonstrate positive adjustment over time if they maintain a positive internal sense of their social acceptance. (McElhaney et al., p. 720)

At the individual level, correlations have been found between teens' popularity ratings and various measures of psychosocial performance. For example, popular adolescents self-identify their social selves more favorably and appear to experience fewer hassles from their peers (Fenzel, 2000).

As stated in the introductory chapter, interactions at the most influential level, the microsystem, including family, school, and peer interactions, have the greatest impact on an individual's development (Brendtro, 2006). Positive microsystem environments and interactions tend to correlate with higher degrees of popularity and coincide with a positive view of self. All of those elements appear to reciprocate with one another in healthy ways (Fenzel, 2000).

This study purports that caring grandparents, assuming they are working from the microsystem level, have the potential to instill within an adolescent a higher degree of self-worth and thus improve both their self-perceived and judged popularity status among peers.

### *Educational Aspirations*

Education has been shown to be a predictor of welfare dependency, persistent poverty, and one determinant of chronic unemployment (Mau & Bikos, 2000). Education is known to increase an individual's marketability and earning potential and therefore, improve the ability of that individual to remain free of social dependencies. To assist in decreasing the social challenges of welfare dependency, persistent poverty, and unemployment, researchers have explored a variety of avenues leading to a better understanding and explanation of educational aspirations and achievement. Associated factors which may contribute to attainment such as gender, health, and household are important to consider in adolescent development and helpful towards improving healthy developmental outcomes.

### *Gender*

Educational expectations often differ by gender. This is, in part, due to an association between adolescent's expectations and parental gender-specific stereotypes (Eccles & Wigfield, 2002). In other words, a male or female adolescent, in large part, mirrors the attitudes and beliefs of their same gendered parent when it comes to educational ability and achievement. For many years it was presumed that women were not capable of excelling in math, science, engineering, or medicine and women were resigned to activities around home and family (Guiso, Monte, Sapienza, & Zingales, 2008). Fields of math, science, engineering, and medicine were educational and professional realms reserved for men. Today we see women succeeding in all of those areas and competing at the same level of excellence as men if not better (Eccles &



Wigfield, 2002). Bowlby and McMullen (2002) even suggested that mother's educational attainment has a greater impact than father's level of education on the educational achievements and aspirations of children.

Using a sample of 4,768 adolescents from the 1979-1990 National Longitudinal Survey of Youth (NLSY), researchers revealed that high occupational expectations in adolescence are correlated with an increased likelihood of graduation from high school for females, and later college graduation for both genders (Powers & Wotjkiewics, 2004). Those educational and vocational aspirations of high school students, male and female, are among the strongest predictors of later educational and vocational attainment (Mau & Bikos, 2000). Significant effort is invested in early education to help students identify their natural talents. Identifying the students' talents early on allows the student to direct their learning towards future educational opportunities and occupations catering to those talents. Mau and Bikos found in the third follow-up of the National Educational Longitudinal Study (NELS, 1988-1994) of 14,915 participants, that students with low educational aspirations could be assisted by addressing school issues (e.g., premature tracking, low academic proficiency), family issues (e.g., low parental expectation and involvement), and psychological issues (e.g., external locus of control, academic self-concept). Efforts to match interests and talents with educational goals have enjoyed a great amount of success in educational attainment among both males and females from various cultures and ethnic groups (Mau & Bikos).

### *Health Impacts*

Educational attainment is correlated with health (Haas & Fosse, 2008). It has been proposed that lower educational attainment is seen in children and adolescents with poor health due to poor parental socioeconomic status, the effects on academic performance and cognitive development, and less effective psychosocial adjustment with peers and school (Garg, Melanson, & Levin, 2007; Haas & Fosse). Serious illness during childhood and adolescence significantly lowers the odds of completing higher education in adulthood (Case, Fertig, & Paxson, 2005). Researchers report that students who experience poor health from birth to 16 years of age will complete, on average, half a year less schooling than their peer group who enjoys better health (Hass, 2006). Absenteeism to that extent may impact learning potential, educational attainment, and social development (Garg et al.). It was observed in one Canadian study of 3,294 children from the ages of 4 to 16 that children and adolescents with a chronic illness were 40% more likely to repeat a grade and if that chronic illness was accompanied by limitations in activity, students were five times more likely to repeat a grade (Cadman, Boyle, Szatmari, & Offord, 1987).

Externalizing behavior problems (lack of control, attention, and conduct disorders) seem to affect earlier educational transitions whereas internalizing disorders (depression and anxiety) tend to have a more significant influence in college years (Kessler, Foster, Saunders, & Stang, 1995). Challenges such as psychiatric conditions in adolescence are associated with decreased likelihood of successfully making important educational transitions such as completing high school, college entrance, and college completion (Haas & Fosse, 2008).

### *Household Influence*

A number of researchers have shown that youth from single-parent families report lower educational aspirations than youth from two-parent homes (see Garg et al., 2007). Youth from single-parent homes fare worse in various ways: lower educational achievement, more negative feelings and attitudes towards school, lower parental expectations for school success, less monitoring of school work, more likely to drop out of high school, and if they do stay in school they are less inclined to attain more than a high school education (Bowlby & McMullen, 2002; Mau & Bikos, 2000). One meta-analysis of parenting practices and school success found seven practices which accounted for 16% of the variance found. Those practices were identified as (1) parental educational aspirations and grade expectations, (2) parental engagement, (3) authoritative parenting style, (4) autonomy support, (5) emotional support, (6) providing resources and learning experiences, and (7) parent participation in school activities (Rosenzweig, 2000).

Economic challenges can negatively influence parents. Resulting frustration, fatigue, or discouragement affect parenting practices and those parenting practices in turn affect their children (Ferguson, 2007). Single-parent homes often correlate with lower SES and a number of negative outcomes for both males and females, including poorer health. Parents and students from lower SES backgrounds may see attending a university as something well beyond their reach, regardless of the student's academic skills, and therefore reduce their drive to attend college (Teachman & Paasch, 1998).

This study suggests that grandparents have the potential to influence educational attainment among adolescents in positive ways. Grandparents may serve either as role

models themselves in their own educational attainment or act as a source of support (i.e., emotional and/or financial, and/or informational) encouraging adolescent grandchildren in their positive risk-taking efforts to obtain as much education as possible.

As presented thus far, children and adolescents in unstructured and unsupervised activities are more inclined to participate in negative risk-taking behaviors (Brown et al., 2008; Miller et al., 1998). The absence of caring adults correlates with higher incidents of negative risk-taking behaviors (sexual activity, tobacco, marijuana, and alcohol use) among adolescents and declines in positive risk-taking activities (popularity and educational attainment). Grandparents may be a source of strength for adolescents and assist adolescents in overcoming or reducing many of the personal and environmental factors associated with negative risk-taking and their identified negative developmental outcomes. This strength may come by literally being an adult presence for adolescents, providing a better economic situation relieving burdens associated with low SES including poorer health and related issues, and serving as a source of useful information. Grandparents may also be an asset with positive risk-taking behaviors among adolescents by building up their grandchildren's self-image, providing a positive role model of confidence and achievement, and being a caring adult supervisor during times absent of parental supervision. This study examines more carefully how they can have this impact and why it may work.

### Mentoring

In the literary work of Homer's *Odyssey* (Butler, 1900), Odysseus, prior to heading out on his renowned odyssey, placed his infant son, Telemachos, in the trusted

care of an associate named Mentor. This association would define mentoring as the process in which an older individual, usually an adult, aids to guide and counsel a younger person. One author suggested that mentoring is “a supportive relationship between an adult and a child, developed to facilitate the child’s educational, social, and personal growth” (Brody, 1991, p. 1).

Today, mentoring has evolved from working with a known and trusted party to a variety of programs where adults are recruited and trained to become mentors of youth in need of adult influence. These adults may or may not have any prior connections or associations with the youth they mentor nor their families; although the most influential adults seem to have a personal, “natural,” intimate connection such as extended family members, neighbors, ministers, teachers, and coaches (Beam, Chuansheng, et al., 2002; Zimmerman et al., 2002). “Natural” mentors are mentors whose relationship occurs outside of formal mentoring programs, and according to some scholars, natural mentors appear more effective at shaping adolescent behaviors than do volunteers in formal mentoring capacities (DuBois & Silverthorn, 2005).

Reasons for this increased effectiveness by natural mentors include their presence within a young person’s already existing social network, or using ecological systems theory, within their microsystem. Many natural mentors have important roles in contexts and activities that are salient to the lives of youth such as family, school, and athletics. Their closeness may increase these mentors’ accessibility and value as sources of support, and encourage the young person’s bonding with larger groups and institutions in ways that promote favorable health and developmental outcomes (DuBois & Silverthorn, 2005; Hawkins & Catalano, 1992). Researchers have found that natural mentors tend to

place increased emphasis on shaping behavior (Zimmerman et al., 2002). Unfortunately, natural mentors are not always available to young people. Changes within families, schools, and local communities have severely reduced the availability of caring natural mentors requiring more mentoring programs to facilitate non-natural mentoring relationships which do not appear to influence behavior to the same degree (Zimmerman et al.). Grandparents fit the profile of natural mentors and may offer the benefits of natural mentors found in previous research.

### *Structured Mentoring Programs*

There are two general types of structured mentoring programs: one-on-one and group. A National Mentoring Partnership survey, based on 3,844 mentoring programs listed in their database, revealed that 86% of mentoring participants were between 11 and 14 years of age. Of those adolescents participating, 61% of them were receiving one-on-one type of mentoring and 37% of them were involved with a group type of mentoring (National Mentoring Partnership, 2003). The majority of one-on-one mentoring programs are either school or community-based. School-based organizations tend to focus on skills to help adolescents succeed in academics, while community-based programs are more centered on pro-social behaviors helping them succeed in the community. One-on-one programs offer more personal and direct contact and tend to form stronger relationships between mentors and participants than do group mentoring programs (Herrera et al., 2000). Group mentoring programs, also often conducted by schools or community youth service organizations, may serve a larger number of youth at

a lower cost, but at the expense of less individual contact and personal interaction (Higginbotham, Harris, Marshall, & Lee, 2006).

### *Mentoring Outcomes*

Regardless of which type of mentoring program adolescents choose in which to participate, one-on-one or group, mentoring is increasingly popular and some research has shown its potential to significantly reduce violence and other negative risk-taking behaviors in adolescents (Higginbotham et al., 2006; Philip, 2003). Researchers suggest that overall, mentoring can, and does, have positive implications for youth. Areas of benefit include increases in positive self-concept (DuBois & Silverthorn, 2005; Empey, Riggs, & Lee, 2002; Turner & Scherman, 1996), and increases in educational attainment and fewer days skipping school (DuBois & Silverthorn; Empey et al.; Grossman & Tierney, 1998; Shiner, Young, Newburn, & Groben, 2004; Thompson & Kelly-Vance, 2001; Zippay, 1995). In a randomized controlled study of 1,138 youth ages 10-16 enrolled in Big Brothers and Big Sisters, results showed decreases in drug and alcohol use (46% less likely to have started using illegal drugs – 6.2% rate for the intervention group vs. 11.5% for the control group), decreases in violence (32% fewer incidents of hitting someone in the previous 12 months – 1.8 incidents per person vs. 2.7), and improvements in parent-child and peer relationships (Grossman & Tierney). In one study, 13 randomly selected at-risk junior high students were randomly paired but matched by gender with a college student from a midwestern university who desired to be a mentor. Over a period of two college semesters, four behavioral assessments were made on the mentees. Statistical results using repeated measures MANOVA showed

parents reported internalizing behavior  $F(1,6) = 6.22, p < .05$ , and externalizing behavior  $F(1,6) = 10.57, p < .05$ , significantly decreased from Time 1 to Time 4. Follow-up tests, univariate ANOVA and post hoc tests were conducted and indicated that the conduct  $F(1,6) = 8.73, p < .05$ , aggression  $F(1,6) = 6.87, p < .05$ , and attention problems  $F(1,6) = 6.85, p < .05$ , subscales significantly decreases from Time 1 to Time 4 (Jackson, 2002). Other studies show benefits by providing social support, role modeling, opportunities to develop new skills, and advocacy (Eccles & Appleton Gootman, 2001).

Results, however, are not always positive relating to mentoring outcomes. In a meta-analysis of 55 evaluations of youth mentoring organizations DuBois and colleagues (2002) found the magnitude of mentoring effects to be rather small and indicated only modest social benefits to participants and few behavioral benefits (DuBois, Holloway, Valentine, & Cooper, 2002). Some researchers have reported only limited positive results in very specific areas depending on program organization (how well is the organization structured and managed), focus (academics, social behaviors, family, health, recreation), and experience (how long has the program been in place and how skilled are the mentors at mentoring; Abbott, Meredith, Self-Kelly, & Davis, 1997; Shiner et al., 2004). In some cases, mentors may actually model risk-taking behaviors such as drinking alcohol or cigarette smoking; behaviors known to be deleterious to healthy adolescent development, increasing the likelihood of the adolescent mentee participating in that behavior themselves (Beam, Gil-Rivas, Greenberger, & Chen, 2002). In order to successfully assist adolescents and make long-term differences in their lives, researchers have identified several key components to successful mentoring.



### *Key Components of Successful Mentoring*

In terms of mentoring outcomes, the quality and nature of the mentoring relationship appears to be one of the most significant elements. The degree of trust between mentor and youth, the type of activities in which both participate, and the intensity and duration of the mentoring relationship all play important roles in the success of mentoring programs (DuBois et al., 2002; Grossman, Roffman, & Rhodes, 2002). This is in part why the current study is emphasizing grandparents as mentors of adolescents. This study presumes that grandparents would possess several, if not all, of these important elements for successful mentoring.

Long-term interactions allow opportunities to develop stronger and more influential bonds between mentors and youth (Rhodes, 2002). In comparison, mentors with limited contact with youth and shorter-term duration of the relationship have greater difficulty monitoring the youths' behaviors and making a long-lasting difference (Grossman et al., 2002). The same researchers even suggest that short-term mentoring relationships are associated with negative outcomes for youth (Grossman et al.) crippling adolescent trust in adults and lowering the adolescent's self image. Such claims give credence to calls for developing more sustained relationships among participants showing success is not a result of only quality time together but also quantity (Rhodes, Bogat, Roffman, Edelman, & Galasso, 2002). The current study hypothesizes that grandparents could provide this important long-term, better quality and more influential relationship for adolescents.

Little work has been done to compare and contrast the effects and effectiveness of the many different mentoring programs now in place. Challenges in assessing program

effectiveness lie in the unique emphasis each program has in meeting specific needs of particular youth. Some programs target at-risk youth while others serve particular races, social classes, genders, and ages. For these reasons various programs are difficult to compare individually or even against one another collectively.

DuBois and colleagues (2002) along with Empey and colleagues (2002) have acknowledged several organizational elements from a variety of mentoring programs which have been demonstrated to be effective. (1) Volunteer mentor orientation assists adult mentors in understanding the purposes and goals of a given program and keeps expectations at a reasonable level. (2) Regular training and supervision keeps mentors informed about skills and techniques known to be most effective and helpful to themselves and the youth participants, while giving the mentors the added assurance that they have someone to go to if or when necessary. (3) Structured activities for mentors and youth provide resources and opportunities for fun and safe interactions keeping the planning of activities from becoming a burden to the mentor. (4) Mentors who are taught expectations for frequency of contact are better able to manage their time and keep the mentoring work from consuming all their activities. (5) When mentors are informed about mechanisms which increase support and involvement of parents then not only do the participants and mentors enjoy their experiences, but families are helped. Finally, along with all the other elements listed, (6) monitoring of overall program implementation has also been found to be a strong predictor of positive effects (DuBois et al.; Empey et al.; Platt & Woodbury, 2006). If mentoring programs are to increase their capacity to meet the needs of youth today, then they need to strive harder to implement all of the elements listed above. If these structured mentoring program key elements

were coupled with natural mentor relationships, including and especially grandparents, this study purports there may be a pathway to better adolescent risk-taking outcomes.

## Grandparents

Research on grandparents and the role of grandparenting has increased dramatically over the past three decades. Among the areas explored are the sociodemographic characteristics of grandparents, their involvement with their grandchildren and others, factors influencing their involvement, the extent to which they are satisfied with their involvement, and the extent to which that involvement interferes with their own personal activities and overall well-being (Baydar & Brooks-Gunn, 1998; Spence et al., 2001).

### *Grandparent Demographics*

Social demographics are changing in America in a variety of ways, but no one group is seeing more need for adaptation and adjustment than grandparents. The number of grandparents in the United States has increased markedly during the past century (Spence et al., 2001). In 2000, one-third of American parents were baby boomers. By 2030, this cohort of potential grandparents will be 66 to 84 years old and comprise an estimated 20% of the total U.S. population. There have been substantial historical shifts in numerous sociodemographic characteristics of grandparents (i.e., mortality, fertility, number of grandchildren, health, income, level of education), which have contributed to a redefining of grandparenting. These changes are correlated with grandparents assuming

more salient roles in the lives of grandchildren (Crosnoe & Elder, 2002; Hayslip et al., 2003).

One of the historical shifts in intergenerational relationships is the increasing prevalence of grandparents who raise their grandchildren. According to the 2000 U.S. Census, about 5.7 million grandparents lived with their grandchildren and approximately 2.4 million have primary care responsibilities (Census, 2007). The increase in grandparent involvement is often brought about by the divorce, incarceration, alcoholism, or drug abuse of parents which often includes physical and emotional abuse of children. Since 1990, the greatest growth in family demographics has occurred with respect to the number of grandchildren under the age of 18 living with their grandparents with neither parent present (Hayslip et al., 2003). Worthy of note is that research has shown the mentoring effects of grandparents is diminished significantly when grandparents take on the role of primary caregiver of adolescent grandchildren (DuBois & Silverthorn, 2005).

Demographic changes have increased the importance of the grandparent role at both familial and societal levels. The influence of these changes, which include increasing longevity (which lengthens the duration of being or having a grandparent), decreasing fertility (which limits the number of grandchildren per family so there are more grandparent resources per grandchild; Kaufman & Elder, 2003), increasing divorce rates and women's labor force participation (which may lead to more active grandparenting), have altered the context for negotiating family relationships, including those between grandparents, parents, and grandchildren (Crosnoe & Elder, 2002; Kemp, 2007).

Recent increases in longevity in industrialized nations have combined with reduced birth rates to radically increase the balance of older people, including grandparents, relative to younger people in the population (Friedman, Hechter, & Kreager, 2008; Peterson, 1999). As the longevity of successive birth cohorts increases (Hooyman & Kiyak, 1996), the change enlarges the time span for grandchildren to coexist in the lives of adults increasing the number of older adults with grandchildren. However, that “time” itself may occur at vastly different points in the life course, from the 30s to later life (Kaufman & Elder, 2003).

As of 2007, nearly 90% of grandchildren with at least one grandparent have in actuality two or more living grandparents (Friedman et al., 2008). It is estimated that among the 80% of older people with children, 94% are grandparents and approximately 50% are great-grandparents, and those grandparents range in age from 30 to 110, and their grandchildren are infants as well as retirees (Hooyman & Kiyak, 1996). An individual can expect to be in the grandparenting role for about one-third of his or her life, an average of about 25 years (Thiele & Whelan, 2006). Thus, most grandparents will be alive and healthy while their grandchildren experience adolescence.

### *Grandparent Roles*

Grandparenting is not a uniform experience. There is considerable diversity amongst grandparents which may influence the roles they perform. For example, their age may be 30 or 110. Grandparents may be male or female. They may be married, single, divorced, or widowed. Grandparents can be employed full- or part-time, unemployed, or retired. Grandparents may have a variety of generational combinations

from their own children, to grandchildren, great-grandchildren, step-grandchildren and so on (Mason, May, & Clarke, 2007). Grandparents of the twenty-first century may be kick-boxers or knitters, cross country runners or crossword puzzle workers, GED candidates, or retired professors (Zeece, 2007). Grandparents are identified as family historians, crisis managers, arbitrators, caregivers, sources of values, mentors, role models, caretakers, and advisers (Atchley, 1997; Baydar & Brooks-Gunn, 1998; Spence et al., 2001). With all of this diversity, grandparents show a wide array of interests, skills, and capabilities which with increased focus could be utilized to build and maintain beneficial relationships with adolescent grandchildren, in a natural mentoring capacity, who also have equally varied interests, skills, and capabilities along with numerous developmental needs.

Recently the role of grandparent has taken on greater significance as a social role (Kaufman & Elder, 2003; Thiele & Whelan, 2006). This change comes at a particularly appropriate time as they stand at the middle of their lives looking both to the past, and to the future. Grandparents bring a “mixture of humility and confidence, idealism tempered by experience, and the philosophical serenity to trust that today’s mountain may become tomorrow’s molehill” (Ross, 2002, p. 238).

Grandparents know that very little which happens is irreversible. Events which may be perceived by adolescents as overwhelming and difficult, or in other words “storm and stress,” grandparents have experienced while raising their own children and observed in their friends’ children. Grandparents have seen individuals get into trouble and cope with setbacks. Grandparents have observed people progress too slowly in some ways and too fast in others. Grandparents know by experience that life more or less sorts itself out

and it is that unique perspective which is their contribution to other generations (Tait, 2000) and part of why they may offer promise as natural mentors for their adolescent grandchildren.

Effective grandparenting roles with adolescent grandchildren includes measures of contact, relationship quality, activities, mentoring, friendship, knowing each other well, instrumental assistance, and discussing problems and the grandchild's future (Mueller, Wilhelm, & Elder, 2002a). Supportive grandparent and adolescent relationships can be salutary by providing support and guidance to the young and serving as a source of assistance, meaningful activity, and pride for the old (Crosnoe & Elder, 2002; Elder & Conger, 2000), all of which have been shown to be positive outcomes in effectively operating adolescent mentoring programs.

Researchers have reported two particular types of assistance to grandchildren most prevalent in grandparenting: instrumental and interpersonal (Mueller et al., 2002a). Instrumental assistance involves providing financial support to grandchildren and possibly helping those grandchildren find meaningful employment (Mueller et al., 2002a; Mueller, Wilhelm, & Elder, 2002b). Interpersonal assistance, or helping, includes the grandparent serving as a voice of experience or wisdom for the grandchild, the grandparent giving the grandchild advice, the pair's discussing the grandchild's problems, and the grandparent both discussing and assisting with the grandchild's future (Mueller et al., 2002a, 2002b). As a result, adult grandchildren appear to be increasingly turning toward their grandparents for advice and support (Elder & Conger, 2000) in a very "natural" context.

Mueller et al. (2002a) developed a typology of grandparents. These researchers surveyed 897 grandparents of 546 adolescents who were seniors in high school. The average grandparent in their study was 69 years old, became a grandparent at age 47, had 10 grandchildren, and lived 132 miles from their high school senior grandchild. Mueller identified them as influential, supportive, passive, authority-oriented, or detached. In their research, influential grandparents scored highest for every measure examined with the other grandparent types decreasing in rank as listed above. Influential grandparents were highly involved in all aspects of grandparenting. Most were physically present in their grandchild's daily life and reported doing activities with the grandchild in the community at least once in the past year, most of them more than once. Most had worked on projects with the grandchild, felt their grandchild had the chance to learn their skills, and thought that they had done something in the past year to help the grandchild with his or her talents. Influential grandparents also felt that they had an intimate relationship with the grandchild and acted as a confidant to them. Most grandparents also reported talking about their own childhood with their grandchild, believed that they were at least sometimes a voice of wisdom, reported advising their grandchild, and discussed their grandchild's future. Almost 90% of influential grandparents surveyed provided some degree of financial assistance. Smaller percentages had helped the grandchild find a job. For influential grandparents, authority and discipline were a part of the grandparent role and represented both companionate and parent-like dimensions in their role as grandparents. These grandparents seemed to live in a close family system and grandchildren encountered that grandparent at least every week if not daily (Mueller et al., 2002a). Influential grandparents tended to be older, live closer to the grandchild,



have more education, have fewer grandchildren, and be involved in farming (Mueller et al., 2002a).

Other research examining grandparent roles found that in America a large majority of grandparents surveyed gave advice (85.4%), prepared meals (66.7%), and were involved in some form of childcare (62.5%). To a lesser extent they provided financial assistance (43.8%), helped with schoolwork (38.5%), and washed and ironed clothes (29.2%). A large portion (68.8%) indicated providing “other” types of assistance, but “other” was not defined (Hooyman & Kiyak, 1996).

Unlike work and parental roles, the grandparent role lacks explicit functions or clear rights and responsibilities (Thiele & Whelan, 2006). The role is a highly contingent one. Grandparents generally have little or no control over timing of grandparenthood, how many grandchildren they have, how close they live to them, or how often they see them (Ross, 2002). Most have no choice as to whether or when they want to assume this role of grandparent and receive no advanced training (Ross). Specific obligations and expectations surrounding the grandparent role must be negotiated within each family; and failure to do so can result in disappointment for any or all of the parties (Thiele & Whelan, 2006). When mentoring roles are adopted, the same negotiations are necessary and appropriate for all participants.

### Factors Affecting Grandparent Effectiveness

#### *Proximity*

Geographic proximity clearly influences grandparenting. Grandparents who

live closer to their grandchildren have the opportunity to be more involved in their lives (Elder & Conger, 2000; Mueller et al., 2002a, 2002b). Grandparents who are more involved and close are more likely to report a higher-quality relationship with their grandchild. Factors which most consistently predict a lack of grandparent involvement with grandchildren are; living far away (distance); being on the paternal side; lacking encouragement from the parent generation; living an urban lifestyle; and having a large number of grandchildren (Kemp, 2007; Mueller et al., 2002a, 2002b; Reitzes & Mutran, 2004). To overcome this barrier, grandparents and families can employ technology (i.e., internet and cell phones), although little is known regarding their effectiveness at bridging this gap in proximity or if it carries the same meaningfulness as direct contact.

### *Relationship Closeness*

While proximity may enable more frequent contact between generations, it does not ensure that grandparents and grandchildren are meaningfully involved in each other's lives (Mueller et al., 2002a, 2002b). The meaning of the relationship varies by the extent to which there is a mutual consensus regarding the relationship. The important components in the intergenerational relationships are emotional closeness, emotional association, and the extent of agreement among generations. According to some researchers, the extent of congruence or incongruence between the different generations regarding grandparenthood relationships affects the quality of their relationships more than their separate attitudes and beliefs (Werner, Buchbinder, Lowenstein, & Livni, 2007). In what has been termed a "congruent: strongly connected relationship," the grandmother as well as the mother and granddaughter perceive their relationship as

reciprocal and nurturing on a positive-emotional level. It can be labeled as an “everything is on the table relationship” and is characterized by open, warm, and close communication among all generations in the family (Werner et al.). For grandparents to have access to their grandchildren to form this “congruent: strongly connected relationship,” a positive relationship with parents must first be established.

### *Parent Influence*

The moderating and mediating role of parents is a significant contributor to the grandparent-grandchild relationship. Ties through the maternal line of the family tend to be the strongest and grandmothers, in their estimation, tend to be closer to their grandchildren than grandfathers, although not necessarily more satisfied (Mueller et al., 2002a, 2002b). This maternal tie is strongly associated with marital status of the parent generation and important as divorce tends to increase the involvement of maternal grandparents (Mueller et al.). The mother’s relationship with her mother (the grandmother) guides and shapes the relationship between herself as a parent and her own daughter. In this, the mothers’ role is to transmit beliefs, values, and norms between the generations. This transmission is expressed verbally as well as non-verbally through modeling (Werner et al., 2007). The parent generation often serves as gatekeepers for the grandparent-grandchild relationship, either facilitating or hindering interaction between the two. The key to this relationship seems to be the quality and nature of the parent’s relationship with the grandparent (Elder & Conger, 2000; Mueller et al.). Financial support from the grandparent to the parent generation tends to increase involvement as well as the existence of family rituals (Mueller et al.).

Two normative phrases emerge in the research in discussions about grandparenting from both parents and grandparents. The first is the idea of being there and the second is not interfering. By interfering grandparents potentially damage their reputations as good parents, either because good parents should not interfere or because if they had brought their own children up well they would not need to. Grandparents also risk jeopardizing the quality of their relationships with their own children as well as their grandchildren and other relatives. Being there is the caring face of not interfering and establishes that not interfering has nothing to do with a lack of love or interest but rather the grandparent who is, “there,” is someone who is constant and supportive, but does not make unreasonable demands or initiate contact out of turn (Mason et al., 2007).

#### *Additional Influences*

Other factors which affect the relationship between grandparents and grandchildren include: education, age of both grandparents and grandchildren, the number of grandchildren, the grandparent’s own experience with their grandparents, and religion.

Both grandparents and grandchildren report higher quality relationships when the grandchild is enrolled in higher education and college-going grandchildren report more mentoring from grandparents who have undergone this transition in their own lives and less from grandparents who have not. Common ground likely grants more authority to grandparents in their interactions with grandchildren and may very well apply across other domains of life experiences (Crosnoe & Elder, 2002).

Age of grandparents and grandchild can influence perception of grandparenting and thus the relationship. These relationships are likely to change as grandchildren grow older, need less care, and develop their own interests outside the family. An adolescent may view grandparents as “old people” who either can or cannot relate to or understand adolescents and may or may not avail themselves of a potentially helpful grandparent mentor. Health status is often related to the age of the grandparent; younger grandparents tend to be healthier and more active with their grandchildren allowing close, more personal interaction and more frequent personal contact (Mueller et al., 2002a, 2002b).

The number of grandchildren a grandparent has also limits how involved he or she can be in each grandchild's life (Elder & Conger, 2000; Mueller et al., 2002a, 2002b). It is simply more difficult to be intimately involved in each grandchild's life as the number of them increases. Significant holidays or other important family events must be carefully divvied out among grandchildren to protect the integrity of relationships (Crosnoe & Elder, 2002).

Grandparents' experience with their grandparents when they were younger, positively influences their own grandparent involvement and experiences with grandchildren. Having a nurturing relationship with a grandparent early in life heightens the likelihood of that individual later being an engaged or involved grandparent themselves (Kemp, 2007; Mueller et al., 2002a, 2002b).

## Conclusion

This chapter provided a framework to understand several adolescent risk-taking issues, both negative and positive, which are related to and important for healthy adolescent development. As addressed previously, adolescence is an exciting and possibly challenging time (“storm and stress”) in human development. The immediate environment of youth is changing almost daily and many of those changes can be difficult to navigate. If adolescents are not able to make the necessary adjustments to the changes in themselves and their environments, they may experience negative outcomes which may affect their entire lives.

The need for more effective methods of intervention which may provide longer-term benefits to adolescents is apparent. Mentoring programs have shown potential to impact adolescents and influence their risk-taking behaviors, but the areas of impact and the duration of those effects are limited. Research has identified several key components of effective mentoring programs, but implementing them is difficult and supplying the needed caring adults to interact directly with participating adolescents which is known to make a difference is a challenge (Padilla-Walker et al., 2008). As more children today come from dual-income and single-parent homes, thus contributing to the potential decreased parental supervision and increased risk-taking behaviors in adolescents (Pollock, Mullings, & Crouch, 2006; Raley, Mattingly, & Bianchi, 2006), there seems to be a lack of those adults who have the time and means to help as needed at the microsystem level.

Research by H. Thornburg in the early 1980s indicated that adolescents tend to be more attentive to advice and counsel related to risk-taking behaviors given by adults who are not their own parents (Thornburg, 1981). As inferred by Thornburg, parents are an influence in a child's development and the current study does not wish to ignore them. Unquestionably they are an influential moderating and mediating variable between grandparents and adolescents (Strom & Strom, 1995, 2000) and a vital gatekeeper to the grandparent and adolescent relationship. However, the parent and child relationship and interaction are not the focus of this research. For this study, attention is focused on the relationship between grandparents and their adolescent grandchildren to determine if grandparents as mentors are beneficial to adolescents in decreasing their negative and increasing their positive risk-taking behaviors.

Assuming grandparents have the health, the time, the means, and the interest in the welfare of their adolescent grandchildren, it stands to reason that grandparents can potentially serve as an influential mentor. Researchers point out that adolescents with more structured time and adult supervision are less inclined to participate in negative risk-taking behaviors and are more inclined to participate in positive risk-taking behaviors. Grandparents can provide them with some of that structure and supervision. Researchers know that adolescents who associate with adults who exemplify pro-social skills and higher learning are more likely to imitate those behaviors and feel better about themselves. An adolescent in that setting has a greater likelihood of taking positive risks relating to popularity and education. Grandparents might be that pro-social, positive model. Researchers have concluded that "natural" mentors are most effective at influencing the behaviors of participants in mentoring programs. Researchers also have

identified the elements within organized programs that work best. Grandparents are a “natural” mentor and could be easily instructed on how to implement many of the known elements in successful programs. As family, grandparents fall safely within Bronfenbrenner’s ecological systems theory and fit into the most influential circle of influence – the microsystem. Today, changing demographics are allowing grandparent influence to be enjoyed longer than ever and in more personal ways, even without geographic proximity, thus magnifying the potential influence from within that microsystem.

Adults most successful at working with adolescents are those who are able to empathize with the youth, especially by recalling what their own experience was like (Feeney, Noller, & Roberts, 2000). These adults seem capable of understanding the youth’s difficulties in initially trusting the mentor. Effective mentors know the importance of providing time for the young person to disclose personal and intimate information in an interpersonal environment that is supportive and also respectful of the youth’s family, social class, and culture. Most grandparents meet all of these criteria to effectively connect and succeed with their adolescent grandchildren and are apt to make a significant, long-term difference in their adolescent grandchildren’s lives.

The premise of this study is that grandparents are potentially an effective resource for reducing negative adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette, marijuana, and alcohol use) as natural mentors. During adolescence, more needs to be done to change the influence of peers in regards to sexual behaviors. Although not being directly examined, this study considers grandparents a useful source of influence that could provide support, practical advice, and appropriate information to



their adolescent grandchildren amidst these sexually charged (“storm and stress”) years of development. Grandparents, acting as an important and influential non-parental adult mentor, may be able to say things about sex and impact adolescents in ways that a parent might not. Adolescents may view information of this type differently from grandparents and treat it with different respect and appreciation, thus curtailing some of the negative outcomes of adolescent sexual behaviors seen today. For these reasons, it is hypothesized that adolescents with a self-reported grandparent mentor will have better outcomes in sexual attitudes and behaviors than those adolescents who self-report not having an adult mentor in their life.

Assuming the grandparents do not use nor abuse these substances themselves, they may provide needed adult supervision and role modeling of healthy adult behaviors to adolescents relative to cigarette, marijuana, and alcohol use. By so doing, the grandparents act as models to the importance of a healthy lifestyle for longevity and overall wellness and thus affect the health, longevity, and overall wellness of their adolescent grandchildren. This study hypothesizes that adolescents with a self-reported grandparent mentor will show lower incidence of cigarette, marijuana, and alcohol use than adolescents who self-reported not having an adult mentor in their life.

This study also posits that grandparents as natural mentors can influence adolescent positive risk-taking behaviors (i.e., popularity and issues relating to their educational aspirations and attainment). This study purports that grandparent involvement in the lives of their adolescent grandchildren brings an added element of social competence and confidence to adolescents aiding them in day-to-day social situations. For this study, popularity is self-assessed by adolescents and does not explore

peer judgments of the attribute. This study explores self-reported popularity for adolescents without a mentor and compares them with those adolescents with a grandparent mentor. It is hypothesized that adolescents with a self-reported grandparent mentor will report better scores on popularity than those adolescents who self-reported not having an adult mentor in their life.

If grandparents are able to develop and maintain a sufficient relationship of trust with their adolescent grandchildren, the research suggests they would be a helpful source of information, encouragement, and motivation towards those adolescents succeeding in attaining their much needed education. Grandparents have seen and experienced the dividends of higher learning and understand the impact it can have on career, home and family, and overall life satisfaction through enhanced opportunities to explore and experience options which otherwise are not available to those with limited skills and educational attainment. It is therefore hypothesized that adolescents with an identified grandparent mentor will have better scores as they relate to educational issues when compared to adolescents without an adult mentor in their life.

Finally, as the research has indicated that gender has relevance to developmental issues and mentoring effectiveness (meaning boys tend to model males and girls tend to model females), it is hypothesized that boys will be influenced more by the paternal grandparent family line as mentors than by the maternal grandparent line as mentors, and girls will be more influenced more by the maternal grandparent line as mentors than the paternal grandparent line as mentors as seen through the self-reported risk-taking behaviors addressed in this study.

Based on this review of literature and these hypotheses, the implications of available grandparents interacting as “natural” mentors with their adolescent grandchildren in their microsystem environment could be significant and important for society, families, and individual grandparents, parents, and adolescents.

## CHAPTER III

### METHODS

#### Data

The purpose of this study was to explore grandparents as “natural” mentors of their adolescent grandchildren and determine whether they are a significant and important means of assisting adolescents to cope with or altogether avoid items which could be associated with “storm and stress” as seen through particular outcome areas. To accomplish this, a nationally representative data set from the National Longitudinal Study of Adolescent Health (Add Health) was analyzed (Udry, 2003).

Add Health (Udry, 2003) is a nationally representative study that explores the causes of health-related behaviors of adolescents in grades 7 through 12 and their outcomes in young adulthood. The main focus of the Add Health project is to examine how social contexts (families, friends, peers, schools, neighborhoods, and communities) influence adolescents’ health and risk-taking behaviors (Harris et al., 2003).

The Add Health project began in 1994 funded by the National Institute of Child Health and Human Development (NICHD) with co-funding from 17 other federal agencies. The Add Health project has been described as the largest, most comprehensive survey of adolescents ever undertaken (Harris et al., 2003). Add Health currently consists of three separate waves of data tracking the same group of adolescents along their development, with a fourth wave yet to come. Wave I data were collected between the years 1994-1995. Wave II data collection occurred in 1996, and Wave III data were collected in 2001-2002 (Harris et al.). Information gathered only in Wave III specifically

addresses the issue for which this study was concerned relating to mentoring and identified grandparents as influential mentors of adolescents. Data gathered in Wave I relating to risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette, marijuana, and alcohol use, popularity, and educational issues) were utilized in conjunction with Wave III data in the current research. To better understand why this was the case, an overview of the entire Add Health design is appropriate.

### Add Health Design

Data collection began in 1994 with the selection of a nationally representative sample of male and female adolescents in grades 7 through 12. The primary sampling frame consisted of all of the high schools in the United States, with an eleventh grade and at least 30 students. Eighty high schools were selected from a sampling frame of 26,666. Prior to sampling, schools were sorted by size, school type, census region, level of urbanization, and percent of the school's population that was White. Of the original 80 schools selected, 52 were eligible and agreed to participate. The remaining 28 schools were replaced by similar high schools matching stratification criteria. When a high school was recruited, its feeder schools with a seventh grade were also identified and selected with a probability proportional to the number of students it sent to the high school. Add Health included 145 middle, junior and high schools in its main sample. Schools varied in size from less than 100 students to more than 3,000 students (Harris et al., 2003).

During one class period, on one day, in the 1994-1995 school year, students were asked to complete a 45-minute self-administered questionnaire. The questionnaire

consisted of questions addressing the student's background, parent information, friends, schoolwork, activities, general health status, and health behaviors. From a list of students who completed the in-school questionnaire and school rosters (which included those absent on the day of the administration of the questionnaire) a random sample of 16,000 adolescents were selected to participate in a 90-minute in-home interview. Add Health refers to this sample of 16,000 as its core sample to distinguish it from the grand sample that includes oversamples identified from the in-school questionnaire (Harris et al., 2003).

Wave I in-home interviews were conducted late in 1995 and were completed with 80% of those selected. Those who completed the in-home interview form a final core sample of 12,105. The oversampled adolescents included in the Wave I grand sample of 20,745 adolescents included those who were race/ethnic minorities, adolescents with limb disabilities, sibling pairs, and 16 schools where every student was interviewed. A computer-assisted personal interview technique (CASI) was used to administer the in-home interview to increase the response accuracy to sensitive questions dealing with such items as relationships, delinquency and sexual behaviors. CASI allowed the students to listen to prerecorded questions through earphones and enter their responses directly into laptop computers. This technique has been found to minimize potential interview and parental effects on adolescent responses (Turner et al., 1998).

One parent or guardian was asked to be interviewed simultaneously with the adolescent. Parent interviews provided further information about family composition and the adolescents' health histories. Parent surveys asked demographic and health-related information about the parent or guardian, and general questions about the adolescent

respondent. Approximately 83% of the parents participated in the parent survey for a parent sample of 17,125 (Harris et al., 2003).

Wave II data were collected in 1996 from a sample taken from the grand sample of Wave I participants. In Wave II a majority of the twelfth grade respondents were removed from the sample because they exceeded the maximum grade eligibility requirement. There were also no parent interviews conducted during this wave of data collection (Harris et al., 2003).

In 2001 and 2002, Add Health respondents, 18 to 26 years old, were reinterviewed in a third wave designed to obtain relationship, marital, childbearing, and educational information. New sections focused on topics more relevant to young adults. Because respondents were older in Wave III, the social environment shaping their experience was now different from those in earlier waves. For many, college or work contexts were likely to be more important. Relationships with romantic partners likely were more influential as respondents consider and make decisions about cohabitation and marriage and effects from the family of origin may be less pronounced. Wave III was designed to provide data on those new aspects of young adult life, allowing researchers to identify the shifting process of change over time (Harris et al., 2003).

From the original Wave I grand sample, adequate Wave III data were obtained from 15,170 respondents, who represent 73% of the original grand sample (Harris et al., 2003). In Wave III, the interviewer administered an in-home interview with sections containing sensitive questions being asked in a self-administered manner similar to Wave I. Respondents, who agreed, also provided a urine/saliva sample to test for certain STD's and to provide certain genetic markers for the study of sibling pairs. Respondents

received an additional financial incentive for providing a urine/saliva sample. Also new to Wave III, data were gathered from 1,507 romantic partners to explore the transition of relationships between adolescence and young adulthood (Harris et al.). It is in this third wave of data collection that researchers asked specific questions relative to mentoring, clarified contact frequency with and closeness to those mentors, including, grandparents who were identified as mentors of adolescents. As described previously, health and risk-taking behaviors are addressed in multifarious ways.

In an effort to protect the identity of research participants, full access to data is limited. To assist public use, the Add Health research team randomly selected from their core survey population a representative sample for others to use in research (McKean & Card, 2003). Because this study asked the research questions relating to grandparents as mentors and addressed risk-taking behaviors of adolescents, it was necessary to purchase the three-waved public-use data set consisting of 4,882 respondents to utilize for analysis.

#### No Mentor Versus Grandparent Mentor Groups

Mentoring was addressed only in Wave III (2001-2002) of the Add Health study and included under the topic area of “Guidance/Counseling” (McKean & Card, 2003, p. 46). Participants ranging in age from 18 to 28 years when Wave III data were collected were asked to look back at their life experiences and respond to the question, “Other than your parents or step-parents, has an adult made an important positive difference in life at any time since you were 14 years old?” If an answer of “yes” was given ( $n = 3,722$ ), that question was then followed by, “How is this person related to you? If there has been more than one person, describe the most influential.” Among a variety of possible



responses for the second question were grandparents ( $n = 395$ ) which were delineated on the questionnaire as “mother’s mother” ( $n = 208$ ), “mother’s father” ( $n = 84$ ), “father’s mother” ( $n = 60$ ), and “father’s father” ( $n = 43$ ). The number of participants who answered “no” to having an adult mentor in their life was 1,145.

This study was interested in comparing outcomes in risk-taking behaviors of adolescents without identified mentors against adolescents who self-reported having a grandparent mentor. One challenge to that interest was that the self-reported risk-taking behaviors were identified approximately eight years prior to the time when the mentoring relationship was identified. To improve the reliability and validity of this study, it was important to connect this mentoring relationship declared at Wave III (2001-2002) to the time when the risk-taking behaviors were reported by the adolescents at Wave I (1993-1994). In Wave III participants who self-reported having an influential adult mentor were also asked, “How old were you when [your mentor] first became important in your life?” To bridge the time gap therefore, the current study only included for analysis respondents who indicated that the relationship with their identified grandparent mentor, as declared at Wave III, had begun at least at the time of or before the risk-taking behavior was self-reported at Wave I. Thus 114 adolescents with self-identified grandparent mentors were excluded from this study because their reported mentoring relationship began after the collection of Wave I data. This delineation among adolescent participants resulted in a subsample of 1,426 adolescents for evaluation (No Mentors  $n = 1,145$ ; Grandparent Mentors  $n = 281$ ) to be used for analysis in this study from the original 4,882 participants in the representative Add Health data set.

Youth who reported having no influential adult mentors at Wave III ( $n = 1,145$ ) were comprised of 50.1% female ( $n = 573$ ) and 49.9% male ( $n = 572$ ; see Table 1). Of the 281 adolescents who identified having a grandparent mentor during adolescence, 62.6% ( $n = 176$ ) were female and 37.4% ( $n = 105$ ) were male. All of the participants at the time of Wave I data collection were between the ages of 13-23.

The most predominant racial or ethnic group in both categories (i.e., without mentors and with grandparents) was White comprising 61.4% and 68.3% of the total sample sizes respectively. They were followed by Black or African Americans in both groups with 25.9% and 27.1% of the sample sizes, then adolescents of Hispanic or Latino origin at 14.5% and 8.2%. Asian or Pacific Islanders and American Indian or Native Americans accounted for 8.2% of the total sample. Participants who identified a race other than these listed or who were of a mixed race were an additional 6.6% and 2.5% of the sample make-up.

### Risk-Taking Behaviors

In addition to questions about mentoring wherein adolescents identified grandparents as influential ( $n = 281$ ) or not having an influential adult influence ( $n = 1,145$ ), this study examined differences in specific outcome areas. Dependent variables of adolescent negative risk-taking behaviors utilized were: sexual attitudes and behaviors (evidenced in self-reported attitudes about sex and sexual experience), cigarette, marijuana, and alcohol use (evidenced in self-reported experiences with and ages at time of use). Variables of adolescent positive risk-taking behaviors examined in

Table 1

*Demographic Characteristics of Add Health Participants Without Mentors and Those With a Grandparent Mentor During Adolescence*

Variable			No Mentors (n = 1,145)		Grandparent Mentor (n = 281)	
Age	Wave I	Wave III		%		%
	13 - 14	18 - 19	119	10.4	40	14.2
	15	20	172	15.0	42	14.9
	16	21	184	16.1	57	20.3
	17	22	195	17.0	65	23.1
	18	23	195	17.0	46	16.4
	19	24	182	15.9	23	8.2
	20 - 23	25-28	98	8.6	8	2.9
<b>Biological sex</b>						
	Female		573	50.1	176	62.6
	Male		572	49.9	105	37.4
<b>Race/ethnicity</b>						
	American Indian or Native American		18	1.6	3	1.1
	Asian or Pacific Islander		51	4.5	3	1.1
	Black or African American		296	25.9	76	27.1
	Hispanic or Latino origin		166	14.5	23	8.2
	White		703	61.4	192	68.3
	Other		76	6.6	7	2.5

this study were: self-reported popularity (as seen by the adolescents own perspective and assessment), and educational issues (as self-reported by highest grade completed, expulsion history, and likelihood of attending college). Each of the risk-taking variables were selected a-priori for analysis in the current study for two reasons. First, based on expert opinion, both in consultation and by reviewing the literature, these risk-taking behaviors were identified as being relevant behaviors affecting adolescent development in the United States. Second, these risk-taking behaviors were thoroughly addressed in the Add Health data. One hypothesis for this study purported that adolescents who self-reported having a grandparent mentor would participate in fewer negative risk-taking behaviors and more positive risk-taking behaviors than those adolescents who identified not having an adult mentor influence in their life. Specific information relating to survey questions used in this study are listed below.

### Negative Risk-Taking Behaviors

#### *Sexual Attitudes and Behavior*

To address adolescent sexual behaviors, this study used the Add Health interview questions (see Appendix A); “If you had sexual intercourse, your friends would respect you more”; “If you had sexual intercourse, afterward, you would feel guilty”; “If you had sexual intercourse, it would give you a great deal of physical pleasure”; “If you had sexual intercourse, it would make you more attractive”; and “If you had sexual intercourse, you would feel less lonely.” Possible answer choices for each of these questions were on a 5-item Likert scale with “1 = strongly agree,” “2 = agree,” “3 = neither agree nor disagree,” “4 = disagree,” and “5 = strongly disagree.” The next

questions were, “Have you ever had sexual intercourse? When we say sexual intercourse we mean when a male inserts his penis into a female’s vagina,” and “With how many different partners have you had vaginal intercourse in the past 12 months?” Answers to these questions were “0 = no” and “1 = yes,” and the specific number of sexual partners as identified by the participants.

### *Cigarettes*

To obtain information relating to adolescent cigarette use, this study used the following Add Health interview questions; “Have you ever tried cigarette smoking, even just one or two puffs?” Participant’s answer choices were; “0 = no,” and “1 = yes.” “How old were you when you smoked a whole cigarette for the first time?” Answers ranged from one to twenty years old. The next question was “Have you ever smoked cigarettes regularly, that is, at least 1 cigarette every day for 30 days?” Response choices were “0 = no” and “1 = yes.” “How old were you when you first started smoking cigarettes regularly (at least one cigarette every day for 30 days)?” Answer choices ranged from “one” to “eighteen years and older.”

### *Marijuana*

To assess adolescent marijuana use, this study used the Add Health interview questions, “How old were you when you tried marijuana for the first time?” Possible answers ranged from “one” to “eighteen years or older.” A second question used asked, “During your life, how many times have you used marijuana?” Answers were the specified whole number of times using marijuana as self-reported by participants.

*Alcohol*

To assess adolescent alcohol use, this study used the following Add Health interview questions; “Have you had a drink of beer, wine, or liquor – not just a sip or a taste of someone else’s drink – more than 2 or 3 times in your life?” Answer choices were, “0 = no” and “1 = yes.” “Think about the first time you had a drink of beer, wine, or liquor when you were not with your parents or other adults in your family. How old were you then?” Answers ranged from “one year” to “nineteen years and older.” “Over the past 12 months, on how many days have you gotten drunk or very, very high on alcohol?” Participants choose from a six-item Likert scale which consisted of “every day or almost every day”; “3 to 5 days a week”; “1 or 2 days a week”; “2 or 3 days a month”; “once a month or less”; and “1 or 2 days in the past 12 months.”

The next three questions used in this study were, “Have you ever drunk alcohol when you were alone,” “Have you ever driven while drunk,” and “Have you ever been drunk at school?” Each of those three questions were answered as “0 = no” and “1 = yes.” The final question for this topic area included in this study was, “Over the past 12 months, how many times were you hung over?” Possible answers for this question were on a five-item Likert scale listed as; “never”; “once”; “twice”; “3 or 4 times”; or “5 or more times.”

## Positive Risk-Taking Behaviors

### *Popularity*

To examine adolescent self-reported popularity this study used the following Add Health interview questions. “How popular are you?” Participant responses were chosen from a 4 item Likert scale of “very popular,” “moderately popular,” “slightly popular,” and “not at all popular.” Two statements, “You feel socially accepted” and “You feel loved and wanted” were offered with answer choices selected from a 5-item Likert scale from “1 = strongly agree” to “5 = strongly disagree.” The next question used was, “How much do you feel that your friends care about you?” Answer choices were chosen from a 5-item Likert scale of “1 = not at all” to “5 = very much.” The last question for this section was “How much do you agree or disagree with the following statement: You feel close to people at your school.” Again, respondent choices were from a 5-item Likert scale from “1 = strongly agree” to “5 = strongly disagree.”

### *Educational Issues*

To assess adolescent educational attainment, this study used three Add Health interview questions. First, “What is the highest grade or year of regular school you have completed?” Participant answers range from; “6<sup>th</sup> grade”; “7<sup>th</sup> grade”; “8<sup>th</sup> grade”; “9<sup>th</sup> grade”; “10<sup>th</sup> grade”; “11<sup>th</sup> grade”; “12<sup>th</sup> grade”; “1 year college”; “2 years college”; “3 years college”; “4 years college”; “5+ years college”; “1 year grad school”; “2 years grad school”; “3 years grad school”; “4 years grad school”; and “5 + years grad school.” Second, “Have you ever been expelled from school?” with answer choices “0 = no” and “1 = yes.” Lastly, “On a scale of 1 to 5, where 1 is low and 5 is high, how likely is it that

you will go to college?” Appendix A provides a comparison of frequencies and percentages of study sample participants involved in all of the aforementioned adolescent risk-taking behaviors and shows consistency in all of the groups.

### Gender Differences

The second research question for this study was designed to compare outcomes between male and female adolescent participants. The same outcome variables from question one were examined. Although the research is scant, there are indications suggesting differences in modeling of behaviors between adolescent males and adolescent females. Theory suggests that male adolescents might be inclined to model adult male behaviors more than they would model adult female behaviors, and female adolescents might be more inclined to model the behaviors of adult females more than they would model adult males (Lonardo, Giordano, Longmore, & Manning, 2009). Therefore, rather than looking at all adolescents together, males and females were separated in these analyses to determine what differences might be observed in outcomes which may be unique to gender for adolescents who self-reported not having an adult mentor versus those who identified having a grandparent mentor.

Using the aforementioned dependent variables (sexual attitudes and behaviors, cigarette, marijuana, and alcohol use, popularity and educational attainment), this study compared male and female participants without an identified influential adult mentor to adolescents who self-reported having an influential grandparent mentor.



## Maternal Versus Paternal Grandparent Differences

The final research question important to this study was, “What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) when comparing adolescent males and females self-identified as having a maternal grandparent mentor versus adolescent males and females self-identified as having a paternal grandparent mentor?” To address this question grandparent mentors identified by adolescents were separated into two groups (maternal grandparents and paternal grandparents) to compare adolescent male and female risk-taking variables for each of those groups.

### Statistical Analyses

Descriptive statistics were used to identify frequencies “*n*,” mean scores “*M*,” and standard deviation scores “*SD*” of research participant responses as they pertained to the dependent variables (sexual attitudes and behaviors, cigarette, marijuana, and alcohol use, popularity and educational issues). Graphic representations, represented by tables, have been provided to visually describe these data and assess distributive properties. Inferential statistics (independent *t* tests) were used to address each of the research questions as only two groups were being compared against each other on each variable of interest.

When researchers examine data using multiple *t* tests as this study proposes, there is a serious risk of making type I errors as a result of alpha inflation. Two steps generally accepted as means of limiting the impacts of alpha inflation (J. Fargo, personal

communication, March 22, 2009) have been taken in this study to address that concern. First, the dependent variables (i.e., sexual behaviors, cigarette, marijuana, and alcohol use, popularity, and educational issues) were selected a priori. Second, not all of the questions available from the Add Health data set were utilized from any given variable topic area. This study accepts the high risk of type I error in preferring to look at grandparents as mentors of adolescents rather than failing to reject the null hypothesis and overlook them in this potentially influential capacity.

The first research question examined adolescent risk-taking outcomes (dependent variables – sexual behaviors, cigarette, marijuana, and alcohol use, popularity, and educational issues) as related to adolescents without any mentors and those with a grandparent mentor (independent variable).

The second research question explored risk-taking outcomes (i.e., dependent variables – sexual attitudes and behaviors, cigarette, marijuana, and alcohol use, popularity, and educational issues) for adolescent males and females without any adult mentor against those with a reported grandparent mentor (independent variables).

For research question three, differences in mean scores of risk-taking behaviors (dependent variables – sexual behaviors, cigarette, marijuana, and alcohol use, popularity, and educational issues) for male and female participants with a grandparent mentor were compared on the maternal and paternal sides of the family (independent variables).

## CHAPTER IV

### RESULTS

This chapter focused on the results of statistical analyses employed to examine the research questions proposed for this study. Throughout this chapter, risk-taking variables were grouped into two categories to maintain clarity: negative risk-taking behaviors and positive risk-taking behaviors. In accord with previously established classifications of negative risk-taking behaviors in the literature, this study used sexual attitudes and behaviors, cigarette use, marijuana use, and alcohol use as indicators of negative risk-taking behavior. Popularity and educational issues were designated as positive risk-taking behaviors and analyses conducted explored these variables in this stated order.

As is commonly used and accepted in behavioral sciences as a sufficient  $p$  value (alpha) in statistical analyses, a two-tailed  $p$  value (alpha) of .05 was used as the threshold for determining statistical significance and the degree of certainty at which the null hypotheses could be rejected for each research question. Because only two groups were being examined on various outcomes for each research question, group scores were compared using Levene's test for equality of variances and independent  $t$  tests. All analyses were conducted using SPSS version 17 providing sample sizes ( $n$ ), mean scores ( $M$ ), standard deviations ( $SD$ ), degrees of freedom ( $df$ ),  $t$  test results ( $t$ ), and statistical significance ( $p$ ). Additionally, Cohen's  $D$  ( $d$ ) was calculated for each test to better understand significant findings by providing effect sizes. Cohen (1988) defined  $d$  as the difference between the means,  $M(1) - M(2)$ , divided by the standard deviation ( $SD$ ) of either group. When  $d$  is positive it suggests results in the direction hypothesized. When

the  $d$  score is negative then results are in the opposite direction of proposed hypotheses for the study. Cohen also hesitantly defined effect sizes as “small,  $d = .2$ ,” “medium,  $d = .5$ ,” and “large,  $d = .8$ ,” admitting there is a “certain risk inherent in offering conventional operational definitions for those terms for use in power analysis in as diverse a field of inquiry as behavioral science” (p. 25). The statistical results for each research question are presented in the order they were listed in the introductory chapter.

### Research Question 1

*What Differences Are Observed in Self-reported Adolescent Risk-Taking Behaviors Between Adolescent Groups Without any Mentors and Those With a Grandparent Mentor?*

Table 2 presents statistically significant mean score differences for two of the seven variables used relating to sexual attitudes and behaviors favoring adolescents with a grandparent mentor. Responses to “If you had sexual intercourse, it would give you a great deal of physical pleasure” lower scores indicating strong agreement and higher scores indicating strong disagreement, indicate adolescent mean scores without a mentor ( $M = 2.65$ ,  $SD = 1.02$ ), indicating more agreement with the statement than mean scores of adolescents with a grandparent mentor ( $M = 2.88$ ,  $SD = 1.00$ ),  $t(899) = 2.72$ ,  $p = .01$ . Similar results were seen when responding to the query “If you had sexual intercourse, you would feel less lonely” with lower scores meaning stronger agreement and higher scores meaning stronger disagreement. Adolescents without a mentor ( $M = 3.43$ ,  $SD = 1.06$ ) scored themselves less favorably than their counterparts with a grandparent mentor ( $M = 3.69$ ,  $SD = 1.05$ ),  $t(905) = 2.92$ ,  $p = .00$ . Although not attaining statistical



significance, adolescents with a grandparent mentor reported mean scores in favor of less sexual risk-taking behavior in each of the remaining five variables of interest.

Results from cigarette and marijuana use (see Table 3) also present data indicating that adolescents with a grandparent mentor reported higher mean scores toward less risk-taking behavior for each variable examined. Scores for adolescent respondents with a mentor in this study showed statistically significant mean score differences from adolescents without a mentor in two of the six variables: “Age smoked an entire cigarette” ( $M = 13.40$ ,  $SD = 2.15$ ),  $t(203) = 3.61$ ,  $p = .00$ , and “Times smoked pot,” ( $M = 19.40$ ,  $SD = 54.67$ ),  $t(146) = 2.21$ ,  $p = .03$ . For those same variables, adolescents without a mentor scored ( $M = 12.50$ ,  $SD = 2.93$ ) and ( $M = 39.94$ ,  $SD = 96.63$ ) respectively. As with sexual risk-taking behaviors, in each case where statistical significance was not reached, adolescents with a grandparent mentor self-reported lower risk-taking propensities toward cigarette and marijuana use.

Table 4 indicates that among items addressing alcohol use among adolescents, no statistically significant mean score differences were observed between the two groups. Adolescents with a grandparent mentor had mean score averages in the direction of less risk-taking in only two of the seven variables where a score of “0 = no,” and “1 = yes:” drinking more than 2-3 times ( $M = .51$ ,  $SD = .50$ ), compared to no mentors ( $M = .53$ ,  $SD = .50$ ), and drunk at school ( $M = .10$ ,  $SD = .30$ ) versus adolescents without a mentor ( $M = .11$ ,  $SD = .31$ ). Different than what was observed with the previously reported risk-taking behaviors, adolescents without a mentor had mean score averages favoring less







risk-taking in four of the seven variables examined: “age of first drink” ( $M = 13.20$ ,  $SD = 2.86$ ), for adolescents with a grandparent mentor ( $M = 12.85$ ,  $SD = 2.74$ ), “past year times gotten drunk” ( $M = 5.62$ ,  $SD = 1.53$ ), for adolescents with a grandparent mentor ( $M = 5.57$ ,  $SD = 1.63$ ), “drinking alone” (where a lower mean score is less risky with “0 = no” and “1 = yes”); ( $M = .26$ ,  $SD = .44$ ), for adolescents with a grandparent mentor ( $M = .31$ ,  $SD = .47$ ), and “being hung over” with scores possible from “0 = never” to “4 = five or more times” ( $M = .71$ ,  $SD = 1.12$ ), and adolescents with a grandparent mentor ( $M = .74$ ,  $SD = 1.18$ ).

In the fourth and final analysis for this research question, adolescents without a mentor and those with a grandparent mentor were compared on the positive risk-taking variables of popularity and education. Table 5 indicates that in four of five variables pertaining to popularity, adolescents with a grandparent mentor showed statistically significant mean score differences over those without a mentor. In each case, adolescents with a grandparent mentor self-reported scores favoring positive risk-taking more often than adolescents without a mentor for “Feel socially accepted” ( $M = 1.77$ ,  $SD = .69$ ), where lower scores indicated strong agreement and higher scores indicated strong disagreement, compared to adolescents without a mentor ( $M = 1.93$ ,  $SD = .77$ ),  $t(1418) = 3.23$ ,  $p = .00$ ; “Feel loved and wanted” ( $M = 1.56$ ,  $SD = .66$ ), where lower scores indicated strong agreement and higher scores indicated strong disagreement, compared to adolescents without a mentor ( $M = 1.76$ ,  $SD = .74$ ),  $t(1419) = 4.00$ ,  $p = .00$ ; “Friends care about you” ( $M = 4.32$ ,  $SD = .78$ ), where lower group mean scores indicated less care and higher group mean scores indicated more care, compared to adolescents



without a mentor ( $M = 4.16, SD = .84$ ),  $t(1417) = 3.06, p = .00$ ; and “Feel close to people at school” ( $M = 2.14, SD = .90$ ), with lower scores indicating stronger agreement and higher scores pointed toward stronger disagreement, compared to adolescents without a mentor ( $M = 2.36, SD = 1.01$ ),  $t(457) = 3.51, p = .00$ .

Although neither obtained statistical significance at the .05 alpha level, adolescents with a grandparent mentor also had mean score averages favoring more positive risk-taking in two of the three education variables, “Expelled from school” ( $M = .04, SD = .20$ ) as opposed to no mentors ( $M = .06, SD = .24$ ) where lower scores designated no expulsion and higher scores indicated expulsion, and “Likely will attend college” ( $M = 4.15, SD = 1.21$ ), compared to no mentors ( $M = 4.08, SD = 1.28$ ), with scores ranging from “1 = low” to “5 = high.”

## Research Question 2

*What Differences Are Observed in Self-reported Adolescent Risk-Taking Behaviors when Comparing Adolescents Identified Without any Mentors and Those With a Grandparent Mentor, Stratified by Adolescent Gender?*

Table 6 displays  $t$  test results for males relating to sexual attitudes and behaviors. Adolescent males with an identified grandparent mentor had mean scores indicating less risk-taking in all seven variables examined, but only obtained statistical significance in one, “Ever have sex” ( $M = .35, SD = .48$ ), where values of “0 = no” and “1 = yes” compared to adolescents without a mentor ( $M = .45, SD = .50$ ),  $t(145) = 2.04, p = .04$ .





Results for females, as shown in Table 7, on sexual attitudes and behaviors, were similar to those found in males. Adolescent females with a grandparent mentor had mean scores favoring less risk-taking behaviors over adolescent females who reported not having any mentor in all but one item. However, none of the variables resulted in significant *t* test results.

The next variables of interest pertained to cigarette and marijuana use among adolescent males. Adolescent males (Table 8) with a grandparent mentor had a group mean score suggesting fewer risk-taking behaviors than those without a mentor in four of the six variables analyzed: “Ever smoked a cigarette” ( $M = .50, SD = .50$ ), compared to no mentors ( $M = .58, SD = .50$ ) where score choices were “0 = no” and “1 = yes”; “Age smoked an entire cigarette” ( $M = 12.86, SD = 3.82$ ), no mentors ( $M = 10.82, SD = 5.08$ ); “Smoked cigarettes regularly” ( $M = .38, SD = .49$ ), no mentor group ( $M = .52, SD = .50$ ) where score choices were “0 = no” and “1 = yes”; and “Times smoked pot” ( $M = 8.04, SD = 11.40$ ), which also obtained statistical significance, compared to no mentors ( $M = 20.58, SD = 30.60$ ),  $t(101) = 3.55, p < .001$ .

For variables “Age began smoking regularly” and “Age first tried marijuana,” adolescent males without a mentor showed mean scores toward less risk-taking ( $M = 13.66, SD = 2.49$ ) and ( $M = 13.73, SD = 3.10$ ), than adolescent males with a grandparent mentor ( $M = 13.00, SD = 3.88$ ) and ( $M = 13.19, SD = 3.85$ ) respectively.

Table 9 displays results for adolescent females in relation to cigarette and marijuana use variables. Similar to adolescent males, adolescent females with a grandparent mentor self-reported mean scores towards less risk-taking in four of the six variables: “Ever smoked a cigarette” ( $M = .51, SD = .50$ ), no mentors ( $M = .53$ ,







$SD = .50$ ), where scores of “0 = no” and “1 = yes”; “Age smoked an entire cigarette” ( $M = 12.43$ ,  $SD = 3.81$ ), no mentors ( $M = 11.18$ ,  $SD = 4.68$ ); “Age began smoking regularly” ( $M = 14.03$ ,  $SD = 1.68$ ), no mentors ( $M = 13.38$ ,  $SD = 2.71$ ); and “Age first tried marijuana” ( $M = 14.46$ ,  $SD = 1.74$ ), no mentors ( $M = 13.74$ ,  $SD = 2.97$ ). Adolescent females without a mentor showed mean scores favoring less risk-taking in two of the six variables: “Smoked cigarettes regularly” ( $M = .47$ ,  $SD = .50$ ), adolescents with a grandparent mentor ( $M = .48$ ,  $SD = .50$ ), where lower scores are “no” and higher scores are “yes,” and “Times smoked pot” ( $M = 13.69$ ,  $SD = 19.38$ ), versus adolescents with a grandparent mentor ( $M = 16.38$ ,  $SD = 24.69$ ). In none of the variables did score differences for adolescent females without a mentor or with a grandparent mentor obtain statistical significance for  $t$  test results.

Results for alcohol use favored males without a mentor in four items and males with a grandparent mentor in three of the items (see Table 10). No statistical significance was found for any of the seven variables examined, but in three of the seven, adolescent males with a grandparent reported higher mean score averages. For “Drink alcohol more than 2-3 times” with score choices of “0 = no” and “1 = yes,” adolescent males with a grandparent had mean scores towards less risk-taking ( $M = .50$ ,  $SD = .50$ ) as compared to those without a mentor ( $M = .58$ ,  $SD = .49$ ). Mean scores for “Drive while drunk” were adolescent males with a grandparent mentor ( $M = .10$ ,  $SD = .30$ ) where “0 = no” and “1 = yes” versus adolescent males without a mentor ( $M = .13$ ,  $SD = .34$ ). Finally, adolescent males with a grandparent mentor reported mean scores favoring less risk-taking for “Drunk at school” ( $M = .08$ ,  $SD = .27$ ) compared to no mentors ( $M = .12$ ,  $SD = .33$ ) where “0 = no” and “1 = yes.”





Females with a grandparent mentor had a group mean score in favor of less risk-taking in just one of seven variables over females without a mentor. Table 11 presents the data for, “Hung over” which resulted in females with a grandparent mentor ( $M = .67$ ,  $SD = 1.09$ ) and females without a mentor ( $M = .72$ ,  $SD = 1.12$ ) where scores range from “0 = never” to “4 = five or more times.” No results were statistically significant at the .05 level.

Results for the positive risk-taking variables of popularity and educational issues provided more positive scores in favor of adolescent males with a grandparent mentor over those adolescent males without a mentor. Table 12 displays higher mean scores for adolescent males with a grandparent mentor in all but one area, “Highest grade completed” in which adolescent males with no mentor obtained scores of ( $M = 13.05$ ,  $SD = 1.99$ ), as compared to males with a grandparent mentor ( $M = 12.99$ ,  $SD = 1.79$ ). Adolescent males with a grandparent mentor obtained statistically significant results in four areas: “Feel loved and wanted” ( $M = 1.53$ ,  $SD = .64$ ), as opposed to males without mentors ( $M = 1.77$ ,  $SD = .73$ ),  $t(674) = 3.15$ ,  $p < .001$ , lower scores indicating strong agreement and higher scores indicating strong disagreement; “Friends care about you” ( $M = 4.22$ ,  $SD = .80$ ), with the males without a mentor ( $M = 4.02$ ,  $SD = .84$ ),  $t(673) = 2.21$ ,  $p = .03$ , where lower scores indicated “not at all” and higher scores signified “very much”; “Feel close to people at school” ( $M = 2.09$ ,  $SD = .85$ ), males without a mentor ( $M = 2.35$ ,  $SD = .97$ ),  $t(153) = 2.81$ ,  $p = .01$ , with lower scores indicating strong agreement and higher scores strong disagreement; and “Expelled from school” ( $M = .04$ ,  $SD = .19$ ), adolescent males without a mentor ( $M = .09$ ,  $SD = .28$ ),  $t(196) = 2.16$ ,  $p = .03$ , with “0 = no” and “1 = yes.”





Female adolescents with a grandparent mentor provided higher self-ratings than females without a mentor in five of the eight variables relating to popularity and educational issues. Three of those differences were statistically significant. As seen in Table 13, female adolescents with a grandparent mentor reported feeling, “more socially accepted” ( $M = 1.78$ ,  $SD = .68$ ), compared to females without a mentor ( $M = 1.99$ ,  $SD = .79$ ),  $t(743) = 3.19$ ,  $p < .001$ , where lower scores pointed toward stronger agreement and higher scores indicated stronger disagreement; likewise, they felt more “loved and wanted” ( $M = 1.58$ ,  $SD = .68$ ), compared to females without a mentor ( $M = 1.74$ ,  $SD = .76$ ),  $t(743) = 2.51$ ,  $p = .01$ , lower scores meaning strong agreement and higher scores strong disagreement; and they felt “closer to people at school” ( $M = 2.17$ ,  $SD = .94$ ), with females without a mentor ( $M = 2.37$ ,  $SD = 1.05$ ),  $t(317) = 2.35$ ,  $p = .02$ , where lower scores again meant stronger agreement and higher scores stronger disagreement. Adolescent females without a mentor had higher mean scores in three of the eight variables studied: “How popular are you” ( $M = 2.01$ ,  $SD = .76$ ), adolescent females with grandparent mentor ( $M = 2.12$ ,  $SD = .82$ ), “1 = very popular” and “4 = not at all popular”; “Highest grade completed” ( $M = 13.01$ ,  $SD = 1.88$ ), adolescent females with grandparent mentor ( $M = 12.89$ ,  $SD = 1.86$ ); and “Expelled from school” ( $M = .03$ ,  $SD = .18$ ), adolescent females with grandparent mentor ( $M = .05$ ,  $SD = 1.15$ ), “0 = no” and “1 = yes.”

### Research Question 3

*What Differences Are Observed in Self-reported Adolescent Risk-Taking Behaviors when Comparing Adolescent Males and*

*Females Self-identified as Having a Maternal Grandparent Mentor Versus Adolescent Males and Females Self-identified as Having a Paternal Grandparent Mentor?*

This final research question was designed to look at differences in adolescent risk-taking behaviors as seen in self-reported outcome areas, while looking at adolescent males and females with a maternal grandparent mentor versus those adolescents with a paternal grandparent mentor. Table 14 displays results for adolescent male and female sexual attitudes and behaviors on the maternal side of the family. In all seven of the variables, adolescent females had more favorable mean score averages towards less risk-taking than adolescent males. Adolescent females also obtained statistically significant differences in four variables with lower scores indicating stronger agreement and higher scores indicating stronger disagreement: “If have sex will gain more respect” ( $M = 4.00$ ,  $SD = .85$ ), males ( $M = 3.25$ ,  $SD = .96$ ),  $t(124) = 4.58$ ,  $p = .00$ ; “If have sex would have physical pleasure” ( $M = 3.19$ ,  $SD = 1.00$ ), males ( $M = 2.42$ ,  $SD = .96$ ),  $t(119) = 4.24$ ,  $p = .00$ ; “If have sex would be more attractive” ( $M = 3.91$ ,  $SD = .90$ ), males ( $M = 3.38$ ,  $SD = .82$ ),  $t(121) = 3.31$ ,  $p = .00$ ; and “If have sex would feel less lonely” ( $M = 4.00$ ,  $SD = .97$ ), males ( $M = 3.29$ ,  $SD = 1.04$ ),  $t(121) = 3.89$ ,  $p = .00$ .

Table 15 provides results of adolescent male and female sexual attitudes and behaviors with a grandparent mentor on the paternal side of the family. Males had higher mean scores on two of the seven variables and obtained statistically significant differences on one of those: “Ever have sex” with scores “0 = no” and “1 = yes” resulted in males ( $M = .16$ ,  $SD = .37$ ), over females ( $M = .44$ ,  $SD = .50$ ),  $t(62) = 2.63$ ,  $p = .01$ ; “Total number of sex partners” showed males ( $M = 3.40$ ,  $SD = 1.52$ ), over females







( $M = 4.15$ ,  $SD = 5.13$ ). Females on the paternal grandparent side had higher group mean scores on five of the seven variables and attained statistical significance for,

“If have sex would have physical pleasure” ( $M = 3.06$ ,  $SD = .86$ ), over males ( $M = 2.56$ ,  $SD = .78$ ),  $t(49) = -2.06$ ,  $p = .05$ .

Observing differences between male and female adolescents on the maternal side for cigarette and marijuana use, Table 16 displays results indicating the genders split on mean scores with males taking fewer risks for: “Ever smoked a cigarette” ( $M = .47$ ,  $SD = .50$ ), where “0 = no” and “1 = yes” compared to females ( $M = .50$ ,  $SD = .50$ ); “Smoked cigarettes regularly” ( $M = .34$ ,  $SD = .48$ ), with females ( $M = .49$ ,  $SD = .51$ ), again “0 = no” and “1 = yes”; and, “Times smoked pot” ( $M = 8.86$ ,  $SD = 11.93$ ), with females ( $M = 15.50$ ,  $SD = 21.25$ ). Female scores were reported favoring less risk-taking over males for: “Age smoked an entire cigarette” ( $M = 12.55$ ,  $SD = 3.32$ ), males ( $M = 12.47$ ,  $SD = 3.95$ ); “Age began smoking regularly” ( $M = 14.28$ ,  $SD = 1.67$ ), males ( $M = 12.40$ ,  $SD = 4.35$ ); and “Age first tried marijuana” ( $M = 14.67$ ,  $SD = 1.86$ ), males ( $M = 12.91$ ,  $SD = 3.99$ ). No scores resulted in statistical significance by gender.

Table 17 presents results which indicate male adolescents from the paternal grandparent side had mean scores favoring less risk-taking in four of the six variables, although none obtained statistical significance. “Age smoked an entire cigarette” showed males ( $M = 15.33$ ,  $SD = 1.53$ ), females ( $M = 12.20$ ,  $SD = 4.85$ ). “Age began smoking regularly” results showed males ( $M = 14.50$ ,  $SD = 2.08$ ), females ( $M = 13.33$ ,  $SD = 1.58$ ). For “Age first tried marijuana” male scores were ( $M = 15.33$ ,  $SD = 1.53$ ), females ( $M = 14.00$ ,  $SD = 1.41$ ). Finally, “Times smoked pot” resulted in males ( $M = 2.00$ ,





$SD = 1.73$ ), and females ( $M = 18.30, SD = 32.24$ ). Female mean scores favored less risk-taking for “Ever smoked a cigarette” “0 = no” and “1 = yes” ( $M = .53, SD = .51$ ), males ( $M = .56, SD = .51$ ); and “Smoked cigarettes regularly” again with “0 = no” and “1 = yes” ( $M = .45, SD = .51$ ) and males ( $M = .50, SD = .54$ ).

Exploring adolescent alcohol use on the maternal grandparent side resulted in some outcomes favoring males and some outcomes favoring females. Table 18 presents data indicating females with mean scores toward less risk-taking in four of the seven variables and attaining statistical significance for one of those results. “Past year times gotten drunk” showed female scores ( $M = 5.87, SD = 1.27$ ), and male scores ( $M = 4.79, SD = 2.15$ ),  $t(37) = 2.44, p = .02$ . Females scores were slightly more favorable than males on “Age first drink alcohol” ( $M = 13.14, SD = 2.57$ ), males ( $M = 12.39, SD = 2.70$ ), “Drink wine or alcohol when alone” with “0 = no” and “1 = yes” ( $M = .29, SD = .46$ ), males ( $M = .37, SD = .49$ ), and finally, “Hung over” where lower mean scores indicated fewer times hung over and higher mean scores indicated more times hung over ( $M = .75, SD = 1.19$ ), with male scores ( $M = 1.00, SD = 1.46$ ).

For alcohol use on the paternal grandparent side (Table 19), females again showed mean scores favoring less risk-taking on four of the seven variables of interest. For “Age first drink alcohol” adolescent females scores ( $M = 13.38, SD = 2.16$ ) were lower than male scores ( $M = 12.09, SD = 4.06$ ). “Past year times gotten drunk” resulted in females ( $M = 5.90, SD = 1.37$ ), males ( $M = 5.55, SD = 1.57$ ). “Drive while drunk” where “0 = no” and “1 = yes” resulted in females ( $M = .04, SD = .20$ ), and males ( $M = .14, SD = .36$ ). Male adolescents scores indicated less risk-taking on only two







variables, “Drink alcohol more than 2-3 times” “0 = no” and “1 = yes” ( $M = .52$ ,  $SD = .51$ ), females ( $M = .56$ ,  $SD = .50$ ), and “Drunk at school” ( $M = .07$ ,  $SD = .27$ ), with female scores ( $M = .13$ ,  $SD = .34$ ), “0 = no” and “1 = yes.” Neither males nor females obtained statistical significance on any of the variables.

Table 20 presents results on popularity and educational issues relative to male and female adolescents on the maternal grandparent side. No statistically significant scores were reported for any of the variables and females self-reported mean scores favoring more positive risk-taking on two of the eight items studied. The variables “Friends care about you” with lower scores indicating “not at all” to higher scores indicating “very much,” and “Likely will attend college” with scores ranging from “1 = low” to “5 = high” showed females ( $M = 4.43$ ,  $SD = .73$ ) and ( $M = 4.14$ ,  $SD = 1.20$ ), while male results were ( $M = 4.24$ ,  $SD = .81$ ) and ( $M = 4.03$ ,  $SD = 1.39$ ) respectively.

Scores for adolescent popularity and educational issues on the paternal grandparent side (Table 21) vary from those found for adolescents on the maternal grandparent side and again yielded no statistically significant results. Adolescent males had mean scores toward better positive risk-taking on three of the eight variables. “How popular are you” resulted in scores for male adolescents ( $M = 1.92$ ,  $SD = .86$ ), female adolescents ( $M = 2.14$ ,  $SD = .87$ ), where “1 = very popular” to “4 = not popular at all.” “Feel close to people at school” with lower scores meaning strongly agree and higher scores meaning strongly disagree, results reported favored males for more positive risk-taking ( $M = 1.96$ ,  $SD = .82$ ) compared to scores reported by females, ( $M = 2.00$ ,  $SD = .79$ ), and again favoring males were results on “Likely will attend college” ( $M = 4.42$ ,  $SD = .97$ ), and females ( $M = 4.25$ ,  $SD = 1.01$ ) with lower scores meaning





“low” to higher scores meaning “high.” Females reported mean scores favoring their positive risk-taking over males in four areas: “Feel socially accepted” ( $M = 1.70$ ,  $SD = .60$ ); “Feel loved and wanted” ( $M = 1.47$ ,  $SD = .55$ ), both with scores from “1 = strongly agree” to “5 = strongly disagree”; “Friends care about you” ( $M = 4.26$ ,  $SD = .85$ ), with “1 = not at all” to “5 = very much”; and “Highest grade completed” ( $M = 13.09$ ,  $SD = 1.67$ ). Adolescent male mean scores for each of these were ( $M = 1.85$ ,  $SD = .82$ ), ( $M = 1.52$ ,  $SD = .75$ ), ( $M = 4.15$ ,  $SD = .77$ ), and ( $M = 12.81$ ,  $SD = 1.82$ ) respectively.

A brief summary of all research findings follows. For research question 1, adolescents with a grandparent mentor had mean scores indicating less negative risk-taking and more positive risk-taking far more often than otherwise. For sex, seven of seven mean scores favored grandparent mentors with two of them obtaining statistical significance. In regard to cigarette and marijuana use, six of six mean scores favored grandparent mentors with again two statistically significant findings. For alcohol use, four of seven mean scores favored grandparent mentors and for popularity and education, six of eight mean scores favored grandparent mentors with four variables resulting in statistical significance.

For research question 2, boys and girls with grandparents obtained mean scores favoring less negative risk-taking and more positive risk-taking in 67.9% of the variables examined. For boys, sex results favored those with a grandparent mentor in seven of seven items with one resulting in statistical significance, cigarette and marijuana use favored those with a grandparent mentor in four of six items, again with one obtaining statistical significance. For alcohol use, only three of seven items favored grandparent

mentors, and for popularity and education, seven of eight items favored grandparent mentors with four being statistically significant. Results for girls were quite similar. For sex, six of seven means favored grandparent mentors, four of six mean scores favored grandparent mentors for cigarette and marijuana use, only two of seven alcohol use mean scores favored grandparent mentors, and five of eight favored grandparent mentors in popularity and education with three scores reaching statistical significance.

Finding for research question 3 resulted in mean scores favoring girls on both maternal and paternal sides of the family. On the maternal side, sex showed girls with better mean scores in seven of seven items with four statistically significant findings. Boys and girls split, three of six, for cigarette and marijuana use. Girls had better mean scores in four of seven alcohol use items with one statistically significant result, but boys had better positive risk-taking in six of eight items relating to popularity and education.

In comparing the groups on the paternal side, girl mean scores were better in five of seven items relating to sex with two resulting in statistical significance. For cigarette and marijuana use, boys had better mean scores in four of six items and in alcohol use, girls had better mean scores in four of seven items examined. Finally, in popularity and education, girl mean scores were better than boys in four of eight variables.

## CHAPTER V

### DISCUSSION

This study explored differences in adolescent risk-taking behaviors of youth who self-reported having no adult mentor in their life and those adolescents who self-reported having a grandparent as a mentor in their life. The purpose of this exploratory study was to see if there is evidence to suggest that grandparents could be a statistically significant and socially important means of influence toward decreasing negative risk-taking behaviors and increasing positive risk-taking behaviors in their adolescent grandchildren's lives.

Research related to adolescent development, risk-taking behaviors of adolescents, and mentoring of adolescents can be found in abundance. Although not necessarily fair or accurate (Ayman-Nolley & Taira, 2000), adolescence is often attributed with such descriptors as, "storm and stress" (Hall, 1904), delinquency, parental conflict, and frustration. Most adolescents experience little difficulty during this time. However, this study has referenced several specific areas of behavior (sex, cigarette, marijuana, and alcohol use) which indicate trends of increasing negative risk-taking (Johnston et al., 2006; Lac, Alvaro, Crano, & Siegel, 2009). Whether these experiences actually occur or not, there is no other period of development wherein they are more likely to be manifest than in adolescence (Lac et al.).

Research is becoming much more available in regards to grandparents and issues relevant to this stage of human development. There are more grandparents today than ever before with better overall health, financial security, and life skills than previously

observed (Crosnoe & Elder, 2002). A significant amount of research on grandparents has focused on issues of aging and the effects on them directly. As more grandparents live longer, more research is beginning to explore their impact on families. In researching grandparents within the dynamic environment of families, a new phenomenon has been observed. More grandparents are taking on the role of primary caregivers of grandchildren than in the past (Hayslip et al., 2003). The current study is not evaluating grandparents in that context, but rather in a role of mentor because previous research has shown worsening adolescent risk-taking behaviors when grandparents adopt primary caregiving roles (DuBois & Silverthorn, 2005).

To understand the potential impact of grandparents as mentors, data from the Longitudinal Study of Adolescent Health (Add Health) was analyzed to address the following research questions:

1. What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) between adolescent groups without any mentors and those with a grandparent mentor?

2. What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) when comparing adolescent males and females identified without any mentors and those with a grandparent mentor?

3. What differences are observed in self-reported adolescent risk-taking behaviors (i.e., sexual attitudes and behaviors, cigarette and marijuana use, alcohol use, popularity, and educational issues) when comparing adolescent males and females self-identified as

having a maternal grandparent mentor versus adolescent males and females self-identified as having a paternal grandparent mentor?

Results presented in the previous chapter support an initial acceptance of grandparents as mentors. A detailed discussion of each research question and results is included in this chapter.

#### Adolescents with No Mentors Versus Adolescents with a Grandparent Mentor

As a reader steps back to examine the findings of this study, it becomes apparent that as expected, adolescents from this sample who reported having a grandparent mentor during their adolescent years fared better by self-reporting better outcomes in the majority of the risk-taking variables, both negative and positive. Specifically, the adolescents with a grandparent mentor reported higher mean scores on 21 of the 28 risk-taking items and reported statistically significant higher mean scores on eight of them.

Adolescents in this study sample without any adult mentor in their life did obtain slightly higher mean scores on four of the seven variables associated with alcohol use and two of the eight positive risk-taking variables of interest, self-rated popularity, and highest grade completed. However, none of these scores were statistically significant.

When considering social and environmental issues, these findings should not be too surprising. A large amount of effort is spent educating youth about the harmful consequences of negative risk-taking behaviors, and maybe with the added help of a more experienced “natural” mentor, a grandparent in the adolescent’s microsystem environment, those adolescents are able understand those realities slightly better.

Perhaps grandparents can discuss a topic like sex and not be perceived as a parent who is



out to make their life miserable. A grandparent offers another adult voice of reason and concern to which the adolescent responds somewhat differently, slightly better.

Scientific evidence is now abundantly available as to the negative effects of cigarette smoking. Tobacco industries have been in the spotlight for the last decade as deceivers of society in trying to mask their knowledge of the cancer-causing elements in their product (Smith & Malone, 2008). Many of those negative impacts are easily observed, and having a grandparent influence in their life may help to police adolescent use and possibly discourage their participation. Worth noting are the large standard deviations found specifically with marijuana use. Adolescent responses for frequency of use were extremely varied and accuracy has to be viewed as suspect.

Alcohol use may be different from a social standpoint than sexual behaviors, cigarette, and marijuana use. In relation to this behavior, perhaps the effects of drinking are viewed less negatively, and grandparents as mentors may be less inclined to hold it back or discourage its use among adolescents. Grandparents may consume alcohol themselves openly in a context that is less negatively construed by adolescents. Grandparent mentors may allow drinking to occur with adolescents so they have some sense of control over when and how much the adolescents consume rather than having it happen away from their presence which may increase the risks of use. Drinking may also be viewed by adolescents as an adult behavior and therefore increase the likelihood of adolescents with grandparent mentors mimicking the observed behavior.

The most statistically significant results with the largest effect sizes (*d*) came in the adolescent's ratings of their popularity and acceptance by others. Having another adult influence, in this study a grandparent, appears to be a viable contributor to how

adolescents view themselves in the eyes of others. Perhaps other peers respond more favorably to their adolescent friends when they associate with adults making that adolescent feel better about their social relationships altogether. Perhaps an adolescent who has a grandparent mentor feels an added sense of confidence which influences their friendships or acceptance by others. Using Bronfenbrenner's ecological systems theory, an adolescent who is confident and competent in their microsystem environment, in this case associating with a grandparent mentor, may be more apt to allow that influence to carry out into other realms of the adolescent's social world. Regardless, there is a difference, and more needs to be done to determine exactly how and why.

#### Males Versus Females Without Mentors and With a Grandparent Mentor

As was expected, both adolescent males and adolescent females from this study sample who identified having a grandparent mentor had outcomes towards less negative and more positive risk-taking behaviors than adolescents without any adult mentor in their life. Findings in every risk-taking variable explored are very similar for both males and females, and statistically significant *t*-test results were obtained in 9 of the 56 variables examined, all in favor of adolescents with a grandparent mentor. Although mean score differences are in many cases small between the groups, it is interesting to note the consistency of those mean scores reported by adolescents in this sample in favor of those with a grandparent mentor in three of the four general categories: sexual attitudes and behaviors, cigarette and marijuana use, and popularity and educational issues. Similar to the findings from the first research question posed in this study, alcohol use was the one area with the most mean scores, for both male and female adolescents,

favoring those adolescents who reported not having any adult mentor at this time in their life. Explanations as to why mirror those already addressed from the first research question. Separating males and females from one another did not change significantly the overall results.

An interesting observation is found when comparing the mean scores of adolescent males and females both without an adult mentor and those with a grandparent mentor. For male and female adolescent groups, in regards to sexual attitudes and behaviors, participant mean scores indicating less risk-taking favored females over males in every variable except one, "ever have sex" ( $M = .37, SD = .48$ ), which favored males ( $M = .35, SD = .48$ ). When comparing all groups' mean scores, female adolescents with a grandparent mentor obtained the most favorable results towards less negative risk-taking behaviors dealing with sex.

When looking at cigarette and marijuana uses among male and female adolescents with a grandparent mentor, male mean scores indicated less risk-taking over female mean scores in four of the six variables examined. In comparing the groups on alcohol use, female mean scores were better than males in four variables and worse in two. In popularity and educational issues, males with a grandparent mentor did better in six of the eight variables.

One other interesting observation is that it appears from looking at mean scores that adolescent females in general may be more influenced towards improving their risk-taking behaviors by the association with a grandparent mentor than males. However, of the nine variables resulting in statistical significance, six favored male participant scores and effect size differences were larger for males with a grandparent compared to males

without any mentor than what is observed in females with a grandparent compared to females without any mentor. These results suggest that grandparents as mentors may be more involved with adolescent females in a greater variety of areas and make an impact, but when grandparents as mentors are involved with adolescent males, the effects appear to be larger.

### Maternal Versus Paternal Grandparent Mentors

Findings from this research question are curious and invite further examination to aid interpretation with particular caution afforded here due to very limited sample sizes (*n*). As a whole, results suggest grandparents from either the maternal or paternal side are influential on either adolescent males or females in their risk-taking behaviors. Although there is very little research to support it beyond boys tend to model adult male behavior and females tend to model adult female behavior, this study proposed that adolescent males would be more influenced by grandparent mentors on the paternal side than maternal. This hypothesis was only supported in one of the four risk-taking variables, cigarette and marijuana use. This study also hypothesized that adolescent females would be more influenced by grandparent mentors on the maternal side than paternal. This hypothesis was supported in all but one of the four risk-taking variables, popularity and educational issues.

Looking at each of the four risk-taking variables offers some interesting possibilities. For sexual attitudes and behaviors, female adolescents appear to be somewhat more influenced by a grandparent mentor whether from the maternal or paternal side of the family than are male adolescents. Male adolescent mean scores only

outperformed female mean scores for “ever have sex” and “total number of sex partners.” Independent *t* tests resulted in statistical significance six times for this variable and showed some of the largest effect sizes (*d*). For example, scores favoring less risk-taking for females were: “If have sex will gain more respect” males ( $M = 3.25, SD = .96$ ) females ( $M = 4.00, SD = .85$ ),  $t(124) = 4.58, p = .00, d = .83$ ; “If have sex would have physical pleasure” males ( $M = 2.42, SD = .96$ ), females ( $M = 3.19, SD = 1.00$ ),  $t(119) = 4.24, p = .00, d = .79$ ; “If have sex would be more attractive” males ( $M = 3.38, SD = .82$ ), females ( $M = 3.91, SD = .90$ ),  $t(121) = 3.31, p = .00, d = .62$ ; “If have sex would feel less lonely” males ( $M = 3.29, SD = 1.04$ ), females ( $M = 4.00, SD = .97$ ),  $t(121) = 3.89, p = .00, d = .71$ . From the paternal side, “If have sex would have physical pleasure” males ( $M = 2.56, SD = .78$ ), females ( $M = 3.06, SD = .86$ ),  $t(49) = -2.06, p = .05, d = -.61$ . Why adolescent girls seem more influenced by a grandparent figure, whether maternal or paternal, is unclear. It appears the topic is one for which grandparents have more impact on adolescent granddaughters than grandsons. Perhaps girls are more approachable than boys for addressing the subject and treat it more respectfully and responsibly leading to improved behaviors (less risk-taking) for girls and increasing curiosity (more risk-taking) in boys. Perhaps society puts more burden of responsibility on the shoulders of girls and women to govern sexual practices as they bear the load of childbearing and childrearing. More research needs to explore this avenue of sexual behaviors and the influence of grandparents on both males and females.

Adolescent boys had mean scores favoring less risk-taking on the paternal side in four of the six questions relating to cigarette and marijuana use, but results were split

evenly on the maternal side. These data suggest that, in general, grandparents may influence this negative risk-taking behavior in grandsons more than granddaughters.

As it pertains to alcohol use, this study found that adolescent girls were only slightly more affected by a grandparent mentor than were males on either the maternal or paternal side. This seems to be a topic where if grandparent mentors are involved in the adolescent's life, the adolescent negative risk-taking is reduced for each gender to some degree.

Results found for outcomes in popularity and educational issues, in both cases, were opposite the hypothesized directions. Adolescent males obtained mean scores favoring more risk-taking in six of the eight items examined on the maternal side, and adolescent females obtained mean score averages favoring more risk-taking in four of the eight on the paternal side. At first an individual could be inclined to say maternal grandparents make a bigger impact on male adolescents and paternal grandparents are more influential on adolescent females, and it is possible that is the case. However, important to note are the small sample sizes, the small mean score differences between the groups and the lack of statistical significance. It appears that grandparents from either the maternal or paternal side are able to influence either male or female adolescents in this risk-taking variable to a similar degree. Merely the love and acceptance of a non-parent adult mentor, in this study a grandparent, may be the meaningful issue affecting popularity and educational issues in adolescents regardless of which side of the family it is given.

### Theoretical Implications

This study considered grandparents as an appropriate fit as “natural” mentors in adolescent grandchildren’s lives in part due to principles found in ecological systems theory (Bronfenbrenner, 1979). The microsystem level of this theory is the domain of most direct influence for development. Adolescents in this study identified a grandparent as an important adult influence in their life, and are presumed to have done so, because of the influence in that microsystems area. Those grandparents were mentors, not primary care-givers, and whatever it was that those grandparents did to interact with or assist their adolescent grandchildren seemed to make some impact for good on the adolescent’s risk-taking behaviors as compared to adolescents without any adult mentor in their life.

As cited previously, when grandparents take on primary caregiving responsibilities for their adolescent grandchildren, their role changes and so does their impact on risk-taking behaviors (DuBois & Silverthorn, 2005). Although it can be affected by race and culture, the difference in that influence may be a perception difference by adolescents toward the grandparent. Mentoring by a grandparent may be a “doesn’t have to be” or “natural” relationship. The adolescent is appreciative of whatever the grandparent does to keep in contact, associate with, and care about them knowing that the grandparent is doing it when they do not have to, but want to. When a grandparent takes on a primary caregiver role then it has potential to become an artificially forced, non-traditional, or “non-natural” relationship with the adolescent. Rules of conduct and expectations for certain things have to be implemented and enforced and the grandparent is now perceived more as a surrogate parent rather than a grandparent mentor. In a

society built on traditional families, one might argue that a grandparent taking on primary caregiving responsibilities implies that there are already challenges in the family microsystem domain. Adolescent attitudes and behaviors could already be steeped in negativity or “storm and stress,” and regardless of who stepped into the role of primary caregiver, there would be challenges. In that type of microsystem, traditional roles are changed, timing of events is out of sync, economic strains may be exacerbated, and a myriad of dysfunction likely impact this microsystem environment and disrupt the potential mentoring impact of grandparents. It is arguable that the mentoring role of a grandparent is a mark of an already stable microsystem for families and adolescents, thus strongly moderating their influence in such an environment.

However, evidence from this study presents the possibility that the impact of grandparents as mentors could also go the other direction. Perhaps their presence is the moderating variable assisting adolescents and families to remain stronger and more stable than they would otherwise be without them. Grandparents as mentors could be serving as an anchor to family values and traditions shown to have positive impacts on families (Castro et al., 2007). Grandparents as mentors could be the supporting cast or secondary witnesses for parents, reinforcing to adolescents those principles parents attempt to teach them in the home. Grandparents as mentors could be a “release valve” of sort to relieve tensions, calm troubled environments, lighten burdens at critical times, and be a source of comfort and strength to adolescents.

The mesosystem in ecological systems theory includes the interactions of elements within the microsystem which then act upon an individual. Parents interacting with grandparents are unquestionably either a mediating or a moderating variable to



consider in their role as mentors of adolescent grandchildren. In the mentoring role, grandparents must work to enhance their influence, while simultaneously guarding against overstepping their boundaries in ways that would jeopardize the relationships between the parents and grandparents, the parents and the adolescent children, and the grandparents with the adolescents. Questions posed by the Add Health team to parents were focused on adolescent risk-taking behaviors and do not offer the opportunity to tease out parental influence on grandparent mentoring of adolescents and what parents do to facilitate it. Future waves of data collection should include a section of questions to parents about grandparent involvement in their adolescent child's life to clarify this important factor and to explore their role as gatekeepers between adolescents and grandparents. With what was presented, it can be inferred that grandparent mentors in this study sample, as identified through adolescent self-reports, appear to have been able to work with parents effectively and thus impact in positive ways the risk-taking behaviors of adolescents.

#### Implications for Research and Education

This study was a first step of many that yet need to follow. It was important to take a look at a group of influential grandparent mentors and determine if their presence, at face value, has a positive impact on adolescent risk-taking behaviors. The Add Health study was a useful tool at getting an insight into this query. As results seem to suggest some degree of influence for good, now more work can be done to clarify how much, and why?

In one study, just increasing the presence of adults in public places frequented by adolescents participating in risk-taking behaviors brought significant declines in the adolescents use of alcohol, tobacco, and marijuana (Bratt, 2008). Is the influence of grandparents as mentors more important and significant than just any other adult? Add Health participants identified other groups of adult mentors such as clergy, coaches, teachers, medical professionals, other relatives, employers, and friends of parents. It would be important to compare outcomes in adolescent risk-taking behaviors for adolescents who identify them as mentors against grandparents as mentors to see degrees of differences. Adolescents with grandparent mentors have been shown in this study to be better in their risk-taking behaviors in many areas than adolescents without any mentors. However, could grandparents as mentors be coupled with another important adult influence identified by adolescents as meaningful and lead to even better outcomes in risk-taking behaviors? Grandparents in conjunction with clergy, for example, may strengthen positive outcomes. Coaches or teachers of adolescents aligned with employers of adolescents may lead to more meaningful outcomes for risk-taking behaviors. Also, do grandparents as mentors of adolescents who are exposed to fewer risks or who experience little or no “storm and stress” have as much impact for good on shaping behavior? Does the mentor relationship have less meaning for adolescents in less difficult circumstances and if so, to what degree and why?

This study only looked at grandparent mentor influence on adolescent risk-taking behaviors for those adolescents who were consanguineous. Research should explore the impact of older adults on adolescents who are not blood related. Research in that area would be an appropriate follow-up test on the “natural” mentor influence as there are

many adolescents who do not have a grandparent as a result of death, divorce, or geographical separation. Can older adults have an impact on adolescents outside of a “natural” relationship? Do results differ in “non-natural” relationships with older adults in ways that are better than results seen with younger mentors employed in many of the structured mentoring programs? If older non-related grandparent-like adults are shown to still be impactful at reducing adolescent risk-taking behaviors, then maybe age, or experience, or time is more important than known thus far in research pertaining to mentoring relationships.

Something this study has not explored that would be important to future research is the reciprocal benefits to grandparent mentors for interactions with their adolescent grandchildren. What happens to grandparent mentors, or older adults serving as mentors, when they are meaningfully engaged in the activities and experiences of adolescents? Perhaps grandparents as mentors glean as much good from the interactions with adolescents in terms of health, vitality, self-worth, purpose, social connectedness, and family relationships. Researchers found that grandparents who enjoyed being a grandparent felt younger, perceived old age to start later, and expected to live longer (Kaufman & Elder, 2003). Researchers have shown increased satisfaction in grandparenting when grandparents are more closely involved in their grandchildren’s lives (Thiele & Whelan, 2008), but specific information about benefits is limited.

As more studies are conducted exploring these specific elements of grandparent influence as mentors of adolescents, perhaps an intervention could be designed to train grandparents in ways to increase their effectiveness with adolescent grandchildren. If contact frequency or relationship closeness is vital to mentoring effectiveness, then

grandparents could be given ideas of things to do with adolescents, whether in close proximity or not, and given the tools and training to interact successfully and bridge possible generational gaps. The parent generation often serve as gatekeepers for the grandparent-grandchild relationship, either facilitating or hindering interaction between the two (Elder & Conger, 2000). If the role of parents as moderators or mediators is found to be the crucial link to grandparents mentoring adolescents, then ideas can be presented to both parents and grandparents to promote that relationship.

### Limitations

Add Health is a strong and reputable research database which has been utilized in numerous studies striving to understand adolescent development from many domains. These data were a justifiable fit for the current research and addressed effectively the outcome of concern in this project, adolescent risk-taking behaviors. The population examined by those researchers is appropriate and timely as it relates to investigating mentoring influence in this study. However, not until Wave III of the data collection did mentoring become a topic of interest for Add Health. Participants were asked to reflect back approximately 5 to 7 years and declare with some degree of certainty information related to mentoring influence which, purportedly, had been occurring during Waves I and II. Those data may not be precise. Efforts were taken using participant responses to survey questions to establish a clear time continuum between Wave I, from which risk-taking factors were explored and used in this study, to Wave III, when mentoring relationships were declared. Asking the questions about mentoring would certainly have been more precise if done at the time of Wave I data collection.

When identifying and classifying mentors, adolescents were required by the Add Health researchers to list only one, the most influential, mentor in their life. It is possible that the adolescent had two or more influential mentors but for whatever reason thought of listing the non-grandparent mentor first. Because Add Health did not allow participants to list more than one mentor, this study may have an unknown amount of misclassification error in the independent variable.

As a result of the numerous independent  $t$  tests run, this study acknowledges a significant risk of type I error due to alpha inflation. The variables obtaining statistically significant results should be carefully considered as possibly not being significant to the level required to satisfy an accounting of alpha inflation, however, this study maintains that results indicate a trend in adolescent mean scores favoring those with a grandparent mentor over those without any mentor at all.

Another concern relates to the self-reported information from adolescents about their risk-taking behaviors. Add Health took appropriate measures to insure confidentiality and privacy as data were gathered. Sensitive topics pertaining to adolescent behavior were assessed on a computer survey outside the presence of a parent and away from the Add Health researchers to encourage the adolescent in feeling confident to answer honestly and accurately without fear of repercussions. Answers could obviously be artificially inflated or limited to appear more braggadocio or conservative. Results from this research are generalizable to the extent that population samples meet the demographics of the participants used in these data, examine similar sample sizes, explore the same types of risk-taking behaviors, and follow the stated criteria for analyses used in this study.

## Conclusion

One purpose of scientific research is to improve the quality of life enjoyed by all humanity. This study has addressed some areas of risk-taking behaviors that specifically concern adolescent development, the consequences of which can affect individuals throughout their lives in positive or negative ways. Mentoring adolescents has been one means employed to assist adolescents while making important life choices. Research suggests that not only more quantity, but better quality, mentoring is needed and it should be more personal, endearing, and enduring. This study recommends using grandparents of adolescents more as mentors as they are living longer than ever before, have more time than many other groups of adults, and have a “natural” connection to family through race, culture, and relation (Kaufman & Elder, 2003). Findings of this study indicate that grandparents who act as mentors of adolescents may contribute to fewer adolescent negative risk-taking choices in behavior as well as contribute to their positive risk-taking choices in behaviors. In areas of sexual attitudes and behaviors, cigarette and marijuana use, popularity, and education, adolescents with a grandparent mentor perform, on average, better than adolescents without any adult mentors. Research of structured mentoring programs has identified several items of organization and implementation which result in the best outcomes for adolescent risk-taking behaviors. Training grandparents of adolescent youth in these areas could result in even better mentoring outcomes of adolescents and improve their risk-taking behaviors, but an intervention of such has yet to be designed to test such a theory. Much more work needs to examine specific differences in adolescent risk-taking outcomes by comparing grandparents as

mentors to other “natural” adult mentors such as teachers, clergy, coaches, other relatives, employers, and parents of peers. Researchers should also take a closer look at the reciprocal benefits, if any, to grandparent mentors who interact consistently with their adolescent grandchildren. Grandparents need to be considered as viable adult figures who can significantly affect adolescent risk-taking behaviors in meaningful ways.

Results of this study cannot be used to claim causal links between adolescent risk-taking, negative or positive, to the influence of grandparent mentors. However, this study has provided evidence justifying further inquiry toward that end. Unquestionably, something happened to decrease negative risk-taking and increase positive risk-taking more frequently among adolescents who reported having a grandparent mentor over those self-identified adolescents without any adult mentor. This study posits that grandparents as mentors of adolescents potentially made an impact and they should be examined in more ways to clarify the specific avenues and impacts of their influence on adolescents. Asking new research questions as those previously stated, designing stronger statistical analyses, and examining mediating and moderating variables of influence will aid in disentangling the degree of influence grandparents really offer adolescents in their risk-taking behaviors.

## REFERENCES

- Abbott, D. A., Meredith, W. H., Self-Kelly, R., & Davis, M. E. (1997). The influence of Big Brothers program on the adjustment of boys in single-parent homes. *Journal of Psychology, 131*, 143-156.
- Adler, P. A., Kless, S. J., & Adler, P. (1992). Socialization to gender roles: Popularity among elementary school boys and girls. *Sociology of Education, 65*, 169-187.
- Arnett, J. J. (2007). *Adolescence and emerging adulthood* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Atchley, R. (1997). *Social forcing and aging*. Belmont, CA: Wadsworth.
- Ayman-Nolley, S., & Taira, L. L. (2000). Obsession with the dark side of adolescence: A decade of psychological studies. *Journal of Youth Studies, 3*(1), 35-48.
- Baillie, L., Lovato, C. Y., Johnson, J. L., & Kalaw, C. (2005). Smoking decisions from a teen perspective: A narrative study. *American Journal of Health Behavior, 29*, 99-106.
- Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology: An International Review, 51*, 269-291.
- Baydar, N., & Brooks-Gunn, J. (1998). Profiles of grandmothers who help care for their grandchildren in the United States. *Family Relations, 47*, 385-393.
- Beam, M. R., Chuansheng, C., & Greenberger, E. (2002). The nature of adolescents' relationships with their 'very important' non-parental adults. *American Journal of Community Psychology, 30*, 305-326.



- Beam, M. R., Gil-Rivas, V., Greenberger, E., & Chen, C. (2002). Adolescent problem behavior and depressed mood: Risk and protection within and across social contexts. *Journal of Youth & Adolescence, 31*, 343-357.
- Bolla, K. I., Brown, K., Eldreth, D., Tate, K., & Cadet, J. L. (2002). Dose-related neurocognitive effects of marijuana use. *Neurology, 59*(9), 1337-1343.
- Bowlby, J., & McMullen, K. (2002). *At a crossroads: First results for the 18 to 20-year-old cohort of the youth in transition survey*. Hull, Quebec, Can.: Human Resources Development Canada.
- Bratt, C. (2008). Guardians to counter adolescent drug use? *Youth & Society, 39*, 385-405.
- Brendtro, L. K. (2006). The vision of Urie Bronfenbrenner: Adults who are crazy about kids. *Reclaiming Children and Youth, 15*, 162-166.
- Brody, J. (1991). *New York State Mentoring Training Manual*. New York: New York State Education Department.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (1991). What do families do? *Institute for American Values, Winter/Spring, 2*.
- Brooks-Gunn, J., & Graber, J. (1994). Puberty as a biological and social event: Implications for research and pharmacology. *Journal of Adolescent Health, 15*(8), 663-671.
- Brown, A., & Flanigan, C. (2003). *14 and younger: The sexual behavior of young adolescents*. Washington, DC: National Campaign to Prevent Teen Pregnancy.

- Brown, S., McGue, M., Maggs, J., Schulenberg, J., Hingson, R., Swartzwelder, S., et al. (2008). A developmental perspective on alcohol and youths 16 to 20 years of age. *Pediatrics, 121*, 290-310.
- Burt, R. D., Dinh, K. T., Peterson, A. V., & Sarason, I. G. (2000). Predicting adolescent smoking: A prospective study of personality variables. *Preventive Medicine, 30*, 115-125.
- Butler, S. (1900). *The odyssey*. London: A. C. Fifield.
- Cadman, D., Boyle, M., Szatmari, P., & Offord, D. R. (1987). Chronic illness, disability, and mental and social well-being: Findings of the Ontario Child Health Study. *Pediatrics, 79*(5), 805-813.
- Case, A., Fertig, A., & Paxson, C. (2005). The lasting impact of childhood health and circumstance. *Journal of Health Economics, 24*(2), 365-389.
- Castro, F. G. I., Garfinkle, J., Naranjo, D., Rollins, M., Brook, J. S., & Brook, D. W. (2007). Cultural traditions as 'Protective factors' among Latino children of illicit drug users. *Substance Use & Misuse, 42*(4), 621-642.
- Census, U. S. (2007). *State and County quick facts 2007*. Retrieved February 2009, from U.S. Census Bureau <http://quickfacts.census.gov/qfd/index.html>
- Centers for Disease Control and Prevention. (2006). Cigarette use among high school students - United States, 1991 - 2005. *MMWR Morb Mortal Wkly Report, 55*(26), 724-726.
- Chen, M.-J., Grube, J. W., Nygaard, P., & Miller, B. A. (2008). Identifying social mechanisms for the prevention of adolescent drinking and driving. *Accident Analysis & Prevention, 40*(2), 576-585.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Earlbaum.
- Costa, F. M., Jessor, R., Donovan, J. E., & Fortenberry, J. D. (1995). Early initiation of sexual intercourse: The influence of psychosocial unconventionality. *Journal of Research on Adolescence, 5*, 93-121.
- Crosnoe, R., & Elder, J. G. H. (2002). Life course transitions, the generational stake, and grandparent-grandchild relationships. *Journal of Marriage & Family, 64*(4), 1089-1096.
- de Bruyn, E. H., & Cillessen, A. H. N. (2006). Popularity in early adolescence: Prosocial and antisocial subtypes. *Journal of Adolescent Research, 21*(6), 607-627.
- DuBois, D. L., Holloway, B. E., Valentine, J. C., & Cooper, H. (2002). The effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology, 30*, 157-198.
- DuBois, D. L., & Silverthorn, N. (2005). Natural mentoring relationships and adolescent health: Evidence from a national study. *American Journal of Public Health, 95*(3), 518-524.
- Eccles, J., & Appleton Gootman, J. (2001). *Community programs to promote youth development*. Washington, DC: National Academy Press.
- Eccles, J., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*, 109-130.
- Eisenberg, M. E., & Forster, J. L. (2003). Adolescent smoking behavior: Measures of social norms. *American Journal of Preventive Medicine, 25*, 122-129.

- Elder, G. H., Jr., & Conger, R. D. (2000). *Children of the land: Adversity and success in rural America*. Chicago: University of Chicago Press.
- Empey, C., Riggs, K., & Lee, T. R. (2002). Mentoring as a prevention strategy: A promising program in Utah. *Journal of Family and Consumer Sciences*, *94*, 75-76.
- Falkin, G. R., Fryer, C. S., & Mahadeo, M. (2007). Smoking cessation and stress among teenagers. *Qualitative Health Research*, *17*(6), 812-823.
- Feeney, J. A., Noller, P., & Roberts, N. (2000). Attachment and close relationships. In *Close relationships: A sourcebook*. Thousand Oaks, CA: Sage.
- Fenzel, L. M. (2000). Prospective study of changes in global self-worth and strain during the transition to middle school. *Journal of Early Adolescence*, *20*, 93-116.
- Ferguson, R. (2007). Parenting practices, teenage lifestyles, and academic achievement among African American children. *Focus*, *25*, 18-26.
- Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2008). The developmental antecedents of illicit drug use: Evidence from a 25-year longitudinal study. *Drug & Alcohol Dependence*, *96*, 165-177.
- Fergusson, D. M., Horwood, L. J., & Beautrais, A. L. (2003). Cannabis and educational achievement. *Addiction*, *98*(12), 1681-1692.
- Fergusson, D. M., Horwood, L. J., Lynskey, M. T., & Madden, P. A. (2003). Early reactions to cannabis predict later dependence. *Archives of General Psychiatry*, *60*(10), 1033-1039.
- Fischer, J. L., Pidcock, B. W., & Fletcher-Stephens, B. J. (2007). Family response to adolescence, youth and alcohol. *Alcoholism Treatment Quarterly*, *25*, 27-41.

- Forster, J., Chen, V., Blaine, T., Perry, C., & Toomey, T. (2003). Social exchange of cigarettes by youth. *Tobacco Control, 12*, 148-155.
- Fothergill, K. E., Ensminger, M. E., Green, K. M., Crum, R. M., Robertson, J., & Juon, H.-S. (2008). The impact of early school behavior and educational achievement on adult drug use disorders: A prospective study. *Drug & Alcohol Dependence, 92*, 191-199.
- Friedman, D., Hechter, M., & Kreager, D. (2008). A theory of the value of grandchildren. *Rationality & Society, 20*(1), 31-63.
- Garg, R., Melanson, S., & Levin, E. (2007). Educational aspirations of male and female adolescents from single-parent and two biological parent families: A comparison of influential factors. *Journal of Youth and Adolescence, 36*(8), 1010-1023.
- Grant, B., Dawson, D., & Stinson, F. (2004). The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991-1992 and 2001-2002. *Drug and Alcohol Dependence, 74*, 223-234.
- Grossman, J., Roffman, J., & Rhodes, J. (2002). The rhetoric and reality of youth mentoring. *New Directions for Youth Development, 93*, 9-20.
- Grossman, J., & Tierney, J. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters Program. *Evaluation Review, 22*(3), 403-426.
- Gruber, S. A., & Yurgelun-Todd, D. A. (2005). Neuroimaging of marijuana smokers during inhibitory processing: A pilot investigation. *Cognitive Brain Research, 23*, 107-118.
- Guiso, L., Monte, F., Sapienza, P., & Zingales, L. (2008). Culture, gender, and math. *Science, 320*(5880), 1164-1165.

- Haas, S. A., & Fosse, N. E. (2008). Health and the educational attainment of adolescents: Evidence from the NLSY97. *Journal of Health and Social Behavior*, 49(2), 178-192.
- Hall, G. S. (1904). *Adolescence: Its psychology and its relation to physiology, anthropology, sociology, sex, crime, religion and education*. New York: Appleton.
- Hanson, M. J. S. (1999). Which straw will break the camel's back? *American Journal of Nursing*, 99, 63-69.
- Harris, K. M., Francesca, F., Tabor, J., Bearman, P. S., Jones, J., & Udry, J. R. (2003). The National Longitudinal Study of Adolescent Health: Research Design. Retrieved December 02, 2008, from <http://www.cpc.unc.edu/projects/addhealth/design>
- Hartup, W. W. (1996). The company they keep: Friendships and their developmental significance. *Child Development*, 67, 1-13.
- Hass, S. A. (2006). Health selection and the process of social stratification: The effect of childhood health on socioeconomic attainment. *Journal of Health and Social Behavior*, 47(4), 339-354.
- Hawkins, J. D., & Catalano, R. F. (1992). *Communities that care: Action for drug abuse prevention*. San Francisco: Jossey-Boss.
- Hayslip, B., Henderson, C. E., & Shore, R. J. (2003). The structure of grandparental role meaning. *Journal of Adult Development*, 10, 1-11.

- Herrera, C., Sipe, C. L., & McClanahan, W. S. (2000). *Mentoring school-age children: Relationship development in community-based and school-based programs*: The National Mentoring Partnership's Public Policy Council, Philadelphia, PA.
- Higginbotham, B. J., Harris, V. W., Marshall, J. P., & Lee, T. R. (2006). Youth and families with promise: A multi-component youth development program. *Journal of Youth Development, 1*, 1-9.
- Hooyman, N., & Kiyak, H. A. (1996). *Social gerontology*. Boston: Allyn & Bacon.
- Iversen, L. (2005). Long-term effects of exposure to cannabis. *Current Opinion in Pharmacology, 5*, 69-72.
- Jackson, Y. (2002). Mentoring for delinquent children: An outcome study with young adolescent children. *Journal of Youth & Adolescence, 31*(2), 115-122.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2001). *The monitoring the future national survey results on adolescent drug use: Overview of key findings, 2000*. Bethesda, MD: National Institute on Drug Abuse.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2005). *Monitoring the future: National results on adolescent drug use, overview and key findings, 2004*. Bethesda, MD: MIDA, NIH, DHHS.
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2006). *Monitoring the future: National survey results on drug use, 1975-2005, Vol 1: Secondary school students*. Bethesda, MD: National Institute on Drug Abuse.
- Kalant, H. (2004). Adverse effects of cannabis on health: An update of the literature since 1996. *Progress in Neuropsychopharmacology and Biological Psychiatry, 28*(5), 849-863.

- Kandel, D., Johnson, J., Bird, H., & Camino, G. (1997). Psychiatric disorders associated with substance use among children and adolescents: Findings from the Methods for Epidemiology of Child and Adolescent Mental Disorders (MECA) study. *Journal of Abnormal Child Psychology*, 25, 121-132.
- Kaufman, G., & Elder, G. H. (2003). Grandparenting and age identity. *Journal of Aging Studies*, 17, 269-283.
- Keller, T. E. (2007). Program staff in youth mentoring programs: Qualifications, training, and retention. *Research in Action*, 3, 1-24.
- Kelly, A. E., Schochet, T., & Landry, C. F. (2004). Risk taking and novelty seeking in adolescence: Introduction to part I. *Annals of the New York Academy of Sciences*, 1021, 27-32.
- Kemp, C. L. (2007). Grandparent--grandchild ties. *Journal of Family Issues*, 28(7), 855-881.
- Kessler, R. C., Foster, C. L., Saunders, W. B., & Stang, P. E. (1995). Social consequences of psychiatric disorders I: Educational attainment. *American Journal of Psychiatry*, 152(7), 1026-1032.
- King, G., Flisher, A. J., Mallett, R., Graham, J., Lombard, C., Rawson, T., et al. (2003). Smoking in Cape Town: Community influences on adolescent tobacco use. *Preventive Medicine*, 36, 114-124.
- Koval, J. J., Pederson, L. L., Mills, C. A., McGrady, G. A., & Carvajal, S. C. (2000). Models of relationship of stress, depression, and other psychosocial factors to smoking behavior: A comparison of a cohort of students in grades 6 and 8. *Preventive Medicine*, 30(6), 463-477.



- Lac, A., Alvaro, E., Crano, W., & Siegel, J. (2009). Pathways from parental knowledge and warmth to adolescent marijuana use: An extension to the theory of planned behavior. *Prevention Science, 10*(1), 22-32.
- Lane, S. D., Cherek, D. R., Pietras, C. J., & Steinberg, J. L. (2005). Performance of heavy marijuana-smoking adolescents on a laboratory measure of motivation. *Addictive Behaviors, 30*(4), 815-828.
- Lane, S. D., Cherek, D. R., Tcheremissine, O. V., Steinberg, J. L., & Sharon, J. L. (2007). Response perseveration and adaptation in heavy marijuana-smoking adolescents. *Addictive Behaviors, 32*(5), 977-990.
- Lease, A. M., Kennedy, C. A., & Axelrod, J. L. (2002). Children's social constructions of popularity. *Social Development, 11*, 87-109.
- Lohman, B. J., & Billings, A. (2008). Protective and risk factors associated with adolescent boys' early sexual debut and risky sexual behaviors. *Journal of Youth and Adolescence, 37*(6), 723-735.
- Lonardo, R., Giordano, P., Longmore, M., & Manning, W. (2009). Parents, friends, and romantic partners: Enmeshment in deviant networks and adolescent delinquency involvement. *Journal of Youth & Adolescence, 38*(3), 367-383.
- Martino, S. C., Elliott, M. N., Collins, R. L., Kanouse, D. E., & Berry, S. H. (2008). Virginitiy pledges among the willing: Delays in first intercourse and consistency of condom use. *Journal of Adolescent Health, 43*(4), 341-348.
- Martins, S. S., Storr, C. L., Alexandre, P. K., & Chilcoat, H. D. (2008). Adolescent ecstasy and other drug use in the National Survey of Parents and Youth: The role

- of sensation-seeking, parental monitoring and peer's drug use. *Addictive Behaviors*, 33(7), 919-933.
- Mason, J., May, V., & Clarke, L. (2007). Ambivalence and the paradoxes of grandparenting. *Sociological Review*, 55(4), 687-706.
- Mau, W.-C., & Bikos, L. H. (2000). Educational and vocational aspirations of minority and female students: A longitudinal study. *Journal of Counseling and Development*, 78, 186-194.
- McElhaney, K. B., Antonishak, J., & Allen, J. P. (2008). They like me, they like me not: Popularity and adolescents perceptions of acceptance predicting social functioning over time. *Child Development*, 79(3), 720-731.
- McKean, E. A., & Card, J. J. (2003). *The National Longitudinal Study of Adolescent Health (Add Health), Wave III, 2001-2002: A user's guide to the machine-readable files and documentation (Data Set Q1-Q9)*. Los Altos, CA: Sociometrics Corporation, Data Archive on Adolescent Pregnancy and Pregnancy Prevention.
- Meschke, L. L., Zweig, J. M., Barber, B. L., & Eccles, J. S. (2000). Demographic, biological, psychological, and social predictors of the timing of first intercourse. *Journal of Research on Adolescence*, 10(3), 315-338.
- Miller, B. C., Norton, M. C., Fan, X., & Christopherson, C. R. (1998). *Families matter: A research synthesis of family influences on adolescent pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy.
- Moore, D., & Haggerty, K. D. (2001). Bring it on home: Home drug testing and the relocation of the war on drugs. *Social & Legal Studies*, 10(3), 377-396.

- Mueller, M. M., Wilhelm, B., & Elder, J. G. H. (2002a). Variations in grandparenting. *Research on Aging, 24*(3), 360-389.
- Mueller, M. M., Wilhelm, B., & Elder, J. G. H. (2002b). Variations in grandparenting. *Research on Aging, 24*(3), 360.
- National Highway Traffic Safety Administration. (NHTSA; 2006). *Traffic Safety Facts 2004*. Washington, DC: U. S. Department of Transportation.
- National Institute on Drug Abuse. (2004). *CEWG - Epidemiologic trends in drug abuse: Advance report. December, 2003*. Rockville, MD: Department of Health and Human Services.
- National Mentoring Partnership. (2003). *2002 state and local prevalence of mentoring survey*. Retrieved October 26, 2008, from: [www.mentoring.org](http://www.mentoring.org)
- Oman, R. F., Vesely, S. K., Tolma, E., Aspy, C. B., Rodine, S., & Marshall, L. (2007). Does family structure matter in the relationships between youth assets and youth alcohol, drug and tobacco use? *Journal of Research on Adolescence, 17*(4), 743-766.
- Padilla-Walker, L. M., Nelson, L. J., Madsen, S. D., & Barry, C. M. (2008). The role of perceived parental knowledge on emerging adults risk behaviors. *Journal of Youth & Adolescence, 37*(8), 847-859.
- Palmer, R. B., & Liddle, H. A. (1996). Adolescent drug abuse: Contemporary perspectives on etiology and treatment. In G. M. Blau & T. P. Gullota (Eds.), *Adolescent dysfunctional behavior: Courses, interventions, and prevention*. Thousand Oaks, CA: Sage.

- Park, N. S., Lee, B. S., Bolland, J. M., Vazsonyi, A. T., & Fei, S. (2008). Early adolescent pathways of antisocial behaviors in poor, inner-city neighborhoods. *Journal of Early Adolescence, 28*(2), 185-205.
- Peterson, C. C. (1999). Grandfathers' and grandmothers' satisfaction with the grandparenting role: Seeking new answers. *International Journal of Aging & Human Development, 49*(1), 61.
- Petrosino, A., Turpin-Petrosino, C., & Buehler, J. (2002). "Scared Straight" and other juvenile awareness programs for preventing juvenile delinquency. [Electronic Version]. *Cochrane Database of Systematic Reviews 2002*. Retrieved October 2008, from <http://www.cochrane.org/reviews/en/ab002796.html>
- Philip, K. (2003). Youth mentoring: The American dream comes to the UK? *British Journal of Guidance and Counseling, 31*, 101-112.
- Platt, S., & Woodbury, C. (2006). *4-H mentoring: Youth and Families with Promise* (2 ed.). Logan, UT: 4-H YFP Utah State University Extension.
- Pollock, J. M., Mullings, J. L., & Crouch, B. M. (2006). Violent women: Findings from the Texas Women Inmates Study. *Journal of Interpersonal Violence, 21*(4), 485-502.
- Powers, R. S., & Wotjkiewics, R. A. (2004). Occupational aspirations, gender, and educational attainment. *Sociological Spectrum, 24*(5), 601-622.
- Raley, S. B., Mattingly, M. J., & Bianchi, S. M. (2006). How dual are dual-income couples? Documenting change from 1970 to 2001. *Journal of Marriage & Family, 68*, 11-28.

- Reitzes, D. C., & Mutran, E. J. (2004). Grandparenthood: Factors influencing frequency of grandparent-grandchildren contact and grandparent role satisfaction. *The Journals of Gerontology Series B-Psychological Sciences & Social Sciences, 59B*, S9-S16.
- Rhodes, J. E. (2002). *Stand by me: The risks and rewards of mentoring today's youth*. Cambridge, MA: Harvard University Press.
- Rhodes, J. E., Bogat, G. A., Roffman, J., Edelman, P., & Galasso, L. (2002). Youth mentoring in perspective: Introduction to the special issue. *American Journal of Community Psychology, 30*, 149-154.
- Rosen, I. M., Maurer, D. M., & Darnall, C. R. (2008). Reducing tobacco use in adolescents. *American Family Physician, 77*(4), 483-490.
- Rosenzweig, C. J. (2000). *A meta-analysis of parenting and school success: The role of parents in promoting students' academic performance*. Seattle, WA: American Educational Research Association.
- Ross, M. (2002). Reflections on grandparenthood. *Psychodynamic Practice, 8*(2), 236-240.
- Schvaneveldt, P. L., Miller, B. C., Berry, E. H., & Lee, T. R. (2001). Academic goals, achievement, and age at first sexual intercourse: Longitudinal, bidirectional influences. *Adolescence, 36*(144), 767-787.
- Schwartz, D., & Gorman, A. H. (2006). Popularity, social acceptance, and aggression in adolescent peer groups: Links with academic performance and school attendance. *Developmental Psychology, 42*(6), 1116-1127.

- Shadel, W. G., Shiffman, S., Niaura, R., Nichter, M., & Abrams, D. B. (2000). Current models of nicotine dependence: What is known and what is needed to advance understanding of tobacco etiology among youth. *Drug and Alcohol Dependence, 51*, 9-21.
- Shiner, M., Young, T., Newburn, T., & Groben, S. (2004). *Mentoring disaffected young people: An evaluation of Mentoring Plus*. New York: Joseph Rowntree Foundation.
- Smith, E. A., & Malone, R. E. (2008). Philip Morris's health information web site appears responsible but undermines public health. *Public Health Nursing, 25*(6), 554-564.
- Spence, S. A., Black, S. R., Adams, J. P., & Crowther, M. R. (2001). Grandparents and grandparenting in a rural southern state. *Journal of Family Issues, 22*(4), 523-534.
- Stead, M., Hastings, G., & Tudor-Smith, C. (1996). Preventing adolescent smoking: A review of options. *Health Education Journal, 55*, 31-54.
- Strom, R. D., & Strom, S. K. (1995). Intergenerational learning: Grandparents in the schools. *Educational Gerontology, 21*(4), 321-336.
- Strom, R. D., & Strom, S. K. (2000). Intergenerational learning and family harmony. *Educational Gerontology, 26*(3), 261-283.
- Tait, K. (2000). Waiting fairly patiently. *Ageing International, 26*(3/4), 89.
- Teachman, J. D., & Paasch, K. (1998). The family and educational aspirations. *Journal of Marriage & Family, 60*(3), 704-714.
- Thiele, D. M., & Whelan, T. A. (2006). The nature and dimensions of the grandparent role. *Marriage & Family Review, 40*, 93-108.

- Thiele, D. M., & Whelan, T. A. (2008). The relationship between grandparent satisfaction, meaning, and generativity. *International Journal of Aging & Human Development, 66*, 21-48.
- Thompson, L. A., & Kelly-Vance, L. (2001). The impact of mentoring on academic achievement of at-risk youth. *Children and Youth Services Review, 23*(3), 227-242.
- Thornburg, H. D. (1981). The amount of sex information learning obtained during early adolescence. *The Journal of Early Adolescence, 1*, 171-183.
- Turner, C. F., Ku, L., Rogers, L. D., Lindberg, J. H., Pleck, J. H., & Sonenstein, F. L. (1998). Adolescent sexual behavior, drug use, and violence: Increased reporting with computer survey technology. *Science, 280*, 483-507.
- Turner, S., & Scherman, A. (1996). Big brothers: Impact on little brothers' self-concepts and behaviors. *Adolescence, 31*(124), 875-882.
- U.S. Department of Health and Human Services. (1995). *Vital and health statistics. Health-risk behaviors among our nation's youth: United States, 1992*. Philadelphia, PA: National Center on Adult Literacy.
- Udry, J. R. (2003). *The National Longitudinal Study of Adolescent Health (Add Health), Wave III, 2001-2002 (Data Set Q1-Q9, McKean, E.A. & Card, J.J.)*. Los Altos, CA: Sociometrics Corporation, Data Archive on Adolescent Pregnancy and Pregnancy Prevention.
- Vandrey, R., Budney, A. J., Kamon, J. L., & Stanger, C. (2005). Cannabis withdrawal in adolescent treatment seekers. *Drug & Alcohol Dependence, 78*(2), 205-210.

- Vazsonyi, A. T., Trejos-Castillo, E., & Young, M. A. (2008). Rural and non-rural African American youth: Does context matter in the etiology of problem behaviors? *Journal of Youth & Adolescence, 37*(8), 798-811.
- Von Bothmer, M., & Fridlund, B. (2001). Promoting a tobacco-free generation: Who is responsible for what? *Journal of Clinical Nursing, 10*(6), 784-792.
- Vygotsky, L. S. (2004). Imagination and creativity in childhood. *Journal of Russian & East European Psychology, 42*, 7-97.
- Wagner, F. A., & Anthony, J. C. (2002). From first drug use to drug dependence. Developmental periods of risk for dependence upon marijuana, cocaine, and alcohol. *Neuropsychopharmacology, 26*(4), 479-488.
- Werner, P., Buchbinder, E., Lowenstein, A., & Livni, T. (2007). Grandmothers', mothers', and granddaughters' perceptions of grandparenthood: A qualitative analysis of congruence across generations. *Journal of Intergenerational Relationships, 5*, 7-25.
- White, H.-R., & Jackson, K. (2004). Social and psychological influences on emerging adult drinking behavior. *Alcohol Research & Health, 28*(4), 182-190.
- Wittchen, H. U., Behrendt, S., Hafler, M., Perkonig, A., Lieb, R., Bahringer, G., et al. (2008). What are the high risk periods for incident substance use and transitions to abuse and dependence? Implications for early intervention and prevention. *International Journal of Methods in Psychiatric Research, 17*, 16-29.
- Zeece, P. (2007). Grandparents and grand books. *Early Childhood Education Journal, 35*, 127-130.



- Zimmerman, M. A., Bingenheimer, J. B., & Notaro, P. C. (2002). Natural mentors and adolescent resiliency: A study with urban youth. *American Journal of Community Psychology, 30*(2), 221-244.
- Zippay, A. (1995). Expanding employment skills and social networks among teen mothers: Case study of a mentoring program. *Child and Adolescent Social Work Journal, 12*, 51-69.

APPENDICES

Appendix A

Comparisons of Frequencies and Percentages of Study Sample Participants Involved in  
Adolescent Risk-Taking Behaviors

*Frequency Distributions Comparing All Participants, No Mentors, and Grandparent Mentors On Risk-Taking Variables*

Variable	All participants ( <i>n</i> = 2,899)		No mentors ( <i>n</i> = 1,145)		Grandparent mentors ( <i>n</i> = 281)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
<b>Sex</b>						
If have sex will gain more respect						
Strongly agree	58	2	25	2.2	4	1.4
Agree	191	6.6	87	7.6	14	5.0
Neither agree or disagree	647	22.3	258	22.5	56	19.9
Disagree	611	21.1	222	19.4	69	24.6
Strongly disagree	404	13.9	148	12.9	34	12.1
If have sex would feel guilty						
Strongly agree	337	11.6	100	8.7	30	10.7
Agree	368	12.7	153	13.4	40	14.2
Neither agree or disagree	529	18.2	194	16.9	49	17.4
Disagree	489	16.9	210	18.3	43	15.3
Strongly disagree	181	6.2	80	7.0	15	5.3
If have sex would have a lot of physical pleasure						
Strongly agree	240	8.3	93	8.1	14	5.0
Agree	569	19.6	230	20.1	42	14.9
Neither agree or disagree	746	25.7	284	24.8	78	27.8
Disagree	216	7.5	83	7.2	26	9.3
Strongly disagree	107	3.7	39	3.4	12	4.3
If have sex would be more attractive						
Strongly agree	57	2	32	2.8	0	0.0
Agree	139	4.8	64	5.6	12	4.3
Neither agree or disagree	696	24	260	22.7	71	25.3
Disagree	602	20.8	239	20.9	50	17.8
Strongly disagree	398	13.7	138	12.1	41	14.6
If have sex feel less lonely						
Strongly agree	57	2	28	2.4	5	1.8
Agree	247	8.5	113	9.9	17	6.0
Neither agree or disagree	610	21	231	20.2	50	17.8
Disagree	624	21.5	238	20.8	57	20.3
Strongly disagree	352	12.1	123	10.7	45	16.0

(table continues)

Variable	All participants ( <i>n</i> = 2,899)		No mentors ( <i>n</i> = 1,145)		Grandparent mentors ( <i>n</i> = 281)		
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
<b>Sex</b>							
Ever have sex							
	No	1776	61.3	653	57.0	176	62.6
	Yes	1088	37.5	472	41.2	100	35.6
Total number of sex partners							
	1	137	4.7	47	4.1	20	7.1
	2	116	4	53	4.6	13	4.6
	3	105	3.6	43	3.8	12	4.3
	4	63	2.2	22	1.9	5	1.8
	5	72	2.5	34	3.0	9	3.2
	6	34	1.2	15	1.3	4	1.4
	7	23	0.8	12	1.0	1	0.4
	8	18	0.6	8	0.7	2	0.7
	9	14	0.5	9	0.8	1	0.4
	10	26	0.9	15	1.3	2	0.7
	> 10	84	2.6	36	3.4	5	2.0
<b>Cigarette and Marijuana Use</b>							
Ever smoked a cigarette							
	No	1294	44.6	504	44.0	139	49.5
	Yes	1589	54.8	629	54.9	142	50.5
Age smoked an entire cigarette							
	Never have	388	13.4	149	13.0	34	12.1
	1-5 years old	21	0.7	13	1.1	0	0.0
	6-10 years old	170	5.9	81	7.0	8	3.0
	11-15 years old	849	29.3	312	27.2	84	29.9
	16-20 years old	149	6.1	69	6.1	14	5.0
Smoked cigarettes regularly							
	No	655	22.6	242	21.1	60	21.4
	Yes	544	18.8	236	20.6	48	17.1
Age began smoking regularly							
	1-5 years old	5	0.1	2	0.2	1	0.4
	6-10 years old	39	1.3	18	1.7	1	0.4
	11-15 years old	391	13.4	162	14.1	34	12.0
	16-20 years old	108	3.8	51	4.4	12	4.3

(table continues)

Variable	All participants ( <i>n</i> = 2,899)		No mentors ( <i>n</i> = 1,145)		Grandparent mentors ( <i>n</i> = 281)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
<b>Cigarette and Marijuana Use</b>						
Age first tried marijuana						
Never have	2144	74	839	73.3	218	77.6
1-5 years old	19	0.6	10	0.9	2	0.8
6-10 years old	35	1.2	13	1.1	2	0.8
11-15 years old	502	17.4	140	12.2	40	14.2
16-20 years old	169	5.8	124	10.9	17	6.1
Times smoked pot						
1-5 times	308	10.6	117	10.2	34	12.1
6-10 times	103	3.6	44	3.9	10	3.7
11-19 times	51	1.9	19	1.8	1	0.4
20-29 times	58	2.1	23	2.0	4	1.4
30-39 times	29	0.8	13	1.2	1	0.4
40-49 times	12	0.4	2	0.2	0	0.0
50-59 times	26	0.9	10	0.9	4	1.4
60-69 times	4	0.1	1	0.1	1	0.4
70-79 times	2	0.1	1	0.1	1	0.4
80-89 times	0	0	0	0.0	0	0.0
90-99 times	3	0.1	1	0.1	0	0.0
>100 times	85	2.8	36	3.3	2	0.8
<b>Alcohol Use</b>						
Drink alcohol more than 2-3 times						
No	1313	45.3	526	45.9	136	48.4
Yes	1565	54	604	52.8	144	51.2
Age first drink alcohol						
1-5 years old	30	1	13	1.1	3	1.1
6-10 years old	88	3	34	3.0	9	3.3
11-15 years old	803	27.7	303	26.5	73	25.9
16-20 years old	163	5.5	74	6.4	13	4.7
Past year-times gotten drunk						
Every day or almost every day	11	0.4	3	0.3	3	1.1
Three to five days a week	33	1.1	16	1.4	2	0.7
One or two days a week	99	3.4	47	4.1	7	2.5
Two or three days a month	135	4.7	51	4.5	21	7.5
Once a month or less	160	5.5	62	5.4	10	3.6
One or two days in past 12 months	312	10.8	117	10.2	20	7.1
Never	520	17.9	195	17.0	48	17.1

(table continues)

Variable	All Participants ( <i>n</i> = 2,899)		No Mentors ( <i>n</i> = 1,145)		Grandparent Mentors ( <i>n</i> = 281)		
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
Alcohol Use							
Drink alcohol when alone							
	No	1131	39	446	39.0	99	35.2
	Yes	431	14.9	156	13.6	45	16.0
Drive while drunk							
	No	1411	48.7	541	47.2	130	46.3
	Yes	150	5.2	60	5.2	14	5.0
Drunk at school							
	No	1392	48	536	46.8	130	46.3
	Yes	170	5.9	66	5.8	14	5.0
Hung over							
	Never	763	26.3	308	26.9	70	24.9
	Once	256	8.8	92	8.0	20	7.1
	Twice	119	4.1	44	3.8	10	3.6
	Three to four times	77	2.7	28	2.4	5	1.8
	Five or more times	59	2	22	1.9	7	2.5
Popularity and Education							
How popular are you							
	Very popular	662	22.8	261	22.8	63	22.4
	Moderately popular	1524	52.6	595	52.0	141	50.2
	Slightly popular	481	16.6	200	17.5	51	18.1
	Not at all popular	115	4	43	3.8	15	5.3
Feel socially accepted							
	Strongly agree	816	28.1	308	26.9	95	33.8
	Agree	1656	57.1	657	57.4	165	58.7
	Neither agree or disagree	294	10.1	122	10.7	12	4.3
	Disagree	108	3.7	45	3.9	8	2.8
	Strongly disagree	14	0.5	7	0.6	1	0.4
Feel loved and wanted							
	Strongly agree	1202	41.5	444	38.8	146	52.0
	Agree	1409	48.6	569	49.7	116	41.3
	Neither agree or disagree	220	7.6	93	8.1	15	5.3
	Disagree	51	1.8	29	2.5	4	1.4
	Strongly disagree	9	0.3	5	0.4	0	0.0

(table continues)

Variable	All Participants ( <i>n</i> = 2,899)		No Mentors ( <i>n</i> = 1,145)		Grandparent Mentors ( <i>n</i> = 281)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Popularity and Education						
Friends care about you						
Not at all	22	0.8	10	0.9	1	0.4
Very little	61	2.1	30	2.6	5	1.8
Somewhat	380	13.1	174	15.2	33	11.7
Quite a bit	1202	41.5	483	42.2	105	37.4
Very much	1224	42.2	441	38.5	137	48.8
Feel close to people at school						
Strongly agree	575	19.8	199	17.4	62	22.1
Agree	1357	46.8	526	45.9	142	50.5
Neither agree or disagree	546	18.8	233	20.3	44	15.7
Disagree	270	9.3	127	11.1	24	8.5
Strongly disagree	91	3.1	39	3.4	3	1.1
Highest grade or year of school completed						
8th grade	12	0.4	7	0.6	1	0.4
9th grade	71	2.4	28	2.4	7	2.5
10th grade	120	4.1	45	3.9	18	6.4
11th grade	208	7.2	84	7.3	15	5.3
12th grade	986	34	395	34.5	101	35.9
1 year college	422	14.6	177	15.5	36	12.8
2 years college	439	15.1	165	14.4	45	16.0
3 years college	240	8.3	94	8.2	31	11.0
4 years college	286	9.9	107	9.3	20	7.1
5+ years college	72	2.5	27	2.4	5	1.8
Grad school	38	1.2	16	1.4	2	0.7
Expelled from school						
No	2755	95	1075	93.9	269	95.7
Yes	139	4.8	67	5.9	12	4.3
Likely will attend college						
1 = Low	185	6.4	84	7.3	18	6.4
2	142	4.9	56	4.9	9	3.2
3 = Medium	341	11.8	123	10.7	27	9.6
4	475	16.4	185	16.2	56	19.9
5 = High	1415	48.8	573	50.0	135	48.0
In college now	1	0.1	0	0.0	1	0.4



Appendix B. Add Health Questions

## MENTORING

(H3MN1) Other than your parents or step-parents, has an adult made an important positive difference in your life at any time since you were 14 years old?

0 = No          1 = Yes

(H3MN2) How is this person related to you? If there has been more than one person, describe the most influential.

1 = Older brother	2 = Younger brother	3 = Older sister
4 = Younger sister	5 = Mother's mother	6 = Mother's father
7 = Father's mother	8 = Father's father	9 = Aunt
10 = Uncle	11 = Teacher/Guidance Counselor	
12 = Coach/Athletic Director	13 = Minister/Priest/Rabbi/Religious Leader	
14 = Employer	15 = Co-worker	16 = Neighbor
17 = Friend	18 = Spouse or partner	19 = Friend's parent
20 = Doctor/Therapist/Social Worker	21 = Other	

(H3MN6) How old were you when {HE/SHE} first became important in your life?

0 = 0 years          Range 1 to 25 years

## SEXUAL ATTITUDES & BEHAVIORS

(H1MO1) If you had sexual intercourse, your friends would respect you more.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1MO3) If you had sexual intercourse, afterward, you would feel guilty.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1MO5) If you had sexual intercourse, it would give you a great deal of physical pleasure.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1MO7) If you had sexual intercourse, it would make you more attractive.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1MO8) If you had sexual intercourse, you would feel less lonely.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1CO1) Have you ever had sexual intercourse? When we say sexual intercourse we mean when a male inserts his penis into a female's vagina.

0 = No    1 = Yes

(H1NR6) With how many different partners have you had vaginal intercourse in the past 12 months?

## CIGARETTE USE

(H1TO1) Have you ever tried cigarette smoking, even just one or two puffs?

0 = No    1 = Yes

(H1TO2) How old were you when you smoked a whole cigarette for the first time?

(H1TO3) Have you ever smoked cigarettes regularly, that is, at least 1 cigarette every day for 30 days?  
0 = No            1 = Yes

(H1TO4) How old were you when you first started smoking cigarettes regularly (at least one cigarette every day for 30 days)?

### **MARIJUANA USE**

(H1TO30) How old were you when you tried marijuana for the first time?

(H1TO31) During your lifetime, how many times have you used marijuana?

### **ALCOHOL USE**

(H1TO12) Have you had a drink of beer, wine, or liquor – not just a sip or taste of someone else's drink – more than 2 or 3 times in your life?  
0 = No            1 = Yes

(H1TO14) Think about the first time you had a drink of beer, wine, or liquor when you were not with your parents or other adults in you family. How old were you then?

(H1TO18) Over the past 12 months, on how many days have you gotten drunk or very, very high on alcohol?  
1 = Every day or almost every day    2 = 3 to 5 days a week  
3 = 1 or 2 days a week                    4 = 2 or 3 days a month  
5 = Once a month or less                 6 = 1 or 2 days in the past 12 months

(H1JO15) Have you ever drunk alcohol when you were alone?  
0 = No            1 = Yes

(H1JO9) Have you ever driven when drunk?  
0 = No            1 = Yes

(H1JO10) Have you ever been drunk at school?  
0 = No            1 = Yes

(H1TO25) Over the past 12 months, how many times were you hung over?

## POPULARITY

(H3TO95) How popular are you?

1 = Very popular    2 = Moderately popular    3 = Slightly popular  
4 = Not popular at all

(H1PF35) You feel socially accepted.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1PF36) You feel loved and wanted.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

(H1PR4) How much do you feel your friends care about you?

1 = Not at all    2 = Very little    3 = Somewhat  
4 = Quite a bit    5 = Very much

(H1ED19) How much do you agree with the following statement: You feel close to people at your school.

1 = Strongly agree    2 = Agree    3 = Neither agree nor disagree  
4 = Disagree    5 = Strongly disagree

## EDUCATIONAL ISSUES

(H3ED1) What is the highest grade or year of regular school you have completed?

(H1ED9) Have you ever been expelled from school?

0 = No    1 = Yes

(H2EE2) On a scale of 1 to 5, where 1 is low and 5 is high, how likely is it that you will go to college?

1 = Low    2 =    3 = Medium    4 =    5 = High

## CURRICULUM VITAE

Thane R. Goodrich  
 Department of Family, Consumer, and Human Development  
 Utah State University  
 Logan, UT 84322-2905  
 Phone (208) 852-1517  
 Email: [T.Goodrich@aggiemail.usu.edu](mailto:T.Goodrich@aggiemail.usu.edu)

### **Education:**

- Ph.D.: Utah State University, 2009  
 Family, Consumer, and Human Development  
 Dissertation Title: The Influence of Grandparents as Adult Mentors  
 on Reported Adolescent Risk-Taking Behaviors
- M.S.: Utah State University, 2000  
 Family and Consumer Science: Education and Extension
- B.A.: Utah State University, 1997  
 Family and Human Development

### **Employment and Related Experience:**

- 2007 – present: Instructor, Dayton LDS Seminary. Dayton, Idaho
- Summer 2008: Graduate Instructor, Department of Family, Consumer, and Human  
 Development. FCHD 1500 (Human Development Across the  
 Lifespan) Utah State University
- Summer 2007: Research Assistant, Department of Family, Consumer, and Human  
 Development, Utah State University. Troy Beckert, Ph.D.  
 (Supervisor).
- 2006 - 2007: Teaching Assistant, Department of Family, Consumer, and Human  
 Development, Utah State University. Troy Beckert, Ph.D.  
 (Supervisor).
- 2005 - 2007: Instructor, Logan LDS Institute of Religion. Logan, Utah.
- 2002 - 2005: Principal, Dayton LDS Seminary. Dayton, Idaho.
- 1997 - 2002: Instructor, Preston LDS Seminary. Preston, Idaho.

1996 - 1997: Instructor, Logan LDS Seminary. Logan, Utah.

**Publications:**

Lee, C-T., Beckert, T., & Goodrich, T. (Under Review). *Taiwanese adolescent development: Comparisons of individualistic and collectivistic youth in Taipei City and Taitung County*. Journal of Youth and Adolescence.

**Professional Presentations:**

Goodrich, T., & Beckert, T. (2009, April) *Grandparent Influence as Adult Mentors of Adolescents on Risk-taking Behaviors*. Society for Research in Child Development (SRCD), Denver, CO.

Beckert, T., & Goodrich, T. (2009, February) *Grandparents as Mentors for Adolescents*. American Association of Behavioral and Social Sciences (AABSS), Las Vegas, NV.

**Teaching Experience:**

Undergraduate: FCHD 1500: Human Development Across the Lifespan

High School: Doctrine and Covenants/Church History  
Old Testament/Pearl of Great Price  
New Testament  
Book of Mormon

College: FCHD 1500  
Adolescence 3530  
Book of Mormon  
Missionary Preparation  
New Testament  
Power of the Word: Scripture Study Fundamentals  
Doctrine and Covenants  
Teachings of the Living Prophets  
Parables of Jesus

**Service to Profession:**

2006 - 2007: Advisor to the Latter-day Student Association (LDSSA), Logan Institute of Religion, Logan, Utah

2005 – 2006: Advisor to the Young Single Adults (YSA) Council, Logan Institute of Religion, Logan, Utah

1999 - 2005: Member of Utah North Area Training Council, Logan, Utah

**SERVICE TO COMMUNITY:**

2008 – Present: Volunteer Coordinator for That Famous Preston Night Rodeo, Preston, Idaho

2000 – Present: Ham Radio Operator and Net Member of Amateur Radio Emergency Services (ARES), Radio Amateur Civil Emergency Services (RACES), and Preston Idaho North Stake Emergency Radio Communications (ERC), Preston, Idaho

2000 – 2005: Bishop for the LDS Church, Preston, Idaho

1993 – 1997: Firefighter and Emergency Medical Technician, Richmond, Utah

**AWARDS:**

April 2009: FCHD Graduate Instructor of the Year – Utah State University

2007 – 2008: Most Influential Mentor Award – Westside High School

2006 – 2007: Most Influential Mentor Award – Westside High School

2005 – 2006: Most Influential Mentor Award – Westside High School

2004 – 2005: Most Influential Mentor Award – Westside High School