UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE EFFECTS OF RISK-TAKING AND RESPONSIBILITY ON ADOLESCENT SEXUAL BEHAVIOR: IS THE EFFECT MEDIATED BY MILITARY BACKGROUND?

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

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Norman, Oklahoma
2004

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A Dissertation APPROVED FOR THE GRADUATE COLLEGE

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Acknowledgements

"If the wind will not serve, take to the oars."
-- Latin proverb

Like so many doctoral students, I set sail on this academic voyage with the wind at my back, confident in my ability to singly navigate the calm oceans of course work and storm-tossed seas of research and analysis to arrive safely in the harbor of graduation. However, as unfavorable winds slackened the sails of my ship, I learned that I was not alone on this journey, for there were many on board willing to take to the oars and help me row. Without their many hours of direction, support, and encouragement, my ship would have surely foundered or run aground.

Among the many people to acknowledge and thank is first and foremost, Dr. Joe Rodgers, my committee chair. Your immeasurable patience, guidance, inspiration, and never-ending encouragement were like buoys that kept me on course during this much longer than anticipated voyage. I also appreciate the insight and support of my committee members, Drs. Mergler, Murphy-Kelsey, St. John, and Weber. Thank you for endorsing my research proposal and launching me on this journey of discovery and learning.

During the coursework part of this academic experience, which for me was the calm before the storm, I enjoyed the company and friendship of my fellow cohort members. Together we embarked on the maiden voyage of the university's endeavor to bring a doctoral program to Europe. I thank each of you for your help and understanding

along the way, particularly Christine, for somehow managing to be a good listener, a wonderful friend and a great brain all at once. During our first port of call at the Norman campus in the summer of 1997, we were met by Andrea, who greeted a group of strangers with Oklahoma charm and instantly made us feel at home. I appreciate your continuing friendship, caring, and those chocolate cherry things.

I appreciate the willingness of more than 300 soldiers in Germany to participate in my Adolescent Background Survey, which forms the basis for this research. When the billows tossed and tempests raged on the high seas of data analysis, Sung Lee came to my rescue. Thank you for your valuable assistance in improving my data measurement methodology. Dr. Morton Ender, whom I have never met, provided immediate response to my desperate electronic request for articles. Thank you for that, as well as for your thoughtful guidance and interest in my research.

I dedicate this work to my mother, Mary F. Harding, who taught me in my youth the value of hard work and persistence. Your faith and example are the lodestar of my life. I miss you, Mom.

Finally, I thank my family. My children, Scott and Regan have been like harbor lights along the shore, sending their cheerful gleams across the waves (and keeping me well supplied with hugs and cups of ice water), while patiently waiting for me to safely return to port. You both bring such joy to my life. Dave has been my chief oarsman as well as my lighthouse, providing focus for the journey and guiding me away from the rocky shoals. As my husband and best friend for over 17 years, you believed in me long

before I believed in myself. Thank you for your encouragement, your editing skills, and sound, practical advice. You have sacrificed the most in order for me to reach this goal and have been a constant source of strength. Thanks for helping me row!

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Abstract

Adolescent sexual behavior was investigated within a framework of three independent variables. Previous research has identified that adolescents share a propensity for risk-taking. Other research has indicated that adolescents with military backgrounds possess a greater willingness to take risks as well as a higher level of responsibility than their non-military counterparts. The purpose of this research is to examine adolescent sexual behavior within a framework of three independent variables; risk-taking, responsibility, and military background. Specifically, is adolescent sexual behavior influenced by a propensity for risk-taking, level of responsibility, and military background, and what are the mediating effects of military background on risk-taking and responsibility?

The Effects of Risk-taking and Responsibility on Adolescent Sexual Behavior: Is the Effect Mediated by Military Background?

Purpose and Introduction

Research over the past 25 years has made enormous strides in contributing to the understanding of adolescent sexual behavior. Moore (1995) broadly discussed the consistent patterns the research has identified thus far: "In addition to the individual factors, other influences on teen sexual behavior include the family, siblings, peers, sexual partners and the community" (p. xiii). She identified that early sexual behavior has enduring effects and those who engage in it place themselves at greater risk of negative consequences. "More specifically, age of first intercourse is associated with having multiple partners and more frequent intercourse, which increases the risk of contracting sexually transmitted infections and becoming pregnant" (p. 14). The factors identified by the research, however, are by no means all encompassing. Despite apparent progress, Moore and Rosenthal (1992) suggested, "We have not yet ventured very far into the exploration of dimensions of the adolescent sexual domain" (p. 416). Hayes (1987) acknowledged that, "(w)e know very little about . . . sexual behavior among different cultural subgroups and its influence on adolescents' conscious and unconscious motives" (p. 244).

One particular area that has had little, if any, research attention is the influence of military background upon adolescent sexual behavior. Kaslow and Ridenour (1984) suggested that "there seems little doubt that the military family presents a somewhat

different portrait than does its civilian counterparts" (p. 2). Wertsch (1991) postulated that adolescents with strong military influences generally exhibit greater tendencies of risk-taking and levels of responsibility. However, it is unknown if these tendencies transfer into the sexual domains of adolescent behavior.

The main purpose of this research is to examine adolescent sexual behavior within a framework of three independent variables, namely, risk-taking, responsibility, and military affiliation. Specifically, is adolescent sexual behavior influenced by a propensity for risk-taking, level of responsibility, and military background, and what are the mediating effects of military background on the other two variables?

Literature Review

Adolescent Sexual Behavior

Today research and policy interest in adolescent sexual behavior continues at a high level because of the problematic implications not only for individuals but also for society (Miller & Moore, 1990). Even though there has been a (steady) decline in teen birth rates since 1990 (National Center for Health Statistics, 2004) and between 1988 and 1995 a decreased proportion of girls aged 15-19 engaged in sexual intercourse (Albert, Brown & Flanigan, 2003), teen sexual activity has actually become more common. The age of sexual debut has steadily declined (Calhoun & Friel, 2001) and approximately one in five youth have had sex by his or her 15th birthday (Albert, et. al, 2003).

Rodgers (1996) described the importance of conducting research into adolescent sexual behavior within the broader framework of "transition" behaviors. Transition

behaviors are defined as those which adolescents use to signal transition from childhood to adulthood. This framework helps to remind us that, "sexuality is not a single independent domain of behaviors" (p. 87). In fact, studies have shown that many factors are linked to early adolescent sexual activity including peer influences, level of educational achievement, community characteristics, gender, race, and parental influence as well as outcomes that include substance abuse and delinquent activities (Schvaneveldt, Miller, Berry, & Lee, 2001). Effective research models approach this concept by considering adolescent sexual behavior as a multistage process (Rodgers, 1996). Although no one model can capture all the intricacies (Miller & Moore, 1990), incorporating and understanding the factors that predict adolescent sexual behavior is "important for more effectively preventing and ameliorating the social costs of early sexual intercourse" (Schavenveldt, et.al, 2001, p. 768).

Whereas sexual behavior encompasses much more than sexual intercourse, intercourse is the behavior that places adolescents at risk of sexually transmitted disease and unplanned pregnancy (Moore, 1995). Hayes (1987) stated: "Sexual intercourse is the major risk factor that often leads to unplanned adolescent pregnancy" (p. 75). Capaldi, Crosby, and Stoolmiller (1996) noted that, "(t)he timing of this event has several developmental implications. . .early onset of sexual intercourse exposes adolescents to more years of risk for pregnancy or contraction of a sexually transmitted disease" (p. 344). Other research has indicated that there are educational implications to early sexual behavior. Miller and Sneesby (1988) and Schvaneveldt, et. al. (2001) identified that low educational goals and poor academic performance were more likely to lead to early

sexual involvement and conversely, those engaging in sexual intercourse experience a decline in their educational goals and achievement.

First Intercourse Experience

The significance of the timing of the first intercourse experience has been widely documented throughout the literature (Albert, et. al, 2003; Santelli, Lowry, Brener, & Robin, 2000; Billy, Brewster, & Grady, 1994; Miller & Heaton, 1991; Mott & Haurin, 1988; Hofferth, 1987). Upchurch, Lillard, Aneshensel, and Li (2002) noted, "first heterosexual intercourse has been viewed as a highly salient event for adolescents and used as one marker in the transition to adulthood" (p. 198). Moore (1995) identified that age of first intercourse is, "associated with having multiple partners and more frequent intercourse, which increases the risk of contracting sexually transmitted infections and becoming pregnant" (p. 14).

Schvaneveldt et. al, (2001) reports that by age 19, 76% of females and 85% of males have had sexual intercourse. Approximately 22% of females and 27% of males have had intercourse by age 15. Empirical data clearly show that the incidence of sexual intercourse among U.S. adolescents has increased over recent decades, particularly in younger adolescents aged 12 to 14 (Albert, et. al, 2003). At age 12, four to five percent (4-5%) of youth have had sexual intercourse, increasing to ten percent (10%) at age 13 and 18-19% at age 14. Although boys are more likely than girls to have had sex at an earlier age, Calhoun, et. al, (2001) predicted that any significant gender gap will eventually disappear with regards to sexual initiation (p. 673).

Sexual Partners

As the age of first intercourse has decreased, the number of sexual partners has increased (Caron & Moskey, 2002). Of youth, who at age 14, reported having engaged in sexual intercourse, over half (55%) reported two or more lifetime partners (Albert, et. al, 2003). The Center for Disease Control (CDC) Youth Risk Behavior Surveillance (2003) found that 17.5% of male and 11.2% of female students (average of 14.4% total) aged 12-18 reported having sexual intercourse with four or more people during their life. Thornton's (1990) study of courtship and sexual behavior as a developmental process revealed important linkages. He found that steady dating relationships were strongly correlated with the number of sexual partners and the frequency of intercourse in later years. Gender roles also appear to have an effect on adolescent sexual behavior, particularly males. In the National Survey of Adolescent Males (NSAM), Pleck, Sonenstein, and Ku (1993) reported that, "traditional attitudes toward masculinity also have negative correlates. Males with traditional attitudes have more sexual partners, use condoms less, and have less favorable attitudes toward condoms" (p. 26). The 1992 National Health Interview Survey confirmed the strong association between early initiation of intercourse and a higher cumulative number of partners in early adulthood. Moore (1995) reported, "among sexually active young adults age 20, 74 percent of males who initiated sexual intercourse at age 14 or younger had had six or more lifetime partners, while only 10 percent of those who did not initiate sex until age 17 or older had had six or more partners" (p. 8).

Contraceptive Use and Pregnancy

Of 9th through 12th grade students, reportedly 58% used a condom at last intercourse (Kaiser Family Foundation, 2003). Albert, et. al (2003) reported that 74% of teens who had sexual intercourse before age 15 reported that they used some method of contraception the first time they had sexual intercourse (p. 32). Caron, et. al. (2002) identified that, "the proportion of sexually active teens using contraception rose dramatically" (p. 516) in her research comparing the high school classes of 1950, 1975 and 2000. Brindis, Starbucks-Morales, Wolfe, and McCarter (1994) suggested that "(t)here are differences between sexually active adolescents who use contraceptives consistently and those who do not" (p. 162). An example of a possible difference is highlighted in a study conducted by Jaccard, Dittus, and Gordon (1996) who measured maternal correlates of adolescent sexual and contraceptive behavior. The results indicated that the overall quality of the adolescent's relationship with his or her mother was related to the frequency of sex and the consistency with which birth control was used, with higher quality relationships associated with lower frequency of intercourse and greater consistency in the use of contraceptives. Sonenstein, Pleck, and Ku (1989) identified that, "while sexual activity appears to have risen among adolescent males since 1979, the data also indicate that reported condom use has increased dramatically among both black and non-black youth" (p. 157). Adolescents who have high educational expectations and school success are more likely to use contraception effectively (Hayes, 1987). Miller and Moore (1990) noted that, "one of the thorniest research and policy

questions with regard to adolescent pregnancy is to discover the predictors of consistent contraceptive use among youth who do not have high aspirations or high expectations for their present or future" (p. 1032).

The probability of pregnancy is significantly affected by the use of contraception. Within two years of initiating intercourse, nearly 50 percent of those who used no contraception become pregnant (Hofferth, 1987). Approximately one in seven sexually experienced 14 year-old girls report having been pregnant (Albert, et. al, 2003). Youth in the United States have higher rates of pregnancy and childbearing than any other industrialized nation including those with comparable levels of sexual activity (Kaiser Foundation, 2002). In the United States, girls 15 and younger are five times more likely to give birth than are there counterparts in any other Western nation (East & Felice, 1996). Because U.S. adolescents are much more likely to experience pregnancy than their counterparts in other democracies, Miller and Moore (1990) emphasized the importance and continuing need for basic and applied research on early sexual activity.

In summary, the implications of sexual behavior research are clear. Miller and Moore (1990) stated, “The early onset of sexual activity is related to less effective contraceptive use, to unintended pregnancy, and to becoming a parent 'too soon'"(p. 1025). Costa, Jessor, Donovan, and Fortenberry (1995) summarized, “Early sexual activity can have significant personal, social, and economic consequences for adolescents in this country” (p. 94). The costs of unintended pregnancies and untimely birth at both the personal and public level are outlined by Hayes (1987). She stated: "(d)iscontinued educations, reduced employment opportunities, unstable marriages (if they occur at all),

low incomes, and heightened health and developmental risks to the children of adolescent mothers are a few of the most obvious and immediate personal costs" (p. ix). These costs are not only sustained at the personal and familial level, but have a much broader impact. Hofferth (1987) noted: "Early childbearing has an impact on society, for when individuals cannot realize their full educational and occupational potential, society loses their economic contributions" (p. 140). Not only are the economic contributions of these individuals lost, but costs increase due to the rise of public assistance. Other long-term outcomes are often sustained poverty, frustration, and hopelessness (Hofferth, 1987). Clearly, the costs of early adolescent sexual behavior are high for individuals and societies.

Risk-Taking and Adolescent Sexual Behavior

Furby and Beyth-Marom (1992) defined risk taking as, "engaging in risky behavior" (p. 3). The researchers posit that despite a popular view to the contrary, there is little evidence that supports the theory that adolescents are more likely than adults to engage in behaviors that seem risky. In their argument, they cited instances of risk-taking by adults that are generally applauded, (i.e., astronauts, soldiers, or mountain climbers). Coming from a decision-making perspective, they hypothesize that we know very little about decision-making competence among adolescents, and thus do not understand their risk-taking behaviors. Baumrind (1991) argued that risk-taking can often, "help adolescents by building confidence, developing tolerance for stress, and learning to take initiative" (p. 63). This perspective appears to be contrary to the views expressed by

Moore (1995) who stated, "Adolescents generally seem to have a feeling of invulnerability and tend not to associate consequences with actions" (p. 1027). Parsons, Siegal, and Cousins (1997) added that even with the knowledge of dangerous consequences, adolescents tend to experiment with risk-taking behaviors. Similarly, using a story-completion task, Moore, Gullone, and Kostanski (1997) found that in scenarios with negative risk, most adolescents had the protagonist accept the risk.

A large body of research addresses adolescent sexual risk taking. Upchurch, et. al, (2002) argued that assessing adolescent sexual intercourse is useful, "because it is an important marker of risk" (p. 206). Thomas, Reifman, Barnes, and Farrell (2000) describe that two of the most prevelant forms of adolescent health-risk behaviors are alcohol misuse and sexual risk-taking. Research conducted by Donovan and Jessor (1985) indicated that for high school populations, "sexual activity was significantly correlated with marijuana use, drinking behavior and a measure of general deviant behavior for males and females in the fourth year of high school" (p. 44). The Kaiser Family Foundation (2002) acknowledged that there is evidence that alcohol and drug use by young people is associated with risky sexual activity. Jessor's (1975) theory of problem behavior outlines that engagement in one problem behavior increases one's susceptibility to engage in others. Similarly Thomas, et. al, (2000) found that adolescents who became drunk at an early age were at higher risk of later sexual activities including having multiple partners. Hayes (1987) stated:

> Given the risk-taking and non-conventional behaviors have predicted a higher probability of sexual activity and a lower likelihood of contraceptive use, it is not

> surprising that studies of childbearing also find that teens who have engaged in varied risk-taking activities are more likely to become parents (p. 87).

Rolison (2002) conducted research regarding adolescent risk taking and locus of control, the perception one has of the control he or she has over the events that occur in one's life. She identifies that previous studies found that having an external locus of control (or the perception that life events are unrelated to one's own behavior) was a significant predictor of pregnancies occurring early in adolescence. Moore (1995) describes that there is a limited relationship between intention to use a condom and actual use, with situational factors interfering with the good intentions to have safe sex. Cates (1991) asserted that, "(d)enial is a particular characteristic of adolescence and risk taking is a natural behavioral sequela" (p. 90). Alexander, Kim, Ensminger, Johnson, Smith, and Dolan (1990) summarize that risk taking is best defined within the adolescent's own social context. Yet there is more to adolescence and adolescent sexual behavior than risk-taking. Rodgers and Rowe (1990) found an overall relationship between sexual behavior and deviance, but were also clearly able to separate these domains and acknowledged that "the tendency for problem behaviors to covary is only half the picture" (p. 291).

Responsibility

Ortman (1988) acknowledged, "One thing our society demands of our children as they grow older is that they be more and more 'responsible'. We are not always very successful at socializing this highly valued characteristic, however. . ." (p. 913). The concept of responsibility, particularly sexual responsibility, has commanded little

attention within adolescent research. Often it is equated with low risk taking behavior. Gottsegen and Philliber (2001) outline that increasingly responsible sexual behavior means less frequent intercourse, fewer sexual partners, and more consistent condom use. Their study conducted in Greesboro, NC targeted the impact of a sexual responsibility program (Wise Guys) on 7th and 8th grade males. This six-month program appeared to make a substantial difference in responsible contraceptive behavior, however, there was a unexpected 7% increase in the number of participants who became sexually active during the reporting period.

Wertsch (1991) defines responsibility as, "taking the notion of duty very seriously, routinely giving your best effort, and keeping your word" (p. 395). As it relates to adolescent sexual behavior, Miller and Moore (1990) noted that, "(t)eens who are physically capable of sexual and reproductive behavior may lack the cognitive and behavioral skills necessary to choose a responsible course of action and understand its long term consequences and implications" (p. 1027). In a study conducted by Zabin, Hirsch, Smith, and Hardy (1984), it was reported that the adolescents they surveyed held "values and attitudes consistent with responsible sexual conduct" (p. 183). However, the majority of the same adolescents cited a best age for first intercourse that was older than the age at which they began having sex. Berne and Huberman (2000) identified European approaches to adolescent sexual behavior and responsibility acknowledging that US teenagers have much poorer sexual health than their industrialized country peers. "Rather than attempting to deter people from sexual relationships, the focus has been on positive aspects, relationship, communication and sexual responsibility at the

interpersonal level, and empathy and corporate responsibility at the societal level" (p. 192).

Military Background

In 1990, 2 million active duty military personnel had some 1,625,111 children under 21 years of age (Ender, 2002). Today 47% of Army soldiers have children which equates to 469,069 children who live in areas that span the globe (Department of Army, n.d.). Truscott (1989) summarizes that, "a military career defines and shapes the lives of families to an extent that is rarely matched in nonmilitary occupations" (p. 3). Some unique facets of military life include frequent moves and isolation from relatives and friends, the servicemember's long or short-term absences, living life under the dictum that the mission comes first, and risks that are an inescapable part of military duty (Kaslow and Ridenour, 1984). Wertsch (1991), author of *Military Brats: Legacies of Childhood Inside the Fortress*, stated: "(I)t is my contention . . .that not only does the military constitute a separate and distinctly different subculture from civilian America, it exercises such a powerful shaping influence on its children that for the rest of their lives, they continue to bear its stamp" (p. xiii).

In the last fifty years, a growing body of research has been conducted on the military family. Boulding (1950) studied family adjustment to war separation and reunion and found that the demands that strain a family to the breaking point may be met without effort by another family with different resources. Since that time, much of the research focus has been on the mobile lifestyle and it's effects on the family and children

of servicemembers (Strobino & Salvaterra, 2000; Gerner, Perry, Moselle, & Archbold, 1992; Aisenstein, 1988; Pedersen & Sullivan, 1964). These effects were largely looked upon as having negative implications and previous literature suggested military families suffer greater psychosocial difficulties than the general population (Watanabe & Jensen, 2000). Shaw (1979) identified that studies have consistently failed to find any predictable relationship between emotional and behavioral problems and the frequency of family moves, nor is there evidence that the amount or form of psychopathology differs in military youth from their civilian counterparts. Morrison's research (1981) on military children indicated that the level of conduct and behavioral disorders may actually be lower among military children than children in the civilian community. Kenny (1967) found that military children had a higher IQ, fewer emotional disturbances, and a lower incidence of juvenile delinquency. Similarly, while conducting extensive interviews with "military brats", Wertsch (1991) identified nine characteristics that she found common throughout her research which included: responsibleness, social skills, adaptability, loyalty, willingness to take risks, discipline, tolerance, idealism, and ability to handle crises (p. 395-8).

In *Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing* (1987), Cheryl Hayes identifies, “at any given point in time, for adolescents living in different social, economic, and cultural contexts and having different personal characteristics and life histories, choices concerning sexual behavior will reflect different degrees of rational thinking and conscious decision-making” (p. 27). Although research has been conducted into the study of cultural and sub-cultural differences in adolescent sexual behavior in the

anthropology literature and in other social sciences, one particular variable has been almost entirely ignored: military background. Research has addressed particular familial and contextual effects on adolescent sexual behavior, namely proximal living environments (Moore, 1995), father absence, and family instability (Santelli, et. al, 2002). Military adolescents experience these same effects on an on-going basis, more profoundly if living outside the United States. The resulting effects of these factors have yet to be explored within the domain of adolescent sexual behavior and military background.

Pipher (1994) wrote: "Adolescents are travelers, far from home with no native land, neither children nor adults . . . (t)here's a yearning for a place, a search for solid ground" (p. 52). For adolescents raised in a military environment, this is particularly true. Wertsch (1991) added that the kinship networks available to most adolescents are not there for "military brats". "Each time the family moves, the world dissolves and is swept away" (p. 252). How these experiences effect adolescents and their resulting sexual behavior is the purpose of this research, framed within the context of risk-taking and responsibility, two of the characteristics identified by Wertsch (1991).

Methods

Research Question

The general research question is whether certain influences on adolescent sexual behavior are affected by military background. More specifically, are the effects of risk-taking and responsibility on adolescent sexual behavior (measured in three ways: age at

first intercourse, number of sexual partners before 18th birthday, and contraceptive use during adolescence) mediated by military background?

Background

In order to answer the research question and examine the influences and relationships effects occurring between variables (Wiersma, 1995), this research employed an ex-post facto design. The original sample size goal was 200. Respondents were military personnel newly arrived in Germany. Dependent variables were measures of adolescent sexual behavior obtained from retrospective responses. Independent variables were measures of risk-taking, responsibility, and military background (see Table 1).

Table 1
Measures of the Independent Variables

IV	***RISK-TAKING***	***RESPONSIBILITY***	***MILITARY BACKGROUND***
MEASURES	Attitudinal: • Risk-taking score on the Jackson Personality Inventory (Item #s 13-28=16)	Attitudinal: • Responsibility score on Jackson Personality Inventory (Item #s 56-71=16)	• Military background score from survey (Item #s 8-12=6)
	Behavioral: • Risk-taking score from survey (Item #s 29-34=6)	Behavioral: • Responsibility score on Gordon Personal Profile (Item #s 38-55=18)	• Number of years (until age 18) spent with either or both parent(s) in the military

Respondents and Data Collection

Respondents consisted of 311 servicemembers arriving in Germany during April through December 1999 and initially assigned to the 414th Base Support Battalion in Hanau. Upon arrival, all servicemembers complete a three-week training program at the Inprocessing Training Center (ITC) prior to being sent to their respective units. Written approval to conduct the survey at the ITC was given to the researcher by the Commander of the 414th Base Support Battalion in March 1999 (see Appendix D). Approval by the University of Oklahoma Institutional Review Board (see Appendix E) was given in February 1999.

A pilot study was conducted in April 1999 of one class cycle (36 servicemembers) in order to validate the research instrument (see Appendix A). The goal of the pilot survey was to evaluate whether respondents understood and were comfortable in responding to each of the survey questions. For the pilot study, an extra page was added to each survey thanking respondents for their participation and asking if there were any terms or questions that they did not understand. Additional space was provided to write or comment on the survey (see Appendix B). Results were positive in all respects. No major difficulties were identified. The only change was to provide additional explanation to the respondents in completing survey items 33 through 55 (the Gordon Personal Profile-Responsibility). However, no survey items were changed in response to concerns that emerged from the pilot survey. Because the pilot study was an instrument validation exercise, no statistical analysis of the survey results was conducted. The data

obtained from the thirty-six (36) subjects in the pilot study were merged with other subjects to define the overall data set.

The remaining respondents (n=275) were enrolled at the ITC from April to December 1999 and consisted of volunteer respondents from 33 class cycles. The following information summarizes patterns in the overall dataset (n=311). Respondents ranged in age from 18 to 43, with an average age of 24 years. Length of service in the military ranged from 6 months to 23 years. Respondents' military rank ranged from Private (lowest enlisted rank [E-1]) to Major (mid-career officer [O-4]), with the majority of respondents in the enlisted ranks (90.7%). Of the sample of 311 respondents, two hundred fifty-two were male and fifty-eight were female. Originally, males were the targeted sample; however, a small sample of female respondents (19%) volunteered to complete the survey. It was not possible to recruit equal numbers of participants from male and female servicemembers because of gender restrictions within the military and the composition of units in the area. The primary military units within the Hanau area are classified as 'direct combat' and thus do not permit women within their ranks. However, female servicemembers are assigned to the Hanau military community to serve in smaller 'combat support' or 'garrison' units. Data analysis was conducted in three ways; on all obtained surveys (including female respondents), and on male and female respondents separately.

Of the total respondents, 53% (n=164) self-reported their ethnicity as Caucasian, 21% (n=65) African-American, 13% (n=41) Hispanic, and 5% (n=16) American Indian, Asian/Pacific Islander, or Other. Twenty-five respondents (8%) left the ethnicity survey

item blank. Of male respondents, 57% (n=143) self-reported their ethnicity as Caucasian, 17% (n=42) African American, 14% (n=34) Hispanic, and 5% (n=14) American Indian, Asian/Pacific Islander, or Other. Seventeen of the male respondents (8%) left the ethnicity survey item blank. Of female respondents, 36% (n=21) self-reported their ethnicity as Caucasian, 40% (n=23) African American, 12% (n=7) Hispanic, and 3% (n=2) American Indian, Asian/Pacific Islander, or Other. Five of the female respondents (9%) left the ethnicity survey item blank. The ethnic composition of the respondents approximated that of the U.S. Army (Department of Army, n.d.).

The researcher was granted time to recruit survey respondents on a weekly basis at the ITC. The purpose and nature of the research was explained to each class, and servicemembers were given the opportunity to volunteer. Respondents were granted time to complete the survey during a two-hour unscheduled training period the following week. Each respondent completed an individual consent form (see Appendix C) that outlined the anonymity of the survey and included a "no-risk or benefit to participation" statement. Once the consent form was signed and additional instructions were given, the survey was administered on an individual basis. Once completed, the respondent was instructed to place the survey into a locked box.

Dependent Variables

Three different measures were used to operationalize adolescent sexual behavior--age at first intercourse, number of sexual partners during adolescence and contraceptive

use during adolescence. These three measures are used extensively throughout the adolescent sexuality literature (Card, 1993).

Age at first intercourse was measured based upon participant responses to Item 35 on the Adolescent Background Survey. Participants either reported their age at first intercourse in the blank provided or checked the option, "I have never had sexual intercourse", in which case they were not required to answer the other two dependent variable items. Responses to the age question were transformed to a 5-point scale, defined prior to data analysis. Those who were less than 12 at reported first intercourse were assigned a value of 5, those from 12-14 received a value of 4, those 15-17 were assigned a 3, those 18-20 were assigned a 4, and those who were older than 20 or who reported never having had sexual intercourse received a 1. Two features of this transformed scale are notable. First, the problem with right censoring was handled by assigning those who had never had intercourse the most extreme value on the rating scale. Second, the scale's direction is reversed-scaled from the age variable, so that those who were more precocious sexually get a higher value (see Table 3).

Table 3

Rescaled Age of First Intercourse Score

Age of First Intercourse (in years)	Age of First Intercourse Scale Score
>20 or Never	1
18-20	2
15-17	3
12-14	4
<12	5

The second dependent variable, number of partners, was measured based upon participant response to Item 36 on the Adolescent Background Survey. Participants were asked to write the number of different heterosexual partners they had prior to their 18th birthday. Responses were converted to a 5-point scale based upon a quintile split, accommodating extreme scores. This transformation was defined with 0-1 partners corresponding to a 1, 2-4 partners a 2, 5-10 partners a 3, 11-20 partners a 4, and more than 20 partners a 5 (see Table 4).

Table 4

Rescaled Number of Sexual Partners Score

Number of Sexual Partners	Number of Sexual Partners Scale Score
1	1
2-4	2
5-10	3
11-20	4
>20	5

The third dependent variable, contraceptive use during adolescence, was measured based upon participant response to Item 37 on the Adolescent Background Survey. Participants were asked to define on a Likert scale (ranging from Never to Always) how often they or their partner used birth control. Responses were coded in descending order from 1-5, where never=5 and always=1.

Re-scaled responses to the age at first intercourse, number of partners, and contraceptive use during adolescence were analyzed using Principal Component Analysis

to define the weighting of each of these variables and a re-scaled composite variable (Adolescent Sexual Behavior) was defined using the factor coefficients for the first component.

Independent Variables

Each of the independent variables (risk taking, responsibility, and military background) was operationalized using two different measures. Each of the measures was developed and compiled from previously validated surveys, except for the military background scale for which no instrument was available. The military background scale was constructed from two subscales developed in the course of this research.

Risk-taking was measured by obtaining two scores. First, an attitudinal risk taking scale comprised of items on the risk-taking portion of the Jackson Personality Inventory-Revised (Survey Items #13-#28) was used. Second, a behavioral risk-taking scale (Survey Items #29-#34) using items from surveys conducted in adolescent risk-taking research was developed.

The JPI-R (Jackson, 1994) contains a total of 300 True/False statements representing 15 scales and is designed, " to assess personality variables relevant to the functioning of a person in a wide range of settings" (p. 1). It was developed and intended for normal populations, and is described as being particularly appropriate for use in research settings, to " contribute to the understanding of personality and its relation to behavior" (p. 1). For the purpose of this research, the risk-taking and responsibility scales of the JPI-R were used to identify attitudinal measures of the two constructs. Each

of the scales is comprised of ten true-keyed and ten false-keyed items. The author describes, "One characteristic of the JPI (and JPI-R) that differentiates it from some other personality measures is that its scales were constructed from large item pools based on explicit definitions of each trait" (p. 2). Normative data for the JPI-R were collected from 1107 college students from 23 institutions across North America. Additional norms were compiled from samples of blue-collar workers, high school students, and business executives. Coefficient alpha reliability values for these samples range from .81 to .84 for the risk-taking scale (Goldberg, 1978, p. 869). The risk-taking scale includes four facets: physical, monetary, social, and ethical risk-taking. Individuals who score highly on this scale are, "prone to exposing themselves in situations having uncertain outcomes" (p. 23). Adjectives describing a high scorer on the JPI-R risk-taking scale include daring, enterprising, adventurous, enthusiastic, reckless, spontaneous, courageous, and inventive (p. 97). Low scorers prefer to be more cautious and could be described as reserved, suspicious, worrying, and conservative. Of the twenty original items measuring risk-taking, two true-keyed and two false-keyed items were not used because they addressed issues not applicable to adolescents (i.e. investments, job promotions, and high-risk business deals).

The behavioral risk-taking scale (Survey Items #29-#34) was constructed from survey items used in previously conducted risk-taking research (Flisher, Ziervogel, Chalton, Leger, & Robertson, 1996; Jadack & Keller, 1999; Furby & Beyth-Marom, 1992; Alexander, Kim, Ensminger, Johnson, Smith, & Dolan, 1990; Keinan, Meir, & Gome-Nemirovsky, 1984; Weissman, 1976; Vavrik, 1997; Moore, Gullone, & Kostanski,

1997; Parsons, Siegel, & Cousins, 1997) and addressed behaviors such as cheating in school, playing dangerous games, shoplifting, cigarette smoking, and alcohol consumption. Four of the six survey items required respondents to circle choices based on a Likert 5-point scale ranging from 'Never' to 'Always'. The fifth and sixth items (#33-#34) of the behavioral risk-taking scale required the respondent to list the age of first cigarette use and first consumption of an alcoholic beverage or check the option, "I have never tried a cigarette" or "I have never tried an alcoholic beverage". Responses were then defined based upon a 5-point scale, determined prior to data analysis and defined using the same age cut points that were used for age of first intercourse (<12 was coded 5, 12-14 was coded 4, 15-17 was coded 3, 18-20 was coded 2, and >20 or never was coded 1) (see Table 5).

Table 5

Rescaled Risk Taking Age of First Cigarette or Alcoholic Beverage Score

Age of First Cigarette Use or Alcoholic Beverage (in years)	Age of First Cigarette Use or Alcoholic Beverage Scale Score
>20 or Never	1
18-20	2
15-17	3
12-14	4
<12	5

Measurement of responsibility was derived from two scores. First an attitudinal measure of responsibility was obtained from the Jackson Personality Inventory-Revised

(JPI-R), survey items #56-#71. Second, a behavioral scale of responsibility came from portions of the Gordon Personal Profile, survey items #38-#55.

As described earlier, the purpose of the JPI-R (1994) was to provide a personality measure that is particularly appropriate to research settings. Of the twenty original items measuring responsibility, two true-keyed and two false-keyed items were not used because they addressed issues not applicable to adolescents (i.e. unemployment insurance, jury duty, taxes and business travel). Jackson (1994) describes this construct as "the degree to which a person feels an abstract moral obligation to other people and to society at large" (p. 23). Individuals who score highly on this scale feel a sense of obligation to 'do the right thing', regardless of possible personal consequences, and are kind, or considerate. A low scorer may be indifferent to their obligations and could be described as fault-finding, greedy, self-centered, stingy, complaining, or evasive (p. 97). Coefficient alpha reliability values for the responsibility scale range from .67 to .70 (p.48).

The Gordon Personal Profile (GPP) is a self-scored instrument that gives scores for four factors (ascendancy, responsibility, emotional stability, and sociability). These factors were originally selected based upon the factor-analytic work of Raymond Cattell and developed through an extensive revision process. The GPP consists of sets of four descriptive phrases (tetrads) requiring a forced-choice format where respondents mark one phrase in each set as most like themselves and one as least like themselves. An example of an item on the GPP might include the following phrases: able to make decisions without help; did not mix easily with new people; inclined to be tense or high-

strung; saw a job through despite difficulties. Although each tetrad measures aspects of all four factors, for the purposes of this research, only those items on the responsibility scale were scored. Gordon (1993) describes people who generally score high on the responsibility index as, "individuals who are able to stick to the job assigned them, who are persevering and determined, and who can be relied on…individuals who are unable to stick to tasks that do not interest them and who tend to be flighty or irresponsible typically score low"(p. 13). Norms for a national sample of 245 female and 246 male adults were obtained in 1991. Split-half reliabilities for the personality traits in the GPP range from .82 to .89. Gordon reports that the Responsibility score, "has been found to have substantial reliability, with split-half and internal consistency estimates clustering about a value of .86" (p. 39). Guion (1998) identifies, "on average, the traits appear to be fairly stable and reliably measured by the GPP" (p. 578). Fuchs (1989) identifies the GPP as, "appropriate for use with high school, college, industrial, and general adult groups," and has, "applications in selection appraisal, vocational guidance, personal counseling, classroom demonstration, and basic research" (p. 327).

The military background scale (MBS) was constructed from two subscales developed in the course of this research. The subscales included items (Survey Items #8-#12) in which respondents identified relatives or friends that were in the military during their adolescence as well as the number of growing up years (up to age 18) they spent with parents in the military. The first scale was the total score for items dealing with military association, where the respondent was assigned one point for each 'yes' response for survey items #8 through #11 (survey item #12 was removed from scoring by the

researcher due to the awkward wording of the question). In this section of the survey, respondents were asked if they had parents, siblings, other relatives, or friends who were in the military during their growing up years. The maximum total points for this military association scale was 5 (comprised of survey items #8a, #8b, #9, #10, and #11 each worth a maximum of 1 point). Scores on this scale ranged from 0 to 5 with a mean of 1.82 and standard deviation of 1.20. Of the 311 respondents, 43 (14%) scored 0, 92 (30%) scored 1, 85 (27%) scored 2, 61 (20%) scored 3, 28 (9%) scored 4, and 2 (.6%) scored 5 on the military association scale. The second scale accounted for the number of years spent growing up in the military if the respondent indicated that either parent was a military member. Responses were converted to a 5-point scale based upon a quintile split. This transformation was defined with no years growing up in the military corresponding to a 1, 1-4 years corresponding to a 2, 5-9 years a 3, 10-13 years a 4, and 14-18 years a 5 (see Table 6).

Table 6

Scoring of Growing Up Years in Military

Total Years Spent Growing Up in Military	Growing Up Years in Military Score
0	1
1-4	2
5-9	3
10-13	4
14-18	5

For the purpose of this research, it seemed necessary to differentiate between respondents whose parents were not in the military versus respondents whose parents were in the military but not during their growing up years. In calculating the scoring of these scales, 1 point was awarded to a respondent if either parent was a military member if none of this service time occurred during their growing up years whereas if neither parent was a military member, no points were given. The maximum total points for this scale were 10 (if both parents, for example, were military members for 14 or more of their child's growing up years they would each receive 5 points) and scores ranged from 0 to 10 with a mean of 1.34 and standard deviation of 1.89. Of the 311 respondents, 138 (48%) scored 0, 61 (21%) scored 1, 32 (11%) scored 2, 16 (6%) scored 3, 4 (1%) scored 4, and 27 (9%) scored 5, 4 (1%) scored 6, 1 (0.3%) scored 7, 1 (0.3%) scored 8, and 2 (0.7%) scored 10 on the 'growing up years in the military' scale. A total military background scale (MBS) score was computed for each respondent by adding together the scores from the two subscales. The primary purpose for combining the two scales was to maximize the power of the MBS score by not segregating military association and growing up years in the military and to provide a single quantitative indicator of the critical mediation variable

Overall Model

The research design concept is visually portrayed in Figure 1. Each of the circles represents a construct. In this instance, adolescent sexual behavior, risk-taking, responsibility, and military background are each conceptual variables. The boxes represent observable variables and are the indicators of the measure(s) within the

conceptual model. For example, for our research purposes, adolescent sexual behavior is defined as age at first intercourse, number of sexual partners in adolescence, and percentage of contraceptive use in adolescence. Similarly, 'responsibility' is a construct that is measured by scores on two scales; attitudinal responsibility and behavioral responsibility. Further, ‘risk taking’ is a construct measured by two equivalent scales. The arrows throughout the model visually depict the proposed relationship between constructs as measured by the observable variables.

The critical test of the model predicting adolescent sexual behavior from risk-taking, responsibility, and military background lies in the mediation of military background on the other independent variables. While not tested in previous military research, it seems unlikely that a direct relationship will exist between adolescent sexual behavior and military background. How military background mediates the established relationship of risk-taking and responsibility on adolescent sexual behavior is of primary interest to this study.

Statistical Analyses

Predicted relationships and null hypotheses are presented in Table 2. Regression analysis will be conducted using SPSS and a model comparison framework will be used to evaluate the variables and test the statistical hypotheses (Maxwell & Delaney, 1990).

Table 2

Relationship of Variables and Hypotheses

Relationship of Variables

INDEPENDENT VARIABLE	*DEPENDENT VARIABLE*	*PREDICTED RELATIONSHIP*
RISK-TAKING	Age at 1st Intercourse # of Sexual Partners % of Contraceptive Use	High = Younger Age at 1st Intercourse = More Sexual Partners = Low Percentage of Contraceptive Use
RESPONSIBILITY	Age at 1st Intercourse # of Sexual Partners % of Contraceptive Use	High = Older Age at 1st Intercourse = Less Sexual Partners = High Percentage of Contraceptive Use
MILITARY BACKGROUND	Age at 1st Intercourse # of Sexual Partners % of Contraceptive Use	High = ? Age of 1st Intercourse = ? Sexual Partners = ? Percentage of Contraceptive Use

Hypotheses

Ho (Null)	• Adolescent sexual behavior is not influenced by a propensity for risk-taking.
	• Adolescent sexual behavior is not influenced by level of responsibility.
	• Adolescent sexual behavior is not influenced by military background.
Ha (Alternative)	• Adolescent sexual behavior is positively influenced by a propensity for risk-taking.
	• Adolescent sexual behavior is negatively influenced by level of responsibility.
	• Adolescent sexual behavior is influenced by military background.
(Assumed)	• Adolescent sexual behavior is influenced by risk-taking, level of responsibility, and military background.

Results

Descriptive Statistics

The descriptive statistics for both the dependent and independent variables are described below. These statistics are first defined for the overall data set and then divided into groups by gender.

The three dependent variables are age at first intercourse, number of sexual partners and contraceptive use. Of the 311 participants, reported age at first intercourse ranged from 0-26 where mean age at first intercourse was 15.8 years with a standard deviation of 3.5. On the rescaled 5-point measure of age at first intercourse (which adjusts for extreme and unreasonable scores, and also adjusts for skewness of the age variables), the mean score was 2.9 (where 3=15 to 17 years of age) with a standard deviation of .99. Mean number of sexual partners ranged from 0 to 300 with an average of 7.3 and standard deviation of 21.7. The rescaled 5-point measure of number of partners resulted in a mean of 2.2 and standard deviation of 1.1 where 2 represented 2 to 4 sexual partners. Contraceptive use ranged from 0 to 5 with a mean of 3.0 (3=sometimes on a 5 point Likert scale) and a standard deviation of 1.8 (see Table 7).

Table 7

Descriptive Statistics for Dependent Variables (OVERALL Data)

	N	Min	Max	Mean	Std. Deviation
RS AIS	304	1	5	2.88	.997
RS N PAR	254	1	5	2.24	1.128
CON	265	0	5	3.04	1.769
Valid N (listwise)	251				

This research is based on five independent variables measuring three constructs, risk-taking (attitude), risk-taking (behavior), responsibility (attitude), responsibility (behavior) and military background. For the 311 respondents, scores on the Jackson Personality Inventory-Revised (JPI-R) risk-taking (attitude) scale ranged from 0 to 15 out of a total maximum of 16 points. The mean was 7.2 with a standard deviation of 3.6. Of a total possible 30 points, scores on the behavioral risk-taking scale ranged from 0 to 27 with a mean score of 15.4 and standard deviation of 4.4. For the 311 respondents, scores on the responsibility (attitude) measure obtained from the Jackson Personality Inventory-Revised ranged from 0 to 15 out of a total 16 possible points. Mean score was 8.9 with a standard deviation of 2.9. Of a total possible 42 points, scores on the responsibility (behavior) measure from the Gordon Personal Profile ranged from 2 to 35 with a mean of 25.7 and standard deviation of 5.9. Weighted military background scores ranged from 0 to 13 with a mean of 2.5 and standard deviation of 2.2 (see Table 8). A score of 2 on the weighted Military Background Scale indicates that a respondent either identified two individuals (siblings, other relatives, or friends) they knew in the military during their

growing up years, or either one or both of their parents were in the military, but not during their growing up years, or a combination for a total of two points.

Table 8

Descriptive Statistics for Independent Variables (OVERALL Data)

	N	Min	Max	Mean	Std. Deviation
JPI Risk Taking (Attitude)	311	.00	15.00	7.1608	3.64380
Risk Taking (Behavior)	311	.00	27.00	15.4341	4.41201
JPR Responsibility (Attitude)	311	.00	15.00	8.9325	2.95317
GPP-I Responsibility (Behavior)	311	2.00	35.00	25.7267	5.92909
Weighted Military Background	304	0	13	2.54	2.242
Valid N (listwise)	304				

The correlations (Pearson's r) in the overall data set between the dependent and independent variables are shown in Table 9. As expected, the correlation between the three adolescent sexual behavior indicators is statistically significant, as are those between the dependent variables and the risk-taking measures. Reported age at first intercourse and the reported number of sexual partners measure also highly correlate with one of the measures of responsibility (JPI-R [responsibility]).

TABLE 9

Correlation Matrix (OVERALL Data)

		AIS	R NUMPAR	CON	JPI Risk Taking (Attitude)	Risk Taking (Behavior)	JPR Respons (Attitude)	GPP-I Respons. (Behavior)	Weighted Military Backgd
AIS	Pearson Correlation	1	.610(**)	.535(**)	.355(**)	.402(**)	-.239(**)	-.019	.036
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.739	.540
	N	304	253	263	304	304	304	304	297
RNUMPAR	Pearson Correlation	.610(**)	1	.245(**)	.366(**)	.394(**)	-.259(**)	-.083	.020
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.187	.753
	N	253	254	252	254	254	254	254	247
CON	Pearson Correlation	.535(**)	.245(**)	1	.211(**)	.133(*)	.034	.059	.100
	Sig. (2-tailed)	.000	.000	.	.001	.031	.576	.335	.109
	N	263	252	265	265	265	265	265	258
JPI Risk Taking (Attitude)	Pearson Correlation	.355(**)	.366(**)	.211(**)	1	.562(**)	-.319(**)	-.044	.043
	Sig. (2-tailed)	.000	.000	.001	.	.000	.000	.440	.454
	N	304	254	265	311	311	311	311	304
Risk Taking (Behavior)	Pearson Correlation	.402(**)	.394(**)	.133(*)	.562(**)	1	-.461(**)	-.230(**)	.084
	Sig. (2-tailed)	.000	.000	.031	.000	.	.000	.000	.143
	N	304	254	265	311	311	311	311	304
JPR Respons. (Attitude)	Pearson Correlation	-.239(**)	-.259(**)	.034	-.319(**)	-.461(**)	1	.326(**)	.063
	Sig. (2-tailed)	.000	.000	.576	.000	.000	.	.000	.274
	N	304	254	265	311	311	311	311	304
GPP-I Respons. (Behavior)	Pearson Correlation	-.019	-.083	.059	-.044	-.230(**)	.326(**)	1	.052
	Sig. (2-tailed)	.739	.187	.335	.440	.000	.000	.	.364
	N	304	254	265	311	311	311	311	304
Weighted Military Background	Pearson Correlation	.036	.020	.100	.043	.084	.063	.052	1
	Sig. (2-tailed)	.540	.753	.109	.454	.143	.274	.364	.
	N	297	247	258	304	304	304	304	304

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

For the purposes of this research, data analysis was conducted three ways; on the overall data set, and on male and female data separately. Dependent variable descriptive statistics of the 253 male respondents are summarized here. Mean age at reported first intercourse for male respondents ranged from 6 to 26 where reported mean age at first intercourse was 15.8 years with a standard deviation of 2.77. On the rescaled 5-point measure of age at first intercourse, the mean score for males was 2.9 where 3 was 15 to 17 years of age with a standard deviation of 1.0. For male respondents, the number of sexual partners ranged from 0 to 300 with a mean of 8.1 and standard deviation of 23.9. The rescaled 5-point measure of number of partners resulted in a mean score for male data of 2.3 with a standard deviation of 1.2 where 2 represented 2 to 4 sexual partners. Contraceptive use among male participants was reported from 0 (for missing data) and 1 to 5 (Always to Never) with a mean of 3.1 (3=sometimes on a 5-point Likert scale) with a standard deviation of 1.8 (see Table 10).

Table 10

Descriptive Statistics for Dependent Variables (MALE Data)

	N	Minimum	Maximum	Mean	Std. Deviation
AIS	247	1	5	2.96	1.001
RS NPAR	208	1	5	2.31	1.152
CON	218	0	5	3.08	1.747
Valid N (listwise)	206				

Descriptive statistics for the five independent variables for males were the following: Scores on the Jackson Personality Inventory-Revised (JPI-R) risk-taking

(attitude) scale ranged from 0 to 15 out of a total maximum of 16 points. The mean was 7.5 with a standard deviation of 3.5. Of a total possible 30 points, male scores on the behavioral risk-taking scale ranged from 0 to 27 with a mean score of 15.9 and standard deviation of 4.2. For the 253 male respondents, scores on the responsibility (attitude) measure obtained from the Jackson Personality Inventory-Revised ranged from 0 to 15 out of a total 16 possible points. For this measure, the mean score was 8.6 with a standard deviation of 2.9. Of a total possible 42 points, scores on the responsibility (behavior) measure from the Gordon Personal Profile ranged from 2 to 35 with a mean of 25.7 and standard deviation of 6.0 for male respondents. Weighted military background scores ranged from 0 to 13 with a mean of 2.6 and standard deviation of 2.2 (see Table 11).

TABLE 11

Descriptive Statistics for Independent Variables (MALE Data)

	N	Minimum	Maximum	Mean	Std. Deviation
JPI Risk Taking (Attitude)	253	1.00	15.00	7.4862	3.45217
Risk Taking (Behavior)	253	5.00	27.00	15.8775	4.18482
JPR Responsibility (Attitude)	253	.00	15.00	8.6008	2.90093
GPP-I Responsibility (Behavior)	253	2.00	35.00	25.6798	5.99572
Weighted Military Background	246	0	13	2.55	2.212
Valid N (listwise)	246				

The correlation matrix for males between all dependent and independent variables is shown in Table 12. Results are similar to those of the overall data set, except that a small correlation exists between the measure of Risk-taking (behavior) and reported contraceptive use in the overall data; no significant relationship was identified in the male data.

Table 12

Correlation Matrix (MALE Data)

		AIS	R NUMPAR	CON	JPI Risk Taking (Attitude)	Risk Taking (Behavior)	JPR Respons. (Attitude)	GPP-I Respons. (Behavior)	Weighted Military Background
AIS	Pearson Correlation	1	.625(**)	.501(**)	.299(**)	.354(**)	-.187(**)	.039	-.010
	Sig. (2-tailed)	.	.000	.000	.000	.000	.003	.538	.883
	N	247	207	216	247	247	247	247	240
RNUMPAR	Pearson Correlation	.625(**)	1	.222(**)	.321(**)	.331(**)	-.226(**)	-.025	-.012
	Sig. (2-tailed)	.000	.	.001	.000	.000	.001	.715	.861
	N	207	208	207	208	208	208	208	201
CON	Pearson Correlation	.501(**)	.222(**)	1	.182(**)	.081	.093	.106	.071
	Sig. (2-tailed)	.000	.001	.	.007	.234	.172	.119	.303
	N	216	207	218	218	218	218	218	211
JPI Risk Taking (Attitude)	Pearson Correlation	.299(**)	.321(**)	.182(**)	1	.519(**)	-.268(**)	-.007	-.003
	Sig. (2-tailed)	.000	.000	.007	.	.000	.000	.909	.959
	N	247	208	218	253	253	253	253	246
Risk Taking (Behavior)	Pearson Correlation	.354(**)	.331(**)	.081	.519(**)	1	-.431(**)	-.199(**)	.019
	Sig. (2-tailed)	.000	.000	.234	.000	.	.000	.001	.768
	N	247	208	218	253	253	253	253	246
JPR Respons. (Attitude)	Pearson Correlation	-.187(**)	-.226(**)	.093	-.268(**)	-.431(**)	1	.340(**)	.103
	Sig. (2-tailed)	.003	.001	.172	.000	.000	.	.000	.107
	N	247	208	218	253	253	253	253	246
GPP Respons. (Behavior)	Pearson Correlation	.039	-.025	.106	-.007	-.199(**)	.340(**)	1	.092
	Sig. (2-tailed)	.538	.715	.119	.909	.001	.000	.	.151
	N	247	208	218	253	253	253	253	246
Weighted Military Background	Pearson Correlation	-.010	-.012	.071	-.003	.019	.103	.092	1
	Sig. (2-tailed)	.883	.861	.303	.959	.768	.107	.151	.
	N	240	201	211	246	246	246	246	246

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Dependent variable descriptive statistics for the 58 female respondents are summarized here. Mean age at first intercourse for female respondents ranged from 12 to 21where mean age at first intercourse was 16.6 years with a standard deviation of 2.12. On the rescaled 5-point measure of age at first intercourse, the mean score for females was 2.6 where 3 was 15 to 17 years of age with a standard deviation of .9. For female respondents, the number of sexual partners ranged from 0 to 21 with an average of 3.4 and standard deviation of 4.5. The rescaled 5-point measure of number of partners resulted in a mean score for female data of 1.9 with a standard deviation of .9 where 2 represented 2 to 4 sexual partners. Contraceptive use among female participants was reported from 0 (for missing data) or 1 to 5 (Always to Never) with a mean of 2.9 (3=sometimes on a 5-point Likert scale) with a standard deviation of 1.9 (see Table 13).

Table 13

Descriptive Statistics for Dependent Variables (FEMALE Data)

	N	Minimum	Maximum	Mean	Std. Deviation
AIS	57	1	4	2.58	.925
RS NPAR	46	1	5	1.89	.948
CON	47	0	5	2.85	1.876
Valid N (listwise)	45				

Descriptive statistics for the five independent variables for the female data are summarized in Table 11. Scores on the Jackson Personality Inventory-Revised (JPI-R) risk-taking (attitude) scale ranged from 0 to 14 out of a total maximum of 16 points. The mean was 5.7 with a standard deviation of 4.1. Of a total possible 30 points, female

scores on the behavioral risk-taking scale ranged from 0 to 24 with a mean score of 13.5 and standard deviation of 4.9. For the 58 female respondents, scores on the responsibility (attitude) measure obtained from the Jackson Personality Inventory-Revised ranged from 5 to 15 out of a total 16 possible points. For this measure, the mean score was 10.4 with a standard deviation of 2.8. Of a total possible 42 points, scores on the responsibility (behavior) measure from the Gordon Personal Profile ranged from 6 to 34 with a mean of 25.9 and standard deviation of 5.7 for female respondents. Weighted military background scores ranged from 0 to 12 with a mean of 2.5 and standard deviation of 2.4 (see Table 14).

Table 14

Descriptive Statistics for Independent Variables (FEMALE Data)

	N	Min	Max	Mean	Std. Deviation
JPI Risk Taking (Attitude)	58	.00	14.00	5.7414	4.12336
Risk Taking (Behavior)	58	.00	24.00	13.5000	4.87475
JPR Responsibility (Attitude)	58	5.00	15.00	10.3793	2.75826
GPP Responsibility (Behavior)	58	6.00	34.00	25.9310	5.67501
Weighted Military Background	58	0	12	2.50	2.386
Valid N (listwise)	58				

The correlation matrix of the female data set between all dependent and independent variables is shown in Table 15. While the results are similar to the overall

data, a small but significant correlation is also identified between military background and risk-taking (behavior) as well as between one of the responsibility measures (GPP(attitude)) and reported age at first intercourse and number of sexual partners.

Table 15

Correlation Matrix (FEMALE Data)

		AIS	RNUM PAR	CON	JPI Risk Taking (Attitude)	Risk Taking (Behavior)	JPR Respon. (Attitude)	GPP Respon. (Behavior)	Weighted Military Back-ground
AIS	Pearson Correlation	1	.487(**)	.687(**)	.497(**)	.523(**)	-.348(**)	-.303(*)	.230
	Sig. (2-tailed)	.	.001	.000	.000	.000	.008	.022	.085
	N	57	46	47	57	57	57	57	57
RNUMPAR	Pearson Correlation	.487(**)	1	.361(*)	.498(**)	.626(**)	-.293(*)	-.403(**)	.167
	Sig. (2-tailed)	.001	.	.015	.000	.000	.048	.006	.268
	N	46	46	45	46	46	46	46	46
CON	Pearson Correlation	.687(**)	.361(*)	1	.287	.302(*)	-.173	-.144	.208
	Sig. (2-tailed)	.000	.015	.	.051	.039	.245	.334	.161
	N	47	45	47	47	47	47	47	47
JPI Risk Taking (Attitude)	Pearson Correlation	.497(**)	.498(**)	.287	1	.624(**)	-.372(**)	-.177	.195
	Sig. (2-tailed)	.000	.000	.051	.	.000	.004	.184	.142
	N	57	46	47	58	58	58	58	58
Risk Taking (Behavior)	Pearson Correlation	.523(**)	.626(**)	.302(*)	.624(**)	1	-.453(**)	-.367(**)	.308(*)
	Sig. (2-tailed)	.000	.000	.039	.000	.	.000	.005	.018
	N	57	46	47	58	58	58	58	58
JPR Respons. (Attitude)	Pearson Correlation	-.348(**)	-.293(*)	-.173	-.372(**)	-.453(**)	1	.292(*)	-.085
	Sig. (2-tailed)	.008	.048	.245	.004	.000	.	.026	.524
	N	57	46	47	58	58	58	58	58
GPP Respons. (Behavior)	Pearson Correlation	-.303(*)	-.403(**)	-.144	-.177	-.367(**)	.292(*)	1	-.113
	Sig. (2-tailed)	.022	.006	.334	.184	.005	.026	.	.400
	N	57	46	47	58	58	58	58	58
Weighted Military Background	Pearson Correlation	.230	.167	.208	.195	.308(*)	-.085	-.113	1
	Sig. (2-tailed)	.085	.268	.161	.142	.018	.524	.400	.
	N	57	46	47	58	58	58	58	58

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Principal Component Analysis Results

For the overall data set, a principal component analysis (PCA) was conducted on the three dependent variables. The goal of the PCA was to define a composite measure of the three dependent variables. The first factor was retained and factor coefficients were used to construct a composite Adolescent Sexual Behavior (ASB) variable. Factor 1 accounted for 65.1% of the variance, with an eigenvalue of 1.9. Factor 2 accounted for 25.2% of the variance with an eigenvalue of .8, and factor 3 accounted for 9.7% of the variance with an eigenvalue of .3 (see Table 16).

Table 16

Principal Component Analysis—Total Variance Explained (OVERALL Data)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.954	65.144	65.144	1.954	65.144	65.144
2	.754	25.146	90.290			
3	.291	9.710	100.000			

Extraction Method: Principal Component Analysis.

A principal component analysis was also conducted on the data from the 253 male and 58 female respondents. For the male data, the first factor was retained and factor coefficients were used to construct a composite Adolescent Sexual Behavior variable. Factor 1 accounted for 64.5% of the variance, with an eigenvalue of 1.9. Factor 2 accounted for 26.0% of the variance with an eigenvalue of .8, and factor 3, 9.6% of the variance with an eigenvalue of .3. For the female data, the first factor was retained and

similarly, factor coefficients were used to construct a composite Adolescent Sexual Behavior variable. Factor 1 accounted for 67.6% of the variance, with an eigenvalue of 2.0. Factor 2 accounted for 22.4% of the variance with an eigenvalue of .7, and factor 3, 10.0% of the variance with an eigenvalue of .3 (see Tables 17 & 18).

Table 17

Principal Component Analysis-- Total Variance Explained (MALE Data)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.934	64.451	64.451	1.934	64.451	64.451
2	.780	26.001	90.452			
3	.286	9.548	100.000			

Extraction Method: Principal Component Analysis.

Table 18

Principal Component Analysis-- Total Variance Explained (FEMALE Data)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.027	67.572	67.572	2.027	67.572	67.572
2	.671	22.372	89.944			
3	.302	10.056	100.000			

Extraction Method: Principal Component Analysis.

For each of the datasets - the overall, male, and female data - the factor weights obtained from the PCA were used to weight the variables. From this weighting, a composite variable was constructed to use as the dependent variable in the regression analyses.

Regression Analyses

In order to conduct the critical test of the research model (see Figure 1) predicting adolescent sexual behavior from risk-taking, responsibility, and military background, several regression techniques were used. First, stepwise regression was used to determine the best equation/model, minimizing the number of predictors (variables) and maximizing R^2. This method enters variables into a model one by one (or step by step) until a criterion is reached, when no more significant variance is accounted for in the dependent variable (StatSoft, 2003). The procedure continues until those independent variables that significantly ($p < .05$) contribute to the overall equation are identified. At each step, the model tests variables already in the model for removal ($p < .1$). Using this method, the overall data set was tested with adolescent sexual behavior as the dependent variable and each of the five independent variables (JPI Risk Taking, Risk Taking, GPP Responsibility, JPR Responsibility, and Weighted Military Background) entered for testing into the equation. Using this method, only the two risk taking variables (Risk Taking (behavior) and JPI Risk Taking (attitude)) were found to be significant, and accounted for 23% of the criterion variance. The remaining independent variables (military background ($t=.37$, $p=.99$), behavior and attitude responsibility variables [GPP ($t=1.43$, $p=.95$) or JPR responsibility ($t=.3$, $p=.77$)] lacked the statistical strength to enter the final model. Results of this stepwise regression are presented in Table 19.

Table 19

Stepwise Regression--Composite Dependent Variable (ASB) and Independent Variables (WMB, JPIRT, RT, JPR, GPP) Entered/Removed (OVERALL Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.434(a)	.189	.185	.890173
2	.478(b)	.229	.223	.869558

a Predictors: (Constant), Risk Taking (Behavior)
b Predictors: (Constant), Risk Taking (Behavior) , JPI Risk Taking (Attitude)

ANOVA(c)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44.569	1	44.569	56.245	.000(a)
	Residual	191.763	242	.792		
	Total	236.332	243			
2	Regression	54.104	2	27.052	35.777	.000(b)
	Residual	182.228	241	.756		
	Total	236.332	243			

a Predictors: (Constant), Risk Taking (Behavior)
b Predictors: (Constant), Risk Taking (Behavior) , JPI Risk Taking (Attitude)
c Dependent Variable: Adolescent Sexual Behavior

Testing of the overall research model was also conducted separately on the data from male and female respondents. For men, both risk taking variables (JPI-Risk Taking (attitude) and Risk Taking (behavior)) and the behavior measure of responsibility (GPP) entered the stepwise regression equation, accounting for 20% of the variance. Weighted military background (t=-.10, p=.99) and the attitude measure of responsibility (JPR) t=-

.16, p=.71)) did not enter the equation because these two variables did not meet the p value criterion of .05 (see Table 20).

Table 20

Stepwise Regression--Composite Dependent Variable (ASB) and Independent Variables (WMB, JPIRT, RT, JPR, GPP) Entered/Removed (MALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.385(a)	.148	.144	.91120
2	.434(b)	.188	.180	.89179
3	.453(c)	.206	.193	.88448

a Predictors: (Constant), Risk Taking (Behavior)
b Predictors: (Constant), Risk Taking (Behavior) , JPI Risk Taking (Attitude)
c Predictors: (Constant), Risk Taking (Behavior) , JPI Risk Taking (Attitude) , GPP Responsibility (Behavior)

ANOVA(d)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.472	1	28.472	34.292	.000(a)
	Residual	163.567	197	.830		
	Total	192.039	198			
2	Regression	36.161	2	18.081	22.734	.000(b)
	Residual	155.878	196	.795		
	Total	192.039	198			
3	Regression	39.490	3	13.163	16.826	.000(c)
	Residual	152.549	195	.782		
	Total	192.039	198			

a Predictors: (Constant), Risk Taking (Behavior)
b Predictors: (Constant), Risk Taking (Behavior) , JPI Risk Taking (Attitude)
c Predictors: (Constant), Risk Taking (Behavior) , JPI Risk Taking (Attitude) , GPP Responsibility (Behavior)
d Dependent Variable: Adolescent Sexual Behavior

For female respondents, only the behavior measure of risk taking (Risk Taking) was significant and accepted into the stepwise regression full model, accounting for 33% of the variance for predicting adolescent sexual behavior. Results of this equation are presented in Table 21.

Table 21

Stepwise Regression--Composite Dependent Variable (ASB) and Independent Variables (WMB, JPIRT, RT, JPR, GPP) Entered/Removed (FEMALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.575(a)	.331	.316	.827310

a Predictors: (Constant), Risk Taking (Behavior)

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.575	1	14.575	21.294	.000(a)
	Residual	29.431	43	.684		
	Total	44.006	44			

a Predictors: (Constant), Risk Taking (Behavior)
b Dependent Variable: Adolescent Sexual Behavior

Although the results of the stepwise regression equation failed to show any direct relationship between military background and adolescent sexual behavior, another predicted relationship as defined within the research model (Figure 1) was investigated. An indirect relationship may exist where military background mediates the effect on the

other independent variables as they relate to the dependent variable. In other words, military background may make a unique contribution to one or both of the risk taking variables that enhances its strong relationship to adolescent sexual behavior. If military background mediates the effect on the independent variables on the dependent variable, it must relate to the independent variables. To test this relationship, regression analyses were conducted to individually test the proportion of variance in the remaining 4 independent variables explained by military background.

In the overall data set, no significant relationship existed between weighted military background and JPI Risk Taking (attitude), Risk Taking (behavior), JP Responsibility (attitude) or GPP Responsibility (behavior). Standardized Beta coefficients for these relationships ranged from .043 to .084 (see Tables 22 through 25).

Military Background on Individual Dependent Variables (OVERALL Data)

Table 22

Military Background on JPI-Risk Taking (Attitude) (OVERALL Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.043(a)	.002	-.001	3.6684

a Predictors: (Constant), Weighted Military Background

JPI-Risk Taking (Attitude)-(con'd)

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.966	.318		21.894	.000
	Weighted Military Background	7.040E-02	.094	.043	.749	.454

a Dependent Variable: JPI Risk Taking (Attitude)

Table 23

Military Background on Risk Taking (Behavior) (OVERALL Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.084(a)	.007	.004	4.4118

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standard. Co-efficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.999	.383		39.200	.000
	Weighted Military Background	.166	.113	.084	1.469	.143

a Dependent Variable: Risk Taking (Behavior)

Table 24
Military Background on Jackson Personality Inventory-Responsibility (Attitude) (OVERALL Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.063(a)	.004	.001	2.9562

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standard. Co-efficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.756	.256		34.152	.000
	Weighted Military Background	8.296E-02	.076	.063	1.095	.274

a Dependent Variable: JPR Responsibility (Attitude)

Table 25

Military Background on Gordon Personal Profile Responsibility (Behavior) (OVERALL Data)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.052(a)	.003	-.001	5.9037

a Predictors: (Constant), Weighted Military Background

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.404	.512		49.614	.000
	Weighted Military Background	.137	.151	.052	.909	.364

a Dependent Variable: GPP Responsibility (Behavior)

Testing of military background as a mediating variable was also conducted separately on the data from male and female respondents. For men, no significant relationship existed between weighted military background and JPI Risk Taking (attitude), Risk Taking (behavior), JP Responsibility (attitude) or GPP Responsibility (behavior). Standardized Beta coefficients for these relationships ranged from -.003 to .103 (see Tables 26-29). Although the resulting statistics appear slightly higher in the female data set, the variance accounted for by military background is minimal in relation to the other independent variables (standardized Beta coefficients range from -.113 to .308). Results of this test are presented in Tables 30 through 34.

Military Background on Individual Dependent Variables (MALE Data)

Table 26

Military Background on JPI-Risk Taking (Attitude) (MALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.003(a)	.000	-.004	3.48376

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.489	.339		22.074	.000
	Weighted Military Background	-.005	.101	-.003	-.051	.959

a Dependent Variable: JPI Risk Taking (Attitude)

Table 27

Military Background on Risk Taking (Behavior) (MALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.019(a)	.000	-.004	4.19775

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.783	.409		38.608	.000
	Weighted Military Background	.036	.121	.019	.296	.768

a Dependent Variable: Risk Taking (Behavior)

Table 28

Military Background on Jackson Personality Inventory Responsibility (MALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.103(a)	.011		2.89932

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.289	.282		29.357	.000
	Weighted Military Background	.135	.084	.103	1.618	.107

a Dependent Variable: JPR Responsibility (Attitude)

Table 29

Military Background on Gordon Personal Profile Responsibility (Behavior) (MALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.092(a)	.008	.004	5.95163

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.080	.580		43.272	.000
	Weighted Military Background	.248	.172	.092	1.441	.151

a Dependent Variable: GPP Responsibility (Behavior)

Military Background on Individual Dependent Variables (FEMALE Data)

Table 30

Military Background on JPI-Risk Taking (Attitude) (FEMALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.195(a)	.038	.021	4.07994

a Predictors: (Constant), Weighted Military Background

Military Background on JPI-Risk Taking (Attitude) (FEMALE Data) (con'd)

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.898	.779		6.283	.000
	Weighted Military Background	.337	.226	.195	1.490	.142

a Dependent Variable: JPI Risk Taking (Attitude)

Table 31

Military Background on Risk Taking (Behavior) (FEMALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.308(a)	.095	.079	4.67826

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.924	.894		13.341	.000
	Weighted Military Background	.630	.260	.308	2.427	.018

a Dependent Variable: Risk Taking (Behavior)

Table 32

Military Background on Jackson Personality Inventory Responsibility (FEMALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.085(a)	.007	-.010	2.77263

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.626	.530		20.059	.000
	Weighted Military Background	-.099	.154	-.085	-.641	.524

a Dependent Variable: JPR Responsibility (Attitude)

Table 33

Military Background on Gordon Personal Profile Responsibility (Behavior) (FEMALE Data)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.113(a)	.013	-.005	5.68896

a Predictors: (Constant), Weighted Military Background

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	26.601	1.087		24.474	.000
	Weighted Military Background	-.268	.316	-.113	-.849	.400

a Dependent Variable: GPP Responsibility (Behavior)

Based on the findings of this research, the revised model predicting adolescent sexual behavior from risk-taking, responsibility, and military background is visually portrayed for the overall, male and female data sets in Figures 2 through 4.

Discussion

The purpose of this research was to examine the relationship between adolescent sexual behavior, risk-taking, responsibility, and military background. The hypotheses proposed specific relationships among these constructs. The research question investigated whether a direct relationship exists between military background and adolescent sexual behavior. Of primary interest was the relationship of military background with other independent variables, if military background mediates the effects of risk-taking and responsibility on adolescent sexual behavior.

The results of this study fail to support the hypotheses of a direct relationship between military background and adolescent sexual behavior. Additionally, military background does not appear to mediate the relationship of risk-taking and responsibility on adolescent sexual behavior. The findings do confirm previous research conducted showing the strong relationship between risk-taking (Harris, Duncan, & Boisjoly, 2002; Parsons, Siegel, & Cousins, 1997; Smith & Rosenthal, 1995) and adolescent sexual behavior. The relationship between responsibility (behavior measure using the Gordon Personal Profile) and adolescent sexual behavior was only significant in the male data set and did not transfer to the overall data set.

Although adolescents growing up in the military environment undoubtedly experience unique stresses (Watanabe, 2000) and confront special challenges (Kaslow & Ridenour, 1984) it does not appear that these stresses and challenges cross over into the domain of adolescent sexual behavior. A current study (Caliber Associates, 2003) conducted under the direction of the US Army in evaluating youth trends across military installations, identifies, "risky sexual activity is the primary problem behavior of most concern" (p. 5). However, the age and percentage of youth identified for engaging in risky sexual activity is comparable to civilian populations (The Henry J. Kaiser Family Foundation, 2002). Similarly, in research conducted over fifteen years ago Getts (1988) found "dating and sexual activity to be as prevalent in military dependent adolescents as in their non-military dependent peers" (p.614).

The lack of significant findings of military background on adolescent sexual behavior in this research is similar to other studies conducted in an attempt to identify how military children's unique environment affects their development and personality. As previously mentioned, early studies focused on psychopathology (Watanabe, 2000) and found either little or no difference between military and nonmilitary adolescents. Kenny (1967) and Rodriguez (1984) found that military adolescents had lower delinquency rates, higher achievement scores, and a higher median IQ. Other studies dealt specifically with the effects of mobility on military adolescents (O'Connell, 1981; Jensen et. al. 1991, 1995) and Watanabe (1985) found that the "frequency of moves and other military experiences do not seem to deter the military adolescent from developing a healthy self-image" (p. 106). In the same study, Watanabe did find that the group of

military adolescents between 13 and 18 exceeded their civilian counterparts in the area of impulse control as measured on the Offer Self-Image Questionnaire (OSIQ). However, no significant differences were identified between the two groups on the sexual attitude scale of the OSIQ.

In addition to the general lack of significant findings on the effects of being raised in a military environment on adolescents, other considerations may also help explain this study's inability to show a relationship between adolescent sexual behavior and military background. First, the restricted range of the sample may have adversely impacted the research results. Because it was necessary to recruit volunteers from a local soldier population, individuals who were raised in the military who subsequently did not join the military were excluded from the sample. Ender (2002) estimated that the number of adolescents raised in the military who later join the service is less than 25%. Some research (Ames, Cunradi, & Moore, 2002; Guttman, 2002; Kirby & Thie, 1996) indicates that one of the characteristics of both new recruits and servicemembers is a penchant for taking risks. It is then possible that a significant relationship between military background and adolescent sexual behavior is actually imbedded in risk taking. If so, the risk-taking behavior may be the active influence.

Because of the sensitivity of the research question, retrospective data were gathered rather than prospectively surveying adolescents living on a military base. Additionally, it should be noted that the survey participants were not randomly

constituted, but volunteered to complete the instrument. As a result, the external validity of the study is weakened.

The uneven distribution of male and female participants in the research sample, particularly the inadequate number of female respondents, limits the ability to explore gender differences within the data. Although initial analysis of the male and female data did result in interesting differences between the sub-sets, the small female data resulted in low power to indicate any significant relationships among variables.

Even though the results of this study fail to support the hypotheses of a relationship between military background and adolescent sexual behavior, future research opportunities should focus on other aspects of the 'military brat' culture within the context of adolescent sex. The influence of the mother on an adolescent's age at first intercourse has been significant in past research, but this phenomenon has not been examined within a military family setting. Characteristics of military life including long-term parental absence, regular family relocation and other environmental stressors also offer potential opportunities for research into the domains of adolescent sexual behavior.

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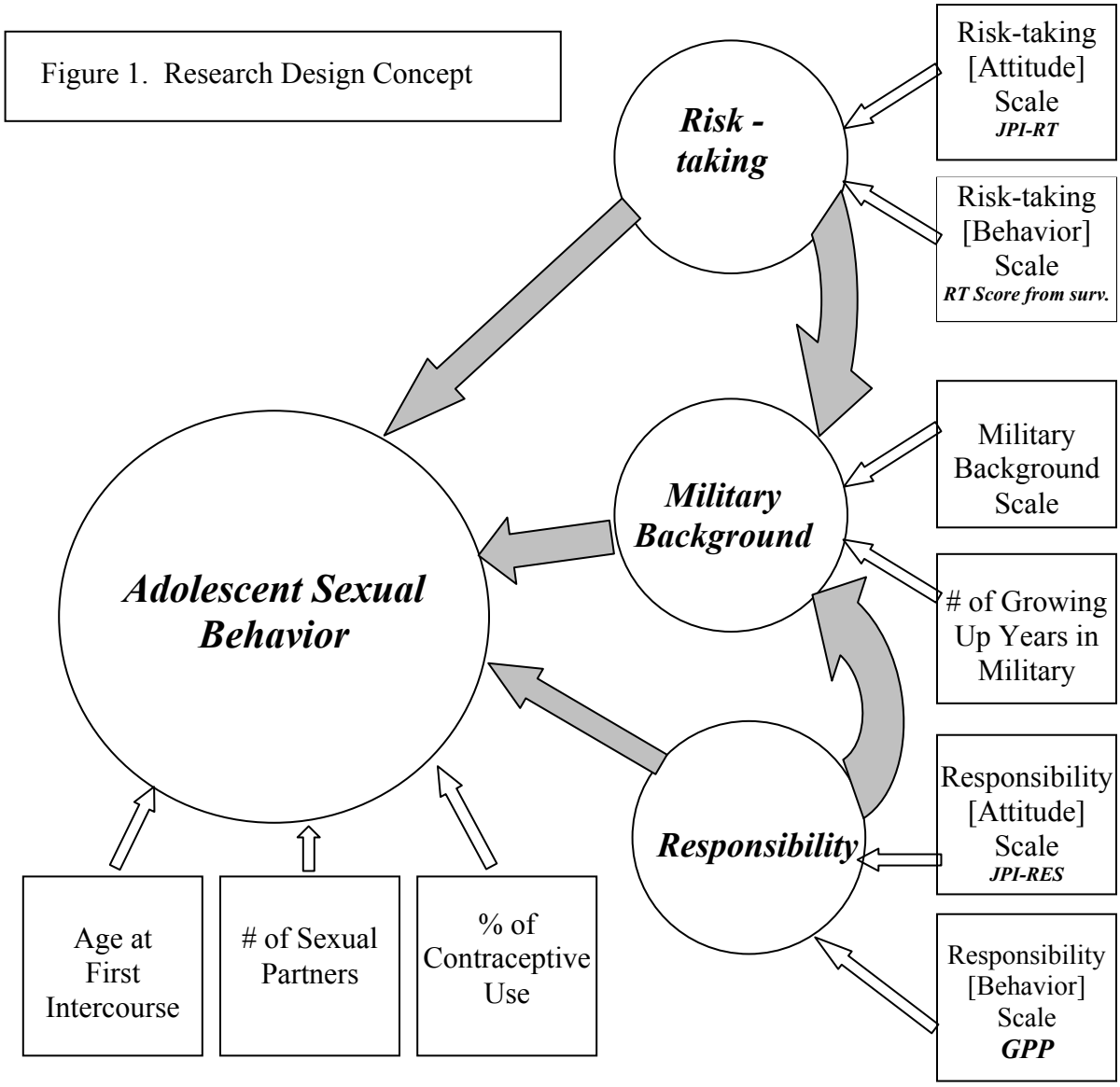
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Figure 1. Research Design Concept



○=construct

□=observable variable

Figure 2. Research Results for Overall Data Set

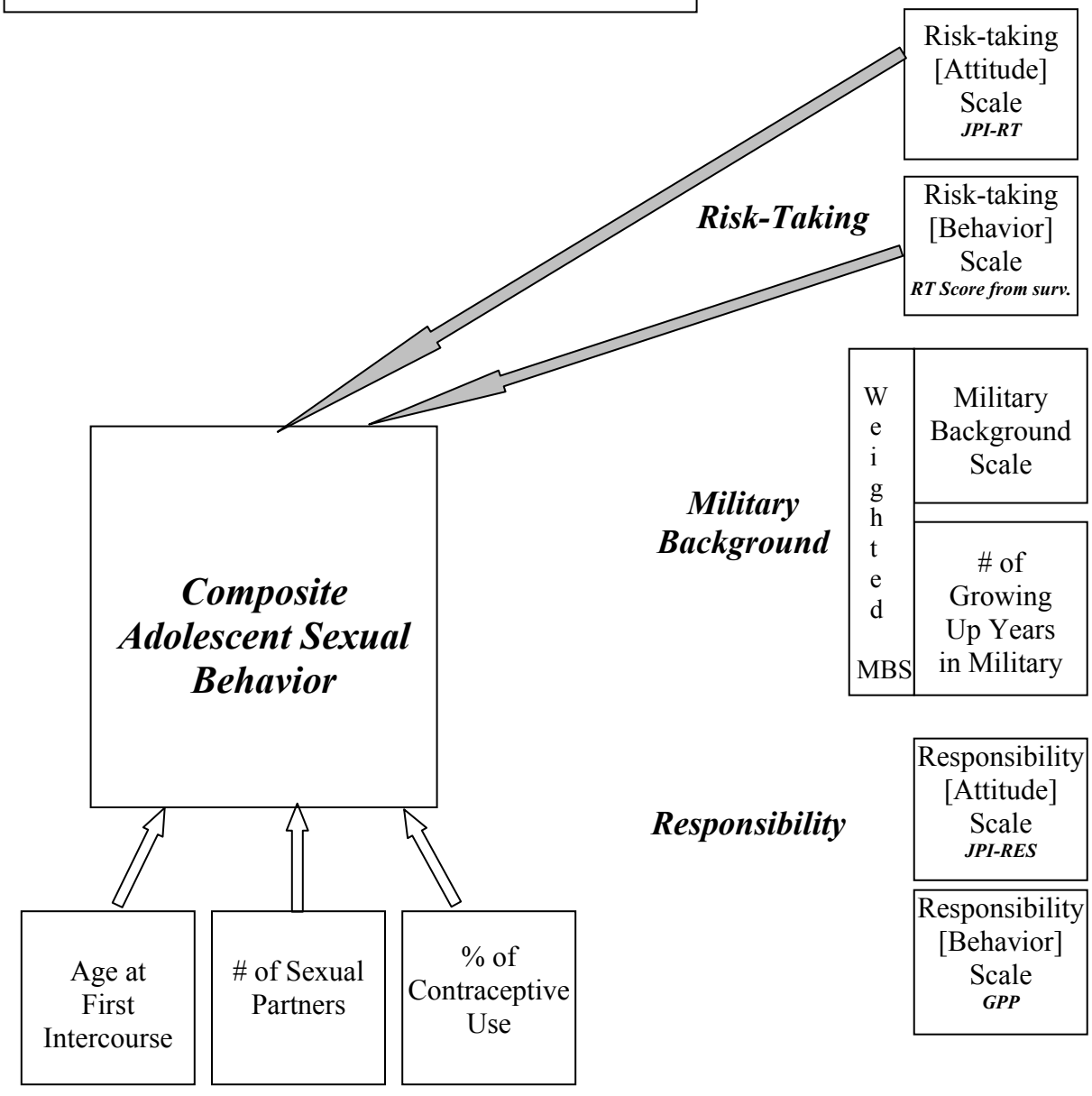
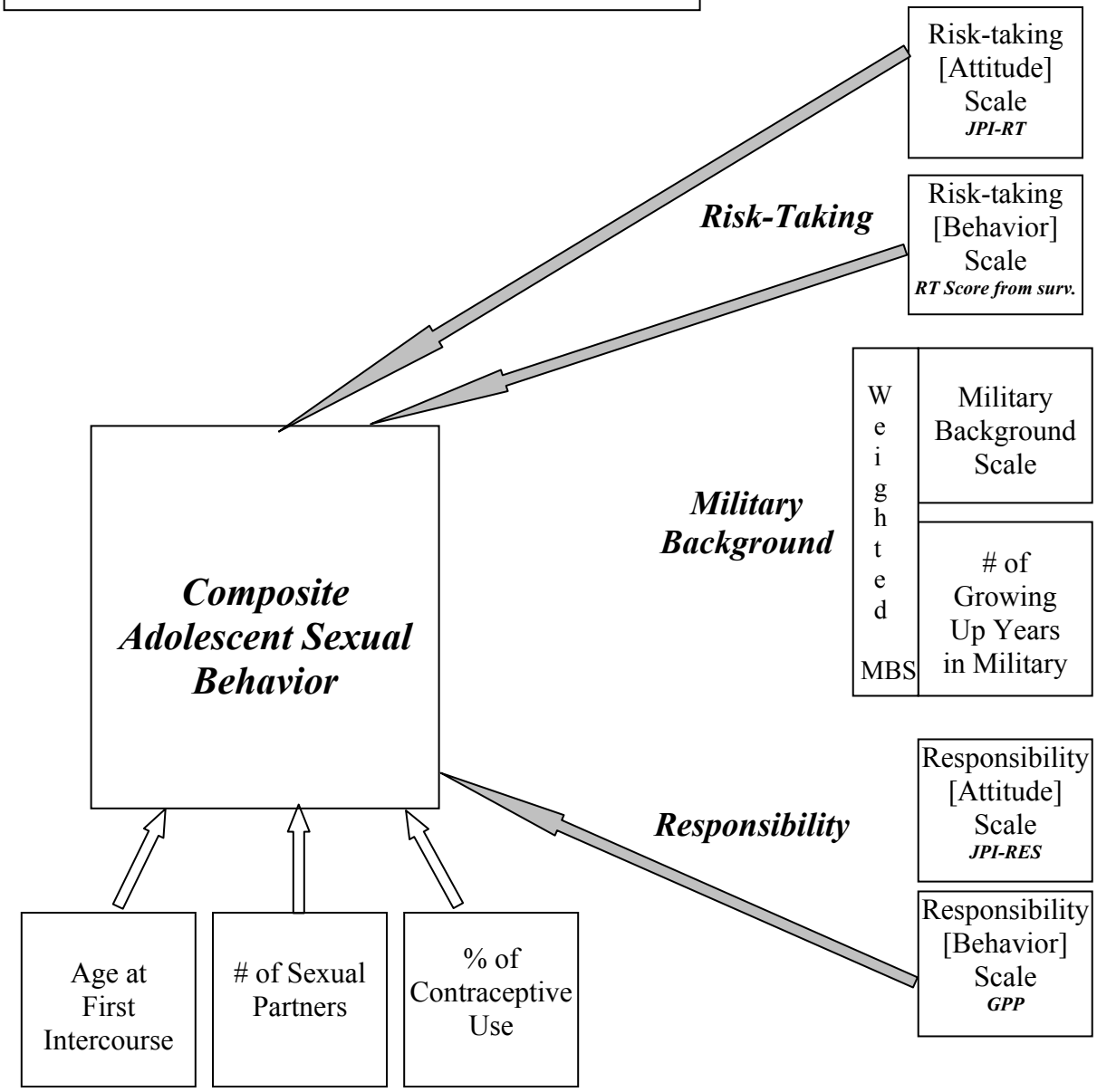
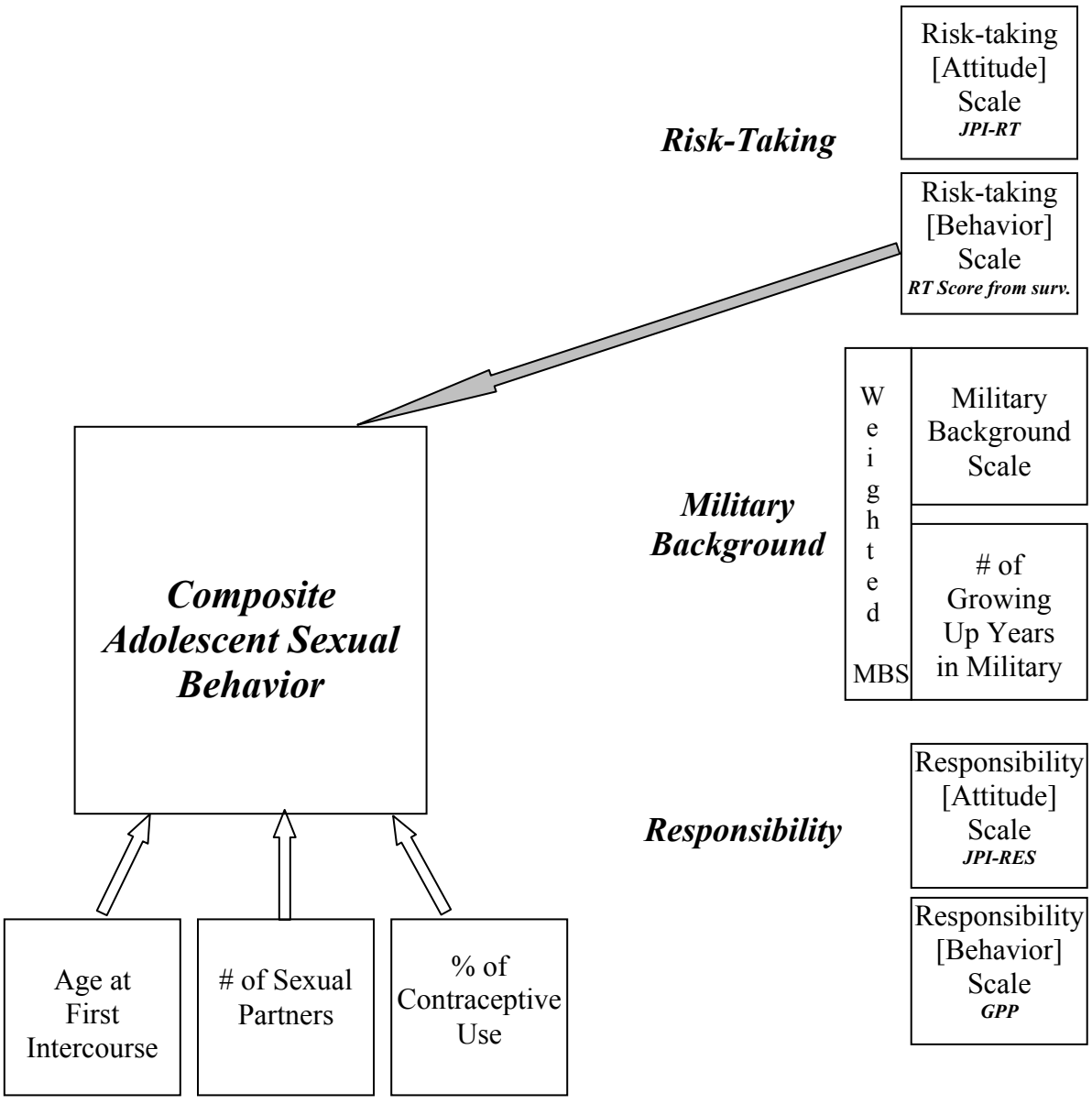


Figure 3. Research Results for Male Data Set



□=observable variable

Figure 4. Research Results for Female Data Set



Appendix A

Instrument

ADOLESCENT BACKGROUND SURVEY

Your answers on this on this questionnaire will be kept completely anonymous. Please ***DO NOT*** put your name on this form. It has no code numbers, so no one will know how you or anyone else answered.

You are being asked to tell about yourself and your experiences up until your 18th birthday. Please be as honest as you can.

Participation in this research is *COMPLETELY VOLUNTARY*. If you decide, for any reason, that you do not want to complete the survey, you may withdraw your participation.

Please mark all your answers as instructed throughout the survey.

SECTION A - BASIC INFORMATION

Please circle appropriate responses to the questions below:

1. Gender? Female Male

2. How old are you? _____

3. In what month and year were you born? _____ 19_____
MONTH YEAR

4. What is your race or ethnic group? (If more than one, circle each that applies)

American Indian
Asian or Pacific Islander
(for example, Cambodian, Hmong, Japanese, Korean, Laotian, Vietnamese)
Black or African American
Hispanic, Latino or Latina (for example, Cuban American, Mexican American,
Puerto Rican, or other Latin American)
Caucasian
Other (please name) _____

Some of the questions in this survey ask about your parents. In this survey, "parents" (and "father" or "mother") refer to the adults who were most responsible for raising you. They could have been biological, adoptive, foster parents, step-parents, or relatives/guardians.

5. Which best describes your family for the majority of your growing up years?

I lived with two parents/guardians
I lived with one parent/guardian
I lived in another arrangement
(please specify)_____

6. What is your current rank? (circle only one answer)

PVT	PV2	PFC	SPC	CPL	SGT	SSG	SFC	MSG	1SG
SGM/CSM									
WO	CW2	CW3	CW4	CW5					
2LT	1LT	CPT	MAJ	LTC	COL	BG	MG	LTG	GEN

7. Approximately how long have you been on Active Duty in the military?

_____ year(s) _____ month(s)

SECTION B-MILITARY BACKGROUND

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CIRCLING THE APPROPRIATE RESPONSES.

8a. My mother was in the military

Yes No

If yes, for how many of your growing up years (up to age 18)?
_____years

8b. My father was in the military

Yes No

If yes, for how many of your growing up years (up to age 18)?
_____years

9. While I was growing up I had siblings (brother/sister/half or stepbrother/half or stepsister) in the military:

Yes No

10. While I was growing up I had other relatives who were in the military (grandfather, aunt, cousin, etc.):

Yes No

11. While I was growing up I had friends who were in the military:

Yes No

12. While I was growing up, I didn't know anyone who was in the military

Yes No

SECTION C-ADOLESCENT BEHAVIORS

THINK BACK *PRIOR TO YOUR 18TH BIRTHDAY*

AND CIRCLE THE APPROPRIATE RESPONSES

13. When I wanted something, I'd sometimes go out on a limb to get it
True False

14. I enjoyed bluffing my way into an exclusive club or private party.
True False

15. People have told me that I seem to enjoy taking chances.
True False

16. The thought of investing in stocks excited me.
True False

17. I enjoyed taking risks.
True False

18. Taking risks did not bother me if the gains involved are high.
True False

19. I thought I would enjoy almost any type of gambling.
True False

20. In games I would usually "go for broke" rather than playing it safe.
True False

21. I rarely made even small bets.
True False

22. If I invested any money in stocks, it would probably only be in safe stocks from large, well-known companies.
True False

23. When in school, I rarely took the chance of bluffing my way through an assignment.
True False

24. Skin diving in the ocean would be much too dangerous for me.
True False

25. I would rarely, if ever, take risks when there was another alternative.
True False

26. I would have preferred a stable position with a moderate salary to one with a higher salary with less security.
True False

27. I considered security an important element in every aspect of my life.
True False

28. I tried to avoid situations that had uncertain outcomes.
True False

Item #s 13-28
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AGAIN, THINK BACK PRIOR TO YOUR 18TH BIRTHDAY AND CIRCLE THE APPROPRIATE RESPONSES

29. How often did you cheat on a test in school?

Never Seldom Sometimes Often Always

30. How often did you do something risky or dangerous on a dare?

Never Seldom Sometimes Often Always

31. How often did you steal or shoplift?

Never Seldom Sometimes Often Always

32. How often did you slip out at night while your parents thought you were asleep?

Never Seldom Sometimes Often Always

33. About how old were you when you first tried a cigarette?

_____years old

or

_____ I have never tried a cigarette

34. About how old were you when you first tried an alcoholic beverage (beer, wine, liquor, etc.)?

_____years old

or

_____I have never tried an alcoholic beverage

IN ANSWERING THE FOLLOWING QUESTIONS, PLEASE RESPOND ONLY ABOUT OPPOSITE SEX (I.E. HETEROSEXUAL)

35. What age were you when you first had sexual intercourse?

_____years old

or

_____I have never had sexual intercourse
(If you check this, please skip to Question 38)

36. ***Prior to your 18th birthday,*** how many different sexual partners had you had intercourse with?

_____#

37. ***When you think about your sexual experience prior to your 18th birthday***, how often had you and your partner(s) used effective birth control methods such as birth control pills, a condom, foam, diaphragm, IUD, etc?

Never Seldom Sometimes Often Always

BELOW ARE A NUMBER OF DESCRIPTIONS, GROUPED IN SETS OF FOUR. EXAMINE EACH SET AND FIND THE DESCRIPTION THAT WAS MOST LIKE YOU *PRIOR TO YOUR 18TH BIRTHDAY*. THEN CIRCLE THE M (FOR MOST LIKE YOU) FOLLOWING THAT STATEMENT.

NEXT, EXAMINE THE OTHER THREE STATEMENTS IN THE SET AND FIND THE ONE DESCRIPTION THAT WAS LEAST LIKE YOU *PRIOR TO YOUR 18TH BIRTHDAY*. THEN CIRCLE THE L (FOR LEAST LIKE YOU) FOLLOWING THAT STATEMENT.

FOR EVERY SET OF FOUR STATEMENTS YOU SHOULD HAVE CIRCLED ONE AND ONLY ONE M (MOST) AND ONE AND ONLY ONE L (LEAST).

IN SOME CASES IT MAY BE DIFFICULT TO DECIDE WHICH STATEMENTS YOU SHOULD MARK. MAKE THE BEST DECISIONS YOU CAN. THERE ARE NO RIGHT OR WRONG ANSWERS.

38.	a good mixer socially----------	M	L
	lacking in self-confidence----------	M	L
	thorough in any work undertaken----------	M	L
	tended to be somewhat emotional----------	M	L
39.	not interested in being with other people----------	M	L
	free from anxieties or tensions----------	M	L
	quite an unreliable person----------	M	L
	took the lead in group decisions----------	M	L
40.	acted somewhat jumpy and nervous----------	M	L
	a strong influence on others----------	M	L
	did not like social gatherings----------	M	L
	a very persistent and steady worker----------	M	L
41.	found it easy to make new acquaintances----------	M	L
	could not stick to the same task for long----------	M	L
	easily managed by other people----------	M	L
	maintained self-control even when frustrated----------	M	L
42.	able to make important decisions without help----------	M	L
	did not mix easily with new people----------	M	L
	inclined to be tense or high-strung----------	M	L
	saw a job through despite difficulties----------	M	L

43.	not too interested in mixing socially with people-------	M	L
	didn't take responsibilities seriously----------	M	L
	steady and composed at all times----------	M	L
	took the lead in group activities----------	M	L
44.	a person who could be relied upon----------	M	L
	easily upset when things went wrong----------	M	L
	not too sure of own opinions----------	M	L
	preferred to be around other people----------	M	L
45.	found it easy to influence other people----------	M	L
	got the job done in the face of any obstacle----------	M	L
	limited social relations to a select few----------	M	L
	tended to be a rather nervous person----------	M	L
46.	didn't make friends very readily----------	M	L
	took an active part in group affairs----------	M	L
	kept at routine duties until completed----------	M	L
	not too well-balanced emotionally----------	M	L
47.	assured in relationships with others----------	M	L
	feelings were rather easily hurt----------	M	L
	followed well-developed work habits----------	M	L
	would rather keep to a small group of friends----------	M	L
48.	became irritated somewhat readily----------	M	L
	capable of handling any situation----------	M	L
	did not like to converse with strangers----------	M	L
	thorough in any work performed----------	M	L
49.	preferred not to argue with other people----------	M	L
	unable to keep to a fixed schedule----------	M	L
	a calm and unexcitable person----------	M	L
	inclined to be highly sociable----------	M	L
50.	free from worry or care----------	M	L
	lacked a sense of responsibility----------	M	L
	not interested in knowing a variety of people----------	M	L
	skillful in handling other people----------	M	L
51.	found it easy to be friendly with others----------	M	L
	preferred to let others take the lead in group activity--	M	L
	seemed to have a worrying nature----------	M	L
	stuck to a job despite any difficulty----------	M	L

52.	able to sway other people's opinions----------	M	L
	lacked interest in joining group activities----------	M	L
	quite a nervous person----------	M	L
	very persistent in any task undertaken----------	M	L
53.	calm and easygoing manner----------	M	L
	could not stick to the task at hand----------	M	L
	enjoyed having lots of people around----------	M	L
	not too confident of own abilities----------	M	L
54.	could be relied upon entirely----------	M	L
	didn't care for the company of most people----------	M	L
	found it rather difficult to relax----------	M	L
	took an active part in group discussion----------	M	L
55.	didn't give up easily on a problem----------	M	L
	inclined to be somewhat nervous in manner----------	M	L
	lacking in self-assurance----------	M	L
	preferred to pass the time in the company of others--	M	L

Item #s 38-55
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<u>THINK BACK *PRIOR TO YOUR 18TH BIRTHDAY* AND CIRCLE THE APPROPRIATE RESPONSES</u>

56. I contributed to charity regularly.
True False

57. If I accidentally scratched a parked car, I would try to find the owner to pay for the repairs.
True False

58. Under no circumstances would I give incorrect testimony or evidence in court.
True False

59. If the conductor on a train forgot to take my ticket, I would present it anyway.
True False

60. I was very careful not to litter public places.
True False

61. I thought that people should spend part of their leisure time working on community projects.
True False

62. I thought that the penalty for not paying traffic fines should be severe.
True False

63. I would never hunt or fish out of season.
True False

64. If I had a cold, it would not bother to mix with other people.
True False

65. I was too busy to find time to help needy people.
True False

66. I would find that sometimes it was too troublesome to do exactly what I promised to do.
True False

67. I thought it would be challenging to try and smuggle a small item into the country.
True False

68. I thought that if people chose to drink and drive, it was their own business.
True False

69. I saw no need to belong to service clubs or community organizations.
True False

70. I thought that sometimes the only way to get waited on in a store was to push through to the head of the line.
True False

71. I saw nothing wrong with having a traffic ticket fixed.
True False

Item #s 56-71
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Appendix B

Comments Page from Pilot Study

For Pilot Study ONLY:

Thank you for completing this important survey. To help us improve it, please answer the following questions:

As you answered the questionnaire, were there any terms or questions that you did not understand?

Yes No

If yes, please explain:

Any other comments?

Appendix C

Individual Consent Form

PART III - INFORMED CONSENT FORM

(To be given to each participant prior to the beginning of the survey completion. The researcher will keep one signed copy, one unsigned copy will be given to each participant).

We would like you to participate in a research study titled "Risk-taking, Responsibility, and Adolescent Sexual Behavior: Is the Effect Mediated by Military Background?". This research is conducted under the auspices of the University of Oklahoma-Norman Campus. The principal researcher is Fiona Burdick, doctoral student, under the sponsorship of Dr. Joseph L. Rodgers, Professor of Psychology.

The purpose of this study is to gain a better understanding of the effects military background might have on adolescent development. If you decide to participate in the study, your involvement will take no more than 1 hour of your time. We will ask you to complete a survey that asks about some personal experiences up until your 18th birthday. Your answers on the survey will be kept completely anonymous.

Your participation in this research is completely voluntary and you will be free to refuse or stop at any time without penalty.

Do you have any questions?

If you have any questions later, please feel free to contact us.

Fiona Burdick
CMR 470, Box 3339
APO AE 09165
(DSN) 322-9360

Joseph L. Rodgers, PhD
Department of Psychology
University of Oklahoma
(405)325-4591

If you agree to participate, please sign below. (Please note that your survey form should not be signed, to protect your anonymity).

Signature _____ **Date**_____

Survey Administrator_____ **Date**_____

Please place your initials below acknowledging receipt of a copy of this consent form.

_____

Appendix D

Commander Letter of Consent

DEPARTMENT OF THE ARMY
414TH BASE SUPPORT BATTALION
UNIT 20193, BOX 0003
APO AE 09165-0003

March 26, 1999

Ms. Fiona Burdick
CMR 470, Box 3339
APO AE 09165

Dear Ms. Burdick,

As a University of Oklahoma doctoral student, you are hereby authorized to conduct research in the 414th Base Support Battalion (BSB) Inprocessing Training Center (ITC). This authorization includes the use of the approved survey instrument to collect data for your study on military background, risk-taking, and levels of responsibility as it relates to adolescent sexual behavior.

This approval is contingent upon the agreement of SFC Gary Felder, ITC Non-commissioned Officer In Charge, and Mr. Mack West, Central Processing Facility (CPF) Manager to allow you the time requested to introduce your study and request volunteers.

Any questions regarding this authorization may be directed to the undersigned at DSN 322-1500.

Sincerely,

for Michael W. DeYoung
Lieutenant Colonel, U.S. Army
Commander, 414th BSB

Appendix E

IRB Approval Letter

The University of Oklahoma
OFFICE OF RESEARCH ADMINISTRATION

February 4, 1999

Ms. Fiona Burdick
CMR 470, Box 3339
APO AE 09165

Dear Ms. Burdick:

Your research proposal, "Risk-taking, Responsibility, and Adolescent Sexual Behavior: Is the Effect Mediated by Military Background?," has been reviewed by Dr. E. Laurette Taylor, Chair of the Institutional Review Board, and found to be exempt from the requirements for full board review and approval under the regulations of the University of Oklahoma-Norman Campus Policies and Procedures for the Protection of Human Subjects in Research Activities.

Should you wish to deviate from the described protocol, you must notify me and obtain prior approval from the Board for the changes. If the research is to extend beyond 12 months, you must contact this office, in writing, noting any changes or revisions in the protocol and/or informed consent form, and request an extension of this ruling.

If you have any questions, please contact me.

Sincerely yours,

Susan Wyatt Sedwick

Susan Wyatt Sedwick, Ph.D.
Administrative Officer
Institutional Review Board

SWS:pw
FY99-15

cc: Dr. E. Laurette Taylor, Chair, IRB
Dr. Joseph L. Rodgers, III, Psychology

1000 Asp Avenue, Suite 314, Norman, Oklahoma 73019-0430 PHONE: (405) 325-4757 FAX: (405) 325-6029