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Forced Sexual Intercourse in Relation to Female Adolescents' Risky Sexual Behavior, Psychopathology, and Behavior Problems

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FORCED SEXUAL INTERCOURSE IN RELATION TO FEMALE ADOLESCENTS' RISKY SEXUAL BEHAVIOR, PSYCHOPATHOLOGY, AND BEHAVIOR PROBLEMS

by

Mathew Christensen

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ABSTRACT

Forced Sexual Intercourse in Relation to Female Adolescents' Risky Sexual Behavior, Psychopathology, and Behavior Problems

by

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During 1995, over 20,000 adolescents completed the in-home interview for The National Longitudinal Study of Adolescent Health (Add Health). One question asked females if they had ever been forced to have sexual intercourse (FSI). In addition, they were asked about other sexual behavior, their psychological well-being, and behavior problems. The present study examines the associations between FSI and 26 outcome variables, comparing adolescent females who reported FSI with females who reported voluntary intercourse, and with females who reported no intercourse. In addition, the large Add Health sample allowed comparisons between five race/ethnicity groups and four adolescent groups broken down by age.

Psychological and emotional correlates of sexual abuse have been widely documented, but until now, studies of sexual abuse had largely consisted of small samples of mostly White females with limited generalizability. The Add Health sample

was large enough to go beyond psychopathology to include risky sexual behavior, and behavior problems. The Add Health sample is representative of the overall population of adolescents in the United States during the mid 1990s.

Results showed that females forced to have intercourse have earlier and more frequent risky sexual behavior, more severe symptoms of psychopathology, and were much more likely to report behavior problems such as smoking, drinking, and drug use (a finding that has been largely unreported) than were females who reported no intercourse. Drug use was the variable on which females who reported forced intercourse and those who reported no intercourse differed most. Females who reported FSI were five times more likely to have reported illicit drug use than were females who reported no intercourse. Asian and White females who reported forced intercourse had the greatest vulnerability for negative outcomes, while African American females who reported forced intercourse had the greatest resilience against negative outcomes. Among female adolescents who reported forced intercourse, the youngest (ages 12, 13, and 14 years) were the most vulnerable to experience severe psychopathology and to report cigarette smoking and drinking alcohol.

(101 pages)

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CHAPTER I

INTRODUCTION

Forced sexual intercourse (FSI) appears to be associated with long-lasting negative consequences. While today's popular media have raised awareness and sensitivity toward uncovering the existence of sexual abuse, a more scientific understanding is needed to accurately determine the relationship between FSI and various outcomes. In 1993, Small and Kerns wrote, "Our understanding of this phenomenon [unwanted sex] during these formative years [teens] is still quite limited. ...We need to know about the consequences of being victimized. For example, what are the short and long-term effects of being a victim...of unwanted sexual activity? This is an important social problem and a better understanding of it is vital to the well being of our young people" (pp. 950-951).

Case histories and clinical studies have suggested negative correlates of sexual abuse, but these sources of information usually have not included comparison groups. Only recently has FSI been studied using nationally representative samples of adolescents containing comparison groups (Abma, Chandra, Mosher, Peterson, & Piccinino, 1997; Miller, Monson, & Norton, 1995; Moore, Nord, & Peterson, 1989). Yet, the samples in these studies were not large enough to examine race/ethnicity group or age group differences on the negative correlates of FSI.

The incidence of FSI ranges from 7% to 20%, depending on differing studies and their samples. During 1993, approximately 150,000 confirmed cases of child sexual

abuse were reported to child abuse authorities (Finkelhor, 1994). Since child sexual abuse is difficult to confirm, more accurate estimates come from retrospective studies of adults. In a summary of data from 19 retrospective surveys, considerable evidence shows that at least 20% of American women and 5% to 10% of American men experienced some form of sexual abuse as children (Finkelhor, 1994). In the National Survey of Family Growth of over 60,000 women, it was reported that 8% of first intercourse was forced. Women 15 years and younger whose first intercourse was not voluntary was 16%. Women 16 years and older whose first intercourse was not voluntary was 7%. The percentage of women who had been forced to have sex at any time in their life was 20% (Abma et al., 1997). In The National Women's Study, 13% of adult women experienced rape and 75% of them knew their attacker (Rape in America, 1992). A study of rape on college campuses found a 15% prevalence (Koss, Gidyca, & Wisniewski, 1987). A national sample of White female adolescents reported that 10% experienced FSI, representing the most negative end of the spectrum of sexual abuse (Miller et al., 1995).

Definitions

Forced sexual intercourse (FSI) is defined as a male inserting his penis into a female's vagina against her will. FSI includes both incest and date/acquaintance rape. There are similarities and differences between the experiences of rape and incest. Some of the similarities are a violation of trust usually by known individuals, a tendency for victims to keep the violation secret, and usually the perpetrators are male and victims are female. Rape differs from incest in that incest usually happens to younger victims. The

male rapist is usually closer to the victim in age than cross-generational incestuous relationships. Rape is usually more coercive with more expressed resistence and the act is less likely to be repeated, whereas incest can quietly continue for years (Miller et al., 1995).

Conceptual Framework

The central premise of this research is that forced sexual intercourse is a traumatic event or series of experiences that trigger many negative psychological and behavioral outcomes. Therefore, the conceptual framework for this study of forced sexual intercourse is posttraumatic stress disorder (PTSD). DSM-IV describes PTSD as the "development of characteristic symptoms following a psychologically traumatic event that is generally outside the realm of human experience" (APA, 1994, pp. 424). Generally, two types of distress appear. Acute distress is characterized by physical soreness from the attack, headache, nightmares, and anger. Chronic or delayed stress is characterized by more long-term nightmares, emotional numbing, withdrawal, trouble sleeping, and feelings of anger, fear, and guilt (Saigh, 1992).

Those who suffer from PTSD have usually directly experienced trauma; received serious physical threats; had a child, spouse, or close friend threatened or harmed; had one's home or community suddenly destroyed, or witnessed someone being seriously injured or killed as a result of accident or violence (APA, 1994, pp. 424-425). In the present research, of course, the focus is on the trauma related to the direct experience of

FSI. Following the initial trauma, several other factors must also be present for PTSD to characterize a person's psychological state.

First, the traumatic event must be reexperienced, either by recurrent and intrusive recollections, recurring distressing dreams, sudden acting or feeling the event was recurring (flashback), or by experiencing intense psychological distress at exposure to events that symbolize an aspect of the trauma (e.g., anniversaries). Second, those with PTSD persistently avoid stimuli associated with the trauma or numbing of general responsiveness as described by the following symptoms: avoidance of thoughts or feelings associated with the trauma; avoiding activities or situations that arouse trauma recollections; forgetting important trauma details; diminished interest in fundamental activities like speaking; feeling detached from others and having difficulty loving significant others; or, seeing the future as not being personally applicable. Third, PTSD is characterized by an increased level of arousal marked by difficulty falling asleep, irritability or outbursts, difficulty concentrating, hypervigilance, exaggerated startle response, and physiological reactivity (sweats; APA, 1994, pp. 425). These symptoms describe the essential characteristics of a PTSD diagnosis.

When the original trauma is relived through dreams or flashbacks of the event, PTSD victims seek to avoid any stimuli that might trigger those thoughts or feelings again. Even after several years the original pain can still affect life attitudes and patterns as past memories become restimulated by situations or circumstances.

In severe cases, where PTSD victims suffer either extended trauma or particularly

shocking trauma, totally avoiding flashbacks is difficult. Repeated or extended trauma would be particularly likely in cases of incest, and in some date rape situations. These trauma victims sometimes lead seemingly normal lives on the outside while hiding feelings of inner turmoil. Most significantly, they tacitly avoid their own internal pain and perceived horror that is linked with the original trauma circumstances and specific details. When flashbacks happen, they interrupt life to varying degrees. Sometimes flashbacks bring on withdrawal or regression to the level of energy and pain tied to the trauma. At these critical times more intense feelings of depression, fear, and anger may provoke abnormal behaviors. Suicide ideation, attempted suicide, or other violent behavior and even the opposite of extreme withdrawal can become problematic.

This partly explains why victims of severe PTSD attempt to avoid experiences that bring up flashbacks. At these painful times when memories flood back, a loss of self-control is usually experienced. In extreme cases, so much energy is expended on avoidance behaviors that a vicious cycle is typically created, circling between the pain of flashbacks and the energy spent to avoid them. Consequently, victims of PTSD may hold a personal view of themselves as worthless, regularly defending this internal belief even if confronted.

Purpose and Research Questions

The purpose of this research is to compare risky sexual behavior, psychopathology, and behavior problems of young women from a nationally representative sample of

adolescents who reported forced intercourse, voluntary intercourse, and no intercourse. Also, multivariate analysis was used to control for race/ethnicity and age. Race/ethnicity takes into account cultural and genetic histories while age takes into account developmental differences, upon which teenage females will differ. The present research builds on, and extends beyond, a previous study on the effects of forced sexual intercourse on White female adolescents (Miller et al., 1995). The present research uses a similar design, several methodological changes, and a larger, more representative sample in comparison to the previous study. The larger sample used in this study also allowed for direct comparisons between race/ethnicity groups and adolescent age groups on FSI that previously have not been reported.

The independent variable of interest is nonvoluntary or forced sexual intercourse (FSI). The survey asked only females about experiencing FSI, while males were asked about forcing sexual intercourse. Thus, this analysis compares only females who report forced intercourse, voluntary intercourse, and no intercourse in three categories of what are conceptualized as outcome variables. The first group of outcome variables includes risky sexual behaviors. Consistent with the theory of PTSD reviewed above, the second group includes broader (nonsexual) psychopathology, including negative self-perceptions, suicide ideation, mental and emotional health, and depression. The third group of FSI outcomes includes general behavior problems such as school problems, drug use, alcohol use, and delinquency.

More specifically, the basic research questions are:

1. Is there a difference between FSI prevalence across race/ethnicity groups?
2. Is there a relationship between FSI and risky sexual behavior within and between race/ethnicity and/or age groups?
3. Is there a relationship between FSI and psychopathology within and between race/ethnicity and/or age groups?
4. Is there a relationship between FSI and behavior problems within and between race/ethnicity and/or age groups?

CHAPTER II

LITERATURE REVIEW

The correlates of FSI and the risk factors that help to predict FSI are both reviewed in this chapter. Since most studies use the more general term "sexual abuse," rather than forced sexual intercourse (FSI), both will be used herein.

Consequences of FSI

In the literature on the correlates of forced sexual intercourse (FSI), three major outcome conditions are associated with FSI: first, risky sexual behavior, which includes early pregnancy and sexuality disorders; second, psychopathology, which includes mental and emotional repercussions; and third, behavior problems, including drug and alcohol abuse.

Risky Sexual Behavior

Many correlates have been identified between sexual abuse and subsequent problematic sexual behavior. Women with FSI history were found to have higher levels of promiscuity compared to non-FSI women, most notably public and surreptitious masturbation, sexual precocity, and seductive behaviors toward men (Goldston, Turnquist, & Knutson, 1989). Tanzman (1992) found a more problematic history of sexual activity, more abortions and pregnancies, more genital infections, and a greater number of reports of sexual dissatisfaction among women with history of FSI.

Another study reported that the age of first voluntary sexual intercourse was significantly lower for those adolescents with FSI history compared to those without FSI history, 16.3 versus 17.2 years, respectively (Miller et al.,1995). A study comparing sexually abused adolescent females against nonabused but sexually active females found that the abused females were more likely to have been pregnant and to have initiated sexual intercourse at younger ages than nonabused females (Nagy, DiClemente, & Adcock, 1995). Mian, Martin, and Lebaron (1996) found greater emotional and behavioral problems including increased sexual behavior (fondling and touching) in girls 3-5 years old already suffering from sexual abuse. In a study in which 83 female medical patients (18 to 44 years) were diagnosed with preventable STDs, those who had been sexually abused had more sex partners and were less likely to support condom use (Thompson, Potter, & Sanderson, 1997).

Psychopathology

Feelings of self-worth or self-esteem are reported to be significantly lower among women who have been sexually abused. Bagley and Ramsey (1986) discovered that women in a random sample scoring in the "very poor" category on the self-esteem inventory were nearly four times more likely to report a history of child sexual abuse than other subjects. In a study of 70 girls aged 7 to 12 years, Grayston, De Luca, and Boyes (1992) found that those in the sexually abused group scored significantly lower on self-esteem than those in the nonabused group. Another study reported lower scores on self-concept measures for incest survivors than nonvictims, even though all subjects were

drawn from equally dysfunctional families (Hotte & Raffeman, 1992). Impaired self-esteem can lead to increased gullibility, inadequate self-protectiveness, and a greater likelihood of being victimized or exploited by others (Briere & Elliott, 1994). Lanz (1995) studied 241 single, pregnant female adolescents (aged 12-17 years); 77 of them had been sexually victimized in the past. The victimized subjects were more self-conscious and had lower self-esteem scores than the pregnant non-victims.

Depression, a psychological ailment with distressing consequences, is also reported in the literature to be a prominent correlate of sexual abuse, as would be expected. Bagley and Ramsey (1986), who randomly selected women in Calgary, reported that 15% of the abused women suffered from serious depression compared to 7% of the nonabused women. In another study, 88% of incest victims suffered from depression compared to 56% from a non-incest background sample that was drawn from clinical sources (Pribor & DinWiddie, 1992). Miller et al. (1995), in a national sample of adolescents, found depression was significantly higher for White female adolescents who had experienced FSI than those who had not. More depression, anxiety and self-consciousness were experienced by victims of FSI in a study sampling pregnant adolescents 12-17 years of age (Lanz, 1995). Using Schill's self-defeating personality scale, Viviano and Schill (1996) reported significantly higher scores for sexual abuse victims than nonvictims in a sample of 275 college students.

Posttraumatic stress disorder (PTSD) is also found to be associated with sexual abuse in several sources. Reviewing literature on PTSD and child sex abuse, Briere and Elliott (1994) found a variety of studies documenting symptoms of PTSD, including

chronic self-perceptions of helplessness and hopelessness, impaired trust, self-blame, and low self-esteem in abused children. Green (1995) used a developmental perspective in understanding how the effects of sexual abuse were processed from childhood to adolescence into adulthood. "As the sexually abused child progresses through adolescence into adulthood, and the immediacy of victimization recedes, the acute posttraumatic anxiety symptoms are gradually replaced by more enduring symptoms and characteralogical defenses" (p. 655). This can produce intense future psychopathology by generating delayed PTSD when trauma memories are touched off by current experiences.

A study of 2000 subjects aged 10-16 years (Boney & Finkelhor, 1995) found subjects who had been sexually abused were at risk for further abuse, and that symptoms associated with PTSD were exacerbated for victims suffering more intense abuse. In another study, 45 adult females in outpatient treatment for childhood sexual abuse were compared against 31 women not reporting abuse. Standardized tests of PTSD and child sexual abuse were given to all the women. Eighty-seven percent of the abused women met the criteria for current PTSD diagnosis compared to 19.4 % of the non-abused women (Rodriguez, Ryan, Vande-Kemp, & Foy, 1997). An important study by Browning and Laumann (1997) used the National Health and Social Life Survey to compare PTSD with a new explanation for the outcomes of sexual abuse based on a life course perspective. This survey provided detailed information on childhood sexual experiences and also subsequent sexual behavior and current sexual behavior. It was reported that child sexual abuse was associated with heightened sexual activity but no evidence was

found for the tendency to avoid sexual activity, which is predicted by PTSD.

Other psychiatric disturbances that have been linked with sexual abuse represent a wide range of negative effects. Proulx, Koverola, and Fedorowicz (1995) studied 355 female undergraduate students of whom 99 were sexual abuse victims. They found that victims reported more distress and coping strategies, most notably, escapism strategy. A clinical study explained how victims of FSI experienced mental states of confusion and a loss of the sense of reality (Whelan, 1995). From the 1987 National Survey of Children, Miller et al. (1995) reported less internal locus of control and a greater need for psychological help by White female adolescent sexual abuse victims than nonvictims.

In a study by Newman and Peterson (1996), adult female survivors of incest were more angry in general, and at their parents specifically, than nonvictims. One particularly interesting study (Robohm & Buttenheim, 1996) measured the responses of 44 adult survivors of child sex abuse and 30 adult female nonvictims undergoing gynecological examinations. Victims of abuse reported more trauma-like responses in the exam, including overwhelming emotions, intense thoughts, body memories, and feelings of detachment from their bodies. Messman and Long (1996), who reviewed the literature on revictimization of adult survivors of sexual and physical abuse, concluded that women sexually abused as children are at much greater risk for similar abuse in their relationships as adults. Cohen (1995) investigated the maternal functioning of female survivors of child sexual abuse using seven scales measuring parenting skills. The scales ranged from role support and expectations to communication and limit-setting. On all seven scales the group of mothers who had been abused was significantly less skillful as

parents than those mothers who reported no abuse.

Behavior Problems

In a study of 241 single pregnant females 12-17 years of age, FSI victims were more involved in delinquent behavior, used more drugs, and maintained poorer quality friendships than nonvictims (Lanz, 1995). Nagy et al. (1995) reported that sexually abused adolescent females were more likely to use illegal drugs than non-abused but sexually active adolescent females. Increased behavior problems were found by Mian et al. (1996) for girls 3-5 years old already suffering from sexual abuse. In a study of 390 college women, higher rates of eating problems (47% vs. 21%) were present when FSI was in the students' past (Boldo, Wallace, & O'Halloran, 1996). Eating disorder patients who had been sexually abused had more disturbed psychiatric symptoms and were more likely to engage in self-injury than nonabused patients (Tobin & Griffing, 1996).

Risk Factors for FSI

Data from the 1987 National Survey of Children were used in a study on non-voluntary sexual activity among adolescents (Moore et al., 1989). Several variables emerged as risk factors in predicting greater likelihood for experiencing FSI. Living apart from parents before age 16; being raised in poverty; having mental, emotional, or physical limitations; and having parents who used alcohol or cigarettes when they themselves were teenagers all were important predictors of FSI. Six, 9, 26, and 68% were the increases of risk, respectively, for those girls with zero, one, two, and three of these risk factors

present in their lives. This supports the idea of cumulative risk predicting FSI.

Focusing on the risk factors that increase probability for experiencing FSI, Small and Luster (1994, p. 189) wrote, "Many of the risk factors that were linked to sexual experience in this sample were ones that had been identified in several earlier studies, notably poor school performance, involvement in a committed relationship, low parental education, and frequent alcohol use." Histories of sexual abuse and a perception of limited future socioeconomic opportunity also were predictors in the study. Finally, some variables appeared significant in predicting FSI that previously had not been reported. A history of physical abuse, lack of school attachment, low neighborhood monitoring, and permissive parental values about teenage sexual behavior are also predictive variables of FSI (Small & Luster, 1994).

Building on the previously cited study in 1989, Miller et al. (1995) also used data from the 1987 National Survey of Children to study the effects of FSI. In their study, FSI was associated with younger ages of first voluntary sexual intercourse, lower internal locus of control, higher depression, and needing help from a therapist. Important predictive variables for FSI were controlled, including mental/emotional limitations, parental drinking or drug use, and socioeconomic factors. The hypothesis that FSI is a cause of sexual and psychological problems was strengthened by the fact that associations remained even after controlling for other variables.

Synthesis of Literature

Research has demonstrated that FSI and/or sexual abuse is consistently associated with negative consequences and that there are predictable risk factors given certain preexisting family and individual characteristics. The most apparent correlate of FSI is increased sexual dysfunction, including risky and precocious sexual behavior. A second correlate, sometimes less visible, is the resulting psychopathology suffered mentally and emotionally by the victim. A third important correlate of FSI is behavior problems, including drug use and eating disorders. Posttraumatic stress disorder suggests that these relationships often persist through the life course of the victim and influence future negative complications.

Victims of sexual abuse or FSI tend to exhibit risky sexual behavior more than nonvictims. In addition, an increase in reports of overall sexual dissatisfaction is also common. The varying effects FSI has on sexual behavior have the potential to immediately change the life course of any victim, through early pregnancy, disease, or by altering self perceptions based on sexual victimization.

The literature on FSI also indicates that negative psychological and emotional health problems are associated with experiencing FSI. Self-esteem has been measured in several sex abuse studies and is consistently reported as being negatively correlated with sexual abuse. Depression, a widely measured construct in psychological research, is clearly reported as having a positive relationship with FSI, as would be expected. Posttraumatic stress disorder has been positively correlated with FSI in several recent

studies. This particular relationship probably carries some of the most substantative implications for understanding the hidden nature and extensive consequences most often denied and lost in the FSI victim's efforts for recovery. Besides these common psychological categories, other constructs are also in the literature and support a wide array of problems attributed to sexual abuse and/or FSI, including suicide attempts, distress, anger, and general impaired functioning.

Diverse behavior problems associated with FSI are expressed across a wide spectrum of action in the family and society. Some criminal and antisocial behaviors are associated with FSI along with other less prominent behaviors. Delinquent behavior, drug and alcohol use, and problems in significant relationships are common behavior problems. Other behaviors include self-injury, eating disorders, and violence.

Several studies have examined the risk factors that might indicate who is at risk for experiencing sexual abuse. While it is likely that there never will be exact markers for predicting who will be sexually abused, there are indicators related to increased risk. Some of the more common risk factors are poverty, parental drinking or drug use, poor school performance, and low parental education. Moore et al. (1989) showed how risk is increased when multiple risk factors are present in the child's life, supporting the view of cumulative risk.

The contribution of the present study is that the correlates of FSI are able to be examined for various race/ethnicity and age groups in a very large, nationally representative sample. Many previous studies have reported negative associations with FSI for risky sexual behavior, psychological problems, and behavior problems. The

present research documents the extent of these relationships by race/ethnicity, for adolescents who participated in a large omnibus health survey. One of the goals of this large survey was to "assist health and social service providers, educators and others in taking the first steps of establishing priorities and committing to practices and programs that enhance protective factors as well as reduce risk" (Resnick et al., 1997, p. 832).

CHAPTER III

METHODS

This study has several methodological strengths. First, it is based on the largest nationally representative sample of female adolescents ever analyzed for FSI, allowing the research questions to be studied by race/ethnicity and age group. Second, direct comparisons are possible between those who reported forced intercourse, voluntary intercourse, and no intercourse in the same survey. Third, there are detailed, rich measures of many sexual, psychological, and behavioral variables.

Sample

Data for this study came from the first home interview of The National Longitudinal Study of Adolescent Health (Add Health). A nationally representative U.S. sample of male and female adolescents in Grades 7 through 12 was selected for the Add Health study. All high schools in the United States, with an 11th grade and at least 30 enrollees in the school, represented the primary sampling frame. A total of 134 schools, 79% of those contacted, selected through systematic random sampling, agreed to be included in the study. At 129 of these schools, students completed an in-school survey ($\underline{N}$ = 90,118). From the school survey and from school rosters, 15,243 adolescents were randomly selected for in-home interviews.

From April to December 1995, 12,118 adolescents (79.5%) completed a 90-minute home interview. Half of the interview was conducted by an interviewer and half

was self-administered on a laptop computer. Questions relating to sex and all other sensitive topics were answered as the adolescents listened through earphones, typing their responses into the laptop computer. This core sample of 12,118 adolescents, who were interviewed at home, represents adolescents in Grades 7-12 (ages 12-20 years) in the United States. Oversampling of race/ethnic groups, disabled adolescents, and twins increased the sample size from 12,118 to 20,746. Those groups who were oversampled were proportionately underweighted during analysis so that the entire sample of 20,746 adolescents remains a representative sample of the population. There were 10,480 females in the entire sample of 20,746. This female sample of 10,480 is the focus of the present research.

Design

Table 1 presents the overall research design. There are three FSI groups constituting the single independent variable. Females who reported forced intercourse, voluntary intercourse, and no intercourse. FSI analyses were broken down among five race/ethnicity groups: White, African American, American Indian, Asian, and Hispanic. Analyses were also broken down over four adolescent age groups. There were 26 dependent variables from three content areas: risky sexual behavior, psychopathology, and behavior problems.

Table 1

FSI Research Design

Independent variable	Grouping variable	Grouping variable	26 dependent variables
Forced sexual intercourse	Race/ethnicity	Age group	
Three groups	Five groups	Four groups	Three subgroups
No intercourse	White	Group 1 (12, 13, 14)	Risky sexual behavior (9 variables)
Had intercourse	African American	Group 2 (15)	Psychopathology (7 variables)
Forced intercourse	American Indian	Group 3 (16, 17)	
	Asian/Pacific Islander	Group 4 (18, 19, 20)	Behavior problems (10 variables)
	Hispanic		

Measurement

Forced Sexual Intercourse

The measure of the key independent variable in this study comes from adolescent females who responded to the question, "Were you ever physically forced to have sexual intercourse against your will?" (coded 0 = no, 1 = yes). This question is specific to forced sexual intercourse, in contrast to the much broader definitions of sexual abuse (including exposure, fondling, etc.) that are common in the literature. Young women answering "yes" to the question about forced sexual intercourse were compared to those answering "no" to forced intercourse. Females who previously reported never having intercourse

were included as a third comparison group. These three groups of adolescent females were compared on variables relating to risky sexual behavior, psychopathology and behavior problems. Of the 10,480 females, 802 reported forced sexual intercourse, 3,170 reported voluntary intercourse, and 6,492 reported no sexual intercourse. The weighted and representative frequencies for these three groups representing the independent variable FSI are: 7.4% forced intercourse, 28.7% have had intercourse (but were not forced), and 63.9% have not had intercourse.

Race/Ethnicity

All females in the survey were asked, "What is your race?" (Coded 1 = White, 2 = Black or African American, 3 = American Indian, 4 = Asian or Pacific Islander). Female teenagers with Hispanic or Latino backgrounds were asked a separate question relating to their specific background and origin. The Add Health data set containing the female sample of 10,480 adolescents was large enough to allow comparisons within and among these five race/ethnic groups. Within and among the five race/ethnic groups, female teens who reported forced intercourse, voluntary intercourse, and no intercourse were compared on risky sexual behavior, psychopathology, and behavior problems.

In the sample of 10,480 adolescent females there were 5,290 Whites, 2,346 African Americans, 269 American Indians, 716 Asian/Pacific Islanders, and 1,751 Hispanics. There were 108 missing observations for the female race variable.

Figure 1 presents percentages based on the weighted and representative frequencies for FSI*RACE data. The estimates for White females reporting forced

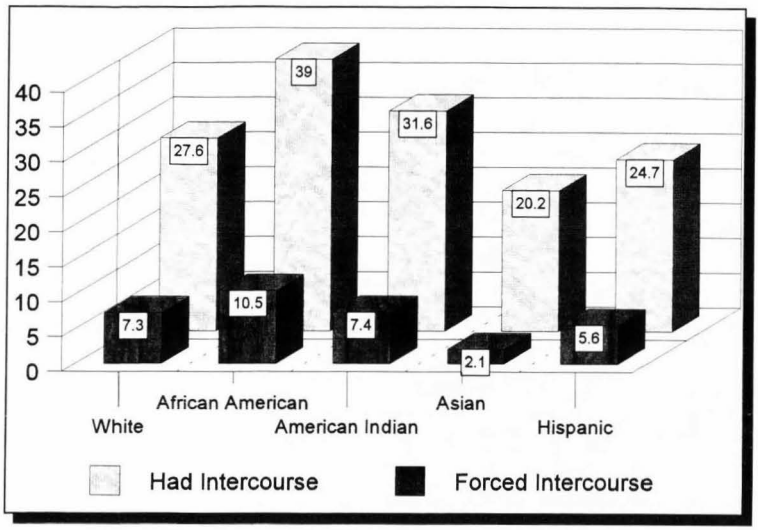

Figure 1. Percent adolescent females by race/ethnicity and FSI status.

intercourse was 7.3% and reporting having had intercourse was 27.6%. The estimates for African American females reporting forced intercourse was 10.5% and reporting having had intercourse was 39%. The estimates for American Indian females reporting forced intercourse was 7.4% and reporting having had intercourse was 31.6%. The estimates for Asian/Pacific Islander females reporting forced intercourse was 2.1% and reporting having had intercourse was 20.2%. The estimates for Hispanic females reporting forced intercourse was 5.6% and reporting having had intercourse was 24.7%.

Age Group

The second cross-sectional grouping variable along with race/ethnicity was adolescent age group. The reported date of birth was subtracted from the interview year (95) to find current adolescent age. Females aged 12, 13, and14 were grouped together into group 1. Females aged 15 reported the highest incidence of "first sex" so they comprised group 2. Females aged 16 and 17 were grouped together as group 3 and females aged 18, 19, and 20 comprised group 4. The female sample of 10,480 adolescents is large enough to compare within and among these four age groups. Within and among the four age groups, female teens who reported forced intercourse, voluntary intercourse, and no intercourse were compared on risky sexual behavior, psychopathology, and behavior problems.

In the sample of 10,480 adolescent females there were 2,239 females age 14 or younger; 1,682 age 15; 3,998 ages 16-17; and 2,540 age 18 or older. There were 21 missing observations for the female age group variable. Figure 2 shows percentages of FSI based on the weighted and representative frequencies for FSI*AGEGROUP data. The estimate of females 12-14 years reporting forced intercourse was 1.8% and reporting having had intercourse was 7.2%. The estimate of females 15 years old reporting forced intercourse was 5.8% and reporting having had intercourse was 18.7%. The estimate of females 16 and 17 years reporting forced intercourse was 8.5% and reporting having had intercourse was 36.8%. The estimate of females 18-20 years reporting forced intercourse was 13.2%; and reporting having had intercourse was 49.5%.

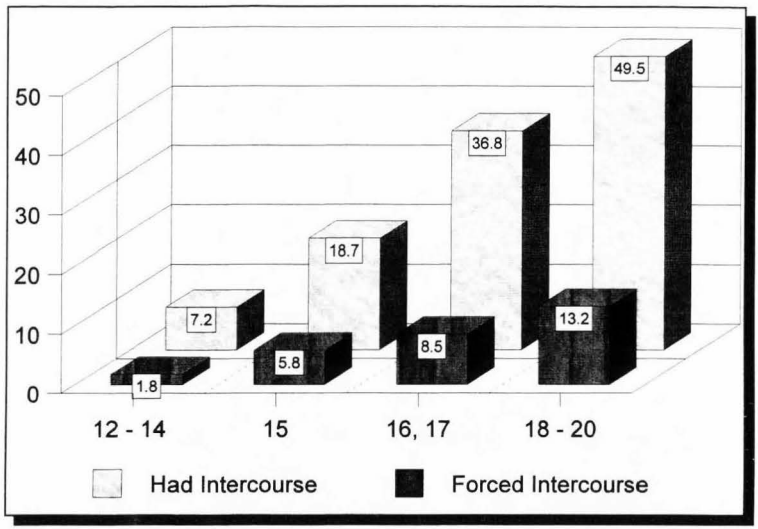

Figure 2. Percent adolescent females by age group and FSI status.

Risky Sexual Behavior

Seven constructs were used to measure "risky sexual behavior" to address the research question, "Is there a relationship between FSI and risky sexual behavior within/between race/ethnicity and age groups?" These risky sexual behavior measures are described below.

Construct #1 "age at first sex" was constructed from two questions. "What is your birth date?" and "In what month and year did you have sexual intercourse for the first time?" This constructed variable allowed FSI and non-FSI comparisons on the age of first voluntary sexual intercourse. Construct #2 "birth control" was measured by two

separate questions. "Did you or your partner use any method of birth control the first time you had sexual intercourse?" and "Did you or your partner use any method of birth control when you had sexual intercourse most recently?" These two questions were both answered "yes" or "no" and were analyzed separately to determine if FSI teenagers used birth control during their first and last sexual experiences less than non-FSI teens.

Construct #3 "STDs" was based on one question about 10 STDs. "Have you ever been told by a doctor or a nurse that you had.... Chlamydia, syphilis, gonorrhea, HIV or AIDS, genital herpes, genital warts, trichomoniasis, hepatitis B, bacterial vaginosis, non-gonococcal vaginitis?" These options were each answered "yes" or "no." Females who reported one or more STDs received a value of "1" while females not reporting any STDs received a value of "0" so that the range for STD was from 0-1. Construct #4 "trading sex " was based on the question. "Have you ever given someone sex in exchange for drugs or money?," answered "yes" or "no." This variable was analyzed to see if FSI teens trade sex for money or drugs more than non-FSI teens. Construct #5 "total sexual relationships" asked, "With how many people, in total, including romantic relationship partners, have you ever had a sexual relationship?" This variable was used to test if FSI teens have more sex partners than non-FSI teens.

Construct #6 "sex and alcohol" was composed of two questions, both answered by "yes" or "no." "The first time you had sexual intercourse, had you been drinking alcohol?" and "The most recent time you had sexual intercourse, had you been drinking alcohol?" These two measures of alcohol use, at first and most recent sex, were analyzed separately to see if having sex accompanied with alcohol use was more common for FSI

teens than non-FSI teens. Construct #7 "pregnancy" was based on the question, "Have you ever been pregnant?," answered, "yes" or "no." The risky sexual behavior area, and the seven constructs it was composed of, is summarized in Table 2.

Psychopathology

Six constructs were included in measuring "psychopathology" to address the research question, "Is there a relationship between FSI and psychopathology within/between race/ethnicity and age groups?" Each of the "psychopathology" constructs is discussed below.

Construct #1 "health problems" was asked as one question with 21 symptoms. "How often have you had this condition in the past 12 months? (Abbreviated) Feeling

Table 2

Risky Sexual Behavior Composed of Seven Constructs and Nine Variables

Construct	Section	#items/#vars	Question wording
Age at first sex	1.1 minus 24.2	2/1	1.1 asks age 24.2 - In what month and year did you have sexual intercourse for the first time?
Birth control	24.3/24.6	2/2	Did you or your partner use any method of birth control the first time you had sex? The last time
STDs	24.16	10/1	Have you ever been told by a doctor that you had Chlamydia, syphilis, gonorrhea, HIV or AIDS, genital herpes, warts, trichomoniasis, hepatitis ?
Trading sex	26.3	1/1	Have you ever given someone sex in exchange drugs or money?
Total # of sexual relationships	26.6	1/1	With how many people in total have you ever had a sexual relationship with? (If unsure then estimate)
Sex and alcohol	30.1,3	2/2	The first time you had sexual intercourse, had you been drinking? The last time you had sexual intercourse had you been drinking?
Pregnancy	32b.7	1/1	Have you ever been pregnant?

hot, stomach ache, cold sweats, feel weak, sore throat, feel tired, painful urination, feel sick, awaken tired, skin problems, dizziness, chest pains, muscle aches, menstrual cramps, poor appetite, trouble sleeping, trouble relaxing, moodiness, frequent crying, fearfulness?" A summated variable with scores ranging 0-100 measured whether these 20 aspects of biological, emotional, and mental health differ between FSI and non-FSI teens. These questions were answered with one of five choices: "never, just a few times, about once a week, almost every day, and every day." Construct #2 "absent from school" was one question answered the same as construct #1. "In the last month, how often did a health or emotional problem cause you to miss a day from school?" The "absences" score ranging from 0-4 was used to compare FSI and non-FSI respondents.

Construct #3 "received counseling" was based on one question which asked, "In the past year, have you received psychological or emotional counseling?," answered "yes" or "no." This single-item variable was used to analyze if FSI teens received counseling more than non-FSI teens. Construct #4 "depression" was based on one question with 19 symptoms: "How often was each of the following things true during the past week: (Abbreviated) Bothered by things, poor appetite, could not shake the blues, felt as good as others (Reversed), mind was wandering, felt depressed, felt too tired, felt hopeful about future (Reversed), thought your life was a failure, felt fearful, you were happy (Reversed), talked less than usual, felt lonely, people were unfriendly, you enjoyed life (Reversed), you felt sad, you felt that people disliked you, hard to get started, felt life was not worth living?" Four of these items measured positive outcomes, and therefore were reversed to construct the depression scale. These questions were answered by choosing one of four

options: "never or rarely, sometimes, a lot of the time, most of the time or all of the time," so the range of scores was 0-57.

Construct #5 "suicide" was measured by one question, "During the past 12 months, did you ever seriously think about committing suicide?," answered "yes" or "no." This question was included to see if FSI teens have more inclination toward suicide than non-FSI teens. Construct #6 "feel others care" was constructed from eight questions. "How much do you feel that adults care about you? How much do you feel that your teachers care about you? How much do you feel that your friends care about you?" These three questions were summed together to measure "others" care, while the remaining five questions all reflected a measure of "family" care; "How much do you feel that your parents care about you?; How much do you feel that people in your family understand you?; How much do you feel that you want to leave home (Reversed)?; How much do you feel that you and your family have fun together?; How much do you feel that your family pays attention to you?" These questions were answered with one of five choices: "not at all, very little, somewhat, quite a bit, very much," These items were coded into two scales with scores reaching a maximum of 15 and 25, respectively. Psychopathology and the six constructs it is composed of is summarized in Table 3.

Behavior Problems

Eight "behavior problem" constructs were used to address the research question, "Is there a relationship between FSI and behavior problems within/between race/ethnicity and age groups?" A discussion of the measurement of "Behavior problem" constructs is

Table 3

Psychopathology Composed of Six Constructs and Seven Variables

Construct	Section	# items/ #vars		Question wording
Health problems		3.2-22	21/1	How often have you had this condition in the past twelve months? Cold sweats, very tired, dizziness, Moodiness, fearfulness, frequent crying...etc....
Absent from school		3.48	1/1	In the last month, how often did a health or emotional problem cause you to miss a day of school?...
Received counseling		7.3	1/1	In the past year have you received psychological or emotional counseling?
Depression		10.1-19	19/1	During the past week how often did you feel....like not eating, depressed, like a failure, happy, lonely.
Suicide ideation		33.1	1/1	During the past 12 months, did you ever seriously think about committing suicide?
Feel others care		35.1-8	8/2	How much do you feel that adults ,teachers, friends care about you? parents, family? How much do you feel that you want to leave home?...have family fun, or feel your family pays attention?

presented below.

Construct #1 "eating disorders" was one question with three possible responses. "During the past seven days, which of the following things did you do in order to lose weight or to keep from gaining weight?," answered by marking all the options that applied: " made yourself vomit, took diet pills, or took laxatives." These items were coded as a single eating disorder variable, where 1 = "yes" was marked on any one of the three responses.

Construct #2 "sluff school" was measured with one question. "How many times have you skipped school a full day without an excuse?," coded as the total number of days skipped. This variable was used to analyze if FSI teens skip school more than non-FSI teens. Construct #3 "suspension, expulsion" was comprised of two questions.

"Have you ever received an out-of-school suspension from school?" and "Have you ever been expelled from school?" These questions, which were answered "yes" or "no," were combined (scores ranging from 0-2) for analysis. Construct #4 "school problems" was constructed from four questions. "Since school started this year, how often have you had trouble: getting along with teachers, paying attention in school, getting your homework done, and getting along with other students?" These questions were answered with one of five choices: "never, just a few times, about once a week, almost every day, everyday." School problems were combined in a summated scale (scores 0-16) for analysis.

Construct #5 "smoking" was constructed from two questions. "Have you ever smoked cigarettes, even just one or two puffs?" and "Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for at least thirty days?," both answered "yes" or "no." These questions were examined separately and were both categorical variables. Construct #6 "drinking" also was comprised of two questions. "Have you had a drink of beer, wine, or liquor– not just a sip or a taste of someone else's drink– more than two or three times in your life?" and "Over the past twelve months, on how many days have you gotten drunk or very high on alcohol?" The first question was answered "yes" or "no" and The second question was answered by one of seven choices: "every day or almost every day, 3 to 5 days a week, 1 to 2 days a week, 2 or 3 days a month, 3 to 12 times in the past 12 months, 1 or 2 days in the past 12 months, and never." These questions were analyzed separately and both treated as "yes, no" questions.

Construct #7 "drugs" was constructed from four questions. "How old were you when you tried marijuana for the first time? How old were you when you tried any kind

of cocaine--including powder, freebase, or crack cocaine for the first time? How old were you when you tried inhalants, such as glue or solvents, for the first time? During your life have you ever injected any illegal drug, such as heroin, or cocaine?" These four questions were re-coded and treated as "yes" and "no" items so they could be summed and analyzed together with scores ranging from 0-1 to see if FSI teens use drugs more than non-FSI teens. A "yes" to any of these four questions equaled "1" otherwise a "0."

Construct #8 "delinquency" was constructed from 15 items in response to the question: "In the past twelve months how often did you...(Abbreviated) Paint graffiti on public property, deliberately damage property, lie to parents about whereabouts, shoplift, serious physical fighting, hurt others so they needed a doctor, run away, drive without permission, steal something worth more than $50, steal from house or building, use a weapon or threaten to, sell drugs, steal something worth less than $50, fight with a group against another group, and behave loud, rowdy or unruly in a public place?" These questions, answered with "never, 1 or 2 times, 3 or 4 times, 5 or more times," were combined in a delinquency index, ranging from 0-45. Behavior problems and the eight constructs they were composed of are summarized in Table 4.

Reliability and Validity

In self-report surveys there is no way to guarantee that questions are answered with complete honesty and accuracy. Measuring FSI is more accurately stated as measuring reported FSI. However, the Add Health study did not use a standard paper-and-pencil survey format for nearly half of the home interviews that dealt with the most

Table 4

Behavior Problems Composed of Eight Constructs and 10 Variables

Construct	Section	Item # / var#	Question wording
Eating disorder	3.30	3/1	During the past 7 days how often did you vomit, take diet pills, or laxatives, ...to lose weight?
Sluff school	5.2	1/1	During this year how many times have you skipped school without an excuse?
Suspension/expulsion	5.7,9	2/1	Have you ever received an out-of-school suspension from school? ...been expelled
School problems	5.15-18	4/1	This year how often have you had trouble getting along with your teachers? ...paying attention, completing homework, getting along with students?
Smoking	28.1,3	2/2	Have you ever smoked cigarettes? .....ever regularly, that is, at least 1 cigarette every day for thirty days?
Drinking	28.12,18	2/2	Have you ever drank alcohol, more than just one or two sips ? In the past year how many days did you get drunk?
Drugs	28.30,34,37,43	4/1	How old were you when you used marijuana for the first time? Cocaine, inhalants? Other drugs, injections of cocaine or heroin?
Delinquency	29.1-15	15/1	In the past year how often did you paint graffiti? ...deliberately damage property, lie to parents, shoplift, physically fight, run away, use a weapon? etc.

sensitive and/or potentially illegal behaviors, such as sexual intercourse, drug use, delinquency, aggression, and suicide. Instead, respondents listened through headphones and typed their responses into laptop computers.

A study by Turner et al. (1998) showed that respondents who used paper and pencil surveys underreported sensitive and illegal behaviors, whereas respondents who listened through headphones and typed answers into laptops reported higher rates of sensitive or illegal behaviors by factors of 3 or more. Turner et al. provided strong evidence that recent technology developments can now obtain a more accurate measurement of the most sensitive or secret human behaviors. Since the Add Health study employed this improved measurement technique, the estimates of risk behaviors

presented in this study, in regard to FSI, are probably more valid than previous estimates based solely on paper-and-pencil surveys.

The Cronbach alpha coefficient was used to estimate internal consistency reliability for all multiple item dependent variable measures. Since reliability is essential for meaningful data, the Cronbach alpha coefficient was important for interpreting the comparisons of FSI and non-FSI groups based on multiple item measures. Table 5 shows descriptive statistics for all dependent variables and alpha reliability estimates for multiple item composite variables. There were five composite scales and the reliability estimates ranged from a high of .89 (depression scale) to a low of .55 (others care). This lowest coefficient was based on a scale constructed from only three items. Results from this particular scale were interpreted with the understanding that it had low internal consistency.

Evidence for the validity of all the outcome variables in this study was supported by face validity. The behavior and psychological variables all appeared to measure those constructs they were attributed to be measuring. Correlations between the six multiple item scales are presented in Table 6 and were also supportive of concurrent criterion validity. The health problems index, depression index, school problems index, and delinquency index were all positively correlated with each other and negatively correlated with the family cares index and others care index as would be expected.

Statistical Analysis Plans

Analysis began with simple tabulations of FSI experience, followed by

Table 5

Descriptive Statistics and Reliability of Composite Variables for the Female Sample of 10,480 Adolescents

Variable	Range	N	Mean	Std dev	Alpha
Risky sex					
Age 1st sex	9 - 19	3808	15.18	1.90	na
Birth control 1st sex	0 - 1	3965	.65	.48	na
Birth control last sex	0 - 1	3946	.63	.48	na
Ever had STD	0 - 1	3961	.11	.31	na
Trade sex	0 - 1	10394	.008	.09	na
# Sex relationships	0 - 57	2243	4.66	5.91	na
Alcohol with 1st sex	0 - 1	3062	.12	.33	na
Alcohol with last sex	0 - 1	2918	.10	.30	na
Pregnant ever	0 - 1	3959	.20	.40	na
Psychopathology					
Health problems index	0 - 100	10469	18.31	9.10	.85
School absence/health	0 - 4	10429	.48	.68	na
Received counseling	0 - 1	10456	.14	.35	na
Depression index	0 - 54	10458	12.33	8.23	.89
Suicide ideation	0 - 1	10380	.16	.37	na
Family cares index	0 - 25	10429	18.63	3.63	.79
Others care index	0 - 15	10429	12.36	1.89	.55
Behavior problems					
Eating disorder	0 - 1	8485	.02	.14	na
Sluffed school	0 - 99	10242	2.01	7.40	na
Suspend/expelled	0 - 2	10450	.23	.48	na
School problems index	0 - 16	10253	4.73	2.71	.67
Ever smoke	0 - 1	10406	.57	.50	na
Ever smoke regularly	0 - 1	10480	.20	.40	na
Ever drink alcohol	0 - 1	10395	.56	.50	na
Ever drunk past year	0 - 1	10467	.27	.44	na
Ever use drugs	0 - 1	10480	.28	.45	na
Delinquency index	0 - 45	10412	3.61	4.48	.83

Table 6

Correlations Between Six Multiple Item Scales to Help Establish Validity

		Gen health prob	Depression	Family care	Others care	School problems
Depression		.56				
	P	.01				
	N	10458				
Family care		-.34	-.44			
	P	.01	.01			
	N	10429	10427			
Others care		-.21	-.33	.51		
	P	.01	.01	.01		
	N	10429	10427	10429		
School problems		.41	.42	-.33	-.30	
	P	.01	.01	.01	.01	
	N	10253	10247	10219	10219	
Delinquency		.28	.32	-.36	-.23	.41
	P	.01	.01	.01	.01	.01
	N	10412	10411	10403	10403	10205

comparisons of FSI and non-FSI group mean scores on the outcome variables just described. The alpha level for statistical significance will was .001 because the sample size was very large and many statistical tests were conducted. The large sample size allowed separate comparisons within White, African American, American Indian, Asian, and Hispanic race/ethnicity groups. FSI was also analyzed by adolescent age groups.

Research question number one about the difference between FSI experience across the race/ethnicity groups was analyzed using percentages in a frequency distribution of FSI and race/ethnicity. The second, third, and fourth research questions, about the relationship between FSI and risky sexual behavior, psychopathology, and behavior problems within race/ethnicity and age group, were analyzed using group mean

comparisons, specifically one-way analysis of variance. Race/ethnicity and age group comparisons was analyzed using canonical discriminate analysis.

Research Ethics

Ethical considerations in obtaining these comprehensive in-depth data on adolescents were handled carefully by the researchers who designed the Add Health study and collected the data. The main risk to human subjects is deductive disclosure of respondent identity in a survey which included many sensitive and potentially embarrassing questions. A third-party contract with a security manager has made it so that not even the principal investigator can obtain an individual's identifying information.

Before the entire Add Health data set could be obtained, a contract specifying strict security measures for the protection of human subjects had to be negotiated and signed. Each of the project personnel working with the data were required to sign an agreement stating that they would not allow other people to see or gain access to the data. The computer and room where the data were analyzed and stored had to be kept locked and only those authorized investigators had access to the data. A computer password procedure was required, and only one copy of the data could be made for backup purposes. Before July 2000, the data will be destroyed along with the backup copy. Printouts were kept in locked files only accessible to project personnel. These strict security procedures help to protect the confidentiality of human subjects in the Add Health study.

CHAPTER IV

RESULTS

The first research question asks whether the incidence of FSI was different across race/ethnic groups. In the Add Health sample of 10,480 females, after representative weighting, 64% of females reported no sexual intercourse; 28.7% reported having had intercourse; and 7.4% reported having been forced to have intercourse. White females reporting forced intercourse was 7.3% and reporting having had intercourse was 27.6%. African American females reporting forced intercourse was 10.5% and reporting having had intercourse was 39%. American Indian females reporting forced intercourse was 7.4% and reporting having had intercourse was 31.6%. Asian/Pacific Islander females reporting forced intercourse was 2.1% and reporting having had intercourse was 20.2%. Hispanic females reporting forced intercourse was 5.6% and reporting having had intercourse was 24.7%.

Clearly, prevalence of FSI was different among these five race/ethnic groups. Asian/Pacific Islanders report less FSI by factors of nearly 5 times less than African Americans who reported the highest rate of FSI, which was more than 1 in every 10. The other three race/ethnic groups reported less extreme prevalence rates of FSI within their populations. Since FSI represents the most negative end of the "sexual abuse" continuum, these prevalence estimates are at the lower end of the "sexual abuse" estimates commonly reported in the literature on FSI, since "sexual abuse" definitions can range from harassment to fondling to forced intercourse.

FSI Analysis of Variance

Risky Sexual Behavior

The second research question posed was whether there is a relationship between FSI and risky sexual behavior within and among race/ethnicity and age groups.

Complete sample. The FSI group means, significance tests (.001), and effect sizes for nine dependent variables included in risky sexual behavior are presented for the complete sample in appendix Table A1. Nine risky sexual behaviors were compared for females reporting forced intercourse and females reporting having had intercourse. The percentage of variance in risky sexual behavior associated with FSI status for the complete sample, race/ethnic group, and age group is reported in Table 7. When compared to psychopathology and behavior problems, risky sexual behavior, as assessed in this study, had the least amount of variance accounted for by FSI status, probably because the majority of the sample were excluded from analysis since the majority of adolescents have not had intercourse.

Females who reported forced intercourse averaged 14.6 years of age at sexual debut compared to 15.3 years for females reporting having had intercourse. Fifty-five percent of females reporting forced intercourse used birth control during first intercourse compared to 67% for females reporting having had intercourse. Fifty-six percent of females reporting forced intercourse used birth control during their most recent intercourse compared to 66% for females reporting having had intercourse. Seventeen

Table 7

Percent Variance for Each of Nine Variables Included in Risky Sexual Behavior Accounted for by FSI Status; Assessed for the Complete Sample and Then for Each of Five Race/Ethnic Groups and Each of Four Age Groups

	Complete sample	Race/ethnicity					Age group			
Risky sexual behavior		White	Black	Indian	Asian	Hisp.	12-14	15	16, 17	18-20
Age at first sex	2	3	1	6	2	1	0	3	2	5
Used birth control 1st sex	1	2	1	1	1	0	1	3	1	1
Used birth control last sex	1	0	3	3	2	0	0	1	1	1
Ever had STD	1	1	2	1	0	0	1	0	1	2
Ever trade sex/money drug	1	2	2	1	1	0	0	2	1	2
# of sexual relationships	4	3	11	5	1	5	5	4	3	6
Alcohol at 1st sex	0	1	2	0	1	0	1	0	0	0
Alcohol at last sex	0	1	0	0	4	1	4	1	1	0
Ever pregnant	1	2	0	0	2	1	2	0	2	1

percent of females reporting forced intercourse had been told by a doctor or nurse that they had a sexually transmitted disease compared to 10% of the females reporting having had intercourse. Four percent of females reporting forced intercourse had traded sexual behavior for drugs or money compared to 1% of the females reporting having had intercourse.

The mean total number of sexual relationships for adolescent females reporting forced intercourse was 6.6 compared to 4.2 for females reporting having had intercourse.

The only variable above $p = .05$ significance level for the complete sample was alcohol use at the time of first sex. Sixteen percent of females reporting forced intercourse indicated drinking alcohol at their first intercourse compared to 13% of the females reporting having had intercourse. At their most recent intercourse, 14% of females reporting forced intercourse were drinking alcohol compared to 9% of the females reporting having had intercourse. Twenty-seven percent of females reporting forced intercourse had been pregnant compared to 17% of females reporting having had intercourse. The variable assessing the total number of sexual relationships had 4% of its variance explained by FSI status, while less than 2% variance was explained by FSI status for the other eight variables in risky sexual behavior in the complete sample (see Table 7).

Race/ethnic groups. The FSI group means, significance tests, and effect sizes for nine dependent variables included in risky sexual behavior are presented for each of five race/ethnic groups in appendix Tables A2-A6. Overall, White females who reported forced intercourse consistently had group mean scores indicating increased risky sexual behavior, compared to White females reporting having had intercourse. The single strongest relationship in risky sexual behavior was found among African American females compared to the other four race/ethnic groups. African American females who reported forced intercourse averaged 7.6 total sexual relationships, compared to 3.7 for African American females who reported having had intercourse. FSI status accounted for 11% of the variance in African American females total number of sexual relationships. Overall, African American females who reported FSI had group mean scores indicating

increased risky sexual behavior compared to African American females reporting having had intercourse. African American females also reported the highest percentage of STD infections compared to other race/ethnic females (32% of the forced intercourse group, and 18% of those having had intercourse). Alcohol use at first and most recent intercourse was lowest for African American females compared to the other race/ethnic groups.

American Indian females who reported FSI averaged 13.9 years of age at sexual debut compared to 15.1 years for females reporting having had intercourse. FSI status explained 6% of the variance in age of sexual debut for American Indians, and 13.9 years was the youngest mean age of sexual debut for females reporting forced intercourse for all race/ethnic groups. American Indian females who reported forced intercourse also had the largest number of sexual relationships (10.2) compared to the other race/ethnic groups. American Indian females who reported forced intercourse had the highest percentage of birth control use at first intercourse (68%) and lowest rate of pregnancy for both groups reporting forced intercourse (13%) and having had intercourse (11%) compared to the other race/ethnic groups. Overall, American Indian females who reported forced intercourse had higher group mean scores on risky sexual behaviors compared to American Indian females reporting having had intercourse. However, the sample size for American Indians is relatively small ($\underline{N} = 269$).

Overall, Asian/Pacific females reporting forced intercourse had group mean scores indicating increased risky sexual behavior compared to Asian/Pacific females reporting having had intercourse. Asian/Pacific Islander females reporting forced intercourse

recorded group mean scores for alcohol use at first sex (28%) and last sex (30%), which were higher than the other race/ethnic groups.

Hispanic females who reported forced intercourse had group mean scores indicating increased risky sexual behavior compared to Hispanic females reporting having had intercourse. However, with the conservative alpha of .001 there were no variables in risky sexual behavior statistically significant for Hispanic females.

Age group. The means, significance tests, and effect sizes for nine dependent variables included in risky sexual behavior compared on FSI status for each of four age groups are presented in the appendix in Tables A7-A10. Females in all four age groups reporting forced intercourse were generally found to have group mean scores reflecting increased risky sexual behavior compared to females reporting having had intercourse. Birth control use increased for each subsequent age group after 15 years. Females 12-14 years who reported forced intercourse had the highest percent of alcohol use at last intercourse (25%). Females 18-20 years reporting forced intercourse had the greatest number of sexual relationships (7.6) compared to the other age groups.

Psychopathology

The third research question asked whether there is a relationship between FSI and psychopathology within and between race/ethnicity and age groups.

Complete sample. The FSI group means, significance tests, and effect sizes for seven dependent variables included in psychopathology are presented for the complete

sample in the middle panel of appendix Table A1. Under the heading "Psychopathology," mean scores of seven variables were compared for females reporting forced intercourse, females reporting having had intercourse, and females reporting no intercourse. For each of the variables in psychopathology, the FSI group mean scores indicated greater mental and emotional problems for females reporting forced intercourse and less mental and emotional problems for females reporting no intercourse. All seven variables were statistically significant for the complete sample.

The percentage of variance in psychopathology associated with FSI status for the complete sample, race/ethnic group, and age group is presented in Table 8. Compared to risky sexual behavior, psychopathology, as assessed in this study, had a larger amount of variance accounted for by FSI status. Still, the amount of variance was modest (2-7%).

The health problems index assessed the frequency of 21 health problems in the past year, for example: headaches, stomach aches, cold sweats, fatigue, crying, and feelings of fear. Females reporting forced intercourse had a mean of 23.7 for health problems; females reporting having had intercourse had a mean of 20; and females reporting no intercourse had a mean of 17.1. "School absence due to health" assessed the frequency of school absence in the past month resulting from health or emotional problems. Females reporting forced intercourse had a mean of .72; females reporting having had intercourse had a mean of .56; and females reporting no intercourse had a mean of .40. "Received counseling" assessed any psychological or emotional counseling in the past year. Twenty-seven percent of females who reported forced intercourse had received counseling compared with 18% of females reporting having had intercourse and

Table 8

Percent Variance for Each of Seven Variables Included in Psychopathology Accounted for by FSI Status; Assessed for the Complete Sample and Then for Each of Five Race/Ethnic Groups and Each of Four Age Groups

	Complete sample		Race/ ethnicity				Age group			
Psychopathology		White	Black	A. Indian	Asian	Hispanic	12-14	15	16, 17	18-20
Health problems index	5	5	5	0	4	7	3	5	4	8
School absence/health	2	2	2	7	6	5	1	3	2	2
Received counseling	2	3	0	1	5	3	3	2	3	2
Depression index	6	6	6	1	1	10	7	5	4	6
Suicide ideation	2	2	4	3	1	5	5	3	2	3
Family cares index	7	7	10	4	8	7	4	4	7	4
Others care index	2	3	2	1	1	1	1	3	3	2

11% of females reporting no intercourse.

The depression index assessed emotional feelings during the past week. Females reporting forced intercourse had a mean of 17.3 for depression compared with a mean of 13.3 for females reporting having had intercourse and a mean of a mean of 10.6 for females reporting no intercourse. "Suicide ideation" assessed whether the respondent ever seriously thought about committing suicide during the past year. Thirty-four percent of females reporting forced intercourse seriously thought about committing suicide; 17% of females reporting having had intercourse seriously thought about committing suicide; and 13% of females reporting no intercourse seriously thought about committing suicide. The "family cares" index assessed perceived family support. Females reporting forced

intercourse had a mean of 16.9 for feeling family support; females reporting having had intercourse had a mean of 17.6; and females reporting no intercourse had a mean of 19.5. The "others care" index assessed perceived support from adults, teachers, and friends. Females reporting forced intercourse had a mean of 11.8 for feeling others support, compared to 12.1 for females reporting having had intercourse, and 12.6 for females reporting no intercourse.

Race/ethnicity. The FSI group means, significance tests, and effect sizes for seven dependent variables included in psychopathology are presented for each of five race/ethnic groups in the middle panel of appendix Tables A2-A6. American Indians, the smallest sample size among the race/ethnicity groups, had the most nonsignificant FSI relationships with psychopathology. Mean comparisons among race/ethnic groups indicate that psychopathology was higher overall for American Indian females who reported no intercourse, compared to the same females in the other race/ethnic groups for almost all race/variable combinations. The strongest psychopathology relationship within American Indian FSI groups was school absence due to health; 7% variance in school absence due to health was associated with FSI (see Tables 7 and A4).

For all racial groups except American Indians, mean comparisons indicate higher psychopathology scores on all seven variables assessed in females reporting forced intercourse compared to females reporting having had intercourse and females reporting no intercourse. The variable assessing perceived family caring had the greatest amount of variance associated with FSI and the health problems index was moderately associated with FSI status (see Table 8). The variance in depression was moderately associated with

FSI status for White, African American, and Hispanic females. Figure 3 illustrates serious consideration of committing suicide in the past year in each race/ethnic group for females by FSI status.

Age group. The FSI group means, significance tests, and effect sizes for 7 dependent variables included in psychopathology are presented for each of four age groups in the appendix in Tables A7-A10. In all four age groups females reporting forced intercourse were found to have group mean scores reflecting increased psychopathology compared to females reporting having had intercourse and females reporting no intercourse. All seven variables for all four age groups were statistically significant. The depression index and perceptions of family support had the most variance associated with FSI age groups.

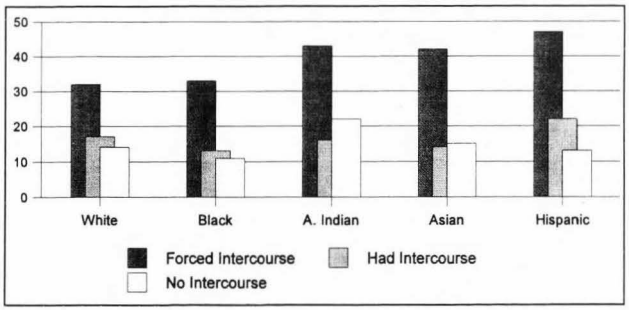

Figure 3. Percent of adolescent females who reported suicide ideation during the past year, by race/ethnicity and FSI status.

Among females reporting forced intercourse, 62% in the age group 12-14 seriously thought about committing suicide in the past year, compared to 46% of females aged 15, 32% of females aged 16-17, and 28% of females aged 18-20. The mean depression score for females aged 12-14 also was higher than the other three age groups for females reporting forced intercourse. In contrast, females aged 12-14 who reported no intercourse had the lowest group mean score for depression among the four age groups. Figure 4 shows suicide ideation percent and Figure 5 shows depression means for each of four age groups.

Behavior Problems

Research question four asked whether a relationship exists between FSI status and behavior problems for race/ethnicity and age groups.

Complete sample The FSI group means, significance tests, and effect sizes for 10 dependent variables included in behavior problems are presented for the complete sample in the lower panel of appendix Table A1. The percent variance in behavior problems associated with FSI status for the complete sample, race/ethnic group, and age group is presented in Table 9. FSI status accounted for more variance in behavior problems than risky sexual behavior or psychopathology, as assessed in this study. The FSI group means indicate greater behavior problems for females reporting forced intercourse than for females not reporting forced intercourse. All 10 variables included in behavior

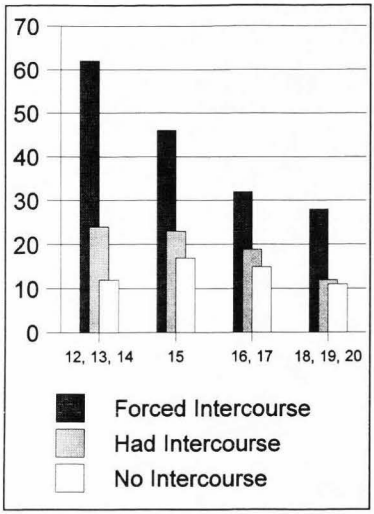

Figure 4. Percent of adolescent females who reported suicide ideation the past year, by age and FSI status.

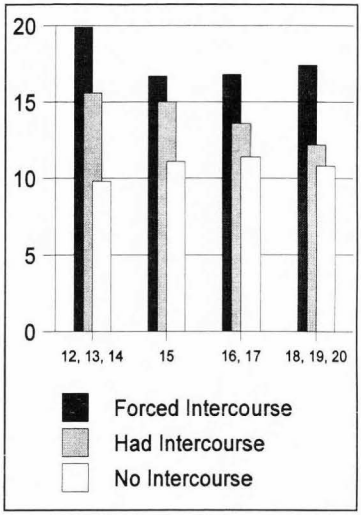

Figure 5. Depression mean scores for adolescent females, by age and FSI status.

problems were statistically significant for the complete sample; the strongest relationship between FSI status and behavior problem variables was observed for smoking, drinking, and drugs. Females who had been forced to have intercourse, and those who voluntarily had intercourse, reported a much higher incidence of smoking, drinking, and drug use than females with no intercourse.

"Eating disorders" assessed whether vomiting, diet pills, or laxatives were used in the past week to lose weight. Five percent of females who reported forced intercourse were found to have used one or more of these strategies to lose weight, compared to 3% of females reporting having had intercourse and only 1% of females reporting no intercourse. Females reporting forced intercourse had sluffed school 5.1 times in the past year compared with females who reported having had intercourse who sluffed school 3.3

Table 9

Percent Variance for Each of 10 Variables Included in Behavior Problems Accounted for by FSI Status; Assessed for the Complete Sample and Then for Each of Five Race/Ethnic Groups and Each of Four Age Groups

	Complete sample	Race/ ethnicity					Age group			
Behavior Problems		White	Black	A. Indian	Asian	Hispanic	12-14	15	16, 17	18-20
Eating disorder	1	1	0	1	1	1	2	0	1	1
Times sluffed school	5	5	3	1	12	8	5	3	4	3
Suspended/expelled	8	10	5	5	12	8	6	10	11	7
School problems index	3	3	2	3	6	6	5	4	4	4
Ever smoke	11	14	8	1	20	8	5	7	11	11
Ever smoke regularly	16	19	4	7	13	14	6	9	13	11
Ever drink alcohol	14	17	12	8	13	12	8	5	12	13
Ever drunk past year	14	18	10	8	21	12	8	13	11	8
Ever use drugs	16	17	12	12	25	19	7	13	17	13
Delinquency index	6	5	7	3	10	7	10	9	9	4

times, and females reporting no intercourse who had sluffed school less than once, on average. Females reporting forced intercourse were found to have a mean on "suspension/expulsion" of .49; females reporting having had intercourse had a mean of .36; and females reporting no intercourse had a mean of .12. The school problems index on females reporting forced intercourse had a mean of 6; females reporting having had intercourse had a mean of 5.2; and females reporting no intercourse had a mean of 4.4.

Eighty-four percent of females reporting forced intercourse were found to have ever smoked compared to 79% of females reporting having had intercourse, and 46% of females reporting no intercourse. Forty-nine percent of females reporting forced intercourse had smoked regularly, compared with 40% of females reporting having had intercourse, but only 10% of females reporting no intercourse. Eighty-five percent of females reporting forced intercourse were found to have ever drank alcohol compared to 79% of females reporting having had intercourse, and 42% of females reporting no intercourse. Fifty-three percent of females reporting forced intercourse were found to have been drunk in the past year compared with 50% females reporting having had intercourse, and 15% of females reporting no intercourse.

"Drug use" assessed any use of marijuana, cocaine, inhalants, and needles at any time. Fifty-six percent of females who reported forced intercourse were found to have used at least one of these drugs; 50% of females reporting having had intercourse have used drugs; but only14% of females reporting no intercourse. The delinquency index assessed stealing, graffiti, vandalism, and fighting in the past year. Females reporting

forced intercourse had a group mean score of 6 compared to 4.6 for females reporting having had intercourse, and 2.8 for females reporting no intercourse.

The five dependent variables in this study having the greatest amount of variance explained by FSI status were all behavior problems. The variables, ever smoked, ever smoked regularly, ever drink, ever drunk, and ever used drugs, are presented by FSI status in Figure 6 for the complete sample. The group of females who reported never having sex was the most different on these variables.

Race/ethnicity. The FSI group means, significance tests, and effect sizes for 10 dependent variables included in behavior problems are presented for each of five

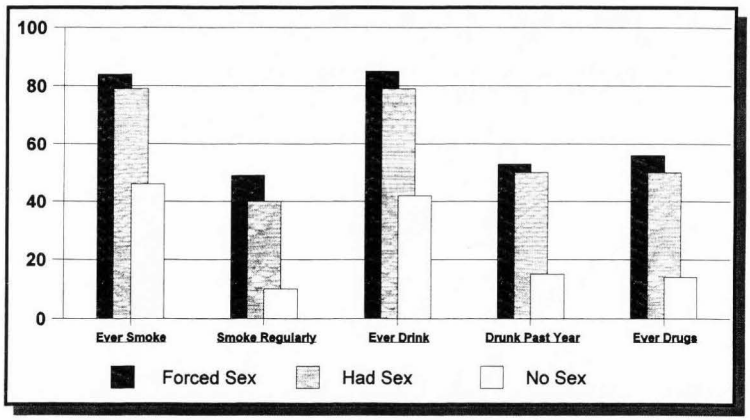

Figure 6. Percent adolescent females reporting on the five most prevalent behavior problems associated with FSI status for the complete sample.

race/ethnic groups in the appendix in Tables A2-A6. While differences between race/ethnic groups are apparent, the major differences in behavior problems are between females reporting intercourse and females not reporting intercourse as previously noted. The amount of variance in behavior problems accounted for by FSI status as presented in Table 9 is generally highest for Asian/Pacific and White females. Among females reporting forced sexual intercourse, those who are Asian/Pacific sluffed school on the average of 12.3 times in the past year, which is more than twice as often as White, African American, and American Indian females reporting forced intercourse. Ninety-five percent of Asian/Pacific females reporting forced intercourse have smoked cigarettes, which is much higher than the other race/ethnic females reporting forced intercourse. On the other hand, Asian/Pacific females reporting no intercourse have tried cigarettes the least of all race/ethnic females reporting no intercourse (33%). Asian/Pacific females reporting forced intercourse have the highest group mean score for delinquency among the race/ethnic groups (9.7).

FSI groups for American Indian and African American females generally explain the least variance in behavior problems. Among females reporting no intercourse, American Indians have the highest scores on 7 of 10 behavior problem variables, namely, school problems, smoking, drinking, drugs, and delinquency. In contrast, American Indian females reporting forced intercourse have the lowest scores among the race/ethnic females reporting forced intercourse for ever smoking (64%) and for delinquency (5.6). African American females reporting forced intercourse have the lowest percentage of ever using drugs (46%) and ever drinking alcohol (77%) compared to the other race/ethnic

females reporting forced intercourse. In addition, African American females reporting no intercourse have the lowest percentage of ever using drugs (8%) and ever drinking alcohol (31%) compared to the other race/ethnic females reporting no intercourse. Figures 7-10 present FSI percentages for drugs, tobacco, and alcohol use by race/ethnic group. These figures represent some of the strongest variables associated with FSI in this study. They clearly illustrate the significant difference that exists between females in the FSI groups on the rates of common behavior problems today.

Age group. The FSI group means, significance tests, and effect sizes for 10

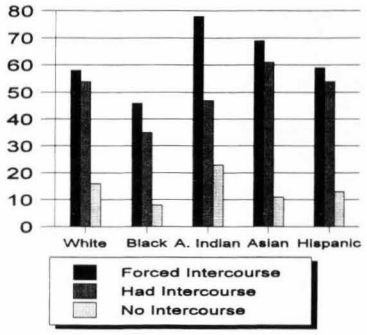

Figure 7. Percent adolescent females who ever used illegal drugs, by race/ethnicity and FSI status.

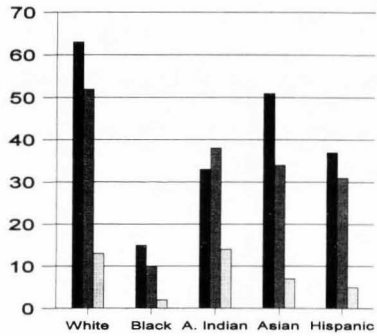

Figure 8. Percent adolescent females who have ever smoked cigarettes once a day for at least 30 consecutive days, by race/ethnicity and FSI status.

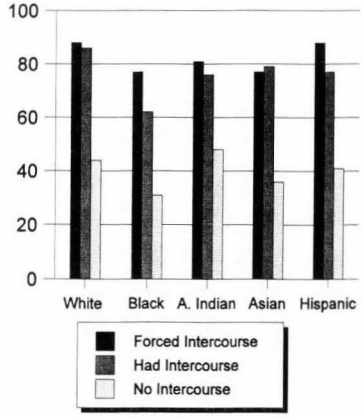

Figure 9. Percent adolescent females who have ever drunk alcohol more than just one or two times, by race/ethnicity and FSI status.

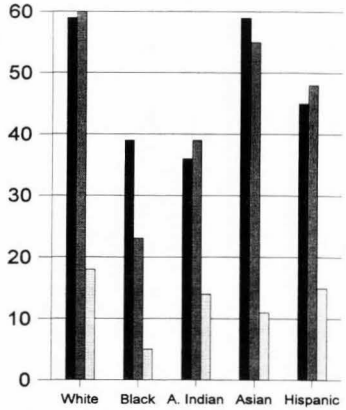

Figure 10. Percent adolescent females who have ever been drunk the past year, by race/ethnicity and FSI status.

dependent variables included in behavior problems are presented for each of four age groups in the appendix in Tables A7-A10. While differences between age groups are apparent, the major differences in behavior problems are between females reporting intercourse and females not reporting intercourse as previously noted. The amount of variance in behavior problems accounted for by FSI status as presented in Table 8 is generally highest for 16- and 17-year-old females and lowest for 12, 13, and 14 year olds. Females reporting forced sexual intercourse who are 12-14 have the highest percentage of

ever smoking cigarettes (90%) and ever drinking alcohol (92%) compared to older females reporting forced intercourse. In contrast, females aged 12-14 reporting no intercourse have the lowest percentage of ever smoking cigarettes (41%) and ever drinking alcohol (31%) compared to older females reporting no intercourse. Females reporting forced sexual intercourse aged 11-14 also have the highest delinquency score of 10.1 compared to all FSI and age groups. Figures 11-14 present FSI percentages for

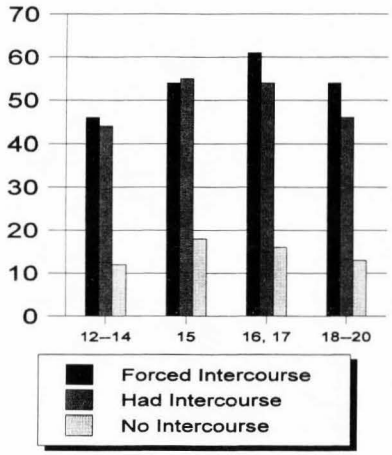

Figure 11. Percent adolescent females who who have ever used illegal drugs, by age and FSI status.

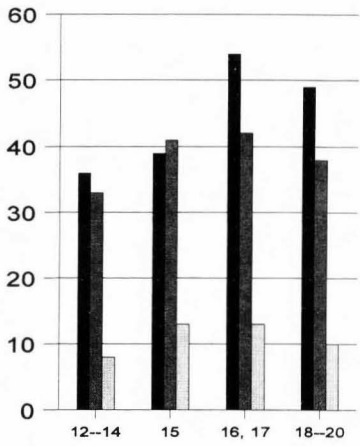

Figure 12. Percent adolescent females who have ever smoked cigarettes once a day for at least 30 consecutive days, by by age and FSI status.

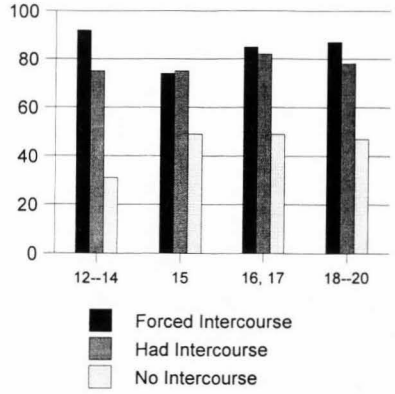

Figure 13. Percent adolescent females who have ever drunk alcohol more than just one or two times, by age and FSI status.

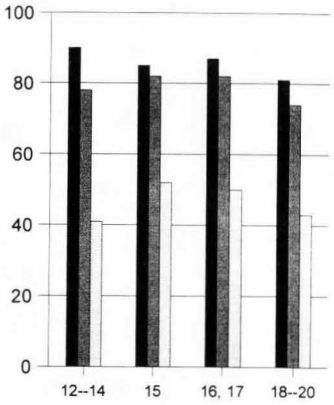

Figure 14. Percent adolescent females who have ever smoked cigarettes, by age and FSI status.

drugs, tobacco, and alcohol use by age group. The youngest females who reported FSI had the highest rates of experimenting with smoking and drinking while older females reported more regular use regarding smoking and drugs.

Discriminate Analysis

Canonical Correlations

Multivariate discriminate analysis provides a better contextual view of the larger picture of FSI and its correlates as opposed to bivariate analyses. Four groups of variables

were analyzed to determine their multivariate relationship with FSI status: 8 risky sex behavior variables, 7 psychopathology variables, and 10 behavior problem variables previously discussed, followed by a selection of the 9 variables most strongly associated with FSI overall. These canonical correlations are presented in Table 10. Risky sexual behavior had a canonical correlation of .25 with FSI status. Psychopathology had a canonical correlation of .32 with FSI status and behavior problems had a canonical correlation of .52 with FSI status. Then, a random subsample (n = 1500) was generated from the complete sample of 10,480 female adolescents to find the 9 strongest dependent variables associated with FSI.

Two variables from psychopathology and seven from behavior problems were identified as the nine variables having the strongest relationship with FSI status. These nine variables are depression, the family cares index, suspension/expulsion, ever smoke, ever smoke regularly, ever drink, ever drunk/year, drug use, and delinquency. SAS "stepdisc" ranked these variables 1-9 with the strongest overall association with FSI status ranked as 1 and the next most influential ranked 2 until the ranking hierarchy to 9 was complete. Table 11 shows the ranking for these dependent variables and their relative strength of association with FSI status. "Ever use drugs" had the strongest association with FSI status in this study, with a partial r square value of .135. The strongest nine outcomes (BEST9) of FSI status in this study were grouped together and analyzed through canonical correlations with the complete sample, each race/ethnic group, and each age group. These correlations are presented in Table 10. The complete sample had a

Table 10

Canonical Correlations Between FSI Status and Dependent Variables for the Complete Sample, Race/Ethnic Group and Age Group

	Complete sample	Race/ethnicity					Age group			
		White	Black	A. Indian	Asian	Hispanic	12-14	15	16, 17	18-20
Risky sexual behavior (8 variables)	.25									
Psychopathology (7 variables)	.32									
Behavior problems (10 variables)	.52									
9 strongest outcomes	.53	.57	.49	.44	.59	.54	.43	.47	.53	.49

canonical correlation of .53 with BEST9. The Asian/Pacific female sample had the strongest canonical correlation in this study of .59 with BEST9. The White female sample had the second strongest canonical correlation of .57 with BEST9. The Hispanic female sample had a canonical correlation of .54 with BEST9. The African American female sample had a canonical correlation of .49 with BEST9. The American Indian female sample had the lowest canonical correlation among race/ethnic groups of .44 with BEST9.

The 12-, 13-, and 14-year-old female sample had the weakest overall canonical correlation of .43 with BEST9. The 15-year-old female sample had a canonical

Table 11

Ranking of the Strongest Nine Outcomes of FSI Status

Step	Variable entered	Number in	Partial R**2	F statistic	Prob > F
1	Drugs	1	0.135	805.89	0.01
2	Everdrink	2	0.050	269.40	0.01
3	Suspend/Exp	3	0.038	206.14	0.01
4	Eversmokereg	4	0.028	150.33	0.01
5	Familycare	5	0.015	76.84	0.01
6	Depression	6	0.006	32.86	0.01
7	Drunk	7	0.006	32.64	0.01
8	Delinquency	8	0.006	30.46	0.01
9	Eversmoke	9	0.002	11.20	0.01

Note. Forward Selection: Summary

correlation of .47 with BEST9. The 16- and 17-year-old female sample had the strongest canonical correlation among age groups of .53 with BEST9. The 18-, 19-, and 20-year-old female sample had a canonical correlation of .49 with BEST9.

FSI Hit Rates

In addition to canonical correlations, discriminate analysis was used to determine estimates for FSI classification using the strongest nine outcomes (BEST9). The hit rate percentages for correctly classifying females into the FSI statuses using BEST9 are presented in Table 12. Asian/Pacific (85%) and Hispanic females (64%) reporting no intercourse had the highest and lowest classification percentage, respectively, for all females reporting no intercourse. African American females and 18-20 year olds

reporting forced intercourse had the highest hit rate percentage among females reporting forced intercourse. BEST9 predicted classification for females reporting no intercourse with the highest overall hit rate percentage (76% correctly classified). BEST9 predicted classification for females reporting having had intercourse with the lowest overall hit rate percentage (35%). BEST9 predicted classification for females reporting forced intercourse with an intermediate hit rate percentage (48%). When grouped by age, hit rates for females reporting forced intercourse tended to increase as age group increased. In contrast, hit rates for females reporting no intercourse tended to decrease as age group increased.

In summary, all 26 dependent variables, construed as potential FSI outcomes, had differing strengths of association with FSI status in the complete sample, in each race/ethnic group, and each age group. There were significant relations for 70% of all statistical tests where $p < .001$. The large Add Health sample size exerts considerable

Table 12

Hit Rate Percentage for FSI Classification by the Strongest Nine Outcomes

	Complete sample	Race/ ethnicity					Age group			
Forced sexual intercourse		White	Black	Indian	Asian	Hisp.	12-14	15	16, 17	18-20
Never had intercourse	76	75	74	64	85	74	81	75	76	66
Had intercourse	35	43	32	43	38	37	34	35	34	39
Had forced intercourse	48	48	53	48	48	49	42	38	48	53

influence on the size of most probability levels. More than 95% all FSI group means for risky sexual behavior, psychopathology, and behavior problems were highest for females reporting forced sexual intercourse and lowest for females reporting no intercourse. More specifically, FSI group mean comparisons by race/ethnicity and by age revealed unique associations with specific dependent variables. Beyond mean comparisons, dependent variables grouped together to predict FSI classification using discriminate analysis were found to have significant associations.

CHAPTER V

DISCUSSION

The goal of this study was to identify risky sexual behaviors, psychopathology, and behavior problems associated with forced sexual intercourse among female adolescents and to examine if there were differences by race/ethnicity and age. It is clear that females who report FSI are at highest risk for developing risky sexual behaviors, psychopathology, and behavior problems compared to females not reporting FSI. Specifically, it was found that smoking, drinking, and drug use during the 1990s in the United States were the most prevalent problems associated with adolescent females reporting FSI compared to females reporting no intercourse. These findings are significant because they represent current risks for females assessed for specific emotional and behavioral health problems. In addition, this is the first time smoking, drinking, and drug use have been clearly identified as problem behaviors most characteristic of females forced to have intercourse, compared with females never having had intercourse.

Beyond the prominence of smoking, drinking, and drug use, FSI status was found to have significant associations with many other outcomes. Rather than restricting associations with FSI to two or three substantial negative outcomes, the data on FSI were clearly associated with many sexual, emotional, and behavioral problems, indicating a global impact upon the female adolescent reporting forced sexual intercourse. This finding is consistent with posttraumatic stress disorder (PTSD) and with Browning and

Laumann's life course theory (1997) as will be discussed.

Race/Ethnicity

Across race/ethnic groups, females reporting forced intercourse consistently were found to have more risky sexual behaviors, psychopathology, and behavior problems than females reporting voluntary intercourse, and females reporting no intercourse. However, differences in cultural, environmental, or genetic histories may explain why some race/ethnic groups report higher rates of FSI prevalence while other race/ethnic groups report lower rates. Females in some race/ethnic groups seem more resilient to the negative influence of FSI, while females in other race/ethnic groups seem more vulnerable to experiencing exacerbated negative outcomes.

White Females

FSI prevalence for White females was 7.3%. Overall, White females had most of the highest risks for smoking, drinking, and drug use among race/ethnic groups. White females reporting forced intercourse had the second highest vulnerability for having exacerbated behavior problems, exceeded only by Asian/Pacific Islanders. White females reporting forced intercourse and those reporting voluntary intercourse were often times more than twice, and occasionally more than three or four times, as likely to experience the problem behaviors of smoking, drinking, and drug use as White females who reported no intercourse.

African American Females

FSI prevalence for African American females was 10.5%, the highest among race/ethnic groups. African American females are generally at much less risk for having the behavior problems of smoking, drinking, and drug use compared to the other race/ethnic groups. African American females reporting forced intercourse had the second lowest vulnerability rates for having exacerbated outcomes overall; only American Indians reporting forced intercourse appeared to have fewer problems. However, among females reporting forced intercourse, African Americans were more than twice as likely to have numerous sexual relationships as other race/ethnic females, and they had the highest risk for feeling less cared about by their families.

American Indian Females

FSI prevalence for American Indian females--the smallest race/ethnicity group--was 7.4%. American Indian females reporting forced intercourse had the overall lowest vulnerability for having exacerbated risky sexual behaviors, psychopathology, and behavior problems compared to other race/ethnic groups in this study. This is due in part to the fact that American Indian females reporting no intercourse had the highest rates of many problem behaviors to begin with, compared to other race/ethnic females reporting no intercourse. Notwithstanding, American Indian females reporting forced intercourse were still more resilient against increased smoking and the number of times drunk in the past year, in addition to lower rates on many other outcomes compared to other race/ethnic females reporting forced intercourse. Overall, American Indian females

clearly have high rates of many risky behaviors, but those reporting forced intercourse appear to have less vulnerability toward exacerbated outcomes when compared to other race/ethnic females reporting forced intercourse.

Asian/Pacific Females

FSI prevalence for Asian/Pacific females was only 2.1%, by far the lowest reported rate among these five race/ethnic groups. By contrast, Asian/Pacific females reporting forced intercourse clearly had the highest overall vulnerability for having exacerbated behavioral problems such as smoking, drinking, drug use, delinquency, skipping school, and suspension or expulsion from school compared to other race/ethnic females reporting forced intercourse. Asian/Pacific females who reported forced intercourse were nearly three times as likely to have seriously considered suicide in the past year, compared to Asian/Pacific females reporting having had intercourse, and females reporting no intercourse. This might be due, in part, to the fact that Asian/Pacific females who reported no intercourse have the lowest rates of many problem behaviors to begin with, compared to other race/ethnic females who report no intercourse. In addition, Asian/Pacific females who reported no intercourse had the least internal variation on the dependent variables and had the lowest rates of risky behavior.

Hispanic Females

FSI prevalence for Hispanic females was 5.6%. In comparison to other race/ethnic groups, Hispanic females FSI status was moderately associated with exacerbated behavioral and sexual problems in this study. However, Hispanic females reporting

forced intercourse exhibited the highest level of emotional problems compared to other race/ethnic groups. Specifically, depression, suicide ideation, and general health problems were highest among Hispanic females reporting forced intercourse. While Hispanic females share the common drug, alcohol, and smoking problems associated with FSI, they were uniquely more vulnerable to the psychopathology and emotional risks associated with FSI compared to other race/ethnic females reporting forced intercourse.

Age Group

Across age groups, females reporting forced intercourse consistently were found to have more risky sexual behaviors, psychopathology, and behavior problems than females reporting having had intercourse and females reporting no intercourse. The youngest adolescent females (aged 12, 13, and 14) who reported forced intercourse were by far the most vulnerable age group for having problem behaviors. This age group accounted for the highest levels of health problems, being counseled, depression, suicide ideation, eating disorders, school problems, ever drinking alcohol, ever smoking cigarettes, and delinquency compared to older females who reported forced intercourse. In contrast, females 12-14 years who reported no intercourse had the lowest levels of depression, eating disorders, skipping school, ever smoking cigarettes, ever smoking cigarettes regularly, ever drinking, ever being drunk the past year, and drug use when compared to older adolescents reporting no intercourse. After the extremes experienced by 12-14 year olds, the 16- and 17-year-old age group next appears to have the highest rates of problems compared to15 year olds and 18-20 year olds.

The most notable conclusion drawn from this age group analysis is for12- to 14-year-old females. This age group is clearly the most vulnerable to the risk of suffering extreme negative outcomes from FSI. While it may be difficult to identify and reach these young females individually, this age group could be targeted by educators or policy makers to receive re-education on the major risk domains of sexual behavior, psychopathology, and behavior problems.

Dependent Variables

Risky Sexual Behavior

Negative sexual behavior outcomes related to forced sexual intercourse appear to be the least consequential compared to psychopathology and behavior problems. However, the fact that risky sexual behavior can only be compared between females reporting forced intercourse and those reporting voluntary intercourse is a major caveat when interpreting these results. The third comparison group, females reporting no intercourse, which were included in psychopathology and behavior problems, adds considerable variation that is missed in risky sexual behavior, because females reporting no intercourse cannot be assessed for pregnancy, STDs, and contraception, for example.

Therefore, risky sexual behavior must be discussed on its own merits and not in comparison to psychopathology and behavior problems. In addition, small effect sizes for risky sexual behavior must be interpreted with the understanding that adolescent females reporting forced intercourse and voluntary intercourse are in the minority, and analysis

therefore suffers from a restricted range that underestimates true effect sizes in the population.

Analysis based on the complete sample of female adolescents showed that females reporting forced intercourse begin having intercourse almost a full year before females reporting voluntary intercourse. Females reporting forced intercourse less often used contraception during intercourse, were almost twice as likely to have STDs, traded sex for money or drugs more, had more sexual relationships, and were more likely to have been pregnant than females reporting having had intercourse.

These findings support similar research by Browning and Laumann (1997), who argue that females forced to have intercourse not only have increased sexual activity during adolescence, but that mediating risk factors put these females in the risky position where life course trajectories could suddenly be altered through pregnancy, STDs, low self-esteem, and general low self-perceptions. Altered life course trajectories have direct influence on future psychopathology, subsequent children, spouses, general health, and personal behavior. While the present findings are cross-sectional, they are consistent with Browning and Laumann's assertions of a life course view regarding FSI outcomes. Adolescent sexual activity is highly associated with psychopathology and behavior problems in the present analysis.

Psychopathology

Impaired self-perceptions, and inadequate emotional or mental functioning can lead to increased vulnerability, weak self-protectiveness, and a greater likelihood of being

victimized or exploited by others, according to Briere and Elliott (1994). The present analysis found that females reporting forced intercourse were more than twice as likely to have seriously considered suicide in the past year and twice as likely to have received counseling in the past year; and they experienced more general health problems, missed school more often from health related problems, had deeper depression, and felt less cared about by families and significant others than did females who reported having had intercourse and females reporting no intercourse.

Many of these findings support previous studies associating increased mental and emotional problems with FSI and sexual abuse in general (Bagley & Ramsey, 1986; Boney & Finkelhor, 1995; Browning & Laumann, 1997; Cohen, 1995; Grayston et al., 1992; Green, 1995; Hotte & Raffeman, 1992; Lanz, 1995; Messman & Long, 1996; Miller et al., 1995; Newman & Peterson, 1996; Pribor & DinWiddie, 1992; Proulx et al., 1995; Robohm & Buttenheim, 1996; Rodriguez et al., 1997; Viviano & Schill, 1996; Whelan, 1995).

Among female adolescents assessed for psychopathology, those reporting forced intercourse clearly had the most frequent and severe emotional and mental problems. Females who reported voluntary intercourse clearly had less frequent and less troubling emotional and mental problems than those reporting forced intercourse, while those reporting no intercourse had the least frequent and least troubling emotional and mental problems. In other words, psychopathology as assessed in this study had distinctly different levels for each of the three FSI groups. In this regard, psychopathology was different and unique from behavior problems. The dominant variables in behavior

problems--smoking, drinking, and drugs--were only differentiated into two separate and very distinct levels: those who report forced or voluntary intercourse versus females reporting no intercourse. The most debilitating psychopathology was only associated with forced intercourse, whereas the most prevalent behavior problems were almost equally common among females who reported forced intercourse and voluntary intercourse.

Behavior Problems

Females reporting forced intercourse had the highest levels of eating disorders, skipping school, suspension/expulsion, school problems, smoking, drinking, drug use, and delinquency. Of these behavior problems, smoking, drinking, and drug use most strongly differentiated females who reported forced intercourse from those reporting no intercourse in this study. Females who reported forced intercourse were 2 times as likely to have tried cigarette smoking; 5 times more likely to smoke cigarettes regularly; 2 times as likely to experiment with alcohol; 3.5 times more likely to get drunk; and 4 times more likely to use drugs such as marijuana, cocaine, inhalants, and needles than females who reported no intercourse.

The single outcome most strongly associated with FSI in this study, distinguishing females who reported forced intercourse from those who reported no intercourse, was drug use, specifically the use of marijuana, cocaine, inhalants, and needles. For every 10 females who reported forced intercourse, 5.6 had used drugs, compared to only 1.4 out of every 10 females who reported no intercourse. The second most prevalent outcome associated with FSI in this study, separating females who reported forced intercourse

from those who reported no intercourse, was ever having drunk alcohol. Among every 10 females who reported forced intercourse, 8.5 had drunk alcohol, compared with only 4.2 out of every 10 females who reported no intercourse.

The literature on the correlates of forced sexual intercourse is rich with findings documenting the emotional problems associated with sexual abuse, and to a lesser extent, findings that document increased sexual risk for females reporting forced intercourse. Sexual abuse or FSI correlates with behavior problems in general are much less well documented. Two studies were found that reported "increased drug use" for females reporting sexual abuse (Lanz, 1995; Nagy et al., 1995). No studies were found that reported a higher risk for alcohol use associated with sexual abuse. Nagy et al. (1995) assessed binge drinking between females reporting sexual activity against females reporting sexual abuse and found no relationship. This finding is consistent with the present results, where a substantial difference in drinking alcohol was found between females reporting forced intercourse or voluntary intercourse, compared with those reporting no intercourse.

While few studies have examined the relation between FSI and smoking, drinking, or drug use, Jessor, Costa, Jessor, and Donovan (1983) examined the relation between females who reported intercourse and females who reported no intercourse on these and other problem behavior variables. They found that females who reported intercourse were more likely to drink alcohol and use drugs than females who reported no intercourse. The present study strongly replicates this finding even though FSI was not examined in the Jessor et al. (1983) study.

The problem behaviors of smoking, drinking, and drug use had unique associations with the FSI groups that are different from the other problem behaviors in this study. The differences between females reporting forced intercourse and those reporting voluntary intercourse in smoking, drinking, and drug use are nonsignificant in some cases and very small in others. It appears that smoking, drinking, and drug use are associated with sexual activity, rather than with forced sexual activity per se. The other variables assessed in this study were found to have more substantial differences among all three FSI groups.

FSI Groups

Discriminate analysis, which classified females into one of three FSI groups, revealed differences among FSI groups that were consistent between race/ethnicity and age. Females reporting no intercourse had the highest correct classification (76%), while females reporting voluntary intercourse did not have improved classification beyond the chance rate (33% vs. 35%). Females reporting forced intercourse were correctly classified at a higher rate than chance (48%). These FSI status classification rates are based upon nine variables most strongly associated with the differences among the FSI groups.

Future studies on FSI should take into consideration the unpredictability of females who report having had intercourse. Nagy et al. (1995) feared that studies not taking into account nonforced sexual activity when assessing the correlates of sexual abuse could report findings confounded by females having had intercourse. The present study empirically confirms the validity of that concern. Females who reported nonforced

intercourse appear to be a unique population sharing characteristics with females who did not report intercourse and those who did report forced intercourse. In relation to the other two FSI groups, voluntary sexual intercourse for some adolescent females, evidently, was associated with a low rate of problems while for others it was associated with a high rate of problems, and hence the very low classification rate of females who reported voluntary intercourse.

Limitations and Conclusions

These analyses are limited in significant ways. Knowledge of several important factors that were not assessed in this study would advance understanding of probable distinctions between the type and degree of outcomes correlated with sexual abuse and forced intercourse. Information on the perpetrator, whether a parent, sibling, relative, grandparent, neighbor, boyfriend, or stranger, would probably show different outcomes. Browning and Laumann (1997) effectively presented the case for longitudinal studies assessing the impact of FSI over time. Specifically, they found childhood victims of sexual abuse were more likely to have precocious sexual experience, which leads to increased risk through the inability to effectively control their sexuality.

In this study there were three groups of adolescent females compared on 26 outcomes. These groups were separated based upon their reports of voluntary or involuntary sexual intercourse experiences. Abma, Driscoll, and Moore (1998) concluded that the simple distinction between voluntary or involuntary intercourse was inadequate because many females who reported voluntary intercourse also reported not really

wanting intercourse at all. They proposed that studies examining forced intercourse should take into account the degree that intercourse was actually wanted, in addition to using categorical reports of "forced" or "voluntary" when assembling comparison groups for analysis. Since "wantedness" was not assessed in the Add Health study, this was another limitation of the present analysis.

The present data did not permit analyses by the age at victimization, whether child or adolescent. In addition, no information was available as to by whom or how often FSI had occurred. There very likely would be differences between females who grew up with incest through childhood, compared to those who may have experienced a single event instead of recurring episodes. These analyses are cross-sectional and are specific to forced sexual intercourse, which cannot be generalized to all forms of "sexual abuse."

While drug use was the single outcome most strongly associated with forced intercourse, most of the other outcomes assessed in this study were also associated with FSI status. The research questions for the present study were all supported as originally hypothesized.

1. The incidence for experiencing FSI was highest for African American females and lowest for Asian/Pacific Females.
2. Risky sexual behavior was more frequent among adolescent females who reported FSI than those who did not report FSI for all five race/ethnicity groups and all adolescent age groups.

3. Psychopathology was more prevalent among females who reported FSI than those who did not report FSI for all five race/ethnicity groups and all adolescent age groups.

4. Behavior problems were more common among females who reported FSI than those who did not report FSI for all five race/ethnicity groups and all adolescent age groups.

When analyses were broken down by race and by age, several unique relations were discovered. Asian/Pacific and White females reported the highest rates of problems while African American females reported the lowest rates of problems when FSI was indicated. The youngest adolescent females had the highest rates of problems on several outcomes when FSI was reported. Implications suggest that age and race/ethnicity may differentially moderate negative outcomes when FSI is reported. Therapies or abuse treatment programs aimed at building resiliency against negative FSI outcomes and diminishing vulnerability toward negative FSI outcomes should be aware of adolescent age and race/ethnicity when providing treatment.

This analysis of the Add Health data, based on a nationally representative sample that assessed adolescent health, risk, and social contexts, examined many variables that were thought to be associated with forced sexual intercourse experience. Results confirm that forced sexual intercourse is associated with higher levels of risky sexual behavior, psychopathology, and behavior problems among female adolescents. Subsequent research should take into account the theoretical and practical implications from this study as they seek to further knowledge in this area.

One practical application of this research could be to help prevent forced intercourse from ever taking place. Preventing FSI might be accomplished by raising individual and public awareness of the wide-reaching and pervasive negative effects of FSI, which were clearly documented in this study. The negative consequences of sexual abuse should continue to be more widely disseminated and discussed. As individual and public awareness of negative FSI outcomes increases, the potential for prevention is also increased.

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APPENDIX

Table A1

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the Complete Sample of 10,480 Female Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob.	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	14.6	(692)	15.3	(2799)		-	77	.001	.02
% Used birth control 1st Sex	.55	(713)	.67	(2910)		-	38.7	.001	.01
% Used birth control last Sex	.56	(714)	.66	(2894)		-	22.6	.001	.01
% Ever had STD	.17	(709)	.10	(2908)		-	38.4	.001	.01
% Trade sex for ...	.04	(715)	.01	(2918)		-	58.6	.001	.01
# of sex relationships ever	6.6	(466)	4.2	(1396)		-	45.6	.001	.04
% Used alcohol at 1st sex	.16	(579)	.13	(2232)		-	3.3	.07	.00
% Used alcohol at last sex	.14	(559)	.09	(2123)		-	10.4	.001	.00
% Pregnant ever	.27	(711)	.17	(2903)		-	37.7	.001	.01
Psychopathology									
Health problems index	23.7	(716)	20	(2922)	17.1	(5972)	237	.001	.05
School absence due to health	.72	(712)	.56	(2907)	.40	(5956)	108	.001	.02
% Received counseling	.27	(716)	.18	(2921)	.11	(5963)	95.5	.001	.02
Depression index	17.3	(716)	13.3	(2922)	10.6	(5962)	288	.001	.06
% Suicide ideation	.34	(712)	.17	(2911)	.13	(5908)	103	.001	.02
Family cares index	16.9	(714)	17.6	(2918)	19.5	(5941)	370	.001	.07
Others care index	11.8	(714)	12.1	(2918)	12.6	(5941)	114	.001	.02
Behavior problems									
% Eating disorder	.05	(576)	.03	(2355)	.01	(4875)	24.6	.001	.01
# Times sluffed school	5.1	(671)	3.3	(2824)	.66	(5915)	233	.001	.05
Suspended/expelled	.49	(712)	.36	(2918)	.12	(5965)	437	.001	.08
School problems index	6	(672)	5.2	(2830)	4.4	(5919)	149	.001	.03
% Ever smoke	.84	(714)	.79	(2916)	.46	(5922)	575	.001	.11
% Ever smoke regularly	.49	(716)	.40	(2922)	.10	(5982)	898	.001	.16
% Ever drink alcohol	.85	(712)	.79	(2915)	.42	(5915)	779	.001	.14
% Ever drunk past year	.53	(715)	.50	(2917)	.15	(5976)	786	.001	.14
% Ever use drugs	.56	(716)	.50	(2922)	.14	(5982)	897	.001	.16
Delinquency index	6	(714)	4.5	(2918)	2.8	(5926)	281	.001	.06

Table A2

Means, Counts, Tests, and effect Sizes for Dependent Variables by FSI Status in the White Female Sample of 5,290 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	14.7	(366)	15.4	(1350)		-	53.8	.001	.03
% Used birth control 1st sex	.52	(379)	.69	(1394)		-	35.7	.001	.02
% Used birth control last sex	.61	(379)	.68	(1388)		-	5.6	.01	.00
% Ever had STD	.13	(379)	.06	(1390)		-	19.3	.001	.01
% Trade sex for ...	.04	(379)	.01	(1395)		-	38.8	.001	.02
# of sex relationships ever	6.4	(251)	4.3	(700)		-	18.9	.001	.03
% Used alcohol at 1st sex	.15	(327)	.14	(1188)		-	6.8	.01	.01
% Used alcohol at last sex	.15	(317)	.09	(1142)		-	6.8	.01	.01
% Pregnant ever	.25	(378)	.13	(1391)		-	38	.001	.02
Psychopathology									
Health problems index	24.2	(380)	20.7	(1397)	17.6	(3140)	135	.001	.05
School absence due to health	.71	(378)	.56	(1389)	.40	(3133)	48.9	.001	.02
% Received counseling	.29	(380)	.20	(1397)	.11	(3138)	64.8	.001	.03
Depression index	16.5	(380)	12.6	(1397)	10	(3138)	146	.001	.06
% Suicide ideation	.32	(378)	.17	(1394)	.14	(3116)	41.6	.001	.02
Family cares index	17.3	(379)	17.6	(1395)	19.5	(3130)	180	.001	.07
Others care index	12	(379)	12.2	(1395)	12.7	(3130)	73.7	.001	.03
Behavior problems									
% Eating disorder	.06	(308)	.03	(1150)	.01	(2619)	16.9	.001	.01
# Times sluffed school	5	(356)	3.3	(1342)	.59	(3117)	132	.001	.05
Suspended/expelled	.44	(378)	.27	(1395)	.07	(3140)	260	.001	.10
School problems index	6.2	(356)	5.1	(1344)	4.5	(3117)	76.5	.001	.03
% Ever smoke	.92	(378)	.86	(1396)	.50	(3125)	385	.001	.14
% Ever smoke regularly	.63	(380)	.52	(1397)	.13	(3142)	585	.001	.19
% Ever drink alcohol	.88	(378)	.86	(1394)	.44	(3199)	496	.001	.17
% Ever drunk past year	.59	(380)	.60	(1394)	.18	(3139)	537	.001	.18
% Ever use drugs	.58	(380)	.54	(1397)	.16	(3142)	507	.001	.17
Delinquency index	5.7	(378)	4.3	(1396)	2.6	(3125)	136	.001	.05

Table A3

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the African American Female Sample of 2,346 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	14.3	(177)	14.9	(764)		-	11.4	.001	.01
% Used birth control 1st sex	.58	(183)	.67	(797)		-	6.9	.01	.01
% Used birth control last sex	.47	(183)	.68	(790)		-	33.3	.001	.03
% Ever had STD	.32	(180)	.18	(796)		-	18.7	.001	.02
% Trade sex for ...	.04	(184)	.007	(797)		-	16.5	.001	.02
# of sex relationships ever	7.6	(121)	3.7	(394)		-	32	.001	.11
% Used alcohol at 1st sex	.14	(127)	.06	(505)		-	11.4	.001	.02
% Used alcohol at last sex	.08	(126)	.08	(470)		-	.02	.88	.00
% Pregnant ever	.30	(183)	.29	(792)		-	.18	.67	.00
Psychopathology									
Health problems index	22.8	(184)	17.5	(799)	15.7	(1093)	53	.001	.05
School absence due to health	.67	(183)	.57	(796)	.43	(1087)	17	.001	.02
% Received counseling	.16	(184)	.11	(799)	.10	(1093)	3.4	.04	.00
Depression index	17.8	(184)	14.1	(799)	11.5	(1092)	60	.001	.06
% Suicide ideation	.33	(184)	.13	(795)	.11	(1080)	38.7	.001	.04
Family cares index	16.1	(184)	18	(797)	19.7	(1086)	113	.001	.10
Others care index	11.7	(184)	11.9	(797)	12.5	(1086)	25	.001	.02
Behavior problems									
% Eating disorder	.05	(142)	.02	(604)	.02	(857)	3.4	.04	.00
# Times sluffed school	3.9	(174)	2	(780)	.39	(1085)	35.4	.001	.03
Suspended/expelled	.59	(183)	.59	(798)	.33	(1092)	53.7	.001	.05
School problems index	5.6	(175)	5.1	(780)	4.4	(1086)	22.8	.001	.02
% Ever smoke	.65	(184)	.60	(798)	.34	(1079)	84	.001	.08
% Ever smoke regularly	.15	(184)	.10	(799)	.02	(1095)	45	.001	.04
% Ever drink alcohol	.77	(183)	.62	(799)	.31	(1081)	143	.001	.12
% Ever drunk past year	.39	(183)	.23	(799)	.05	(1059)	116	.001	.10
% Ever use drugs	.46	(184)	.35	(799)	.08	(1095)	147	.001	.12
Delinquency index	6.0	(184)	4.1	(799)	2.6	(1083)	80	.001	.07

Table A4

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the American Indian Female Sample of 269 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	13.9	(24)	15.1	(74)		-	5.9	.02	.06
% Used birth control 1st sex	.68	(24)	.60	(77)		-	.45	.50	.01
% Used birth control last sex	.39	(24)	.62	(76)		-	3.4	.07	.03
% Ever had STD	.21	(23)	.13	(78)		-	.73	.39	.01
% Trade sex for ...	.005	(24)	0	(78)		-	.53	.59	.01
# of sex relationships ever	10.2	(20)	5.8	(46)		-	1.8	.18	.05
% Used alcohol at 1st sex	.17	(20)	.14	(57)		-	.10	.75	.00
% Used alcohol at last sex	.12	(19)	.14	(52)		-	.07	.80	.00
% Pregnant ever	.13	(24)	.11	(76)		-	.06	.80	.00
Psychopathology									
Health problems index	22.3	(24)	20.5	(78)	20.1	(137)	.42	.66	.00
School absence due to health	.85	(23)	.40	(78)	.55	(137)	2.7	.02	.07
% Received counseling	.23	(24)	.24	(78)	.15	(137)	1.5	.24	.01
Depression index	16.6	(24)	13.1	(78)	12.8	(137)	1.4	.26	.01
% Suicide ideation	.43	(24)	.16	(77)	.22	(137)	2.9	.05	.03
Family cares index	17.2	(24)	17.7	(78)	18.9	(137)	4.8	.01	.04
Others care index	11.7	(24)	11.8	(78)	12.1	(137)	.90	.41	.01
Behavior problems									
% Eating disorder	.05	(21)	.02	(60)	.005	(117)	1.3	.29	.01
# Times sluffed school	3.5	(21)	2.7	(76)	1.2	(134)	1.3	.29	.01
Suspended/expelled	.47	(24)	.51	(78)	.25	(137)	605	.01	.05
School problems index	7.2	(21)	5.5	(76)	5.4	(135)	3.0	.05	.03
% Ever smoke	.64	(24)	.75	(78	.64	(137)	1.5	.21	.01
% Ever smoke regularly	.33	(24)	.38	(78)	.14	(137)	9.4	.001	.07
% Ever drink alcohol	.81	(24)	.76	(76)	.48	(136)	10.5	.001	.08
% Ever drunk past year	36	(24)	.39	(78)	.14	(137)	10	.001	.08
% Ever use drugs	.78	(24)	.47	(78)	.23	(137)	15.7	.001	.12
Delinquency index	5.6	(24)	5.1	(77)	3.6	(137)	3.7	.03	.03

Table A5

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the Asian/Pacific Islander Female Sample of 716 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	14.3	(25)	15.2	(149)		-	4.3	.04	.02
% Used birth control 1st sex	.47	(25)	.59	(157)		-	.90	.34	.01
% Used birth control last sex	.32	(25)	.53	(156)		-	2.7	.10	.02
% Ever had STD	.22	(25)	.15	(157)		-	.71	.40	.01
% Trade sex for ...	.01	(25)	0	(160)		-	3.3	.04	.01
# of sex relationships ever	4.3	(17)	4.4	(72)		-	.34	.71	.01
% Used alcohol at 1st sex	.28	(21)	.18	(112)		-	.71	.40	.01
% Used alcohol at last sex	.30	(20)	.09	(110)		-	5.3	.02	.04
% Pregnant ever	.32	(25)	.13	(158)		-	4.5	.04	.02
Psychopathology									
Health problems index	23.5	(25)	20.8	(160)	17.1	(487)	13.3	.001	.04
School absence due to health	1	(25)	.50	(160)	.27	(486)	21.3	.001	.06
% Received counseling	.27	(25)	.23	(160)	.07	(487)	17.8	.001	.05
Depression index	15.4	(25)	14.5	(160)	12.7	(487)	3.3	.04	.01
% Suicide ideation	.42	(25)	.14	(158)	.15	(483)	3.8	.02	.01
Family cares index	15.3	(25)	16.6	(160)	19	(484)	30.5	.001	.08
Others care index	11.4	(25)	12	(160)	12.4	(484)	3.5	.03	.01
Behavior problems									
% Eating disorder	0	(18)	.03	(133)	.01	(385)	1.3	.26	.01
# Times sluffed school	12.3	(25)	5.7	(152)	.75	(483)	45	.001	.12
Suspended/expelled	.54	(25)	.28	(159)	.04	(487)	44.9	.001	.12
School problems index	5.5	(25)	5.7	(152)	4.1	(483)	20	.001	.06
% Ever smoke	.95	(25)	.85	(157)	.33	(483)	83	.001	.20
% Ever smoke regularly	.51	(25)	.34	(160)	.07	(487)	51.6	.001	.13
% Ever drink alcohol	.77	(25)	.79	(159)	.36	(483)	48.2	.001	.13
% Ever drunk past year	.59	(25)	.55	(159)	.11	(487)	89.4	.001	.21
% Ever use drugs	.69	(25)	.61	(160)	.11	(487)	114	.001	.25
Delinquency index	9.7	(25)	6.1	(159)	3.1	(483)	37.8	.001	.10

Table A6

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the Hispanic Female Sample of 1,751 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	14.8	(90)	15.2	(445)		-	3.1	.08	.01
% Used birth control 1st sex	.57	(92)	.59	(468)		-	.04	.83	.00
% Used birth control last sex	.53	(93)	.52	(467)		-	.01	.93	.00
% Ever had STD	.12	(92)	.08	(470)		-	1.6	.21	.01
% Trade sex for ...	.01	(93)	.01	(471)		-	1.4	.24	.01
# of sex relationships ever	5.1	(52)	4.6	(176)		-	7.2	.001	.05
% Used alcohol at 1st sex	.25	(78)	.20	(357)		-	1	.31	.01
% Used alcohol at last sex	.21	(72)	.11	(337)		-	5.5	.02	.01
% Pregnant ever	.32	(91)	.24	(469)		-	3	.08	.01
Psychopathology									
Health problems index	23.2	(93)	20.1	(471)	15.6	(1050)	60.6	.001	.07
School absence due to health	.92	(93)	.67	(467)	.42	(1048)	37.7	.001	.05
% Received counseling	.34	(93)	.20	(470)	.11	(1044)	26.2	.001	.03
Depression index	22	(93)	15.9	(471)	11.9	(1044)	85	.001	.10
% Suicide ideation	.47	(91)	.22	(470)	.13	(1028)	38.7	.001	.05
Family cares index	16	(92)	17.8	(471)	19.5	(1040)	60.7	.001	.07
Others care index	11.2	(92)	12.2	(471)	12.3	(1040)	11.2	.001	.01
Behavior problems									
% Eating disorder	.04	(79)	.05	(398)	.01	(851)	6.8	.001	.01
# Times sluffed school	8.4	(86)	5.2	(458)	.96	(1032)	65.9	.001	.08
Suspended/expelled	.66	(92)	.46	(471)	.19	(1046)	71.8	.001	.08
School problems index	5.8	(86)	5.7	(461)	4.1	(1034)	49.1	.001	.06
% Ever smoke	.79	(93)	.71	(470)	.41	(1034)	73	.001	.08
% Ever smoke regularly	.37	(93)	.31	(471)	.05	(1051)	131	.001	.14
% Ever drink alcohol	.88	(92)	.77	(470)	.41	(1032)	110	.001	.12
% Ever drunk past year	.88	(92)	.48	(470)	.15	(395)	109	.001	.12
% Ever use drugs	.59	(93)	.54	(471)	.13	(1051)	190	.001	.19
Delinquency index	7.2	(93)	6	(470)	3.4	(1034)	59.3	.001	.07

Table A7

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the 12-, 13-, and 14-Year-Old Female Sample of 2,239 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	12.8	(38)	12.7	(149)		-	.32	.58	.00
% Used birth control 1st sex	.50	(38)	.61	(159)		-	1.5	.22	.01
% Used birth control last sex	.61	(38)	.65	(158)		-	.24	.63	.00
% Ever had STD	.07	(38)	.03	(160)		-	1.5	.22	.01
% Trade sex for ...	0	(38)	.01	(160)		-	3.9	.02	.00
# of sex relationships ever	4.2	(22)	4	(79)		-	3.7	.03	.05
% Used alcohol at 1st sex	.17	(33)	.10	(108)		-	.92	.34	.01
% Used alcohol at last sex	.25	(29)	.09	(92)		-	5.2	.02	.04
% Pregnant ever	.20	(38)	.09	(159)		-	3.8	.05	.02
Psychopathology									
Health problems index	24.7	(38)	21.4	(160)	16.9	(1803)	33.9	.001	.03
School absence due to health	.70	(38)	.57	(160)	.40	(1798)	10.1	.001	.01
% Received counseling	.43	(38)	.32	(160)	.12	(1802)	35	.001	.03
Depression index	19.9	(38)	15.6	(160)	9.8	(1803)	77.1	.001	.07
% Suicide ideation	.62	(37)	.24	(160)	.12	(1791)	47.3	.001	.05
Family cares index	17.1	(38)	18.2	(160)	20.1	(1800)	36.9	.001	.04
Others care index	12.5	(38)	12.1	(160)	12.8	(1800)	11.3	.001	.01
Behavior problems									
% Eating disorder	.08	(29)	.04	(133)	.006	(1438)	14	.001	.02
# Times sluffed school	5.3	(38)	2.7	(159)	.29	(1793)	57	.001	.05
Suspended/expelled	.48	(38)	.50	(160)	.13	(1803)	65	.001	.06
School problems index	7.7	(38)	6.1	(159)	4.4	(1794)	51	.001	.05
% Ever smoke	.90	(38)	.78	(160)	.41	(1796)	54.3	.001	.05
% Ever smoke regularly	.36	(38)	.33	(160)	.08	(1804)	69	.001	.06
% Ever drink alcohol	.92	(37)	.75	(159)	.31	(1792)	85	.001	.08
% Ever drunk past year	.42	(38)	.38	(160)	.08	(1802)	84	.001	.08
% Ever use drugs	.46	(38)	.44	(160)	.12	(1804)	74.2	.001	.07
Delinquency index	10.1	(38)	6.8	(160)	2.8	(1799)	115	.001	.10

Table A8

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the 15-Year-Old Female Sample of 1,682 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	13.3	(81)	13.9	(267)		-	11.1	.001	.03
% Used birth control 1st sex	.40	(85)	.61	(280)		-	11.7	.001	.03
% Used birth control last sex	.46	(85)	.58	(280)		-	3.8	.05	.01
% Ever had STD	.05	(85)	.05	(278)		-	.01	.91	.00
% Trade sex for ...	.06	(85)	.01	(282)		-	14.2	.001	.02
# of sex relationships ever	5.5	(46)	2.9	(131)		-	4.9	.008	.04
% Used alcohol at 1st sex	.14	(59)	.12	(206)		-	.18	.68	.00
% Used alcohol at last sex	.11	(57)	.06	(188)		-	1.8	.18	.01
% Pregnant ever	.12	(85)	.09	(279)		-	.32	.57	.00
Psychopathology									
Health problems index	23.7	(85)	21.7	(282)	17.7	(1145)	37.2	.001	.05
School absence due to health	.74	(85)	.57	(282)	.39	(1143)	20.1	.001	.03
% Received counseling	.27	(85)	.18	(282)	.10	(1142)	14.1	.001	.02
Depression index	16.7	(85)	15	(282)	11.1	(1144)	39	.001	.05
% Suicide ideation	.46	(85)	.23	(279)	.17	(1133)	24.5	.001	.03
Family cares index	17.5	(85)	17.7	(281)	19.3	(1141)	29.2	.001	.04
Others care index	11.8	(85)	11.8	(281)	12.5	(1141)	23.7	.001	.03
Behavior problems									
% Eating disorder	.04	(74)	.004	(236)	.02	(946)	2.1	.12	.00
# Times sluffed school	2.1	(82)	3.4	(280)	.67	(1142)	25.9	.001	.03
Suspended/expelled	.48	(83)	.45	(281)	.13	(1143)	80.7	.001	.10
School problems index	6.5	(82)	5.8	(280)	4.7	(1142)	31.2	.001	.04
% Ever smoke	.84	(85)	.82	(280)	.52	(1139)	57.4	.001	.07
% Ever smoke regularly	.39	(85)	.41	(282)	.13	(1145)	79	.001	.09
% Ever drink alcohol	.74	(85)	.75	(280)	.49	(1136)	39.8	.001	.05
% Ever drunk past year	.46	(85)	.51	(281)	.15	(1144)	107	.001	.13
% Ever use drugs	.54	(85)	.55	(282)	.18	(1145)	109	.001	.13
Delinquency index	7.4	(85)	6.5	(281)	3.3	(1138)	70.9	.001	.09

Table A9

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the 16- and 17-Year-Old Female Sample of 3,998 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	14.6	(296)	15.1	(1277)		-	28.3	.001	.02
% Used birth control 1st sex	.55	(305)	.65	(1318)		-	11.2	.001	.01
% Used birth control last sex	.55	(306)	.64	(1306)		-	8.2	.004	.01
% Ever had STD	.16	(303)	.09	(1314)		-	13.9	.001	.01
% Trade sex for ...	.03	(307)	.02	(1320)		-	18	.001	.01
# of sex relationships ever	6.2	(205)	4.3	(639)		-	12.9	.001	.03
% Used alcohol at 1st sex	.18	(253)	.13	(1053)		-	4.1	.04	.00
% Used alcohol at last sex	.15	(243)	.10	(999)		-	6.5	.01	.01
% Pregnant ever	.30	(306)	.16	(1316)		-	32.3	.001	.02
Psychopathology									
Health problems index	23.1	(307)	20.5	(1323)	17.7	(2084)	70.7	.001	.04
School absence due to health	.74	(306)	.59	(1316)	.41	(2080)	41.7	.001	.02
% Received counseling	.28	(307)	.20	(1323)	.11	(2080)	48	.001	.03
Depression index	16.8	(307)	13.6	(1323)	11.4	(2078)	77.9	.001	.04
% Suicide ideation	.32	(305)	.19	(1318)	.15	(2062)	28.8	.001	.02
Family cares index	17.1	(305)	17.4	(1323)	19.2	(2073)	128	.001	.07
Others care index	11.8	(305)	11.9	(1323)	12.5	(2073)	52.3	.001	.03
Behavior problems									
% Eating disorder	.04	(256)	.04	(1058)	.02	(1719)	7	.001	.01
# Times sluffed school	6	(291)	3.3	(1284)	.91	(2063)	68.6	.001	.04
Suspended/expelled	.58	(306)	.38	(1321)	.11	(2079)	216	.001	.11
School problems index	5.9	(292)	5.3	(1288)	4.5	(2065)	70.1	.001	.04
% Ever smoke	.87	(302)	.82	(1320)	.50	(2065)	237	.001	.11
% Ever smoke regularly	.54	(307)	.42	(1323)	.13	(2085)	276	.001	.13
% Ever drink alcohol	.85	(305)	.82	(1320)	.49	(2063)	257	.001	.12
% Ever drunk past year	.54	(307)	.52	(1322)	.21	(2082)	218	.001	.11
% Ever use drugs	.61	(307)	.54	(1323)	.16	(2085)	377	.001	.17
Delinquency index	6.3	(306)	5	(1320)	2.6	(2066)	183	.001	.09

Table A10

Means, Counts, Tests, and Effect Sizes for Dependent Variables by FSI Status in the 18-, 19-, and 20-Year-Old Female Sample of 2,540 Adolescents

	Forced intercourse		Had intercourse		No intercourse		F	Prob	
	Mean	N	Mean	N	Mean	N	stat	of F	Eta2
Risky sexual behavior									
Age at 1st sex	15.3	(276)	16.2	(1104)		-	74.2	.001	.05
% Used birth control 1st sex	.60	(284)	.72	(1151)		-	15.5	.001	.01
% Used birth control last sex	.59	(284)	.69	(1147)		-	10.9	.001	.01
% Ever had STD	.24	(282)	.12	(1153)		-	27.4	.001	.02
% Trade sex for ...	.04	(284)	.008	(1153)		-	17.6	.001	.02
# of sex relationships ever	7.6	(192)	4.6	(546)		-	24	.001	.06
% Used alcohol at 1st sex	.15	(233)	.15	(862)		-	.06	.80	.00
% Used alcohol at last sex	.12	(229)	.10	(841)		-	.83	.36	.00
% Pregnant ever	.31	(283)	.22	(1146)		-	11	.001	.01
Psychopathology									
Health problems index	24.1	(285)	18.7	(1154)	16	(932)	100	.001	.08
School absence due to health	.70	(282)	.54	(1146)	.40	(927)	22	.001	.02
% Received counseling	.23	(285)	.14	(1153)	.08	(931)	25.4	.001	.02
Depression index	17.4	(285)	12.2	(1154)	10.8	(929)	77.3	.001	.06
% Suicide ideation	.28	(284)	.12	(1151)	.11	(914)	31.5	.001	.03
Family cares index	16.4	(285)	17.9	(1151)	18.8	(919)	54.2	.001	.04
Others care index	11.8	(285)	12.4	(1151)	12.6	(919)	20.9	.001	.02
Behavior problems									
% Eating disorder	.06	(216)	.02	(925)	.01	(766)	10.5	.001	.01
# Times sluffed school	5.2	(259)	3.3	(1099)	1.2	(910)	38.9	.001	.03
Suspended/expelled	.43	(284)	.31	(1153)	.10	(932)	82	.001	.07
School problems index	5.6	(259)	4.7	(1101)	4.1	(911)	41	.001	.04
% Ever smoke	.81	(285)	.74	(1153)	.43	(914)	145	.001	.11
% Ever smoke regularly	.49	(285)	.38	(1154)	.10	(933)	142	.001	.11
% Ever drink alcohol	.87	(284)	.78	(1153)	.47	(916)	168	.001	.13
% Ever drunk past year	.56	(285)	.49	(1153)	.23	(933)	97.1	.001	.08
% Ever use drugs	.54	(285)	.46	(1154)	.13	(933)	170	.001	.13
Delinquency index	4.4	(284)	3	(1154)	2.1	(915)	49.7	.001	.04