Adolescent Risk-Taking Behaviors and School Performance: Distinguishing the Experiences of Boys and Girls

Sampson Lee Blair*

Department of Sociology, The State University of New York, Buffalo, NY 14260, USA

Abstract: Previous studies have examined the risk-taking behaviors of adolescents and their impact upon a variety of outcomes, yet comparatively few have addressed educational consequences. Using a nationally representative sample of American high school seniors, this study examines how risk-taking behaviors are associated with school performance, and how this relationship may vary by gender. Framed within the life-course perspective, the analyses reveal that while adolescent boys engage in significantly higher levels of delinquency and substance use, the consequences of such behavior appear to be greater for girls. The implications of these findings are discussed, as well as the gendered nature of risk-taking.

Keywords: Adolescence, Risk-Taking, Delinquency, Substance Use, Gender.

During the latter years of adolescence, performing well in school becomes increasingly significant, particularly as high school grades and the overall academic success of students become predictive of major transitions to come, such as admission into college and the completion of a college degree (Marjoribanks, 2005; Xia *et al*., 2016), which has implications for additional adult transitions, such as employment, marriage, and parenthood. The adolescent years, though, are typified by a variety of developmental changes, including cognitive and physical change, as well as behavioral changes. Among the behavioral changes commonly exhibited during adolescence is a pronounced increase in risk-taking behaviors (Blair, 2010; Dworkin, 2005; Powell *et al*., 2010) which can, understandably, impact not only the health of adolescents (e.g., Green and Ensminger, 2006), but also their educational performance (e.g., Kipping *et al*., 2012).

Risk-taking behaviors involve activities which can increase the likelihood of harm, both physical or psychological, to the individual (Kazdin, 1993). During the adolescent years, risk-taking is almost a ubiquitous experience, as the majority of adolescents will commit at least one form of risk-taking behavior before reaching adulthood (Johnston *et al*., 2004). Among these, behaviors such as alcohol consumption, cigarette smoking, marijuana use, and juvenile delinquency are often cited as consequential forms of risk-taking by adolescents (Brook *et al*, 2011; Danielsson *et al*, 2010; Williams *et al*., 2007). By the time they reach their senior year of high school, 66% of adolescents have drank alcohol, 34% have smoked cigarettes, and over 44% have used marijuana (Johnston *et al*., 2014). Delinquent acts, ranging from relatively minor acts, such as disturbing the peace, to major felonies, such as arson, are similarly common, with the majority of adolescents committing at least one delinquent act before reaching adulthood (Williams *et al*., 2007). While it can certainly be argued that risk-taking behaviors during adolescence are simply a normal part of the developmental processes undergone by youth (France, 2000), adolescent risk-taking can also lead to a variety of problematic outcomes, including potentially deleterious effects upon academic performance (Bryant *et al*., 2003).

The goal of the present study is to examine the linkages between adolescent risk-taking and school performance, specifically in terms of grade performance. Given that older adolescents are particularly susceptible to engaging in risk-taking behaviors (Shaw *et al*., 2011), including delinquency and various forms of substance use, this study will focus upon the relationship between risk-taking and school performance among those in their senior year of high school. In addition, gender is often a factor in adolescent risk-taking behaviors, as boys tend to engage in such behaviors more frequently than do girls (Maughan *et al*., 2000). This study, then, will attempt to disentangle the relationship between adolescent risk-taking and school performance, and will examine how these linkages may vary by gender.

THE NATURE OF ADOLESCENT RISK-TAKING

Despite many of its inherent dangers to the well-being of adolescents, risk-taking, in the developmental regard, may be regarded as both normal and, to a

*Address correspondence to this author at the Department of Sociology, The State University of New York, Buffalo, NY 14260, USA; Tel: (716) 645-8472; Fax: (716) 645-3934; E-mail: slblair@buffalo.edu

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certain extent, necessary for adolescents to experience, particularly as it provides them with the opportunity to further their individuality (France, 2000). Indeed, a social benefit may also result from some forms of risk-taking, as substance use has been linked to higher levels of peer acceptance and the development of peer relationships (Maggs and Hurrelmann, 1998). Understanding the nature of risk-taking also requires an understanding of its purpose in the lives of adolescents. As adolescents are attempting to form a sense of individuality and separate their sense of self from those of others, and particularly their parents and peers, risk-taking may represent a means of establishing identity. In one way, risk-taking can help to establish and maintain a sense of individuality among one's peers (Lightfoot, 1997), yet, at the same time, adolescent risk-taking can also aid in creating and solidifying bonds to peers (Christensen and Mikkelsen, 2008). Both of these results of risk-taking are quite likely to be seen as desirable by adolescents, thus furthering their tendency to engage in such behaviors.

The perceptions of risk-taking by adolescents will, of course, depend upon their maturation and ability to view such acts from a broader (i.e., societal) view. Adolescents who engage in risk-taking behaviors often regard their actions as matters of personal choice, rather than viewing such behavior as being outright unacceptable (Shaw *et al*., 2011). Of course, the interconnected aspect of risk-taking must also be recognized, as previous studies have demonstrated that a higher propensity of one form of risk-taking behavior (e.g., delinquency) is often associated with a higher likelihood of an additional form (e.g., substance use)(Kazdin, 1993; Langsford *et al*., 1998).

Given that the central feature of adolescent development involves maturation and change, explanations concerning adolescent behaviors such as risk-taking must, necessarily, address how such maturation and change occur. Elder's life-course theory offers a unique perspective, as it proposes that transitions throughout adolescence are influenced by both obstacles (e.g., parental expectations) and opportunities (e.g., parties with peers)(Elder, 1998). From this perspective, development occurs due to the ongoing relationship between the individual and the surrounding social context in which they are embedded (Elder and Shanahan, 2006). At the same time that adolescents are experiencing maturational change, such as cognitive and physical, the surrounding social context of their lives is also changing, particularly as they proceed into high school, develop stronger peer relations, and begin to orient themselves toward adult life.

Life-course theory regards risk-taking behaviors during adolescence as part of the normal developmental processes which girls and boys go through, yet there is also the recognition that the trajectory of such behaviors changes over time (Hagan, 1997). The maturational changes which occur during early- to mid-adolescence typically bring about less parental supervision, more intimate peer relationships, and greater freedom to pursue individual desires (Agnew, 2003). This relative shift toward greater freedom, less supervision, and the desire for experimentation often results in risk-taking, including delinquent behavior and substance use (Johnston *et al*., 2014). Toward late adolescence, teens will typically begin to focus more upon impending adult transitions, such as getting a job, going to college, or seeking an intimate partner. Risk-taking behaviors, at this point, could serve to impede the successful transition into adult roles (Blair, 2010).

DELINQUENCY, SUBSTANCE USE, AND GENDER

Both researchers and parents have long noted that there are discernible differences between the risk-taking behaviors of girls and boys. Whether in terms of delinquent behavior, substance use, or other forms of maladaptive behavior, adolescent boys are much more likely than girls to pursue such patterns of risk-taking (Junger-Tas *et al*., 2004). There remains a need, however, to better comprehend why these differences exist.

There is, understandably, a strong correlation among the various forms of risk-taking. Higher rates of delinquency, for example, are often associated with higher rates of substance use among adolescents (Monahan *et al*., 2013). These patterns may vary substantially for each sex, though, as researchers have suggested that differences in the maturational processes for girls and boys may result in males being more likely to likely to engage in substance use and delinquent behavior during mid- to late-adolescence, whereas females will mature at a faster rate, thus leaving them at a lower probability of engaging in risk-taking behavior during the late adolescence years (Schulte *et al*., 2009). Arguments concerning maturational differences between adolescent girls and boys tend to emphasize the speed or rate of development. However, this also suggests that gender socialization may also play a role in the different forms

of risk-taking displayed by females and males. Researchers have argued issues of masculinity and femininity may influence some forms of risk-taking, particularly as adolescents are attempting to solidify their own sense of gender identity. Alcohol consumption, for example, is often associated with masculinity and may, therefore, put greater pressure of adolescent boys to experiment with drinking (Lemli and Mishkind, 1989). Stereotyped notions of "men chugging beer" are commonly found throughout modern cultures, yet similar stereotypes of females consuming in the same manner are lacking. The desire to conform to such notions of masculinity may lead males to engage in more risk-taking behaviors (e.g., Mahalik *et al*., 2013), thereby making delinquency and substance use more appealing to adolescent males.

A variety of explanations have been offered to help clarify the tendency for boys to engage in delinquent behavior more frequently than girls. Peer relationships during adolescence may be a factor, as having friends who engage in delinquency has been shown to have a more substantial effect upon the likelihood of adolescent males committing delinquent acts, as compared to adolescent females (Haynie *et al*., 2014). Beyond peer pressure, the composition of peer groups may be related to the differences in boys' and girls' delinquent tendencies, as researchers have shown that adolescent males are more likely to have delinquent friends (Liu and Kaplan, 1999). Even the nature of peer relationships may be an influencing factor, as stereotyped notions of boys having friends who encourage delinquent behavior, whereas girls' friends are discouraging delinquency, have been supported (see McCarthy *et al*., 2004). The peer groups of adolescent females are not necessarily immune to delinquent desires, though, as the violent behavior of friends has been shown to more strongly influence the behavior of girls, as opposed to boys (Zimmerman and Messner, 2010).

In regard to substance use, peers may again play an influential role. Exposure to delinquent friends has been shown to be more substantially associated with boys' marijuana use, as compared to that of adolescent girls (Smith and Paternoster, 1987). Marijuana use is fairly common among American youth, with almost half of all adolescents using it before graduating from high school (Johnston *et al*., 2014). As with delinquent behavior, a gender difference has been shown to exist in regards to marijuana use, such that using marijuana is regarded as decidedly less congruent with expectations of femininity, thus leading adolescent girls to often shy away from experimentation with it (Warner *et al*., 1999). Beyond peer influences, adolescent girls may differ substantially from their male counterparts in regard to their rationales for substance use. In terms of smoking cigarettes, adolescent girls tend to develop nicotine dependency faster than boys, and they are also more likely to smoke as a means of coping with stress and anxiety (Richardson *et al*., 2011). Smoking initiation is shown to be much more common among girls in late adolescence, as compared to boys (Thompson *et al*., 2015).

An examination of alcohol use by girls and boys during adolescence yields an intriguing pattern. During early adolescence, females report higher rates of alcohol consumption, yet by mid-adolescence, alcohol use by males begins to exceed that of females, and by late adolescence, significant differences in alcohol consumption between the two sexes begin to stabilize (Miech *et al*., 2015). Clearly, there is a gendered basis to the respective trajectories of alcohol use, as well as other substances, during the adolescent years. For males, the path of alcohol consumption begins in mid-adolescence, but accelerates during late adolescence (Jackson *et al*., 2002). Beyond their initial experiences, males are shown to drink both more frequently and in larger amounts, as compared to females. Not surprisingly, adolescent males who drink, and particularly those who are heavy drinkers, also tend to experience substantial physical and psychological problems due to their alcohol consumption (Khan *et al*., 2014). Although a variety of factors may affect the different drinking patterns of adolescent girls and boys, peers may again play a significant role. Given that alcohol consumption during adolescence tends to be a social activity, girls may drink less in public in order to avoid any negative stigmatization by their peers (Shippee and Owens, 2011). Ultimately, the role of gender in delinquency and substance use is readily apparent. How such differences may be associated with school performance will now be directly addressed.

DATA AND METHODS

Data for this study are taken from the 2015 wave of the Monitoring the Future survey (Monitoring the Future: A Continuing Study of American Youth). The Monitoring the Future study, conducted annually, began in 1975 as a cross-sectional survey of American youth, with the intention of gauging a variety of behaviors and attitudes of high school students. The respondents used in this study are taken from a

nationally representative sample of high school seniors, drawn from about 130 high schools, both public and private. Given that participants are assured that their answers will remain confidential, the responses within the study are considered to be reliable and accurate. Following the removal of cases due to missing data, the sample used in this study is comprised of 1,031 females and 848 males.

The dependent measure for this study is the grade performance of students. Participants were asked specifically about what their grade average in school. Responses ranged from: "A" (93-100), "A-" (90-92), "B+" (87-89), "B" (83-86), "B-" (80-82), "C+" (77-79), "C" (73-76), "C-" (70-72), and "D" (69 or below). These responses were coded on a 9-point scale, with "A" equal to 9, and "D" equal to 1. Hence, this measure is intended to provide an overall assessment of grade performance in high school.

Given the diverse nature of risk-taking by adolescents, several different measures were used in order to provide a more comprehensive gauge of such behaviors. First, in regard to delinquency, participants were asked about a variety of criminal acts which they may have committed over the past 12 months. The high school seniors were asked if they had: 1) "gotten into a serious fight at school or at work," 2) "taken part in a fight where a group of your friends were against another group," 3) "hurt someone badly enough to need bandages or a doctor," 4) "used a knife or gun or some other thing (like a club) to get something from a person," 5) "taken something not belonging to you worth under $50," 6) "taken something not belonging to you worth over $50," 7) "taken something from a store without paying for it," 8) "taken a car that didn't belong to someone in your family without permission of the owner," 9) "taken part of a car without permission of the owner," 10) "gone into some house or building when you weren't supposed to be there," 11) "set fire to someone's property on purpose," 12) "damaged school property on purpose," and 13) "damaged property at work on purpose." These behaviors cover a wide variety of delinquent behaviors, including both crimes against persons and crimes against property. The items were combined into a single indexed measure, with the resulting scale ranging from 0 to 13 (representing the number of delinquent offenses committed).

Since risk-taking also includes the substance use, several measures of such usage are included, specifically alcohol, tobacco, and marijuana use. Adolescents often use these substances before they are of legal age, and do so without the full understanding of the effects of such substances on the body. In regard to tobacco use, participants were asked how often they had smoked cigarettes over the past 30 days. Responses ranged from: 1) "not at all," 2) "less than one cigarette per day," 3) "one to five cigarettes per day," 4) "about one-half pack per day," 5) "about one pack per day," 6) "about one and one-half packs per day," to 7) "two packs or more per day." Students were similarly asked about they had consumed alcoholic beverages over the past 30 days. Responses to this query ranged from: 1) "0 occasions," 2) "1-2 occasions," 3) "3-5 occasions," 4) "6-9 occasions," 5) "10-19 occasions," 6) "20-39 occasions," to 7) "40 or more." Finally, students were asked how frequently they had used marijuana or hashish over the past 30 days. Responses to this measure were the same as those used in the measure of alcohol consumption.

Respondents were also queried concerning a wide variety of individual, family, and peer characteristics. In terms of family characteristics, a dummy measure concerning whether they student comes from a two-parent household is included (coded as 1=yes, 0=no). A measure of parental educational attainment is included, and specifically assesses the highest level of educational attainment of the parent(s). Parental educational attainment is coded on a six-point scale, ranging from "a grade school education only" (coded as 1) to "a graduate degree" (coded as 6). Participants were also asked about how many siblings they have.

In regard to individual characteristics, students were asked how much time they spend, in an average week, on homework from school. Responses ranged from: 1) none, 2) 1-4 hours, 3) 5-9 hours, 4) 10-14 hours, 5) 15-19 hours, 6) 20-24 hours, to 7) 25 or more hours. Students were asked how many days, over the past month, they had intentionally skipped. Responses to this item ranged from: 1) none, 2) 1 day, 3) 2 days, 4) 3 days, 5) 4-5 days, 6) 6-10 days, to 7) 11 or more days. In order to assess involvement in school activities, students were asked how much they had participated in a variety of school activities. These activities included the school newspaper or yearbook, music or performing arts, athletic teams, and other school clubs. Responses to this item ranged from: 1) not at all, 2) slight, 3) moderate, 4) considerable, to 5) a great extent. Participants were also asked how any hours, during the school year, they worked in a paid or unpaid job. Responses ranged from: 1) none, 2) 5 or less hours, 3) 6-10 hours, 4) 11-15 hours, 5) 16-20 hours, 6) 21-25 hours, 7) 26-30 hours, to 8) 30 or more hours.

Understandably, peers and peer relationships are a substantial part of adolescents' lives. Several measures of peers were included in the analyses. Respondents were asked how often they get together with their friends. Responses to this item ranged from 'never' (1) to 'three or more times a week' (6). Given the nature of risk-taking, students were also asked to estimate how many of their friends smoke cigarettes, drink alcoholic beverages, and use marijuana. Responses to these three queries ranged from: 1) none, 2) a few, 3) some, 4) most, to 5) all of them.

HYPOTHESES

Building upon a foundation of life-course theory and existing research, this study will contain three specific hypotheses. First, it is hypothesized that adolescent females will exhibit higher rates of risk-taking behaviors, as compared to adolescent males. Second, risk-taking behaviors of all varieties will be negatively associated with adolescent school performance. Third, it is hypothesized that risk-taking behaviors will have a more deleterious effect upon girls' school performance, as compared to boys'.

RESULTS

Table **1** presents the mean levels of school performance, as well as the grade distribution, by the sex of the students. As shown, female high school seniors significantly outperform their male counterparts, on average. This is consistent with current grade distributions in American schools. In terms of the grade distributions, female students clearly dominate the higher rankings, with fully 43.6% of females receiving either an "A" or "A-," as compared to only 32.7% of male students. Indeed, comparatively more male students reported grades at the lower end of the grade distribution (C+ or lower), as compared to females. Overall, the average grades and grade distributions clearly demonstrate that female high school seniors are significantly outperforming males.

Table 1: Mean Levels of School Performance and Grade Distribution, by Sex

	Female	Male
Grade	6.95 (1.78)	6.47*** (1.89)
A	22.2%	16.2%
A-	21.4	16.5
B+	23.1	20.2
B	14.6	20.5
B-	7.6	11.3
C+	6.2	7.2
C	3.0	5.2
C-	0.9	1.4
D	1.0	1.5
N	1031	848

Note: Significance refers to difference between means; *** p < .01.
Sample includes high school seniors, ages 17-19.

Table **2** presents the mean levels of risk-taking among high school seniors, as reported by sex. Not surprisingly, adolescent males reported a significantly higher frequency of involvement in delinquent behavior (1.57 among males, 1.07 among females). Again, these acts of delinquency involved both crimes against persons, as well as crimes against property. Interestingly, male adolescents also reported significantly higher levels of substance use, across all three of the examined substances. Males reported a significantly higher rate of tobacco use than did females (1.23 versus 1.13, respectively), a higher rate of marijuana usage (1.80 versus 1.46, respectively), and also alcohol consumption (1.74 versus 1.61, respectively). In terms of substance use patterns, these findings strongly suggest a considerably higher usage rate among adolescent males, as compared to adolescent females. In conjunction with the reported rates of delinquent behavior, it appears that adolescent males engage in substantially more risk-taking, as compared to their female counterparts. How such differences may affect school performance will be examined herein.

Table 2: Mean Levels of Risk-Taking Behaviors, by Sex

	Female	Male
Delinquency	1.07 (2.04)	1.57*** (2.56)
Tobacco Use	1.13 (0.53)	1.23*** (0.67)
Marijuana Use	1.46 (1.22)	1.80*** (1.24)
Alcohol Use	1.61 (1.13)	1.74*** (1.61)
N	1031	848

Note: Significance refers to difference between means; *** p < .01.
Sample includes high school seniors, ages 17-19.

Table **3** presents the mean levels of individual, family, and peer characteristics, as shown by sex. In

terms of familial measures, there are no significant differences between adolescent females and males in regard to the number of parents, parental educational attainment, or the number of siblings. On average, approximately two-thirds of the respondents came from a two-parent family, the average parent had some college education, and respondents typically had two siblings. Hence, it would appear that the family traits of females and males in this sample were quite similar.

Table 3: Mean Levels of Individual, Family, and Peer Characteristics, by Sex

	Female	Male
Two parents	0.64 (0.47)	0.66 (0.47)
Parental education	4.32 (1.57)	4.37 (1.56)
# of siblings	1.99 (1.21)	1.94 (1.26)
# hours homework	2.23 (3.03)	1.82*** (3.24)
Skipped school	0.29 (0.45)	0.30 (0.46)
School activities	1.53 (2.89)	1.31 (2.99)
# hours employment	3.27 (2.59)	3.22 (2.71)
Visits with friends	3.96 (1.16)	4.09*** (0.89)
Friends-tobacco	1.49 (2.07)	1.48 (2.53)
Friends-marijuana	2.16 (2.40)	2.16 (2.61)
Friends-alcohol	2.54 (2.69)	2.32 (2.99)
N	1031	848

Note: Significance refers to difference between means; *** p < .01.
Sample includes high school seniors, ages 17-19.

There was, however, a clear difference between females and males in regard to time spent on homework, with females spending significantly more time on such studies, as compared to males (2.23 versus 1.82, respectively). Undoubtedly, this difference is also reflected in the differences shown earlier for grade performance. Female high school seniors reported spending slightly more time in extra-curricular activities, though not significantly more than did males. Similarly, girls and boys reported approximately the same tendencies for skipping school, as well as spending hours in jobs after school. Adolescent males appear to be somewhat more active with their friends, though, as they reported spending more time socializing with their friends, as compared to females (4.09 versus 3.96, respectively). The element of risk-taking by peers, however, does not appear to differ by sex. In terms of tobacco use, marijuana use, and alcohol consumption, adolescent females and males reported approximately the same levels of substance use by their friends. Given the relatively homogamous nature of peer relationships during adolescence, this pattern is to be expected. How these various individual, family, and peer characteristics may affect grade performance will now be addressed.

Table **4** presents the ordinary least squares regression models of school performance, with separate models presented for each sex. As shown, each of the models were robust, and yielded a substantial amount of explained variance. The model for females yielded an r-square of .155, while the model for males resulted in an r-square of .126. Each of the models provides a unique explanation of grade performance, yet the comparison of the models offers much greater insight.

For both females and males, the presence of two parents is associated with a higher level of school performance (b = .182 among females, .471 among males). Similarly, higher levels of parental educational attainment are also positively associated with the grade performance of both sexes. Both of these patterns are to be expected, as the presence of parents, and particularly those with higher levels of educational attainment, would potentially aid students through both actual assistance with schoolwork and by providing very positive role models for their own eventual educational attainment. Oddly, the school performance of females is significantly aided by spending more time on homework (b = .082), yet the same association is not significant in the model for males. Apart from the previously noted differences in the total amounts of time spent on homework by females and males, this difference within the regression models may suggest that other attributes of studying and homework performance may differ between high school girls and boys. In a manner directly contrary to performing homework, skipping school is shown to be negatively associated with the grade performance for both sexes (b = -.267 for females, -.544 for males). Understandably, skipping school could also represent a form of risk-taking among adolescents, and one which would clearly detract from grade performance for both

Table 4: OLS Regression Models of School Performance, by Sex

	Female		Male	
	B	**Beta**	**B**	**Beta**
Two parents	.182	.049*	.471	.118***
Parental education	.157	.139***	.175	.148***
# of siblings	-.080	-.055*	-.058	-.039
# hours homework	.082	.140***	-.018	-.030
Skipped school	-.267	-.068**	-.544	-.132***
School activities	.016	.025	.050	.080
# hours employment	-.041	-.060**	.015	.022
Visits with friends	.086	.056*	.113	.053
Friends-tobacco	-.015	-.018	.084	.113
Friends-marijuana	-.133	-.179***	-.152	-.210***
Friends-alcohol	.070	.106**	.073	.115**
Delinquency	-.111	-.127***	-.033	-.045
Tobacco Use	-.303	-.089***	-.182	-.065*
Marijuana Use	-.161	-.111***	-.129	-.110***
Alcohol Use	.047	.030	.017	.011
R-square	.155		.126	
F	12.419***		7.981***	
N	1031		848	

Note: Significance levels, *** p < .01, ** p < .05, * p < .10.
Sample includes high school seniors, ages 17-19.

females and males. Spending more time in an after-school job is shown to be deleterious to females' school performance (b = -.041), yet the same association is not significant in the model for males. Of course, it is conceivable that time spent in a job may necessarily take away time which could have potentially been spent on homework.

The substance use patterns of peers suggest that there is a more complicated linkage between peer substance use and adolescent school performance than previously assumed. Higher levels of marijuana use by friends yield a negative association with grade performance for both sexes (b = -.133 for females, -.152 for males), which is to be expected. However, higher levels of alcohol consumption are actually shown to be positively associated with grade performance for both sexes (b = .070 for females, .073 for males). Alcohol usage is considerably more common among adolescents, as compared to marijuana use, yet there may also be differences in the respective social context of such usage. Adolescents who use alcohol may often be doing so at social events with friends (e.g., parties). Participation in these social events may not only involve alcohol consumption, but also aid the social network of adolescents. Simply, drinking at social events may increase their ties with other students, which may subsequently have a positive impact upon their grade performance. High school students frequently turn to their peers for assistance with schoolwork, so having both more and stronger ties with classmates may aid their school performance. Marijuana use, on the other hand, may be more likely to lessen their social networks, particularly as its use is likely to be limited to smaller peer groups.

Of central interest to these analyses, however, is the relationship between adolescent risk-taking and grade performance. As shown, higher involvement in delinquency is associated with a significantly lower level of grade performance among high school girls (b = -.111). Oddly, the same association is not significant in the model for boys. Hence, while high school males report substantially greater involvement in delinquency, as compared to females, the impact of such delinquent behavior is only affecting the grade performance of females. It is quite possible that the gendered

stereotypes of delinquency may exist herein, as the traditional notions that "boys will be boys" suggests that males will, by their very nature, be involved in delinquency. Girls who commit delinquent acts, however, may be more likely to be labeled by others, and particularly teachers and even classmates. Such differential reactions and responses to girls' delinquent behavior may have a lasting effect upon their ability to perform well in school. In addition, while the tobacco use of both females and males is negatively associated with grade performance, the association appears to be more substantial among females (b = -.303 for females, -.182 for males). Although the data does not allow for a more discrete examination of the substance use patterns, it appears that this form of risk-taking is quite distinct in terms of its impact upon the grade performance of girls and boys. Marijuana use, by comparison, has a more consistent association with grade performance, as it is negatively associated with the school performance for both sexes. It is also worth noting that alcohol consumption does not yield a significant association in the models of either female or male grade performance. This may, though, lend support to the earlier contention that the social context of substance use warrants further examination by researchers. Ultimately, the risk-taking behaviors of adolescent females and males are shown to have distinct influences upon their respective grade performance in high school.

While these analyses are predicated upon the assumption that risk-taking behaviors will have an impact upon the grade performance of adolescent students, it is also necessary to recognize that the relationship between risk-taking and school performance is rather convoluted. It would be quite erroneous to assume that high risk-taking students always perform poorly, and low risk-taking students always perform well. Indeed, it is essential to recognize that risk-taking is a pervasive and almost ubiquitous pattern within adolescence. In order to illustrate this point, Figure **1** presents the mean levels of delinquent behavior, across the levels of grade performance. As shown, while the overall pattern is that higher levels of delinquency are found among students with lower levels of grade performance, it is also readily apparent that even those students who perform very well in school are, nonetheless, committing delinquent acts. The tendency to do engage in delinquency is higher among males, yet the pattern itself is essentially the same for both sexes.

Figure **2** presents the mean levels of tobacco use, across the levels of grade performance. Again, the general pattern is that higher levels of risk-taking (in this instance, smoking cigarettes) are found among those students with lower grade performance. Yet, once again, some students who perform very well are shown to smoke tobacco. This pattern is also shown in Figure **3**, which presents the mean levels of marijuana use, across grade performance. Although adolescent males are using marijuana at a higher rate than females, it is again apparent that both girls and boys who are performing well in school are, on occasion, using marijuana. Interestingly, the pattern shown in Figure **4** (the mean levels of alcohol consumption, across levels of grade performance) is somewhat inconsistent, as it suggests that higher rates of alcohol consumption are actually found among students with average grade performance (i.e., C+, B-, and B). Overall, though, these patterns of risk-taking across grade performance serve to demonstrate that, beyond

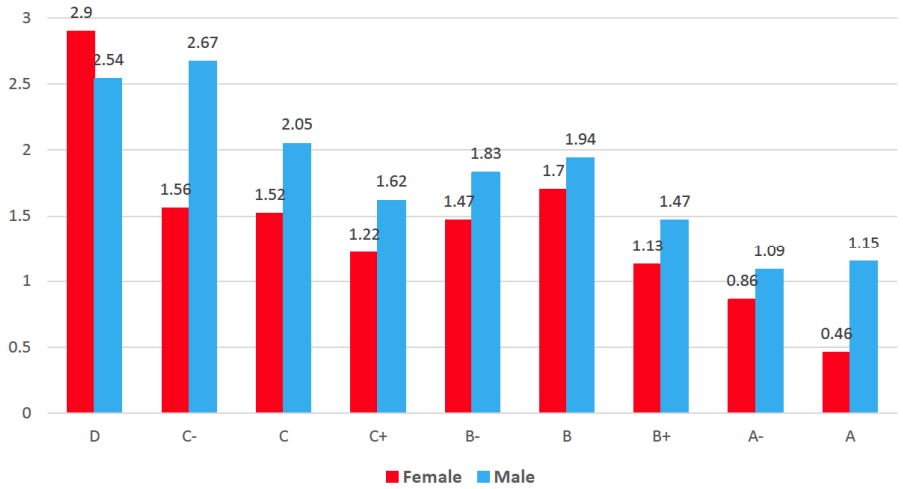

Figure 1: Mean levels of delinquency by grade performance.

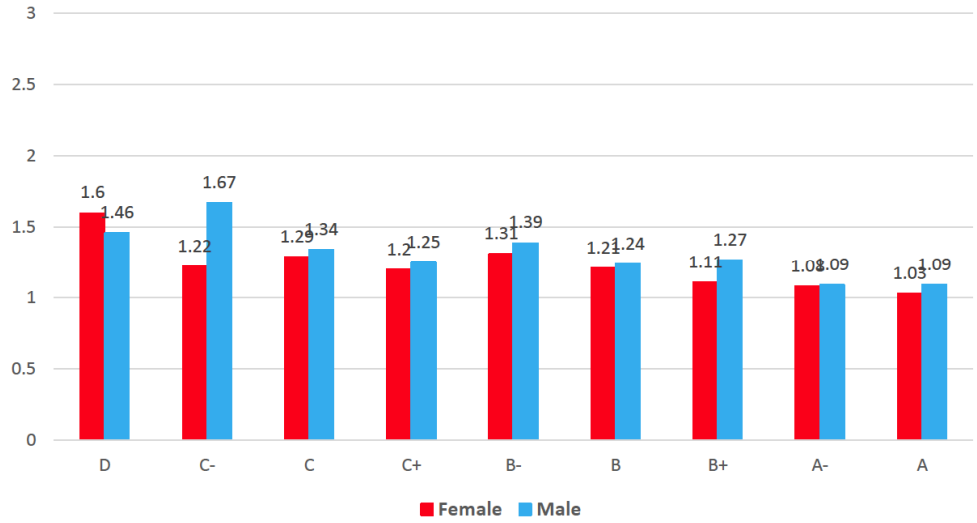

Figure 2: Mean levels of tobacco use by grade performance.

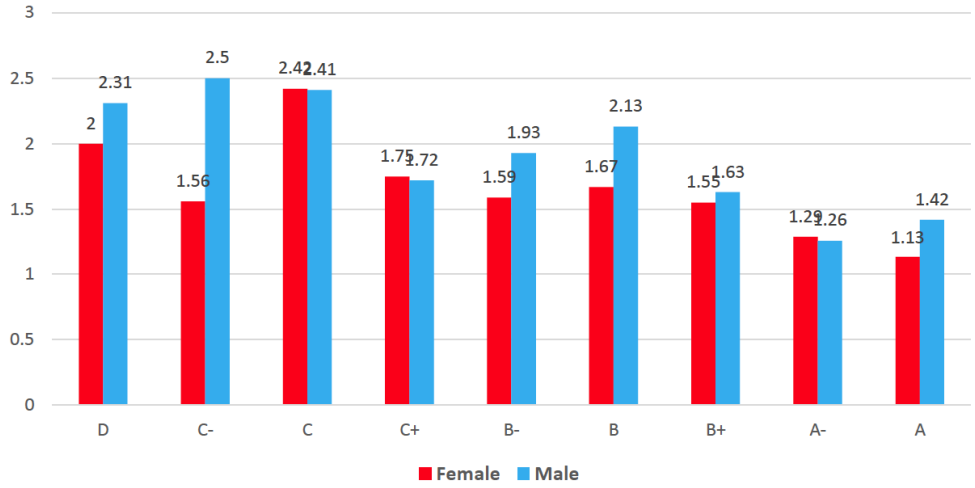

Figure 3: Mean levels of marijuana use by grade performance.

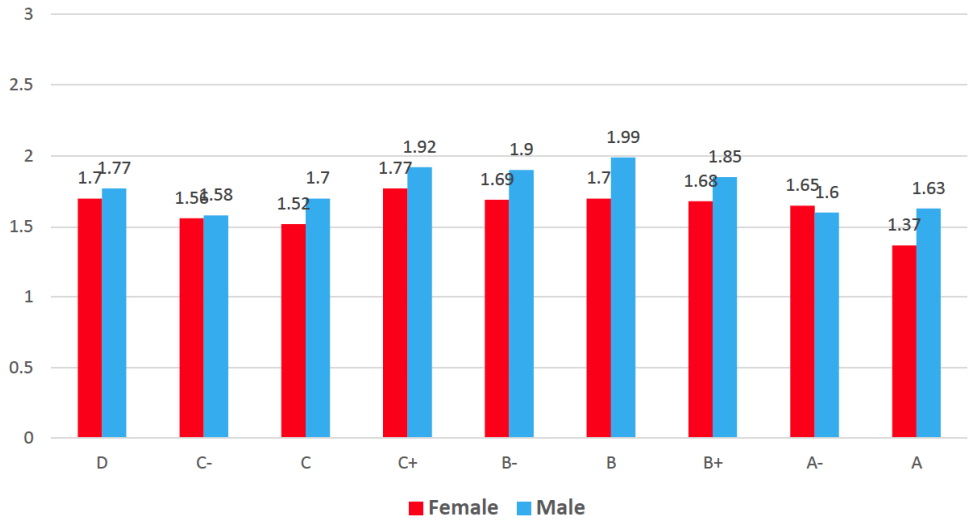

Figure 4: Mean levels of alcohol use by grade performance.

the differences by sex, the relationship between risk-taking and school performance is rather complex. The implications of these findings, as well as the need for further research, will now be addressed.

CONCLUSIONS AND DISCUSSION

This study was initiated with the goal of examining how risk-taking behaviors during the adolescent years may be associated with performance in school. In addition, this study aimed to examine how the relationship between risk-taking behaviors and academic performance may vary by gender. Overall, it is clear that a variety of linkages exist between risk-taking and performance in school, as both patterns of delinquent behavior and substance use were associated with adolescents' school performance. The relative impact of risk-taking upon school performance, though, varied considerably for girls and boys.

As anticipated, the findings reveal what researchers have previously shown, and what parents tend to fear – risk-taking behaviors among contemporary teens are fairly common. The majority of the high school seniors in this sample had, in fact, experimented to varying degrees with substance use, and particularly alcohol. In addition, delinquent behaviors, although shown to occur less frequently than substance use, were nonetheless shown to occur commonly among individuals in late adolescence. Of course, it is necessary to emphasize that all of these actions on the part of adolescents are, by law, illegal. Whether in terms of substance use or the commission of a variety of misdemeanor and/or felony offenses, these are adolescent acts which are in violation of existing laws. However, as mentioned previously, the very nature of risk-taking behaviors during adolescence is unique, as adolescents themselves do not necessarily take into consideration the full range of potential consequences of their actions, nor do they consistently perceive such behaviors are being inappropriate or unacceptable by broader societal standards. In support of life-course theory (Elder, 1998), the findings herein suggest that the contextual factors surrounding adolescent risk-taking must be considered in their entirety, as they clearly appear to influence the commission of such behaviors.

The relationship between grade performance and risk-taking was shown to be rather complex. On the surface, adolescent females were shown to outperform their male counterparts in school, as girls reported having significantly better grades. As anticipated, though, adolescent boys reported engaged in substantially higher levels of risk-taking behaviors, as compared to girls, as boys engaged in more delinquency and used alcohol, tobacco, and marijuana at significantly higher levels than girls. At the core of these analyses, though, was how such risk-taking behaviors were associated with school performance.

The findings from the regression models demonstrated that the linkages between risk-taking and school performance were quite substantial for both girls and boys. As anticipated, factors such as the presence of two parents and parental educational attainment were positively associated with the school performance of both female and male adolescents. However, the manners in which adolescents spent their time were also shown to be quite salient. Among adolescent girls, spending more time on homework yielded increases in school performance, yet time spent in an after-school job was shown to be negatively associated with grades. Oddly, neither of these two factors yielded a significant association with boy's grade performance. Employment during the teen years is quite common, and both girls and boys take on such jobs. It is quite possible that there are qualitative differences in the respective jobs which adolescent females and males take on, such that these qualities have an impact upon grade performance, above and beyond the hours spent in after-school jobs. Future studies should endeavor to explore this disparity further.

In terms of the direct influence of risk-taking upon school performance, substantial differences were shown between girls and boys. Delinquent behavior was shown to be negatively associated with girls' grade performance, yet had no significant association with boy's grades. As discussed earlier, risk-taking behavior during the adolescent years is common, yet is also necessary to recognize that it also occurs within the broader context of societal standards concerning gender. For example, if a boy is caught vandalizing something at school, administrators and parents alike will often remark that "boys will be boys." This seeming acceptance of delinquent behavior on the part of boys is relatively common, yet it also carries with it the underlying assumption that similar delinquency of the part of girls is not acceptable. The results shown here clearly point to the deleterious effect of delinquent behavior by girls upon their performance in school. However, as viewed within the life-course perspective, the delinquent behavior itself may only reveal part of the overall situation. The reactions of parents, peers, siblings, neighbors, teachers, classmates, and others should also be examined. Unfortunately, such

examination cannot be performed here, given the limitations of the data. These findings, though, do serve to underscore the existence of a gendered disparity between adolescent girls and boys, as the commission of delinquent acts clearly results in very different outcomes for each sex.

The relative impact of tobacco use also suggests that a substantial difference exists in the relationship between risk-taking and school performance, depending upon gender. Although both girls' and boys' grades were shown to be negatively impacted by tobacco use, the strength of the association was much stronger among adolescent females. Here, again, the risk-taking behaviors themselves may not reveal the greater complexity involved in the relationship between risk-taking and school performance. Smoking cigarettes during adolescence is, unfortunately, still common among American teens, yet the negative association between smoking and school performance is much greater among girls, suggesting that manner in which it is perceived by others may also differ by sex. High school girls who smoke cigarettes may be more likely to be seen by others as being "bad," "a troublemaker," or have even more inflammatory labels applied by others. The gendered nature of risk-taking is again evident.

As noted previously, the very nature of the relationship between risk-taking and school performance is decidedly complicated. While authority figures, such as parents and teachers, are often tempted to simplify this relationship by assuming that adolescents who perform poorly in school must be engaging in risk-taking behaviors frequently, while those who perform well in school absolutely avoid such behaviors, the analyses offer a very different portrait of this relationship. Although the general tendency is that risk-taking levels, whether in regard to delinquency or substance use, are higher among students who are performing poorly in school, the additional fact is that even students who perform quite well are also engaging in risk-taking behaviors. Alcohol consumption, the use of marijuana, and even delinquency are risk-taking behaviors which are frequently performed by students who are earning high grades in school. Overall, these analyses lead to the acknowledgement of several points. First, and foremost, is that risk-taking behavior is most certainly a normal part of adolescent development. While parents may not wish to accept this position, it is nonetheless reality. As a consequence of the wide array of maturational processes which adolescents are undergoing during the teen years, it is to be expected that they will, from time to time, attempt such behaviors. Indeed, an argument could be made that risk-taking behaviors are even a necessary element of adolescent development. Second, although there has been a steady shift away from traditional gender roles, and towards egalitarianism, there remains a distinct difference in how risk-taking behaviors are associated with school performance for girls and boys. Clearly, there are nuances within this relationship which require further examination by researchers, as the more harmful dimensions of risk-taking for girls raises a variety of concerns for their well-being and development. Finally, these analyses provide a useful consideration of how risk-taking behaviors are associated with educational success during the late adolescent years. Within the framework of life-course theory, developmental processes are embedded within the larger social context of the individual. Late adolescence will, inevitably, lead into the early adult years. Researchers should seek to examine how these gendered differences in risk-taking affect other outcomes for females and males, and particularly as they make the eventual transitions into early adulthood.

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