

## COLLEGE STUDENT RISK-TAKING FROM THREE PERSPECTIVES

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### ABSTRACT

This study addressed college student risk-taking from three perspectives: dispositional trait, decision-making, and environmental. One hundred ninety-six college students provided information on sensation-seeking, locus of control, perceived risks, perceived benefits, risk involvement, peer influence, perceived peer participation, and social desirability, and responded to risky behavior scenarios. Results showed that sensation-seeking, perceived peer participation, and perceived benefits were associated with risk involvement. In the risk-taking decision-making process, the certainty of the decision was related to participation. In addition, the likelihood of consequences occurring influenced students' responses regarding participation in unprotected sex. Further, students most frequently considered consequences that affect them personally when considering risk-taking.

The Centers for Disease Control (CDC), in the National College Health Risk Behavior Survey, indicated that college students engage frequently in risky behaviors (Centers for Disease Control and Prevention, 1997). According to the CDC's survey, almost one third of college students were current cigarette smokers. In addition, one third of college students reported episodic heavy drinking of alcohol, and 27.4% reported drinking and driving during the 30 days prior to completing the survey. Students aged 18 to 24 years were more likely than students older than 25 to report riding with a driver who had been drinking. Regarding sexual risk-taking, only 29.6% of college students had used a condom at last sexual intercourse during the three months preceding the survey. With so many college students taking risks involving so many negative consequences, it would be beneficial to have one general model or framework from which to understand college student risk-taking behavior.

One theory indicates that individual traits, such as self-esteem (Kaplan, 1980), social skills (Botvin, 1986), impulse control (McCord,

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1990), sensation-seeking (Kohler, 1996), and locus of control (Crisp & Barber, 1995), may explain risk-taking. Caspi and colleagues (1997) used a multidimensional trait model of personality in a longitudinal study to examine the characteristics of youth who participated in health-risk behaviors. They found that those who scored lower at age 18 on the traits of traditionalism, harm avoidance, social closeness, and control, and higher on aggression, were more likely to engage in a health-risk behavior at age 21.

Problem-behavior theory (Jessor & Jessor, 1977) has been offered as a way to explain risk-taking in adolescents and young adults. Problem-behavior theory looks at risk-taking from a developmental and person-environment interaction perspective. Jessor and Jessor's framework entails the relationship between three components—personality, perceived environment, and behavior—each composed of many social-psychological variables. For example, the personality component consists of variables such as alienation, self-esteem, internal-external locus of control, moral attitude, and importance placed on achievement; the perceived environment component consists of variables such as parental controls, friend controls, and parents' vs. friends' influence; and the behavior component consists of variables such as problem drinking, marijuana use, cigarette smoking, and general deviant behavior (Jessor, Donovan, & Costa, 1991). In a longitudinal study, Jessor, Donovan, and Costa found that measures of problem-behavior proneness in adolescence were significantly related to young adult problem behavior. Personality and perceived environment variables consistently predicted problem behaviors such as drinking, drug use, and cigarette smoking in young adulthood. The findings were similar for the behavior component.

College student risk-taking could also be explained from the decision-making perspective. Furby and Beyth-Marom (1992) have proposed that adolescents may not be capable of competent decision-making. Adolescents may not sufficiently consider the possible consequences of their actions, and they may have a perception of invulnerability to consequences. Additionally, adolescents may consider different options than adults, as well as identify different consequences, place a different value on consequences, and assess the likelihood of consequences differently. Furthermore, adolescents may rely on peers (e.g., for information) when considering risky behavior.

The majority of studies on adolescent risk-taking have looked at those under 18 years old, yet there are numerous opportunities for older adolescents to participate in risky behavior, especially college students (Furby & Beyth-Marom, 1992). Further, most studies have

addressed older adolescent risk-taking from only one theoretical perspective (e.g., dispositional trait), with few examining college student risk-taking from a decision-making perspective.

### *Perceived Risks, Perceived Benefits, and Consequences*

Risk perception, perceived benefits, and consequences have been addressed from a decision-making perspective. Risk perception refers to "an individual's assessment of the probability of loss associated with a given action (or inaction)" (Furby & Beyth-Marom, 1992, p. 3). Regarding risky health behaviors, one study found that older adolescents judged themselves as being at less-than-average risk and as having control over negative events (Moore & Rosenthal, 1992). In another study, adolescents' perception of benefits accounted for a significant portion of the variance in predicted frequency of risky behaviors (Parsons, Siegel, & Cousins, 1997).

In a study of college-age females, Lavery, Siegel, Cousins, and Rubovits (1993) found an inverse relationship between perceived risks and actual risk-taking, and a positive relationship between perceived benefits and actual risk-taking. In addition, prototypic and infrequent risk-takers differed in their reasons for their behaviors. Most justifications for risky behaviors were post hoc, and so they did not reveal the decision-making process, but they did shed light on motives for engaging in the risk-taking behavior. Self-centric justifications were offered for drug/alcohol and personal health behaviors. Social justifications were given for sexual behavior. Prototypic risk-takers reported more social and self-centric reasons for their behaviors, while infrequent risk-takers reported more functional reasons.

While such studies focused on overall assessment of how beneficial or how risky a behavior is, they did not shed light on the specific consequences that older adolescents consider. The studies did not ask participants to discuss specific consequences and whether they were positive or negative. In addition, emphasis was not placed on the actual decision-making process college students use.

### *Sensation-Seeking*

Sensation-seeking is a personality trait shown to be related to risk-taking behavior. Typically, the literature shows that higher sensation-seeking tendencies are associated with more risk-taking (Horvath & Zuckerman, 1992).

In a 5-year longitudinal study, Newcomb and McGee (1991) assessed deviance, problem behaviors, and sensation-seeking from late adolescence to young adulthood. Strong associations were found between both illegal and legal drug use and sensation-seeking. In a study of

junior high school, high school, and college students, sensation-seeking contributed significantly to the prediction of several risky behaviors, especially alcohol consumption and delinquency (Greene, Krcmar, Walters, Rubin, & Hale, 2000). Students high in sensation-seeking reported more frequent participation in risky behavior compared to those low in sensation-seeking.

Horvath and Zuckerman (1992) found that sensation-seeking and perceived peer behavior were strong predictors of risky behavior, particularly in the areas of AIDS risk and criminal behavior. Personal risk perception was negatively related to risky behavior for crime risk, financial risk, minor violations risk, and sports risk, but not for AIDS risk. Pfefferbaum and Wood (1994) found that male undergraduate students high in thrill-seeking behavior and low in self-control engaged in more self-reported property delinquency. Those who showed strong identification with educational goals, low levels of thrill-seeking, and high degrees of self-control and socialization reported less delinquent behavior overall.

### *Locus of Control*

It would be useful to know how much control college students feel they have over the consequences of their decisions. Thus, locus of control is an important dispositional trait to address.

Kohler (1996) examined the relationship between locus of control, sensation-seeking, risk-taking, and critical thinking skills. A correlation was found between sensation-seeking and the variables of gender, critical thinking, and locus of control. One study that looked at actual risk-taking analyzed the relationship between risk perception, sexual risk-taking, and locus of control among incarcerated drug users between the ages of 14 and 21 (Crisp & Barber, 1995). The results showed that those with an internal locus of control knew they were taking risks in the decisions they made, while those with an external locus of control showed a greater tendency to believe that they were invulnerable to such risks.

In terms of college student risk-taking, studies examining locus of control generally have not incorporated risk perception or other decision-making constructs. These limitations point to the need for further research with locus of control in the area of risk-taking among older adolescents.

### *Peer Influence*

Several studies have indicated that peers influence adolescent risk-taking, specifically drug use (Jenkins, 1996), cigarette smoking and

alcohol use (Urberg, Degirmencioglu, & Pilgrim, 1997), and unwanted sexual experiences (Erickson & Rapkin, 1991). A qualitative study conducted by Lashbrook (2000) showed that college students may attempt to avoid negative emotions, such as feelings of isolation and inadequacy, by participating in risky behaviors with peers.

Concerning alcohol consumption, males have been found to be more influenced by friends as compared with females (Valliant, 1995). In another study, students who affiliated with friends who drink were more likely to drink than if they affiliated with nondrinkers (Martin & Hoffman, 1993). In a study by Ford and Carr (1990), parental approval showed a significant relationship with consumption of alcohol, particularly if both parents approved of drinking, and as the number of drinking friends increased, so did alcohol consumption.

One study on the positive influence of peers indicated that training about HIV within university dorms was associated with an increase in safer-sex conversations with peers. In addition, there was an increase in the use of condoms for a six-month period following the training. However, efficacy was not demonstrated over a longer period of time (Kauth, Christoff, Sartor, & Sharp, 1993).

Of the few qualitative studies in the area of peer influence and actual risk-taking, most were correlational in nature, used a small sample, and living environment was not taken into account. Further, more studies on risk-taking were conducted with younger adolescents than with college students. It is speculated that being away at school, and thus having greater freedom, college students are more apt to participate in risky activities, particularly when peers are present.

### *The Present Research*

This study was conducted to create a more holistic model of risk-taking among college students. The variables of perceived risks, perceived benefits, certainty of decision made, and perceptions of types and likelihood of consequences occurring represented the decision-making perspective. The variables of sensation-seeking and locus of control represented the dispositional trait perspective. The variables of peer influence and perceived peer participation represented the environmental perspective.

## METHOD

### *Participants*

Two hundred sixty older adolescents (ages 18 to 21) from career exploration classes and the psychology department's subject pool at a

large university in the southwestern United States participated in this study. Some participants came to the first but not the second data collection session, there were some missing data, and some participants were older than 21. Thus, there were valid data for statistical analyses for 196 participants.

### *Measures*

The Risk Involvement and Perception Scale (RIPS) is a self-report questionnaire that consists of 23 risky behaviors (Siegel et al., 1994). The RIPS comprises three subscales: frequency of risk involvement, perceived benefits, and perceived risks. The RIPS has been found to be fairly reliable and valid. Test-retest reliability for the three subscales has been reported as follows: .72 for involvement, .87 for perceived risks, and .77 for perceived benefits (Siegel et al., 1994). Content and construct validity have been established through factor analyses. Six factors accounted for 66% of the variance in reported involvement. In addition, the risk involvement subscale has been found to correlate more strongly with the perceived benefits subscale compared to the perceived risks subscale (Siegel et al., 1994).

The peer influence variable was operationalized by a measure fashioned after the RIPS and rating scales used in Benthin, Slovic, and Severson's (1993) study. This measure consisted of the 23 behaviors from the RIPS and a rating scale from "not at all influenced" to "greatly influenced" to indicate the degree to which friends influence the college student to participate in a specific risky activity. A reliability score (Cronbach's alpha) of .84 was computed for this instrument.

Perceived peer participation was operationalized by a measure fashioned after the RIPS and rating scales used in Benthin, Slovic, and Severson's (1993) study. This measure consisted of the 23 behaviors from the RIPS and a rating scale from "not at all" to "daily or more" to indicate how frequently the college student thinks peers are engaging in certain risky behaviors. A reliability score (Cronbach's alpha) of .85 was computed for this instrument.

Rotter's (1966) Locus of Control Scale assesses a person's attributions (internal versus external) for the outcomes of his or her behavior. This measure contains 29 forced-choice items, with each item consisting of an external belief and an internal belief. This scale possesses high test-retest reliability (.72) and good discriminant validity as indicated by low correlations with intelligence, social desirability, and political liberalism (Lester & Bishop, 1997).

Zuckerman's (1979) Sensation-Seeking Scale, Form V (SSSV), consisting of 40 forced-choice items, was used to assess the trait of sensation-seeking. Factor analysis has revealed four subscales—thrill and

adventure seeking, experience seeking, disinhibition, and boredom susceptibility (Zuckerman, Eysenck, & Eysenck, 1978)—measuring desire to engage in risky activities, desire for new experiences, propensity for less inhibition in social situations, and dislike of repetitive experiences, respectively. The internal reliability of this scale ranges from .83 to .86 (Arnett, 1990).

The Marlowe-Crowne Social Desirability Scale consists of 33 true/false items that reflect personal attitudes and traits (Crowne & Marlowe, 1964). The internal reliability coefficient is .88. This scale correlates positively with the K and L scales of the Minnesota Multiphasic Personality Inventory.

Two modified risk-taking scenarios (Beyth-Marom, Austin, Fischhoff, Palmgren, & Jacobs-Quadrel, 1993) were presented: (1) a drinking and driving situation and (2) unprotected sexual intercourse. Participants indicated whether or not they would participate in the behavior and the certainty they felt about their decision. They listed negative and positive consequences of their decision and the likelihood of each consequence occurring (ranging from “not likely at all” to “very likely”). Each consequence generated by the two risk-taking scenarios was coded on two dimensions: type of consequence and directness. Three independent raters used a coding guide similar to the one developed by Beyth-Marom et al. (1993). Regarding type, consequences were coded according to six categories: (a) personal effects—defined as specified effects on the person resulting from his/her behavior; (b) social reactions—defined as unspecified effects on the person resulting from others’ reactions; (c) effects on others—defined as specified effects on others resulting from the person’s behavior; (d) behaviors—defined as specified behaviors that the person might engage in as a result of the decision; (e) miscellaneous—defined as consequences that did not fit into any of the previous categories; and (f) none. Regarding directness, each consequence was coded as direct or negated. A direct consequence was defined as one that results directly from the chosen action. A negated consequence was one stated in terms of what could have happened had the opposite decision been made.

The three raters were trained by the primary researcher in coding the types of consequences and their directness. The raters practiced coding sample consequences to the third level on the coding guide. After practice, reliability for directness was .74, .83, and .91 for the three raters, with an average reliability of .83.

Raters independently coded each consequence. If there was disagreement between raters regarding the category or directness of a consequence, it was resolved by selecting the category or directness that two of the three raters had chosen. If there was no agreement among rat-

ers, the principal researcher selected the rater's category that seemed most appropriate for the consequence. The principal researcher did not select any category that one of the raters had not chosen.

### *Procedure*

Participants were administered a demographic questionnaire, the measurement instruments, and the two scenarios. Due to the numerous measures, there were two data collection sessions, usually a week apart. In the first data collection session, a packet with the following measures was distributed: the demographic questionnaire, the risk involvement and perceived benefits subscales of the RIPS, the SSSV, the two risk-taking scenarios, and the peer influence instrument. The packet for the second data collection session included the following measures: Rotter's Locus of Control Scale, the perceived risks subscale of the RIPS, the perceived peer participation measure, and the Marlowe-Crowne Social Desirability Scale. In order to maintain confidentiality, an algorithm sheet was used to match packets from the first and second data collection sessions.

## RESULTS

### *Demographics*

Data were collected from 196 college students. Their average age was 19 years, with a range from 18 to 21. There were 129 females and 67 males; 77% were Caucasian and 69% were Protestant. Approximately 71% of the participants reported religion as being "important" or "very important." Most lived on campus (44.4%) or in an apartment with a roommate (21.9%). Sixty percent were from families where the household income was \$70,000 or above; only 10.7% came from families where the household income was \$30,000 or below.

### *Multiple Regression Analyses*

A multiple regression analysis was conducted with risk involvement as the dependent variable. The independent variables were sensation-seeking, locus of control, perceived risks, perceived benefits, peer influence, perceived peer participation, and social desirability. The goal was to determine their contribution to risk-taking frequency (i.e., overall variance and unique variance). Locus of control was detected as a suppressor variable and removed from further analyses.

Results indicated that the overall model accounted for 68.7% of the variance in risk involvement ( $p < .001$ ). When examining individual



variables, perceived peer participation was the most significant predictor of risk involvement, followed by perceived benefits and sensation-seeking (see Table 1).

An additional multiple regression analysis was conducted that included the four sensation-seeking subscales. Locus of control was detected as a suppressor variable and removed from further analyses. The overall model accounted for 71.9% of the variance in risk involvement ( $p < .001$ ). When examining individual variables, perceived peer participation was again the most significant predictor of risk involvement (see Table 2). Perceived benefits and disinhibition (a sensation-seeking subscale) were also significant predictors of risk involvement.

### *Scenarios*

Comparisons were made of the response patterns of those who stated they would participate in the behaviors presented in the scenarios versus those who would not. For the first scenario, drinking and driving, 179 participants stated they would not participate in this risky behavior versus 17 who indicated they would. For the second scenario, unprotected sex, 167 participants stated they would not participate in this risky behavior, while 29 indicated they would. It was also determined that 80.1% of the sample stated they would not participate in either behavior, while 3.6% indicated they would participate in both. With such skewed results, it was determined that analysis of variance would not be appropriate to distinguish between the response patterns of those who said yes versus no to participation. Instead, logistic regression analyses were used to determine which variables predicted group membership (yes versus no) for both scenarios. Logistic regression was chosen because the criterion variable was discrete (yes/no), the predictor variables were a mix of types, and there were unequal cell sizes. Logistic regression is a nonparametric statistic and robust to these violations of assumptions.

In looking at the effect of individual variables, only decision certainty was a significant predictor of group membership for the first scenario. The odds ratio for this variable was .175. This model correctly classified 97.8% of the participants who were in the no category and 11.8% of the participants who were in the yes category. The overall percentage of correctly classified cases for this scenario was 90.3%. For the second scenario, decision certainty, mean likelihood of negative consequences occurring, and mean likelihood of positive consequences occurring were significant predictors of group membership. This model correctly classified 97% of the participants who were in the no category and 55.2% of the participants who were in the yes category. The overall percentage of correctly classified cases for this scenario was 90.8%.

Table 1

Multiple Regression for Variables Predicting Risk Involvement, Including Sensation-Seeking Total Score ( $n = 195$ )

Variable	$r$	$B$	$SE B$	$\beta$
Perceived risks	-.37	-.02	.03	-.03
Perceived peer participation	.78	.48	.05	.55**
Social desirability	-.28	-.01	.01	-.07
Perceived benefits	.57	.37	.11	.18*
Sensation-seeking	.54	.02	.01	.16*
Peer influence	.47	.06	.04	.09

Note.  $r$  = zero-order correlation;  $R^2 = .69$  for overall model ( $p < .001$ ). \* $p < .01$ , \*\* $p < .001$ .

Table 2

Multiple Regression for Variables Predicting Risk Involvement, Including Sensation-Seeking Subscale Scores ( $n = 194$ )

Variable	$r$	$B$	$SE B$	$\beta$
Perceived risks	-.37	-.02	.03	-.03
Perceived peer participation	.78	.43	.05	.50**
Social desirability	-.28	-.10	.01	-.07
Perceived benefits	.58	.36	.11	.17*
Peer influence	.48	.06	.04	.08
Thrill and adventure seeking	.15	.01	.01	.02
Experience seeking	.29	.02	.02	.04
Disinhibition	.65	.07	.02	.24**
Boredom susceptibility	.31	-.10	.02	-.03

Note.  $r$  = zero-order correlation;  $R^2 = .72$  for overall model ( $p < .001$ ). \* $p < .01$ , \*\* $p < .001$ .

### *Qualitative Analyses of Consequences*

For the first scenario, drinking and driving, the highest percentage of consequences fell into the personal effects category, regardless of whether or not the participants stated they would engage in the behavior and whether the consequences were positive or negative. The second highest percentage of consequences fell into the social reactions category. The majority of consequences were direct for both yes and no groups. Those who stated they would not participate in the behavior had a lower percentage of their negative consequences in the personal effects category compared to those who indicated they would participate. Those who responded yes to participating and those who responded no had an equal percentage of their positive consequences in the personal effects category.

For the second scenario, unprotected sex, the highest percentage of consequences were again classified as personal effects, regardless of whether or not the participants stated they would participate in the behavior and whether the consequences were positive or negative. The majority of consequences were classified as direct across the yes and no groups, except for no/positive consequence (45% direct and 53% negated). Those who responded no to participating had a lower percentage of their negative consequences in the personal effects category compared to those who responded yes. Those who responded no to participating had a higher percentage of their positive consequences in the personal effects category compared to those who responded yes.

### *Gender Analyses*

Additional exploratory analyses were conducted to determine if there were any statistically significant differences between males and females across all major quantitative variables. Males and females were found to differ significantly on the following variables: sensation-seeking, disinhibition, boredom susceptibility, social desirability, perceived risks, perceived benefits, peer participation, number of positive consequences (second scenario), number of negated consequences (second scenario), likelihood of negative consequences occurring (second scenario), and risk-taking frequency.

## DISCUSSION

Higher sensation-seeking was associated with more frequent involvement in risky behavior. This is logical, given that sensation-seeking is a personality construct that reflects a need for varied and novel experiences. It is consistent with previous studies (Horvath & Zuckerman,

1992; Newcomb & McGee, 1991) and supports sensation-seeking, as measured by the Sensation Seeking Scale, as a valid predictor of risk-taking.

When the four sensation-seeking subscales were analyzed, only disinhibition was a significant predictor of risk involvement. The disinhibition subscale measures a propensity for less inhibition in social situations. This finding is consistent with the literature (Newcomb & McGee, 1991).

In the initial correlational analyses, there was a negative relationship between risk involvement and perceived risks. When perceived risks was included in the regression analyses, it was no longer a significant predictor of risk involvement. This is contradictory to findings in the literature, where this variable has shown a significant negative relationship with risk involvement (Lavery et al., 1993; Shapiro et al., 1998).

Consistent with the literature (Lavery et al., 1993; Parsons et al., 1997), higher perceived benefits of risk-taking seemed to be associated with more involvement in risky behaviors. This indicates that students consider the perceived benefits of participating in risky behavior as well as the perceived risks.

Though peer influence was not a significant predictor of involvement in risky behavior, perceived peer participation was. Similarly, previous studies have shown relationships between peer influence and risk-taking frequency from the standpoint of how often peers or friends participated in those same behaviors (Ford & Carr, 1990; Jenkins, 1996; Martin & Hoffman, 1993).

Regression analysis addressed the drinking and driving scenario, and the only significant predictor of group membership was the certainty of the decision made. The more certain students were about the decision they made, the less likely they were to state that they would participate in the behavior. Incidentally, this variable was not included in the study by Beyth-Marom et al. (1993), so it adds one more important predictor to the decision-making model for risk-taking. Interpretation became a challenge because participants stated yes or no to a scenario, but included consequences from both standpoints. Therefore, the questions became: Are there divergent response patterns as far as positive and negative consequences are concerned, depending on whether the student stated yes or no? Does a person consider negative and positive consequences from both standpoints of participating or not participating before making a decision, or are there two distinct thinking patterns?

In looking at the unprotected sex scenario, the certainty of the decision made was a significant predictor of group membership, along with

the mean likelihood of negative consequences occurring and the mean likelihood of positive consequences occurring. It appears that the higher the likelihood of positive consequences and the lower the likelihood of negative consequences, the more likely the college student would engage in unprotected sex. In addition, the more certainty there was in the decision made, the less likely the student would say yes to participating. The original study (Beyth-Marom et al., 1993) did not include a variable addressing likelihood of consequences occurring. These additional variables add another avenue to explore—how students evaluate the likelihood of consequences of their decisions and how that impacts their ultimate decision to participate.

Further, overall trends revealed that the majority of responses fell into the personal effects category and were direct consequences. This is somewhat consistent with the literature (Beyth-Marom et al., 1993), in that it reflects some of the egocentric thinking of older adolescents and shows more linear thinking, in that it is easier to think of consequences in terms of action (direct) instead of inaction (negated).

Overall, it appears that males participated more frequently in risky behaviors compared to females. In addition, they perceived more benefits and fewer risks in participating than did females. Males also affiliated with more peers that participated in risky behaviors than did females. Males had significantly higher sensation-seeking tendencies than females, and females gave more socially desirable responses compared to males. In addressing the second risk-taking scenario, females listed more positive consequences and assessed negative consequences as more likely to occur than did males.

### *Conclusions and Directions for Future Research*

The dispositional trait perspective was supported in this study. The importance of looking at established personality traits such as sensation-seeking in explaining and assessing college student propensity to take risks was confirmed. In addition, the decision-making perspective was shown to have some validity in that certainty of the decision made and the likelihood of consequences occurring (both positive and negative) helped to distinguish between those who said yes versus no to the scenarios. Further, the environmental perspective was supported in that perceived peer participation influenced risk-taking. The more peers participated in risky activities, the more the college students reported participating in those same activities.

It is important to assess trends in risk-taking exhibited by each gender. It would also be helpful to determine whether same-sex peers have more influence on the risks that college students take compared with opposite-sex peers. Lastly, with males exhibiting more risk-taking

than females, as well as displaying higher sensation-seeking tendencies and perceiving less riskiness in certain behaviors, a biological/physiological explanation for the differences in risk-taking between genders should be explored.

The purpose of this study was to create a more comprehensive model of college student risk-taking. It might be beneficial to more closely investigate the decision-making perspective alone, since it is a relatively new concept and there are few studies on older adolescents. It would also be beneficial to continue to use risk-taking scenarios that portray real-life experiences, and to control the decision options so valid statistical comparisons can be made.

In sum, this study has laid some groundwork for future research on college student risk-taking and provided a synthesis of instruments and procedures to investigate this construct from several perspectives.

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