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## Risk-Taking Behaviors As Predicted By (Mal)Adaptive Functioning In College Students: A Look Into Emotional Adjustment

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RISK-TAKING BEHAVIORS AS PREDICTED BY (MAL)ADAPTIVE  
FUNCTIONING IN COLLEGE STUDENTS: A LOOK INTO EMOTIONAL  
ADJUSTMENT

by

Hillary Elizabeth Smith  
Bachelor of Arts, Hope College

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Arts

Grand Forks, North Dakota

December 2019

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This thesis, submitted by Hillary Elizabeth Smith in partial fulfillment of the requirements for the Degree of Master of Arts from the University of Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This thesis is being submitted by the appointed advisory committee as having met all of the requirements of the school of Graduate Studies at the University of North Dakota and is hereby approved.

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School of Graduate Studies

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Date

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Title Risk-Taking Behaviors as Predicted by (Mal)adaptive Functioning in  
College Students: a look into Emotional Adjustment

Department Psychology

Degree Master of Arts

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Hillary Elizabeth Smith  
December 5, 2019

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## ABSTRACT

Risk-taking behaviors emerge, increase, and peak during adolescence and have shown to continue into late adolescence. Research has begun to explore how some forms of risk-taking may be normative and adaptive. The aim of this study is to look at how social, academic, and occupational functioning are related to risk-behaviors, as measured by risk-favorability and reported risk-taking history, and emotional adjustment in a college sample (N=314). Risk was assessed using self-report and an implicit task, both of which were moderately correlated. Both risk measures were negatively correlated with self-report measures of adaptive functioning and emotional adjustment. A series of mediation analyses were performed to evaluate whether risk-taking behaviors may mediate the relationship between emotional adjustment and adaptive functioning. Risk-taking and emotional adjustment measures were both negatively correlated with adaptive functioning outcomes; however, in each of the mediation analyses the association between risk-favorability and adaptive functioning was not statistically significant when accounting for emotional adjustment. These findings suggest that emotional adjustment may be a stronger predictor of poor adaptive functioning outcomes than risk-taking.

# CHAPTER I

## INTRODUCTION

Risk-taking, as it is defined in the literature, is an engagement in behaviors that are associated with some probability of undesirable results (Boyer, 2006). Given the broad definition of risk-taking above, a large range of behaviors qualify as risky. Frequently recognized, prototypical and undesirable real-world risks include alcohol consumption, substance use, unsafe sexual activity, interpersonal aggression, and reckless behaviors that include even more severe and delinquent criminal behaviors (Sadeh & Baskin-Sommers, 2016). It is widely acknowledged among the literature that many of these risk-taking behaviors emerge, increase, and peak during adolescence (Boyer, 2006).

Defining adolescence is another term that warrants discussion, it is generally agreed that adolescence begins when pubertal developmental becomes evident, however the end of adolescence or attainment of adult status is not clearly defined (Shulman et al., 2016). Some researchers prefer to view the ages of 18-21 years old as late adolescence, as these ages are rarely regarded outside the legal system as fully mature adults and have typically not attained the traditional markers of adulthood (Shulman et al., 2016). Some researchers view late adolescence to continue until the ages of 24 or 25 as neurodevelopment has indicated that the brain does not fully mature until around this age, and therefore implies that adolescent decision-making processes and judgment are similarly defined by this age (Defoe et al., 2015; Romer et al., 2017). For the purpose of this study, late adolescence will be defined by ages 18-22. This age group presents a unique developmental period distinct from early adolescence and adulthood and has been shown to be a developmental period with heightened vulnerability for risk-taking

behaviors (Shulman & Cauffman, 2014). Documented peaks for risky-behaviors within this age group include unintended pregnancy occurring at ages 18-19, sexually transmitted infections such as gonorrhea and chlamydia peaking between ages 20 to 24, driver death occurring at the age of 21, crime ratings reaching peak at the age of 19, and peak binge drinking around the age of 21 (Shulman & Cauffman, 2014; Romer 2017). Both research and epidemiological data support the notion that peak vulnerability to risk taking occurs at the end of adolescence.

Additionally, decision making among the ages of 18- to 22-years old appears to be significantly influenced by social factors (Silva et al., 2015), which may contribute to changes in risk-favorability and risk-taking in late adolescence. For many individuals, late adolescence is a period marked by reduced adult supervision, increased autonomy and mobility, and exposure to a wider range of social and peer contexts (Shulman & Cauffman, 2014). Late adolescents are subject to much less adult supervision than younger adolescents and often reside in situations in which they are in close contact with peers, which may contribute to their higher rates of many risky behaviors (Silva et al., 2015). The combination of these factors, increased autonomy and mobility, peer-rich environments, and freedom from adults makes late adolescents an important group in which to investigate risky decision making and the influence of peers, especially as it applies to a university setting where the opportunity to engage in risky behavior may be more salient than in other settings. For the purpose of this study a brief overview of neurodevelopmental, cognitive, and sensation seeking theories of risk-taking will be provided, followed by a more in-depth summary of emotional and social theories of risk-taking and motivations among this age group.

## **Theories of Risk-Taking and Risk-Taking Motivations**

### ***Neurodevelopment***

The neurodevelopment of the adolescent brain is believed to be a critical aspect of risk-taking behavior. The dual systems model (Steinberg, 2010) postulates that adolescents' vulnerability to reckless risky behavior is due in part to the divergent developmental courses of two brain systems; 1) the socioemotional systems, which focuses on increases in motivation to pursue rewards resulting from heightened neural manifestations of reward sensitivity, and 2) the cognitive control system, which is a developing system that restrains imprudent impulses. The dual systems model specifically poses that risk behaviors peak during adolescence due to the early activation of the socioemotional system making adolescents prone to seek out exciting, novel stimuli and risky activities, meanwhile the slower-to-mature cognitive control system is not far enough in development to consistently restrain impulses leading to risky behaviors. Shulman et al. (2016) demonstrated that adolescents' ability to inhibit impulses seems to be comparable to that of adults in simple tasks; however, adolescents' do not have the skills necessary to appropriately respond to more cognitively demanding situations. This research finding suggests that self-regulatory skills continue to improve from adolescence to adulthood. The dual systems model has support from self-report, behavioral, and neuroimaging studies, indicating that cognitive control increases gradually and linearly into the early 20's, which makes mid and late adolescence a period of high vulnerability for risk taking behavior (Shulman, et al., 2016). In addition to neurodevelopmental changes, the dual systems model emphasizes the context in which the decision-making takes place.

## *Cognition*

Cognitive developmental research has, traditionally, been conducted with an assumption that children and adolescents are less cognitively proficient than adults. Underlying this assumption is the idea that more sophisticated cognitive capacities develop with age, such as improved reasoning skills, greater processing speed, and a greater ability for metacognition (Boyer, 2006). However, many findings have demonstrated that this is not accurate. In fact, by the age of 15 or so adolescents have cognitive capabilities similar to adults and generally perform as well as adults on tasks of logical reasoning and information processing (Haase & Silbereisen, 2011; Shulman et al., 2016). A number of studies have shown that adolescents are able to perceive and evaluate risks and make decisions in a way that is comparable to adults in terms of risk perception (Boyer, 2006; Haase, & Silbereisen, 2011; Shulman et al., 2016). Contrary to previous conceptions, it is unlikely that adolescent risk-taking is attributable to an inability to estimate consequence probability or an overestimation of their vulnerability. Research has demonstrated that adolescents may even be described as hyper-rational, that adolescents are better apt at evaluating the risks and the benefits of their behavior when making a decision compared to adults (Romer et al., 2017). However, despite this finding it is well known that adolescents take more risks than adults, suggesting that adolescents may consider other factors and motivations when making decisions.

One possible explanation for this discrepancy is that, for many adolescents, the perceived benefits seems to outweigh the perceived costs (Defoe et al., 2015). Some of these perceived benefits include social benefits, altering emotions/affects experienced on a short-term basis, or fulfilling the desire to know or explore in new environments.

Further, it has been demonstrated among late adolescents, particularly those in college, perceived benefits are more predictive of engagement in risk-taking behavior than perceived risks (Parsons et al., 1997). Additional studies suggest that what adults view as problematic or as risk-taking behavior adolescents and young adults might deem as acceptable and view as goal-directed behavior (Patrick et al., 2008; Boyer, 2006). Adolescents and young adults may also be likely to accept some probability of negative consequences because they desire the potential positive outcomes of the risk behavior as emotionally, biologically, or socially desirable (Boyer, 2006).

### ***Sensation Seeking***

Sensation seeking appears to be a unique motive for adolescent risk taking. Sensation seeking has been defined as a “heightened attraction to novel and exciting experiences despite the evident risk” (Romer et al., 2017). Measures of sensation seeking are often found to be predictive of self-reported risk-taking behaviors (Shulman et al., 2016). Shulman and Cauffman (2014) demonstrated that accounting for sensation seeking and impulse control in risk favorability increased the peak age from 20 to 22. It has been theorized that sensation seeking is primarily motivated by exploration of the environment under ambiguous risk contexts (Romer et al., 2017). Another possible explanation for increased risk taking in late adolescence, is that some adolescents may be more likely to take ambiguous risks, where the outcome probability is not known. Shulman et al. (2016) also demonstrated that adolescents when compared to adults, made fewer risks when the probabilities of loss were known and made significantly more risks with unknown probabilities, suggesting that adolescents have a higher tolerance for unknown outcomes. Shulman et al. (2016) also argue that ambiguous risk situations in laboratory situations

are more representative of real-life risk-taking as the probabilities are typically unknown and suggest that this may be a contributing factor to the higher risk propensity exhibited by adolescents.

### ***Emotions***

Emotions have been theorized to have two major roles in decision making and risk-taking behavior. One of the influences that researchers have studied is how emotion provoking experiences and reactions influence the process by which decisions are made in potentially risky situations (Boyer, 2006). This is referred to as affective decision-making. Haase and Silberesien (2011), studied the effect of positive affect on risk perception in young adults specifically regarding risk-taking behaviors such as substance use, riding with a drunk driver, and getting into physical altercations. These risky behaviors may have short-term rewards, such as substance use increasing the perceived positive affect experienced by an individual but have the potential for serious harm to self and others. This study further showed that negative affect is associated with lower risk perception. Haase & Silbereisen (2011) demonstrate the importance in acknowledging that affective polarities (i.e., positive and negative) do not work opposite one another in risk-taking situations, but that both positive and negative affect can lead to increased risk-taking behavior and lower risk perception among individuals. Individuals who overestimate positive emotions related to favorable outcomes tend to be overly risk seeking, whereas individuals who overestimate negative emotions related to unfavorable outcomes tend to be overly risk averse (Mellers, 2000). Research has shown that differences in experimentally induced habitual use of emotion regulation strategies are significant predictors of risk-taking behavior (Heilman et al., 2010; Miu & Crisan, 2011).

Further, research has shown that naturally occurring habitual use of emotion regulation strategies was also a predictor of risk-taking behavior. For example, when comparing the naturally occurring habitual use of emotion regulation strategies of cognitive reappraisal and expressive suppression, it was found that cognitive reappraisal increased risk-taking favorability and risk engagement due to decreased sensitivity to changes in probability and loss amount (Panno et al., 2013).

Affective regulation and emotion regulation have both been recognized as motives for risk-taking and engaging in risky behaviors. Emotion dysregulation has been found to be associated with increased overall engagement in risky behaviors, as well as specific risk behaviors such as substance use, risky sexual behavior, deliberate self-harm, aggressive behavior, and disordered eating (Weiss et al., 2015). It has been theorized by previous research that individuals who exhibit greater emotion dysregulation are more likely to engage in risk-taking behaviors in attempt to alleviate or distract themselves from emotional or affective states perceived as aversive (Hessler & Katz, 2010). That is, engaging in risky behaviors may result in short-term reduction in emotional or affective distress and an increase in pleasurable emotions or affective states. These increased positive states may function to counter or distract from unpleasant emotional and affective states that an individual is unwilling to approach, tolerate, or accept (Weiss et al., 2015). In turn, the risky behavior comes to be perceived as desirable and is perceived to have more potential benefits, especially immediate benefits, than potential consequences. Researchers evaluating affective regulation and emotion regulation as motives for risk-taking behavior have found low levels of positive affect as a frequent antecedent to risky behavior and engagement in risky behaviors often resulting in an



increased positive affect (Isen, 2000; Weiss et al., 2015). This suggests the potential that affective regulation and emotion regulation may work together, rather than independent of one another, to contribute to an individual's vulnerability to engage in risk-taking behavior.

***Social Development—decision making in the context of peers***

One of the defining characteristics of the transition to adolescence is the shift in time spent with parents to the time spent with peers (Boyer, 2006). Early adolescents experience more parental monitoring whereas late adolescents, especially those in a college setting, have more freedom in creating their own environment which may lead to environments filled with tempting risk-taking opportunities (Defoe et al., 2015). It is important to consider that, for many adolescents living in the United States., the first time they are without monitoring is when they transition to college. For many late adolescents the freedom of the college environment may provide the first, as well as novel, opportunity to engage in specific risk-taking behaviors.

As a result, peer influence and peer acceptance become very important during the adolescent years and may play a large role in risk-taking behaviors. It has been well documented that adolescents take more risks with peers than when alone, this may occur in part because peers heighten late adolescents' sensitivity to potential rewards (Smith et al., 2015). Research has demonstrated that adolescents gambled more when they thought they were being observed by peers than when they were alone, and especially so when they were given information indicating that the probability of losing was greater than that of winning (Albert & Steinberg, 2011). This indicates that peers may motivate adolescents to pursue opportunities for reward, even when the chances of positive

outcomes are known to be unlikely. Silva et al. (2015) used to the Iowa Gambling Task to evaluate peer influence on late adolescent risk-taking. Being in a peer group was associated with late adolescents' being likely to decide to play their cards more frequently in the initial blocks of the task despite the lack of information about the payoff of the decks, but these late adolescents' were also more responsive to feedback (Silva et al., 2015). That is, adolescents were initially more risk-taking when in a peer group, but they were also more astute to the outcome of risk-taking. This study demonstrated that late adolescents, in the presence of peers, are quicker to learn which choices lead to rewards and which ones have costs.

Peers may also serve as the catalyst for risky behavior when behavior willingness is present. According to Prinstein and Dodge (2008) behavioral willingness, defined as openness to risk opportunity, is a better predictor of risk behavior than behavioral intention among adolescents. That is, adolescents may not intend or plan on engaging in risky behavior but under the right circumstances they might do so, especially if accompanied by or influenced by peers (Silva et al., 2015). Adolescents may engage in a risky behavior to demonstrate their desire to be seen as a member of a desired group, or as someone who has the characteristics associated with that group.

### **(Mal)adaptive Risk-Taking**

Many theories and much of the literature has focused on risk-taking behavior as being maladaptive and associated with maladaptive functioning (Sadeh & Baskin-Sommers, 2016). However, research has begun to explore whether engaging in risk-taking may be a normative process and an essential part of developing adaptive functioning skills among late adolescents. Romer et al. (2016) suggest that while risk-

taking can be maladaptive and lead to poor outcomes some risk-taking behaviors can serve adaptive purposes. They postulate that behaviors, such as entering a competition can be considered a risky activity because they can result in failure, yet this type of risk is important for attaining achievement-oriented goals. Reward sensitive traits, such as drive and reward responsiveness, have been associated with ambitious goal striving and achievement motivation (Romer et al., 2016).

In a developmental period with shifting social contexts and boundaries, late adolescence is a time of exploration. This exploration may not necessarily be maladaptive, but rather some exploratory risk-taking may be consistent with normative adolescent development (Steinberg, 2008). When exploring risky behaviors, the cognitive capacity of many adolescents may be sufficient to either reinforce adaptive risk experiences or learn from a maladaptive risk experience. Thus, experience that is gained by late adolescents through exploratory risk-taking behaviors may lead to more adaptive decision making in the long term. In this way, increases in adolescent risk-taking can be viewed as a need to gain the experience required to be prepared to assume adult roles and behaviors. From this perspective risk-taking is not only viewed as adaptive but also likely to contribute to continued adaptive functioning. However, the exception appears to be individuals who exhibit low trait impulse control and other associated learning difficulties that interfere with adaptive learning from risk-taking; these individuals exhibit heightened vulnerability for repeated and maladaptive risk-taking behaviors (Shulman et al., 2014a). Supporting this perspective, Romer and colleagues' (2017) found risk-taking in adolescence, especially when characterized by exploratory and experimental motives, was generally considered to be constructive risk-taking and represent a desire for

independence; whereas destructive risk-taking was represented by poor impulse control and antisocial tendencies.

Risk-taking may also be an adaptive means of enhancing social attachments and interactions. Studies have shown that adolescents who experimented with drugs were more socially accepted by peers and exhibited better adjustment and adaptive functioning compared to adolescents who abstained from drug use (Romer et al., 2016). Thus, some experimentation, regardless of the nature of the experimentation, is typical and may be an essential component of a healthy adolescent experience and these experimentation experiences may contribute to optimal competence in multiple domains (Baumrind, 1987).

### **Risk-Taking Research**

While the research on risk-taking behaviors in adolescents is a well-studied area, there are still limitations that apply almost broadly to the research being done. Shulman et al. (2016) identify one obvious shortcoming of the literature on risk-taking behavior as the heavy reliance on self-report measures. Relying on self-report measures introduces the potential conflicts of self-report bias and participants responding in a manner that they view as socially desirable which can lead to inaccurate representations of the data collected.

To address the limitations of self-report measures, some researchers have developed implicit measures of risk-taking behavior such as the Balloon Analogue Risk Task which has been used to examine risk propensity (Panno et al., 2013; Muñoz-Centifanti & Modecki, 2013). However, there are critiques about implicit measures of risk-taking conducted in a laboratory setting, particularly that they do not convey the

emotions present or represent the context of real-life risk-taking situations. This is highlighted by Shulman and Cauffman (2014) when they postulate that the failure of past research to uncover age differences in risky decision making is likely due to the use of methods that elicit careful, reasoned decisions, and do so under low-pressure conditions. Many implicit risk-taking measures used in a laboratory setting are not representative of real-life scenarios. For example, guessing how many pumps of air will burst a balloon in the balloon analogue risk task (Lejuez et al., 2002) or guessing how many boxes can be opened before reaching a bomb in the bomb risk elicitation task (Crosetto & Filippin, 2013) are both simulated on a computer without any real-life consequence for risk-taking behaviors. As a result, it can be difficult for the participants to consider, analyze, and add up the costs and benefits of the risk-behavior in the same manner that they would in real-life risk-taking scenarios. Shulman and Cauffman (2014) continue to advocate that this sort of decision-making task used in the laboratory may differ markedly from the sort of decision-making process that precipitates risk taking in real-life scenarios for adolescents (Shulman & Cauffman, 2014).

Shulman and Cauffman (2014) designed an implicit measure, the Rapid Risk Assessment Task (RRAT), designed to measure intuitive judgment and risk-favorability in the context of potential real-life scenarios. The use of the RRAT has many benefits. The RRAT is hypothesized to be a more subjective and intuitive reaction to risk favorability due to the time constraints (2.5 seconds) participants are given to respond. Further, the scenarios used in the RRAT are designed intentionally to be representative of real-life situations individuals may encounter. This method is thought to elicit an intuitive judgment of risk-favorability, or likelihood to rate a risky behavior as a good idea, given

the high-pressure timed condition and the scenarios being similar to that of real-life risk-taking situations individuals may encounter. In combination, this is thought to elicit a decision-making process that is similar to the process adolescents inherently use when they are faced with real-world risk-taking situations.

### **Rationale for Present Study**

The goal of this present study is to evaluate the relationship between adaptive functioning and risk-taking behavior, particularly in the context of college and university campuses. This study is unique and will contribute to advancing the risk-taking literature by comparing implicit risk-behavior performance to self-reported risk-behavior within the same individuals. This methodology will be able to identify differences in how individuals respond to the implicit measure and how they respond on the self-report measure.

Furthermore, this study will utilize the Adult Self Report (ASR) a widely used measure of emotional and adaptive functioning. This study aims specifically to look at social (friend), education, and job adaptive functioning domains and how adaptive functioning in these areas is related to risk-taking behaviors. This study will also specifically evaluate the effect of risk-taking behavior on the relationship between emotion dysregulation and adaptive/maladaptive functioning in social, education, and job domains.

### **Hypotheses**

First, it is hypothesized that risk-favorability will be moderately correlated with a history of risk-taking behavior, such that individuals who have a high total RISQ score, indicating a history of self-reported risk behavior, will also show high risk-favorability

ratings on the implicit RRAT. This hypothesis is consistent with Shulman & Cauffman's (2014) finding that the RRAT is thought to elicit intuitive judgement and decision-making processes that are similar to the processes adolescents inherently use when they are faced with real-world risk-taking situations. Given that the RRAT elicits decision-making processes similar to those employed during real-world risk-taking, the RRAT will show a moderate correlation with the self-reported history of reported risk-taking behavior.

Second, it is hypothesized that the association between risk-favorability and outcomes measures of friend, education, and work adaptive functioning will be mediated by a history of risk-taking behaviors; such that a history of risk-taking behaviors will be moderately-to-not associated with friend adaptive functioning and will show a stronger association for education and work adaptive functioning. This hypothesis is supported by Romer and colleagues' (2016) findings that indicate better social adjustment in individuals who have engaged in risk-taking. Additionally, risk-taking behaviors in college students correlated negatively with GPA (Wolfe & Johnson, 1995). Further, Boyer (2006) notes an increase in risky behaviors such as alcohol consumption and substance use can negatively affect work performance.

Third, it is that hypothesized that the association of emotional adjustment with outcome measures of friend, education, and work adaptive functioning will be mediated by both risk-favorability and a history of risk-taking behaviors. This hypothesis is supported by Boyer's (2006) findings that individuals predisposed to emotional dysregulation appear to have a heightened vulnerability for externalizing, impulsive, and risk-taking behavior. Biasi et al. (2017) also demonstrated that students who scored high

on ASR anxiety and depressive syndrome scales (consistent with difficulties in emotion regulation) were likely to score lower on education adaptive functioning scale, exhibiting a diminished capacity to meet the demands of the academic environment.



## CHAPTER II

### METHODS

#### Participants

A total of 314 college students, ages 18 – 22 ( $M = 19.38$ ,  $SD = 1.045$ ) participated in the current study. Both male and female participants were recruited and used in this study because historically the literature demonstrates that males and females exhibit different risk-taking behavior patterns and risk-taking behaviors (Shulman et al., 2014a). Of the 314 participants who completed the study, 249 (79.3%) identified as female. Sixty-five (20.7%) participants identified as male. Ethnic diversity was limited in this Midwestern college sample (White or Caucasian, 91.7%; Hispanic/Latina, 2.9%; Asian or Pacific Islander, 1.9%; Multi-racial, 1.6%; Black or African American, 1.3%; American Indian/Alaska Native, 0.6%).

Participants were recruited from the psychology courses at University of North Dakota, primarily through the use of the Sona systems. Sona systems is an online participant recruitment system that recruits students from the University of North Dakota. To be eligible for this study, participants had to be at least 18 years old and no older than 22 years old. Participants received extra class credit for their participation in the study. Participants completed this study in a laboratory setting at the University of North Dakota. The questionnaires were presented on the Qualtrics website. Qualtrics is a survey building system that allows the researcher to randomize the order as to which the questionnaires are presented. The implicit risk assessment was presented on the computer program Inquisit.

## **Materials/Measures**

### ***Adult Self-Report 18-59 (ASR)***

The ASR (Achenbach & Rescorla, 2003) assesses the participants' self-report about friendship relational quality, spouse/partner relational quality, family quality, job/job performance, education/education performance. Additionally, the ASR provides participants with the opportunity to disclose any illness, disability, or handicap; concerns about family, work, education, or other worries; and asks them to describe the best thing about themselves. While the ASR asks about work within the past 6 months, due to the academic year work will be assessed in the past 12 months. The information collected provide the data necessary to score the adaptive functioning scales. The Adaptive Functioning Scales include: friends, spouse/partner, family, job, education, personal strengths and mean adaptive scales. The 126-item questionnaire provides scores for the Syndrome Scales. The participant responses on a 3-point force choice Likert-type scale ranging from "Not True" to "Very True or Often True". The Syndrome scales include anxious/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior, intrusive behavior, as well as other problems. The syndrome scales can be indicative of an individual's tendency to internalize or externalize behavior and emotion. Internalizing behaviors are comprised of the syndrome scales anxious/depressed, withdrawn, and somatic complaints. Externalizing behaviors are comprised of the syndrome scales aggressive behavior, rule-breaking behavior, and intrusive behavior. In the national normative sample used to develop the ASR the test-retest reliability of Friend adaptive functioning was .82 and the internal consistency was .69; in this study the Friend adaptive functioning scale had an

internal consistency of Cronbach's alpha .22. In the national normative sample the test-retest reliability of Education adaptive functioning was .80 and the internal consistency was .51; in this study the Education adaptive functioning scale had an internal consistency of Cronbach's alpha .65. In the national normative sample the test-retest reliability of Job adaptive functioning was .71 and the internal consistency was .60; in this study the Job adaptive functioning scale had an internal consistency of Cronbach's alpha .36. In the national normative sample the Internalizing behaviors scale had a test-retest reliability of .89 and internal consistency of .93; in this study the Internalizing behaviors scale had an internal consistency of Cronbach's alpha of .92. In the national normative sample the Externalizing behaviors scale had a test-retest reliability of .91 and internal consistency of .89; in this study the Externalizing behaviors scale had an internal consistency of Cronbach's alpha .84.

### ***Rapid Risk Assessment Task (RRAT)***

The RRAT (adapted from Shulman & Cauffman 2013) is an implicit association task assessing risk assessment in adolescents and young adults. The participants are given 2 seconds to respond to "How good of an idea" each stimulus item is. There are 4 practice trials prior to the beginning of the main task. In the main task there are 30 stimulus items. Each stimulus item is presented once with an image and audio presentation. The RRAT is adapted for both a male version and female version. Some of the prompts included "How good of an idea is it to": "call in sick when you're not", "run across the highway", "swim where there are sharks", "point a loaded gun at yourself", and "have sex without protection".

### ***Risky Impulsive & Self-Destructive Behaviors Questionnaire (RISQ)***

The RISQ (Sadeh & Baskin-Sommers, 2016) is a 38-item self-report that evaluates overall risky behaviors, perceived consequences, and affective triggers. The RISQ will be modified just to obtain risk-taking behavior history. The RISQ has eight subscales assessing specific risk behaviors including: Drug Behaviors, Aggression, Gambling, Risky Sexual Behavior, Heavy Alcohol Use, Self-Harm, Impulsive Eating, Reckless Behaviors. In this study this scale had an internal consistency, Cronbach's alpha of .82.

### **Procedures**

The study was conducted in a UND psychology laboratory and was an in-person study. Informed consent was obtained from the participants and the participants completed the survey through Qualtrics Research Suite. This data was collected as part of a larger data set. In this study the participants first completed the ASR and was then prompted by Qualtrics to notify their research assistant that they were ready to complete the next task. At this point the RRAT male and RRAT female was administered by trained research assistants as appropriate to the participants gender. The participant then completed the remaining measures through the same Qualtrics survey. The order of this administration of remaining measures was randomized through the Qualtrics Research Suite to avoid any order effects in the presentation of these measures. Participants then received debriefing providing them information about the questions asked pertaining to risk-taking behaviors, personality traits, and emotions. This form included who to contact with concerns about the data provided, their participation in the study, and their rights as a research participant. Additionally, in the case participants experienced any distress

following this experiment this form contained provide a list of mental health services including University services, local services, and 24/7-hour resources for participants.

## CHAPTER III

### RESULTS

#### Overview of Analyses

The data collected in this study were first examined using bivariate correlations to identify relevant covariates to include in subsequent steps of analysis. The first hypothesis, that risk-favorability will be moderately correlated with the history of risk-taking behavior, was assessed during this step.

Subsequent analyses were conducted in two phases of mediation analyses to address the second and third hypothesis. Mediation analyses were conducted using a bootstrapping approach with the PROCESS macro (Hayes, 2013) within SPSS version 26.0. This bootstrapping method calculates 10,000 samples and use bias-corrected bootstrap 95% confidence intervals (Preacher and Hayes, 2008).

The first group of mediation analyses included 3 models. Each of the three models included the risk-favorability as measured by the RRAT as the independent variable, reported risk-taking history as measured by the RISQ as the mediating variable and the outcome variables were three domains of adaptive functioning: social, education, and job. Three separate mediation analyses were employed in order to test the second hypothesis. It was suspected that the association between risk-favorability and adaptive outcome measures would be mediated by self-reported risk-taking history. Furthermore, self-reported risk-taking history would be likely to mediate the relationship between risk-favorability and education adaptive functioning as well as risk-favorability and job adaptive functioning. However, self-reported risk-taking history would be less likely to

mediate, and would show a weaker association to, the relationship with risk favorability and friend adaptive functioning.

Two groups of subsequent serial mediation models were used to test the final hypothesis, the first focusing on internalizing symptoms, the second focusing on externalizing symptoms. Each will build on the model used to test the second hypothesis. The first group of three serial mediation models assessed the association between internalizing behaviors and three domains of adaptive functioning: social, education, and job with each model being mediated first by risk-favorability and then history of risk-taking behaviors. The second group of serial mediation models assessed the association between externalizing behaviors and three domains of adaptive functioning: friend, education, and job with each model being mediated first by risk-favorability and then history of risk-taking behaviors. We suspected that the association between emotional adjustment (i.e., internalizing and externalizing behaviors) and adaptive outcome measures would be mediated by both risk-favorability and self-reported risk-taking history.

### **Descriptive Data and Analyses**

Descriptive statistics (mean and standard deviation) and correlations (see Table 1) were examined in order to test the necessary assumptions for statistical analyses. The RRAT and the RISQ demonstrate a moderate correlation ( $p < .01$ ) which offers support for the utility of the RRAT as a measure of risk-taking. The RRAT showed a weak correlation with internalizing behaviors ( $p < .01$ ) and externalizing behaviors ( $p < .01$ ). The RISQ showed a weak correlation with internalizing behaviors ( $p < .01$ ) and a moderate correlation with externalizing behaviors ( $p < .01$ ). The RISQ showed a weak

inverse correlation to friend adaptive functioning ( $p < .05$ ). Both the RRAT and the RISQ showed weak inverse correlations to job adaptive functioning ( $p < .05$ ) and education adaptive functioning ( $p < .01$ ). Internalizing and externalizing behaviors both show a moderate inverse correlation to job and education adaptive functioning ( $p < .01$ ). However, internalizing and externalizing behaviors were found to have a weak inverse correlation with friend adaptive functioning ( $p < .01$ ). Age demonstrated a weak direct correlation with the RISQ ( $p < .01$ ). This was the only other variable that correlated with age, and as a result age was not included in any subsequent analyses. Gender was demonstrated a weak inverse correlation with the RISQ and the RRAT ( $p < .01$ ), which suggests that males reported more risk-taking history and higher risk-favorability. Additionally, gender demonstrated a weak but positive correlation with education ( $p < .01$ ). This suggests that females reported higher levels of education adaptive functioning. Gender was included in the subsequent analyses as a covariate; however, it did not improve model fit and was not included as a covariate in the final models and analyses reported below.

Table 1  
Summary of Correlations, Means, and Standard Deviations

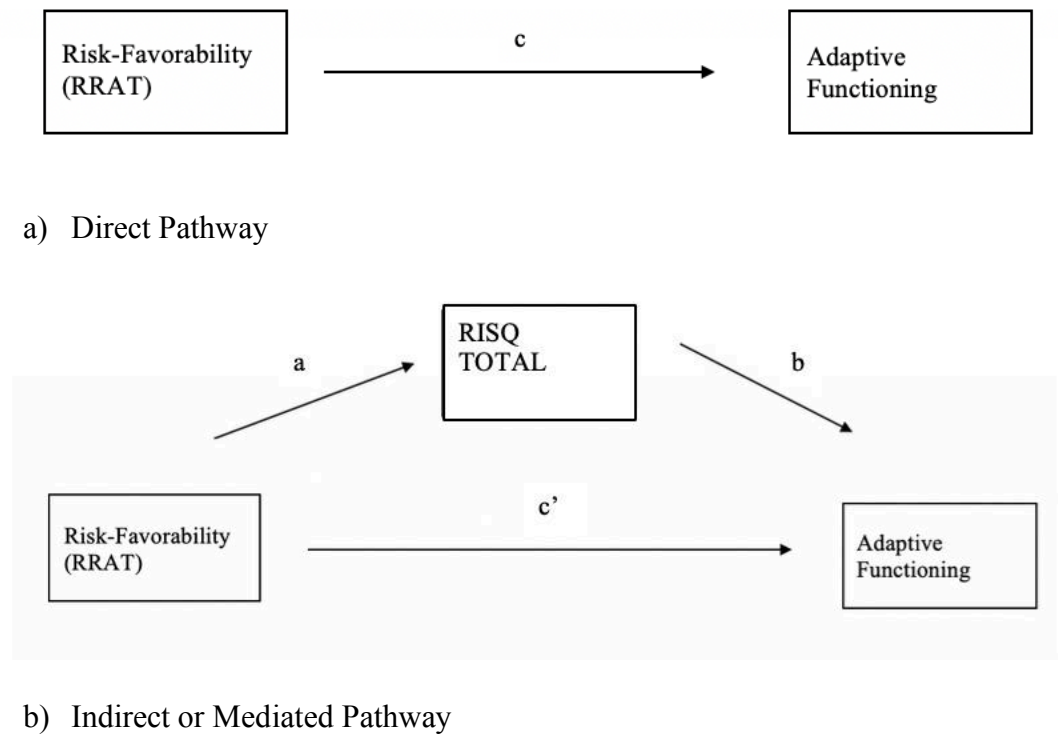
	Age	Gender	RISQ	RRAT	Job	Education	Friends	Internalizing	Externalizing	M	SD
Age	—									19.38	1.05
Gender	-.065	—								0.79	0.41
RISQ	.149**	-.271**	—							7.31	4.74
RRAT	.062	-.299**	.463**	—						43.03	5.85
Job	-.047	.087	-.319**	-.215**	—					2.63	1.39
Education	-.029	.180**	-.386**	-.182**	.349**	—				4.05	1.75
Friends	-.008	.036	-.116*	-.035	.154**	.183**	—			9.22	1.62
Internalizing	.100	.075	.342**	.149**	-.486**	-.490**	-.296**	—		15.78	10.36
Externalizing	.017	-.095	.552**	.349**	-.416**	-.469**	-.153**	.578**	—	9.41	6.62

Note. \*Correlation is significant at .05 level; \*\*Correlation is significant at .01 level



**Phase 1 Analyses: Simple Mediation Models**

Simple mediation models were analyzed to understand the relationship between the RRAT, the RISQ, and adaptive functioning in the following domains: friend, education, and job. Simple mediation analyses were conducted with the RISQ Total (reported risk-taking history) as the mediator (See Figure 1).



*Figure 1.* Mediation Analysis: RRAT, RISQ, and Differential Adaptive Functioning.

**Friend Adaptive Functioning.** Results indicated a significant direct effect of risk favorability on reported risk-taking history ( $a = .3752, p = .0000$ ). All other direct effects were not significant, indicating that there was no mediation of reported risk-taking history between risk favorability and friend adaptive functioning (See Table 2).

Table 2.  
*Simple Mediation Models Risk-Favorability, RISQ, and Differential Adaptive Functioning*

MODEL: X=RRAT, M=RISQ Total Y= Adaptive Functioning					
	a	b	c' (direct)	c (total)	ab (indirect)
Friend	.3752*	-.0422	.0061	-.0097	-.0158
Education	.3773*	-.1417*	-.0007	-.0542*	-.0535*
Job	.3852*	-.0800*	-.0200	-.0509*	-.0308*

Note. \*Significant Pathway

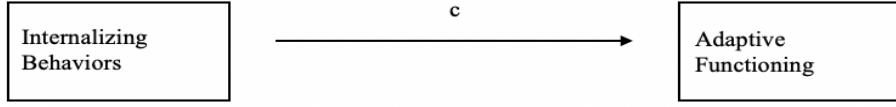
**Education Adaptive Functioning.** Results from a simple mediation analysis indicated that risk-favorability is indirectly related to education functioning through its relationship with reported risk-taking history. Individuals who demonstrated high risk-favorability reported higher risk-taking history ( $a = .3773, p = .0000$ ), and higher reported risk-taking history was subsequently related to lower education adaptive functioning ( $b = -.1417, p = .0000$ ). The direct effect of risk-favorability on education adaptive functioning was not significant ( $c' = -.0007, p = .9674$ ). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of risk-favorability on education adaptive functioning ( $ab = -.0535$ ) was entirely below zero ( $-.0742$  to  $-.0344$ ), revealing a significant mediation effect of reported risk-taking history (see Table 2).

**Job Adaptive Functioning.** Results from a simple mediation analysis indicated that risk-favorability is indirectly related to job functioning through its relationship with reported risk-taking history. Individuals who demonstrated high risk-favorability reported high risk-taking history ( $a = .3852, p = .0000$ ), which in turn predicted lower job adaptive functioning ( $b = -.0800, p = .0000$ ). The direct effect of risk-favorability on job adaptive functioning was not significant ( $c' = -.0200, p = .1851$ ). A 95% bias-corrected confidence

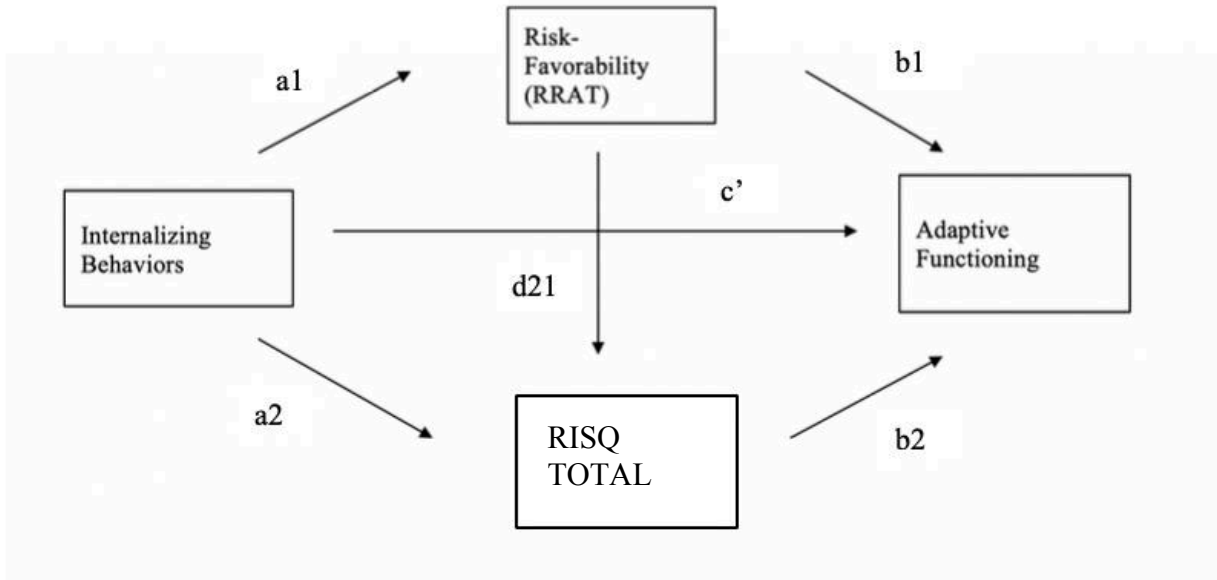
interval based on 10,000 bootstrap samples indicated that the indirect effect of risk-favorability on job adaptive functioning ( $ab = -.0308$ ) was entirely below zero ( $-.0477$  to  $-.0159$ ), revealing reported risk-taking history mediated the relationship between these variables (see Table 2).

***Phase 2 Analyses: Serial Mediation Models***

**Internalizing Behaviors.** Only significant models identified above were included in the subsequent analyses with serial mediation models. These models include the RRAT (risk-favorability), the RISQ Total (reported-risk taking history) and education and job adaptive outcomes. This model included the internalizing behaviors as the independent variable, the RRAT and the RISQ Total as mediators, and adaptive functioning as the outcome variables (see Figure 2).



a) Direct Pathway



b) Indirect or Mediated Pathway

Figure 2. Mediation Analysis: Internalizing Behaviors and Differential Adaptive functioning.

**Education Adaptive Functioning.** Results from a serial mediation model indicated that internalizing behaviors are indirectly related to education adaptive functioning through its relationship with risk behaviors as measured by risk-favorability and reported risk-taking history (see Table 3). Individuals who reported higher levels of internalizing behaviors reported higher risk favorability ( $a1 = .1097, p = .0010$ ) and reported higher risk-taking history ( $a2 = .1337, p = .0000$ ). As expected, risk-favorability

did not have a significant effect on education adaptive functioning ( $b_1 = .0021, p = .8974$ ). However, reported risk-taking history had a significant effect on education adaptive functioning ( $b_2 = -.0895, p = .0000$ ), such that individuals who reported higher levels of risk-taking history had less adaptive education outcomes. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the overall indirect effect ( $ab = -.0150$ ) was entirely below zero ( $-.0236$  to  $-.0077$ ), indicating that reported risk-taking history partially mediates the relationship between internalizing behavior and education adaptive functioning. Moreover, individuals with higher internalizing behaviors reported less adaptive education outcomes even when controlling for reported risk-taking behaviors ( $c' = -.0706, p = .0000$ ).

Table 3  
*Serial Mediation Models Internalizing Behaviors, RRAT, RISQ Total, Adaptive Functioning*  
*MODEL: X=Internalizing Behaviors, M1=RRAT, M2=RISQ*

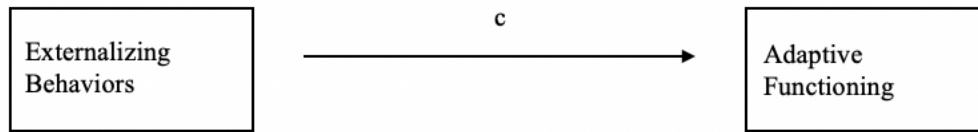
<i>Y = Education Adaptive Functioning</i>		a1	a2	b1	b2	d21	c' (direct)	c (total)	total indirect
		.1097*	.1337*	.0021	-.0895*	.3346*	-.0706*	-.0856*	-.0150*
<i>Y = Job Adaptive Functioning</i>		a1	a2	b1	b2	d21	c' (direct)	c (total)	total indirect
		.1025*	.1375*	-.0189	-.0363*	.3426*	-.0580*	-.0662*	-.0082*

Note. \*Significant Pathway

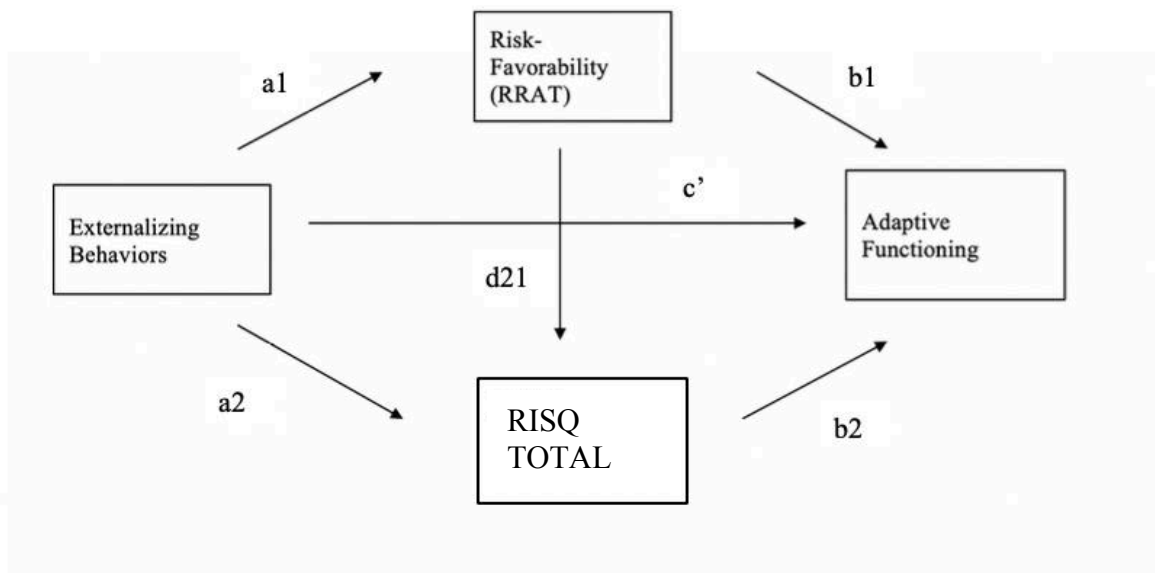
**Job Adaptive Functioning.** Results from a serial mediated model indicated that internalizing behaviors are indirectly related to job adaptive functioning through its relationship with risk behaviors as measured by risk-favorability and reported risk-taking history (see Table 3). Individuals who reported higher levels of internalizing behaviors reported higher risk-favorability ( $a_1 = .1025, p = .0025$ ) and reported risk-taking history ( $a_2 = .1375, p = .0000$ ). As in previous models, risk-favorability did not have a significant

effect on education adaptive functioning ( $b = -.0189, p = .1694$ ). However, reported risk-taking history had a significant effect on job adaptive functioning ( $b = -.0363, p = .0393$ ), such that individuals who reported higher risk-taking history had less adaptive job outcomes. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the overall indirect effect ( $ab = -.0082$ ) was entirely below zero ( $-.0166$  to  $-.0012$ ), indicating that reported risk-taking history partially mediates the relationship between internalizing behaviors and job adaptive functioning. Moreover, individuals with higher internalizing behaviors reported less adaptive job outcomes even when controlling for reported risk-taking behaviors ( $c' = -.0580, p = .0000$ ).

**Externalizing Behaviors.** Similarly, three serial mediation models were assessed in conjunction with externalizing behavior symptoms. These models include the RRAT (risk-favorability), the RISQ Total (reported-risk taking history) and education and job adaptive outcomes. More specifically, these models included the externalizing behaviors as the independent variable, the RRAT and the RISQ Total as mediators, and adaptive functioning as the outcome variables (see Figure 3).



a) Direct Pathway



b) Indirect or Mediated Pathway

Figure 3. Mediation Analysis: Externalizing Behaviors and Differential Adaptive functioning.

**Education Adaptive Functioning.** Results from a serial mediation model indicated that externalizing behaviors are indirectly related to education adaptive functioning through its relationship with risk behaviors as measured by risk-favorability and reported risk-taking history (see Table 4). Individuals who reported higher levels externalizing behaviors reported higher risk-favorability ( $a1 = .3332, p = .0000$ ) and reported higher risk-taking history ( $a2 = .3280, p = .0000$ ). Risk-favorability did not have

a significant effect on education adaptive functioning ( $b_1 = .0147, p = .3935$ ). However, reported risk-taking history had a significant effect on education adaptive functioning ( $b_2 = -.0725, p = .0027$ ), such that individuals who reported higher risk-taking history reported less adaptive education outcomes. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the overall indirect effect ( $ab = -.0247$ ) was entirely below zero ( $-.0450$  to  $-.0066$ ), indicating that reported risk-taking history partially mediates the relationship between externalizing behaviors and education adaptive functioning. Moreover, individuals with higher externalizing behaviors reported less adaptive education outcomes even when controlling for reported risk-taking behaviors ( $c' = -.0998, p = .0000$ ).

Table 4  
*Serial Mediation Externalizing Behaviors, RRAT, RISQ Total, Adaptive Functioning*  
 MODEL:  $X$ =Externalizing Behaviors,  $M_1$ =RRAT,  $M_2$ =RISQ

<i>Y = Education Adaptive Functioning</i>		a1	a2	b1	b2	d21	c' (direct)	c (total)	total indirect
		.3332*	.3280*	.0147	-.0725*	.2408*	-.0998*	-.1245*	-.0247*
<i>Y = Job Adaptive Functioning</i>		a1	a2	b1	b2	d21	c' (direct)	c (total)	total indirect
		.3178*	.3297*	-.0098	-.0308	.2495*	-.0709*	-.0866*	-.0157

Note. \*Significant Pathway

**Job Adaptive Functioning.** Results from a serial mediation model indicated that externalizing behaviors were not indirectly related to job adaptive outcomes through its relationship with risk behaviors as measured by risk-favorability and reported risk-taking history (see Table 4). Individuals who reported higher levels of externalizing behaviors reported higher risk-favorability ( $a_1 = .3178, p = .0000$ ) and reported higher risk-taking history ( $a_2 = .3297, p = .0000$ ). However, Risk-favorability ( $b_1 = -.0098, p = .5006$ ) and



reported risk-taking history ( $b_2 = -.0308, p = .1234$ ) did not have a significant effect on job adaptive function, indicating that there is no partial or full mediation in this model. Despite the lack of mediation, externalizing behaviors were related to job adaptive functioning such that individuals who reported higher externalizing behaviors reported less adaptive job outcomes ( $c' = -.0709, p = .0000; c = -.0866, p = .0000$ ).

## CHAPTER IV

### DISUCSSION

The current study had several aims. First this study aimed to advance the risk-taking literature by comparing implicit risk-behavior performance to self-reported risk-behavior within the same individuals. This methodology allowed us to examine the differential effects of self-reported and implicit risk behavior. The first hypothesis predicted that the RRAT and the RISQ would be moderately correlated. This hypothesis was supported. Shulman and Cauffman (2014) designed an implicit measure, the Rapid Risk Assessment Task (RRAT), designed to measure intuitive judgement and risk-taking favorability in the context of potential real-life scenarios. The RRAT has been hypothesized to be a more subjective, intuitive, reaction to risk favorability. The RRAT was used in combination with a self-report risk-taking history measure to compare the performance within individuals on the two tasks. Risk-favorability was moderately correlated with history of reported risk-taking lending support that these are both measuring aspects of risky behaviors. It also appears that this allowed us to control, at some level, for method variance across the two measurements. However, it is worth noting that the RRAT measures risk-favorability, and the RISQ measures risk-taking history which may be distinct but related constructs. Furthermore, while risk-favorability does appear to be strongly related to a self-reported history of risk-taking behaviors, it appears that risk-taking history may be more strongly associated with the other measures of interest used in the study.

Second, this research served to evaluate the relationship between adaptive functioning and risk-taking behavior, particularly in the context of college and university

campuses. The second hypothesis predicted that the association between risk-favorability and outcome measures of friend adaptive functioning, education adaptive functioning, and work adaptive functioning would be mediated by the history of risk-taking behaviors; such that the history of risk-taking behaviors will be moderately-to-not associated with social functioning and will show a stronger association for educational and work adaptive functioning. This hypothesis was supported. In the simple mediation models, there was no mediation effect for friend adaptive functioning, suggesting that risk-favorability and reported risk-taking history did not have an effect on reported friend adaptive functioning. This is consistent with findings from previous literature where social manipulation effects did not affect risk appraisal for any age range (Shulman & Cauffman, 2014). It has been shown that adolescents take more risks in the presence of and with their peers when compared to when they are alone (Hasse & Silbereisen, 2011; Silva et al., 2015). Specific types of risk such as gambling and engaging in non-suicidal self-harm have been demonstrated to occur in social situations with peers (Haase & Silbereisen, 2011; Lave-Gindhu, Schonert-Reichel, 2005). Risk-taking may also be viewed as a means of enhancing social attachments and status. Studies have shown that adolescents who experimented with drugs were more socially accepted by peers (Romer et al., 2016). The likelihood that adolescents engage in risks together, with their peers, and may also view risk-taking as a means of enhancing social relationships could in part explain why risk-behavior was not found to mediate the relationship between risk-favorability and friend adaptive functioning.

There was a full mediation effect for education adaptive functioning. This model indicates that risk-behavior had a negative effect on adaptive functioning, such that risk-

favorability and reported risk-taking history were found to be associated with less adaptive education functioning. The relationship between risk-taking and education adaptive functioning is supported by findings that risk-taking behaviors in college students correlated negatively with GPA (Wolfe and Johnson, 1995).

There was a full mediation effect for job adaptive functioning. This model indicates that risk-behavior had a negative effect on adaptive functioning, such that risk-favorability and reported risk-taking history were found to be associated with less adaptive job functioning. The relationship between risk-taking and work adaptive functioning is supported previous literature that suggests risky behaviors such as alcohol consumption and substance use can negatively affect work performance (Boyer, 2006).

In the fully mediated models risk-favorability was a useful measure but reported risk-history appeared to be the variable impacting adaptive outcomes. These models demonstrated that when controlling for history of risk-taking, risk-favorability did not have a direct association on adaptive functioning. Overall, these findings suggest that past risk (reported risk-taking history) may be a better predictor of disruption in adaptive functioning rather than risk perception (risk-favorability). Past risk-taking behavior appears to predict future adaptive/maladaptive functioning in a way such that the past history of risk-taking appears to be more strongly associated to disruptions in adaptive functioning, especially when compared to evaluating risk-favorability alone.

Third, this study evaluated the effect of risk-taking behavior on the relationship between emotion regulation and adaptive/maladaptive functioning in friend, educational, and job domains. The third hypothesis predicted that the association of emotional adjustment with outcome measures of adaptive functioning domains (i.e., friend,

educational, and work) would be mediated by risk-favorability and the history of reported risk-taking behaviors. This hypothesis was partially supported. In the serial mediation models, neither education or job adaptive functioning revealed an effect of full mediation. However, both education adaptive functioning and job adaptive functioning were partially mediated by self-reported risk-taking history (RISQ). Consistent with the simple mediation models, the effects indicated an overall negative effect on adaptive functioning, such that internalizing and externalizing behaviors were associated with less adaptive education and job adaptive functioning. According to the serial mediation models it does appear that internalizing behaviors and adaptive functioning along with externalizing behavior and adaptive functioning are mediated by these models of risk. The partial mediation of these models by the RISQ also supports the findings of the previous hypothesis that past risk (reported risk-taking history) may be a better predictor of disruption in adaptive functioning rather than risk perception (risk-favorability). Internalizing and externalizing behaviors, however, showed a stronger association to maladaptive functioning than both measures of risk-taking. These findings are consistent with previous literature demonstrating that negative affect, as often seen in internalizing and externalizing behaviors, is associated with lower risk perception which can lead to increased risk-taking behaviors (Haase & Silbereisen, 2011). Additionally, emotion dysregulation has been found to be associated with increased overall engagement in risky behaviors (Weiss et al., 2015). In support of these findings, previous literature has documented the association between risk-taking behavior and maladaptive functioning outcomes (Sadeh & Baskin-Sommers, 2016). In further support of these findings, Biasi et al. (2017) demonstrated that students who scored high on ASR anxiety and depressive

syndrome scales (consistent with difficulties in emotion regulation) were likely to score lower on education adaptive functioning scale.

### **Limitations and Future Directions**

The current studies are not without limitations, which are critical to consider when interpreting these findings. This sample was homogeneous, predominately female and there was not an effect of gender, whereas in other studies risk-taking behaviors has been shown to be more common in males (Byrnes, Miller, & Schafer, 1999; Shulman & Cauffman, 2014). Furthermore, this sample was also not representative of the United States population with respect to race, which may limit generalization to the population. It is also of note that due to the recruitment methods this relied on college students, who may have different levels of adaptive functioning, emotional adjustment, and risky behaviors than same age peers in community samples. Additionally, because this study utilized cross-sectional data, firm casual interpretations cannot be made regarding the associations among these variables. It is hoped that this research will provide the momentum for future longitudinal studies as longitudinal data would be useful to strengthen causal inferences.

Despite ASR adaptive functioning scales demonstrating adequate internal consistencies in the national normative sample, lower than expected internal consistencies were present in this sample for Friend adaptive functioning and Job adaptive functioning. The norming sample utilized a community sample with a mean age was 26 years old and the average education level classified as “some college”. In the present study ages ranged from 18-22 years old and all participants were college students. These differences might in part explain some of the lower alpha values in some of the

adaptive functioning scales. College students are often in a period of transition, which might affect and disrupt the development of friendship networks. The transitory nature of part time work that may college students encounter may be another factor. These two factors may influence the stability of their work environment and friendship networks, thus disrupting the internal consistency of the adaptive measures used in the study.

This study also relied predominately on self-report measures, relying on self-report measures introduces the potential conflicts of self-report bias. However, the multimodal assessment model included the RRAT, as an implicit measure, designed to minimize the bias of self-report (Shulman & Cauffman, 2014). Self-report measures of risk history were more strongly related to measures of interest than risk-favorability measured by using the implicit task. This difference may reflect method variance or important differences in the perceived favorability of risk and actual risky behaviors. Additional methods of measuring emotional adjustment and adaptive functioning (e.g., collateral report from others, observations) may be needed to identify the differential role of these two types of risk assessment.

Furthermore, this study utilized the RISQ total score. The total RISQ score is calculated by adding together all items on the measure including all the items from the subscales including: Drug Behaviors, Aggression, Gambling, Risky Sexual Behavior, Heavy Alcohol Use, Self-Harm, Impulsive Eating, Reckless Behaviors. Although the RISQ total score has been used in previous studies (Sadeh & Baskin-Sommers, 2016), there is literature that suggests that gambling and drug behaviors may be differentially related to adaptive functioning when compared to other types of risk (Albert & Steinberg, 2011; Silva et al., 2015; Romer et al., 2016). Future research should focus on untangling

how different risk behaviors such as gambling, drug behaviors, and alcohol use, are differentially related to adaptive functioning, particularly as it applies to adaptive friend functioning.

### **Conclusions and Clinical Implications**

The present study exhibits a number of strengths. First, the multimodal assessment method allowed for the comparison of risk-behavior using implicit data and self-report data to minimize the bias of self-report measures. The results of this study lend support to the utility of the RRAT, providing convergent validity to Shulman & Cauffman's (2014) initial findings with the measure. This suggests that the use of the RRAT as an implicit task may be a more subjective, intuitive, reaction to risk favorability. As the RRAT demonstrated a moderate correlation with self-reported risk-taking history, this study provides corroborating evidence that it is possible the RRAT may elicit intuitive judgement of risk-favorability in a laboratory setting.

Given that internalizing and externalizing behaviors show a stronger association to maladaptive functioning regardless of risk-taking attitudes and risk-taking history, risk behavior may be a marker of other features associated with internalizing or externalizing behaviors. Further, the results of study suggest the possibility that risk behavior may be a symptom of internalizing and externalizing behaviors. If such, risk behavior may be more appropriately viewed as a symptom. Additionally, it appears that risk-taking behavior impacts adaptive functioning domains differentially. Ultimately these findings suggest that past self-reported risk-taking may be a better predictor of self-reported adaptive functioning rather than risk perception (risk-favorability). This study demonstrates that when evaluating negative risk-behaviors it is not only important to evaluate risk



perceptions/risk appraisals, it is also necessary to assess a history of risk-taking behaviors.

Clinically, this study demonstrates that internalizing and externalizing behaviors appear to be most strongly associated with disruptions in adaptive functioning above and beyond risk-taking behaviors. For a subset of individuals, a history of risk-taking behaviors was predictive of disruption in adaptive functioning. However, a history of risk-taking behavior may demonstrate a stronger association to disruptions in adaptive functioning. Furthermore, this study highlights the importance of not only examining risk perception and risk appraisals, but also comprehensively examining an individual's risk-taking history as it relates to potential disruptions in adaptive functioning

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