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Associations Between Emotional Regulation, Risk Taking, and College Adaptation

Alexa J. Pellegrino
alexa.pellegrino@outlook.com

University of Northern Colorado,

Greeley, Colorado

ASSOCIATIONS BETWEEN EMOTIONAL REGULATION,
RISK-TAKING, AND COLLEGE ADAPTATION

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Alexa J. Pellegrino

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Associations Between Emotional Regulation,

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PREPARED BY:
_____
Alexa Pellegrino

APPROVED BY
THESIS ADVISOR:
_____
Dr. Marilyn Welsh

HONORS
DEPT LIAISON:
_____
Dr. Melissa Lea

HONORS DIRECTOR:
_____
Loree Crow

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Abstract

Emotional regulation can be best defined as a socially acceptable emotional response to experiences and circumstances of the everyday human experience. Emotional regulation (ER) plays a major role in handling stress, adaptively, in the collegiate lifestyle. This research examined the associations between emotional regulation, risk-taking, and college adaptation among 96 students at a mid-sized university in Colorado. The online-surveying website included five different measures of emotional regulation, college adaptation, and risk-taking. Results showed difficulties with emotional regulation positively correlate more with expressive suppression and negatively correlated with cognitive reappraisal. The adaptive strategy of cognitive reappraisal had a positive relationship with college adaptation, while ER difficulties negatively predicted college adjustment. Ethical risk taking was negatively correlated with college adaptation but was not found to be a mediating variable between ER and college adaptation. Future research should continue to examine the associations among these constructs to inform interventions that can facilitate a healthy transition and adaptation to college.

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Research has shown that the transition to college is a difficult time for students (Leary & DeRosier, 2012). Intuitively, this is a hard transition period due to possibly moving cities, states, or even countries, having new social circles, high demands of schoolwork, the pressure of money, as well as the impending stress of a future career all within a collegiate environment. Naturally, college is a huge source of stress in a young adult's life (Pierceall & Keim, 2007), and can cause students to feel a lot of different emotions in reaction to the multitude of events happening around them.

Past literature has shown that emotional regulation has been a helpful strategy in dealing with stress and the ability to reduce stress could potentially promote resiliency and improve retention rates in the collegiate setting (Buckner, Mezzacappa, & Beardslee, 2003). There have been past studies designed to examine the relationship between emotion regulation (ER), risk-taking, and the transition to college. Some research suggests that understanding stress in students could be beneficial in facilitating the transition and adjustment to life as a college student (Dyson & Renk, 2006). ER also has been seen to have an impact on risk-taking (Panno, Lauriola, & Figner, 2013; Gross & John 2003). Risk-taking could be a possible third variable and may be a missing link between ER and academic success, particularly since risk-taking is frequently observed in adolescents and emerging young adults. More research on the association between risk-taking, ER and college adaptation could be valuable in assisting college retention and graduation rates.

Literature Review

Emotional Self- Regulation

Self-regulation can best be explained as the ability to respond with behavior that is socially adequate and goal-directed (Baumeister & Heatherton, 1996). An essential part of self-regulation is emotional-self-regulation, or ER, that can be defined as the appropriate, socially acceptable emotional responses to situations an individual may experience, and their strategies used to regulate emotion. The process is much more difficult than it may seem. Thompson (1991) discussed how ER is a process responsible for examining, assessing, and modifying the emotional reactions that are produced anytime an individual reacts to a stimulus. An important component of ER is the flexibility in reacting to spontaneous situations that arise every day since life is so unpredictable. This happens unconsciously, as many of us are unaware that ER is taking place, but it can be extremely effective as a strategy to react in a healthy way to the demands of our environment.

The inability to self-regulate one's emotions, or to tolerate negative emotions, is often referred to as emotional dysregulation (Dvir, Ford, Hill, & Frazier, 2014). Dvir and colleagues' states that emotional dysregulation has been associated with trauma and maltreatment in childhood, and post-traumatic stress, and plays a role in many other psychiatric disorders throughout a person's life. There are five different kinds of ER strategies that have been identified: situation selection, situation modification, attention deployment, cognitive reappraisal, and expressive suppression (Gross, 1998). However, studies have demonstrated that the two most commonly utilized of these strategies are cognitive reappraisal and expressive suppression (Dillon et al., 2007; Hayes et al., 2010;

Singh & Sharma, 2018; Karademas et al, 2018). Cognitive reappraisal includes the reframing of emotional situations, while expressive suppression includes the masking of emotions through body language and facial expression. A study by Moore, Zoellner, and Mollenholt (2008) examined the differences by cognitive reappraisal and expressive suppression predominantly for "stress-related reactions." Their results found that expressive suppression was associated with higher, self-reported stress, showing it to be a less effective strategy. While cognitive reappraisal was associated with lower, self-reported stress, suggesting it is a much more effective and adaptive strategy for ER (Moore, Zoellner, & Mollenholt, 2008).

A majority of literature on emotional regulation involves children as participants. While self-regulation plays an important role in children, studies on young adults should be evaluated to determine the negative impact of emotional dysregulation in their lives, and the problems they face. A study by Karademas (2018) looked at the role of ER in both the health and the well-being of adults (18 years and over) with chronic illnesses. This study looked at two different ER strategies: cognitive reappraisal and expressive suppression and hypothesized that the concept of ER could be key to the adults' adaptation to illness (Karademas et al, 2018). This study examined 99 individuals with rheumatoid arthritis or multiple sclerosis and their emotional regulation styles and revealed that cognitive reappraisal was associated with physical and psychological well-being (Karademas et al, 2018). Considering the benefits of ER on those with chronic illnesses and their well-being, there should be additional longitudinal research on the benefits of ER on other populations' physical and psychological well-being. Singh and Sharma (2018) examined emotional regulation in a student's psychological well-being. A

sample of 100 college students was questioned about their emotional regulation, their general health, as well as their general well-being (Singh & Sharma, 2018). This study found that cognitive reappraisal was strongly, positively related to one's health and well-being (Singh & Sharma, 2018). Both studies identified that emotion regulation plays a large and important role in an individual's health and psychological well-being.

In another study, Lopes, Salovey, Côté, Beers, and Petty (2005) examined emotion regulation abilities in relation to the quality of social interaction. The researchers observed 76 undergraduate college students to examine the relationship between ER abilities, emotional intelligence, and the quality of social relationships. After controlling for the Big Five personality traits, gender, and intelligence, the authors found that emotion regulation abilities remained a significant predictor of higher peer-rated, positive friendship ratings (Lopes et. al., 2005). This study showed the importance of ER abilities to the quality of social interactions. Social interaction is an important variable for college students; nearly every part of college involves socializing- between professors, advisors, classmates, friends, family, and personal relationships. Overall, ER has been seen to be effective in predicting quality social-relationships, and cognitive reappraisal has been associated with more positive physical and psychological well-being and health. A young adult's emotional regulation abilities may be important in predicting the way they will cope with stressful life changes and daily life struggles, including a life-altering event such as moving to college.

Emotion Regulation and College Adaptation

Transitioning to a new environment is challenging and exhausting for the average person. However, for a vulnerable young adult needing to adjust to a new life with new

pressures can be very stressful. Studies have shown that transitioning to college is one of the most difficult times in a young adult's lifetime (Tinto, 1996; Leary & DeRosier, 2012; (Kneeland & Dovidio, 2019). One study showed that 40% of university students in America, failed to complete and earn their degree. In this study, the researchers managed to identify academic and adjustment difficulties as the main reasons for dropout from a university (Tinto, 1996). If ER is found to be a coping strategy relevant to college adaptation, it may suggest a need for research to inform future intervention in students that are new to college and universities.

Studies have attempted to examine the role that emotions and ER play in the college transition. One study examined the importance of ER in a student's social functioning in college (Srivastava, Tamir, McGonigal, John, & Gross, 2009). This study focused on the transition to college of 278 undergraduate students, which is known to be an extremely stressful and crucial time on social functioning. The results indicated that the use of expressive suppression strategy predicted lower social support, less closeness to others, and lower social satisfaction. Given that those three components are vital to thrive within a college environment; it can be assumed that suppression isn't necessarily the optimal ER strategy for facilitating college adaptation.

A similar study looked at the transition to college, and how the need for students to adjust to new social and academic demands could be impacting them (Leary & DeRosier, 2012). The study examined 120 first-year college students in terms of how a student's coping with stress affected their transition. These students also reported their social connectedness, their self-care behaviors, cognitive style, and their life skills. The authors reported that social support and optimist cognitive styles, that may suggest a

more positive mood, significantly predicted lower stress among students, and in turn

showed more positive outcomes for transitioning to college (Leary & DeRosier, 2012).

Similarly, another study focused more on the emotional changes related to coping with

the transition of college in first year college students (Kneeland & Dovidio, 2019). The

authors looked at the degree to which ER strategies of 97 first-year college students

predicted mental health, through self-report questionnaires at both the beginning and end

of their first college semester. It was proposed that emotion malleability beliefs, the idea

that emotions are fixed or easily influenced, could assist students to use ER as a coping

strategy for unwanted negative emotions, decreasing the risk for mental health problems

in the future. The findings demonstrated that students who held a belief that their

emotions were more malleable at the beginning of the semester exhibited lower

depression rates (Kneeland & Dovidio, 2019).

All three studies discussed confirm the importance of the role of emotions in the

transitioning to college. The literature states that self-regulation and ER are predictors of

adaptive functioning in college. Examining why and how this relationship occurs within

a college- student population suggests further research into the role ER and it's use in

early intervention. A third variable that may impact the relationship between ER and the

college student population could be risk-taking. Risk-taking is typically associating with

young adulthood; college students may be using ER strategies to cope with their stress, as

well as possibly consequences that may arise from their risk-taking behaviors.

Emotion Regulation and Risk Taking

As studies have identified an association between emotional regulation and the

college transition, there may be a third variable impacting the relationship. Intuitively,

risk-taking may be a variable contributing to this relationship, due to the prevalence of this behavior within a college student population (Gardener & Steinberg, 2005). Risk-taking can be described as engaging in behavior that could potentially be dangerous or elicit negative consequences (Beyth-Marom & FischhoV, 1997). Gardner and Steinberg (2005) indicated that young adults, ages 18 to 21(a traditional college age), behave similarly to adolescents, engaging in risky decision making. The same study demonstrated that as a person ages their risk-taking behavior decreases. Both of these could be due to the development of the frontal lobe, the part of the brain responsible for planning in this age period (Johnson, Blum, & Giedd, 2009).

It is important to note that risk-taking is a natural developmental consequence of the maturing of the brain and cognitive processing. A series of five studies by Gross and colleagues (2003) observed the relationship between ER strategies and risky decision making. The authors proposed a two-factor model for an ER theory that compared cognitive reappraisal to expressive suppression. It was suggested that individuals who use a cognitive reappraisal strategy would have the ability to alter their mindset and therefore be able to focus potential negative consequences, particularly of a risky decision, making it less likely (Gross & John 2003). The results of the study yielded that individuals who used cognitive reappraisal experienced high positive emotion, compared to those who utilized expressive suppression techniques. It was also found that reappraisal was associated with better interpersonal functioning (Gross & John 2003), and more effective interpersonal may be associated with less risky behavior taking. Overall, using ER, especially a cognitive reappraisal strategy approach, as an intervention factor to risky and

problematic behavior could be seen as a vitally important tool, especially within a young adult population.

A similar study yielded the same results, demonstrating that ER strategies, cognitive reappraisal and suppression, were correlated with risk-taking in a sample of 53 undergraduate students (Panno, Lauriola, & Figner, 2013). Risk-taking was measured with the Columbia Card Task, that evaluates an individual's deliberate risky decisions, as well as predictors of risk taking, such as inhibitory control, arousal, and impulsive behavior. The greater use of cognitive reappraisal was associated with an increase in taking risks, however, the greater use of suppression was associated with a decrease in taking risks. This was contradictory to what would be expected following the findings of Gross and John's previous study- this study's findings were interesting and should continue to be explored. The authors did state that their study might possibly have had several limitations, including a possible third variable that may impede their results. However, the authors stated that their results offer evidence of a correlation between emotional regulation and risk-taking and should be further explored (Panno, Lauriola, & Figner, 2013). Lastly, a study by Fromme, Corbin, and Kruse (2008) examined behavioral risks from 2,003 incoming first-year students. Their results stated that there was quite a significant increase in health-related risk-taking, through sex with more than one partner, the use of drugs, and the consumption of alcohol within the first transition year of college, which in turn may be related to the individual's college adaptation. Their finding shows that risk-taking may be an important variable when looking at college adaptation and attrition rates.

There's very limited research that examines the relationship between risk-taking and college adaptation. However, studies on risk-taking and high school attrition rates have been closely inspected. One study concluded that there is higher likelihood of engaging in risky health behaviors in individuals with lower performance in high school, consequently this could lead to higher attrition rates in a collegiate environment as well (Lantz, House, Lepkowski, Williams, Mero, & Chen). Therefore, it is hypothesized that risk-taking would demonstrate a negative relationship with college adaptation in young adults.

Purpose of the Current Study

The research questions of this study were: (1) What is the association between emotional regulation and college adaptation? (2) What is the association between ER and risk-taking? (3) What is the association between risk-taking and college adaptation? (4) Does risk-taking mediate the association between ER and college adaptation? It was hypothesized that there would be a positive relationship between ER and college adaptation in accordance with similar findings from Rice, Montfort, Ray, Davis, and DeBlaere (2019), Hong, Tarullo, Mercurio, Liu, Cai, and Malley-Morrison (2018), and Lopes, Salovey, Côté, Beers, and Petty (2005). Next it was hypothesized that there would be a negative relationship between ER skills and risk-taking (i.e., better ER abilities and lower risk taking) since previous studies (Panno, Lauriola, & Figner, 2013; Fromme, Corbin, & Kruse, 2008) had demonstrated that ER strategies were correlated with risk-taking. The third hypothesis was that there would be a negative relationship between risk-taking and college adaptation, as one study had reported higher risk-taking behavior is related to lower achievement levels in high school, which could lead to higher

attrition rates in college (Lantz, House, Lepkowski, Williams, Mero, & Chen, 1998). It is also hypothesized that that risk-taking would mediate the association between emotional regulation and adaptation. This is merely exploratory as there is no previous research that has found risk-taking to be a mediator between emotional regulation and college adaptation.

The results from this study would determine the relationship between ER, risk-taking, and college adaptation, and that ER predicts differences in risk taking, which in turn predicts individual differences in college adaptation. The need to examine the associations between risk-taking, emotional regulation, and college adaptation within a college population is necessary to establish relevant targets for prevention and intervention programs for universities to reduce attrition and improve graduation rates. Providing extra programs to students could benefit them in the long road to furthering their education, obtaining their college degree, and overall leading a more academically successful life.

Method

Participants

Participants were recruited through the University of Northern Colorado's Psychology Program Research Participant Pool (SONA) and through other means such as the placement of flyers throughout the university. Criteria for participants was to be a young adult, in the age range of eighteen to forty, be willing to commit to a 35-minute study, be able to answer honestly on self-report measures regarding their emotions and behavioral responses, their adaptation to college, and their risk-taking. No participants that are over the age of forty would be accepted into the study.

This study had a total of 97 participants initiate the survey, however 93 participants had complete data. Gender was self-reported: 72 individuals identified as female, 18 identified as male, and 2 preferred not to say. The participants' ages ranged from 18 to 37, however, 87.2% of the sample were from the age of 18-21. Of the participants' ethnicities, 67.7% reported being White/Caucasian, 20.4% reported being Hispanic/Latino, 5.4% reported being Asian/ Pacific Islander, while only 2.2% reported being Black/African American and 1.1% reported being Native American/ American Indian.

Nearly 54% of the participants were in their freshman year, 24.7% were in their sophomore year, 10.8% were in their junior year, 6.5% were in their senior year, and only 3.2% of students were in graduate school. The self-reported grade-point-average (GPA) ranged from .00 to 4.0, with only 89 responses. Two participants were under a 1.5 GPA (2.2%), 12 participants ranged from 2.06-2.92 GPA (13%), 37 participant's' GPA ranged from a 3.0- 3.5 (40.1%), and 38 participants' GPA ranged from 3.54 to 4.0 (41.2%)

Measures

Emotion Regulation Questionnaire (ERQ). Gross and John (2003) developed an assessment to measure emotional regulation including which emotional regulation strategy was being utilized (cognitive reappraisal or expressive suppression) within an individual. The measure includes 10 items that are rated on a 7-point Likert scale, from almost strongly disagree (1) to strongly agree (7). Six items included for the cognitive reappraisal statements such as "when I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm," and "when I want to feel less negative emotion, I change the way I'm thinking about the situation." The remaining four items

for expressive suppression include statements such as "I keep my emotions to myself," and "when I am feeling negative emotions, I make sure not to express them." A study by Gross and John (2003) determined the ERQ measure to have good psychometric properties, including a good reliability, including a good test-retest reliability (Gross & John, 2003).

Cognitive Emotion Regulation Questionnaire (CERQ). Garnefski, Kraaij, and Spinhoven (2001) developed a measure to test specific cognitive emotion regulation strategies, including nine different cognitive coping strategies, that an individual may use in response to negative or stressful life events. The measure is a self-report measure that includes 36 items that are rated on a 5-point Likert scale, from almost never (1) to almost always (5). There were nine subscales, that include four questions each, comprised of self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other blame. Studies have determined the CERQ to have good psychometric properties overall, as well as on each subscale, all having good internal consistencies (Garnefski, & Kraaij, 2007).

Difficulties in Emotional Regulation (DERS). Gratz and Roemer (2004) developed an assessment to measure emotional regulation and dysregulation within an individual. The measure is a self-report measure of subjective emotion ability and is often used in treatment and research settings for adults with emotional disorders, including anxiety, mood, OCD, or other trauma. The measures includes 36 items that are rated on a 5-point Likert scale, from almost never (1) to almost always (5), items include different statements such as " I am clear about my feelings," "When I'm upset I feel out of control," and "When I'm upset, I take time to figure out what I'm really feeling." Studies

have determined the DERS measure to have good psychometric properties, including a good internal consistency, and predicted clinical severity and treatment outcome (Hallion, Steinman, Tolin, & Diefenbach, 2018; Gratz & Roemer, 2004).

Student Adaptation to College Questionnaire (SACQ). Baker and Siryk (1989) had developed a quick and accessible measure designed to determine how a student is coping with the transition to college. The measure assesses four domains including, academic adjustment, emotional adjustment, social adjustment, and attachment to the university they're attending. The developers of the measure believe that this measure was valuable to detect earlier problems that may arise within a student's college career. The measure is a self-report measure that contains 67-items, that takes 15 to 20 minutes to administer. Questions include asking about satisfaction with professors, courses, academic as well as about their academic goals and reasons to be in college, and their social skills and emotional skills.

Domain-Specific Risk-Taking (DOSPERT) Scale. Blais & Weber (2006) developed the DOSPERT, which is 40-items measured on a 7-point Likert scale, participants are asked to rate how risky hypothetical activities are and how likely they are to engage in each activity from extremely unlikely (1) to extremely likely (7). There are two surveys in which participants rate. Questions include "Driving home after you had three drinks in the last two hours" (Ethical), "Spending money impulsively without thinking about the consequences" (Financial), "Engaging in unprotected sex" (Health/Safety), "Dating someone that you are working with" (Social), and "Exploring an unknown city or section of town." (Recreational).

Procedure

Data Collection Procedures. The surveys were constructed in the online platform Qualtrics and then became available to students through SONA. Students signed up as participants which gave them access to the Qualtrics link that contained the entire survey measure for the study. Participants also had the option to receive the link to them through email by contacting the researcher from flyers posted around campus. Doing an online survey increases privacy, which could result in more honest answers given that participants were guaranteed anonymity. The surveys took between 10 and 20 minutes to complete and, after being consented into the study, included the Domain-Specific Risk-Taking (DOSPERT) Scale, the Emotion Regulation Questionnaire (ERQ), the Cognitive Emotion Regulation Questionnaire (CERQ), the Difficulties in Emotional Regulation (DERS), and the Student Adaptation to College Questionnaire (SACQ). before the completion of those measures' participants were asked to self-report their demographics, including their gender, ethnicity, age, their college year, as well as their self-reported grade point average to fully develop the contextual factors of the sample.

Statistical Data Analysis. The data were analyzed with correlation and multiple regression models, specifically mediation analysis, to look for associations among the three variables: emotional regulation, risk-taking, and college adaptation.

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Results

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Descriptive Statistics

Table 1 Means and Standard Deviations for the DOSPERT, DERS, CERQ, and ERQ

	Mean	Standard Deviation
DOSPERT- Financial	2.34	1.12
DOSPERT- Health and Safety	3.01	1.06

DOSPERT-Recreational	3.71	1.54
DOSPERT-Social	4.71	.98
DOSPERT- Ethical	2.11	.71
DOSPERT-Financial Gambling	1.73	1.26
DOSPERT- Total	3.18	.64
DERS- Awareness	7.58	2.84
DERS- Clarity	6.84	2.56
DERS- Goals	9.38	3.40
DERS- Impulse	4.94	2.41
DERS- Nonacceptance	7.45	3.79
DERS- Strategies	6.15	3.17
DERS- Total	42.41	12.33
CERQ- Self Blame	12.98	2.71
CERQ- Acceptance	11.75	2.99
CERQ- Rumination	12.41	3.06
CERQ- Positive Refocusing	10.58	2.57
CERQ- Refocus on Planning	11.58	2.55
CERQ- Positive Reappraisal	11.14	2.66
CERQ- Putting into Perspective	11.14	2.52
CERQ- Catastrophizing	12.65	2.61
CERQ- Other Blame	12.28	2.80
ERQ- Expressive Suppression	16.29	5.60
ERQ- Cognitive Reappraisal	28.76	6.54

Note. DOSPERT = Domain-Specific Risk-Taking Scale.; DERS = Difficulties in Emotional Regulation; CERQ = Cognitive Emotion Regulation Questionnaire; ERQ = Emotion Regulation Questionnaire.

Reliability of Scales

Reliability of each measure was very high. The DERS produced an inter-rater reliability Cronbach alpha of .89, while the CERQ also had a Cronbach alpha of .85, However, the reliability of the ERQ, was a little lower at .67; however, this measure had fewer questions and only two scales. The DOSPERT reliability was .78, and this measure

didn't include any items that would increase the reliability, if omitted. Lastly, the SACQ

had a Cronbach alpha of .91.

Associations Between Emotion Regulation Measures

Table 2.1: Correlations between CERQ, DERS, and ERQ

	CERQ-Self-Blame	CERQ-Accept-ance	CERQ-Rumi-nation	CERQ-Positive Refocusing	CERQ-Refocus on Planning	CERQ-Positive Re-appraisal	CERQ-Putting into Perspective	CERQ-Catastroph-izing	CERQ- Other Blame
'DERS18 Awareness	-.04	-.31**	-.05	-.27**	-.21*	-.34**	-.24*	-.09	-.40*
'DERS18 Clarity	.08	.07	.21*	-.02	-.03	-.25**	-.19*	-.19*	-.18*
'DERS18 Goals	.34**	.27**	.50**	.15	-.01	-.16	-.01	.02	.16
'DERS18 Impulse	.18*	.24*	.34**	.26**	.05	-.10	-.21*	.02	.06
'DERS18 Nonacceptance	.30**	.25**	.47**	.23*	.07	-.14	-.11	-.036	.05
'DERS18 Strategies	.26**	.17	.45**	.07	-.04	-.30**	-.21*	-.19*	-.12
'DERS18 Total Score'	.31**	.19*	.51**	.12	-.04	-.32**	-.23*	-.11	-.09
ERQ- Express. Suppression	.09	-.11	.20*	.03	.04	-.16	-.20*	-.01	-.13
ERQ- Cognitive Reappraisal	.09	.24*	-.02	.29**	.45**	.59**	.43**	.36**	.48**

Note. DOSPERT = DERS = Difficulties in Emotional Regulation; CERQ = Cognitive Emotion Regulation Questionnaire; ERQ = Emotion Regulation Questionnaire. *. Correlation is significant at the 0.05 level (1-tailed). **Correlation is significant at the 0.01 level (1-tailed).

Table 2.2: Correlations between CERQ and ERQ

	ERQ- Expressive Suppression	ERQ- Cognitive Reappraisal
'DERS18 Awareness	.52**	-.38**
'DERS18 Clarity '	.50**	-.32**
'DERS18 Goals	.10	-.25**
'DERS18 Impulse	.18*	-.23*
'DERS18 Nonacceptance	.42**	-.20*
'DERS18 Strategies	.33**	-.41**
'DERS18 Total Score'	.52**	-.44**

Note. DERS = Difficulties in Emotional Regulation; ERQ = Emotion Regulation Questionnaire. *. Correlation is significant at the 0.05 level (1-tailed). **Correlation is significant at the 0.01 level (1-tailed).

Correlations between scores on each of the ER measures (e.g., DERS and CERQ)

are important to show that these measures are getting at different aspects of ER, such as

difficulties (DERS) as compared to adaptive ER strategy skills (CERQ). The difficulties

with awareness subscale on the DERS was negatively correlated with the CERQ
acceptance, positive reappraisal, positive refocusing, and other blame strategies. The
difficulties with clarity subscale of the DERS was negatively correlated with positive
reappraisal strategies, putting into perspective, catastrophizing, and other blame. The
difficulties with clarity subscale of the DERS was also found positively correlated with
rumination strategies in the CERQ measure. The DERS difficulties with goals subscale
was positively correlated with CERQ self-blame, acceptance, and rumination strategies.
The DERS difficulties with impulse control subscale was positively correlated with
CERQ self-blame, acceptance, rumination, and positive refocusing; while was also
negatively correlated with CERQ putting into perspective strategies. The DERS
nonacceptance of emotional responses subscale was found to be positively correlated
with CERQ self-blame, acceptance, rumination, and positive refocusing strategies.
Lastly, the difficulties with strategies subscale on the DERS was positively correlated
with CERQ self-blame and rumination, and was negatively correlated with positive
reappraisal, putting into perspective, catastrophizing, and other blame strategies. Overall,
the total score of the DERS measure demonstrated positive correlations with CERQ self-
blame, acceptance, and rumination strategies, and negative correlations positive
reappraisal and putting into perspective strategies. In most, but not all, cases the DERS
scales that reflected ER difficulties positively correlated with CERQ ER challenges and
negatively correlated with adaptive ER strategies on the CERQ.

      Looking at the associations between the DERS and the ERQ, difficulties with
emotional regulation is seen to positively correlate more with expressive suppression and
negatively correlated with cognitive reappraisal, within every subscale and the total

scores. The associations between the ERQ- cognitive reappraisal and the CERQ were very strong, with significant positive correlations in every subscale except for self-blame and rumination. The ERQ- expressive suppression only had two correlations; a significant positive correlation with rumination and a significant negative correlation with putting into perspective strategies.

Research Question One: *What is the association between emotional regulation and college adaptation?*

Table 3: Correlations between the emotional regulation measures (DERS, CERQ, ERQ) and the SACQ

	SACQ-Social Adjustment	SACQ-Personal/Emotional Adjustment	SACQ-Attachment to the School	SACQ-Academic Adjustment	SACQ-Total
ERQ- Expressive Sup.	$-.23^*$	$-.31^{**}$	$-.30^{**}$	$-.18$	$-.27^{**}$
ERQ- Cog. Reappraisal	$.53^{**}$	$.27^{**}$	$.40^{**}$	$.32^{**}$	$.48^{**}$
CERQ- Self Blame	$-.12$	$-.30^{**}$	$-.24^*$	$-.21^*$	$-.23^*$
CERQ- Acceptance	$.02$	$-.18$	$-.20^*$	$-.20^*$	$-.13$
CERQ- Rumination	$-.23^*$	$-.39^{**}$	$-.30^{**}$	$-.29^{**}$	$-.34^{**}$
CERQ- Positive Refocusing	$.13$	$-.15$	$-.07$	$-.12$	$-.01$
CERQ- Refocus on Planning	$.24^*$	$-.08$	$.03$	$.07$	$.23^*$
CERQ- Positive Reappraisal	$.39^{**}$	$.24^*$	$.18^*$	$.14$	$.35^{**}$
CERQ- Putting into Perspective	$.22^*$	$.20^*$	$.13$	$.09$	$.24^*$
CERQ- Catastrophizing	$.09$	$.13$	$-.00$	$-.09$	$.08$
CERQ- Other Blame	$.19^*$	$.06$	$.04$	$.00$	$.17$
DERS- Awareness	$-.24^*$	$-.18^*$	$-.10$	$-.12$	$-.25^*$
DERS- Clarity	$-.23^*$	$-.48^{**}$	$-.33^{**}$	$-.23^*$	$-.35^{**}$
DERS- Goals	$-.36^{**}$	$-.47^{**}$	$-.37^{**}$	$-.35^{**}$	$-.43^{**}$
DERS- Impulse	$-.28^{**}$	$-.42^{**}$	$-.32^{**}$	$-.25^*$	$-.32^{**}$
DERS- Nonacceptance	$-.27^{**}$	$-.56^{**}$	$-.37^{**}$	$-.33^{**}$	$-.44^{**}$
DERS- Strategies	$-.41^{**}$	$-.62^{**}$	$-.42^{**}$	$-.42^{**}$	$-.57^{**}$
DERS- Total	$-.45^{**}$	$-.68^{**}$	$-.48^{**}$	$-.46^{**}$	$-.62^{**}$

Note. DOSPERT = Domain-Specific Risk-Taking Scale.; DERS = Difficulties in Emotional Regulation; CERQ = Cognitive Emotion Regulation Questionnaire; ERQ = Emotion Regulation Questionnaire. *. Correlation is significant at the 0.05 level (1-tailed). **Correlation is significant at the 0.01 level (1-tailed).

As seen in Table 3, the ERQ expressive suppression is negatively correlated significantly with every subscale and the total score of the SACQ, except for academic adjustment. Cognitive reappraisal also positively correlates with every subscale including the total score of college adjustment. The self-blame subscale of the CERQ is negatively

correlated with personal-emotional adjustment, attachment to the school the student is attending, academic adjustment, and the total score of the measure. CERQ acceptance, accepting a situation has occurred and cannot be changed, is negatively correlated with attachment and academic adjustment but these associations are much weaker. Rumination was strongly, negatively correlated with all subscales including the total. The other CERQ subscales were either not correlated or had very weak correlations. However, the Difficulties in Emotional Regulation measure revealed strong negative correlations between emotion regulation challenges (e.g., clarity, impulse control, strategies) and nearly all subscales of the SACQ.

From these results, it is shown that difficulties in all emotional regulation strategies were correlated with lower college adjustment, including social, personal-emotional, attachment to the school, academic adjustment, and overall. It was also seen that the use cognitive reappraisal ER strategy was correlated with higher adjustment scores, across the board. While, higher use of expressive suppression was correlated with lower adjustments in social adjustment, personal-emotional adjustment, attachment to the school, and the total, it was not significantly correlated with academic adjustment. Lastly, more maladaptive ER strategies including, self-blame and rumination were correlated with difficulties in personal-emotional adjustment, attachment to the school, academic adjustment, and total adjustment.

Research Question Two: *What is the association between ER and risk-taking?*

Table 4: Correlations between the emotional regulation measures (DERS, CERQ, ERQ) and the DOSPERT

	DOSPERT-Financial	DOSPERT-Health and Safety	DOSPERT-Recreational	DOSPERT-Social	DOSPERT-Ethical	DOSPERT-Financial Gambling	DOSPERT-Total

ERQ- Expressive Suppression	.10	.07	.05	-.03	.06	.06	.09
ERQ- Cognitive Reappraisal	.22*	-.10	.25**	.31**	.04	.11	.27**
CERQ- Self Blame	-.03	.03	-.12	.11*	.10	-.07	.01
CERQ- Acceptance	.18*	.18*	.10	.15	.25**	.13	.26**
CERQ- Rumination	.00	.09	-.13	.02	.22*	-.00	.02
CERQ- Positive Refocusing	.31**	.13	-.01	.14	.16	.19*	.22*
CERQ- Refocus on Planning	.23*	.11	.14	.27**	.19*	.08	.31**
CERQ- Positive Reappraisal	.24*	.04	.17	.23*	.12	.10	.27**
CERQ- Putting into Perspective	.14	.00	.04	.11	.11	.16	.12
CERQ- Catastrophizing	.16	-.05	.04	.28**	.12	.08	.17
CERQ- Other Blame	.14	-.02	.09	.22*	.09	.05	.16
'DERS18 Awareness	-.14	-.09	-.06	-.00	-.09	-.16	-.12
DERS18 Clarity	.00	.21*	.08	-.07	.10	.02	.11
'DERS18 Goals	-.02	.09	-.32**	-.11	.26**	.06	-.10
'DERS18 Impulse	.06	.26**	-.10	.03	.28**	.03	.13
'DERS18 Nonacceptance	-.21*	.10	-.21*	-.13	.06	-.17	-.18*
'DERS18 Strategies	-.06	.24*	-.17*	-.20*	.24*	.01	-.03

Note. DOSPERT = Domain-Specific Risk-Taking Scale.; DERS = Difficulties in Emotional Regulation; CERQ = Cognitive Emotion Regulation Questionnaire; ERQ = Emotion Regulation Questionnaire. *. Correlation is significant at the 0.05 level (1-tailed). **Correlation is significant at the 0.01 level (1-tailed).

There were no significant correlations between ERQ expressive suppression and risk taking, however, there were significant, positive correlations between cognitive reappraisal and recreational, social, and total risk-taking scores. There were few correlations between the CERQ and the DOSPERT, but a positive correlation was seen between acceptance strategies and ethical risk taking. Positive correlations were seen between CERQ positive refocusing and financial risk-taking. Moderate positive correlations were also seen between refocus on planning strategies and catastrophizing strategies and social risk taking. The total score of risk taking was strongly correlated with multiple CERQ subscales that reflect adaptive ER strategies, including positive

reappraisal, refocus on planning, and acceptance strategies. The DERS measure did not produce many strong negative correlations, however, difficulties in goals was negatively correlated with recreational risk taking, and positively correlated with ethical risk taking. Difficulties with both impulse control and strategies on the DERS positively correlated with both health and safety and ethical risk taking on the DOSPERT.

From the results, higher use of cognitive reappraisal was seen to be correlated with higher financial, recreational, social, and total risk taking. Greater use of the acceptance emotional regulation strategy, accepting a situation has occurred and cannot be changed, was associated with higher financial, health and safety, ethical, and total risk-taking. More positive strategies, including the greater use positive refocusing, refocus on planning, and positive reappraisal were associated with more increased financial and total risk taking; whereas, the refocus on planning and positive reappraisal ER strategies were associated with more social risk taking. Increased difficulties with impulse was associated with increased health and safety and ethical risk taking. Increased difficulties with strategies was increased with more health and safety, and ethical risks, but was associated with less recreational and social risks.

Research Question Three: *What is the association between risk-taking and college adaptation?*

There were very few correlations between the SACQ and the DOSPERT. The only correlations were between ethical risk taking on the DOSPERT, and this score was negatively correlated with personal-emotional adjustment, $r(92) = -.19$, $p < .05$, academic adjustment, $r(92) = -.24$, $p < .05$, and total score of the SACQ, $r(92) = -.19$, $p < .05$, Risk taking with financial gambling (a component of ethical risk taking) also

negatively correlated with school attachment , r (92) = -.20, p <. 05, and academic

adjustment, r (92) = -.19, p <. 05.

Research Question Four: *Does risk-taking mediate the association between ER and*

college adaptation?

Based on the correlational patterns of the first three research questions, only one

potential mediator was identified between ER and college adaptation, and this was ethical

risk taking. Focusing on the strongest correlations in common, the DERS difficulty with

Goals score, the DOSPERT Ethical risk-taking score, and the SACQ Academic

Adjustment score were tested with the Indirect Effects analysis using the Hayes

PROCESS program. The DOSPERT Ethical Risk Taking was not found to mediate the

pathway between DERS Goals and SACQ Academic Adjustment. The full regression

model predicted 15% of the variance in Academic Adjustment and only DERS difficulty

with goals remained a significant predictor.

Discussion

The goal of this study was to look at the relationship between emotional

regulation and college adaptation. As a possible mediating variable to this relationship,

risk taking was examined. Through multiple well-established self-report questionnaires,

96 participants were surveyed on these three variables in attempt to gather information

about their associations. The findings of this study could potentially assist in

understanding these relationships and informing prevention and intervention programs to

improve retention rates in colleges.

Results demonstrated mostly expected associations between the subscales of the

three different ER measures that measured both strengths and difficulties with this ability.

Difficulties with emotional regulation strategies were associated with lower acceptance, positive reappraisal, and positive refocusing strategies. It makes sense that within individuals more ER strengths are negative related to ER challenges, though it is difficult to determine whether there is a causal relationship between the positive and negative aspects of ER. The adaptive strategy on the ERQ. cognitive reappraisal, positively correlated with positive ER strategies on the CERQ, but also with maladaptive catastrophizing and other-blame, which is unexcepted. Overall, cognitive reappraisal strategies on the ERQ were positively related to more adaptive and effective ER strategies, and negatively related to difficulties in ER, as measured by the DERS Expressive suppression on the ERQ, a maladaptive strategy was positively correlated with other negative ER strategies, such as rumination on the CERQ and a range of difficulties in ER as measured by the DERS. Expressive suppression is generally considered a less effective ER strategy, thus it makes sense that there is a positive correlation with rumination, as rumination is a more maladaptive strategy. Similarly, it is also reasonable that the use of expressive suppression would be related to less frequent use of the adaptive strategy of putting things into perspective. In general, increased difficulties with emotional regulation was associated with greater use of expressive suppression and less use of cognitive reappraisal. These results confirmed the study by Gross and John (2003) which reported the use of cognitive reappraisal to be association with more positive emotion, and presumably more effective emotional regulation over those who were using expressive suppression.

The first research question was "What is the association between emotional regulation and college adaptation?" It was hypothesized that there would be a significant,

positive correlation between emotional regulation and college adaptation. This hypothesis was strongly supported, as the negative ER strategies and ER difficulties negatively correlated with college adaptation, and the adaptive ER aspects positively correlated with college adaptation. In general, higher scores on positive ER skills and strategies were related to better college adaptation, as measured by the SACQ, and difficulties with ER skills and maladaptive strategies were negatively related to college adjustment. Using the ERQ measure, cognitive reappraisal was found to have a positive relationship with college adaptation, however, the less effective strategy (expression suppression) had a negative relationship. This hypothesis was also supported with the DERS, in which the difficulties in emotional regulation scores had strong negative relationships, indicating that difficulties with ER are associated with lower college adaptation. This finding is similar to the study from Rice and colleagues (2019), which demonstrated that difficulties in emotional regulation predicted a higher evaluative threat, which was described as a "concern about how others might evaluate one's intellectual reputation or abilities", within college freshman.

The second research question asked "What is the association between ER and risk-taking? "It was hypothesized that the relationship between emotional regulation skills and risk taking would be negative, with better ER abilities predicting lower risk-taking behaviors. The patterns of relationships between ER and risk taking were more complex because the types of risk taking measured by the DOSPERT ranged from clearly maladaptive risk taking (health and safety, ethical) to risk taking that is not necessarily maladaptive and might be seen as positive (social, recreational). For example, there were significant positive relationships between cognitive reappraisal and risk-taking behaviors,

particularly recreational and social risks, suggesting that individuals who think analytically about their emotions may be doing the same as they consider taking recreational and social risks, which may elicit strong emotions. There were also positive relationships between different CERQ strategies, such as positive refocusing, acceptance strategies, and refocus on planning correlated with financial risk taking, ethical risk taking, and catastrophizing and social risk taking, respectively. Overall, the more positive ER strategies, as measured by the ERQ and the CERQ, were positively correlated with overall risk taking, the total score on the DOSPERT, which was unexpected. With regard to difficulties in ER, as measured by the DERS, these were positively related to maladaptive risk taking (health and safety, ethical) and negatively correlated with adaptive risk-taking behaviors, such as recreational risk taking. This might be interpreted as individuals who have trouble regulating emotions being vulnerable to unwise risky decisions and behaviors, and not having the emotional control to proactively take on more adaptive risk-taking experiences.

The results of the present study were similar to those reported by Panno and colleagues (2013) that saw a greater use of cognitive reappraisal was associated with an increase in taking risks, while, the use of suppression was associated with a decrease in taking risks. The present findings from the current study could be explained by the particular measure used in this study, the DOSPERT. The items do not only measure "negative" risk taking, but also examine adaptive risks, such as "Starting a new career in your mid-thirties," "Going camping in the wilderness," and "Disagreeing with an authority figure on a major issue."

The third research question was "What is the association between risk-taking and college adaptation?" and it was hypothesized that there would be a negative relationship between the two. A study by Lantz et al.(1998) demonstrated that increased risk-taking behaviors was related to lower achievement levels in high school, which could lead to higher attrition rates in college. While there weren't many correlations found, the pattern of correlations were negative associations between maladaptive risk taking and certain aspects of college adjustment. For example, ethical risk taking was negatively associated with personal-emotional adjustment, academic adjustment, and total score of college adjustment. These results were similar to the findings by Lantz et al. (1998) in which there was a negative correlation between risk taking and academic achievement. Risk taking involving financial gambling (a component of ethical risk taking) also had a negative relationship with school attachment and academic adjustment. Research is limited in this area, however a study by Winters, Bengston, Door, and Stinchfield (1998), does demonstrate that only a small percentage of their sample actually identified any financial or personal consequences as a result of financial gambling. Nevertheless, it is interesting to speculate why ethical risk taking, in particular, was associated with college adaptation given the heavy emphasis on ethical behavior in this particular environmental context. That is, prohibitions against cheating, plagiarism, underage drinking, and inappropriate interpersonal relationships are emphasized on most college campuses and individuals with difficulties with such ethical decision making are likely to be poorly adjusted in this environment.

The fourth research question was "Does risk-taking mediate the association between ER and college adaptation?" It was hypothesized that that risk-taking behaviors

would mediate the association between emotional regulation and college adaptation. There was no literature to support this hypothesis, as this was merely an exploratory question. The only risk-taking variable that had common links with ER and college adaptation was ethical risk taking and, thus, it was selected for this assessment of mediation. Ethical risk was positively associated with difficulties in setting ER goals (from the DERS) and academic adaptation measured by the SACQ. While together the ER score and the ethical risk-taking score explained 15% of the variance in academic adjustment, ethical risk taking was not found to be a mediating variable. That is, ethical risk taking makes an independent contribution to academic adjustment and does not indirectly affect the pathway between difficulties with ER and this type of college adaptation.

Limitations of the study

This study has limitations. The sample could have benefited from being larger and more diverse. Participants were primarily from the SONA system, meaning they were all enrolled in an introductory psychology course, and all data collection took place at one university. One limitation could be the lack of male representation, as the sample was nearly 78% female, and there are gender differences in ER strategies, risk-taking, and college adjustment. According to Hong and colleagues (2018), research has shown the gender differences between male and female coping strategies in regard to self-regulation skills. The study was congruent with other literature, resulting in that females had a greater use of ER strategies as compared to their male counterparts. Within the present study, the male sample was far too small to examine the gender differences. The measures used, while being well-established, it requires participants to remember past

situations and experiences, possibly leading to recall bias. Another limitation may be the mode of administering the surveys through Qualtrics, and the surveys being taken on a personal device. This could have led to participants clicking though answers to get through the survey more quickly, which could lead to false, "click-through" answers being given.

Future Directions.

Further research may include a larger sample size, with participants at multiple different universities. As our results showed difficulties with ER being negatively correlated with cognitive reappraisal; an important take-away is for cognitive reappraisal to be taught and utilized more often, in attempts to decrease the number of difficulties in ER. The adaptive strategy of cognitive reappraisal was also positively correlated with college adaptation which is critical in being able in efforts to raise college adaptation, and in turn increase retention rates and college success. These relationships are important to continue being researched, as they could assist colleges and universities in developing prevention and intervention programs to improve college adaptation.

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Appendix A

- IRB Narrative

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

DATE: September 20, 2019

TO: Alexa Pellegrino
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [1440114-2] Associations between Emotional Regulation, Risk-Taking, and College Adaptation
SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE: September 20, 2019
EXPIRATION DATE: September 20, 2023

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Nicole Morse at 970-351-1910 or nicole.morse@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

Appendix B

- Consent form

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: Associations between Emotional Regulation, Risk-Taking, and College Adaptation.
Researchers: Alexa Pellegrino, pell5534@bears.unco.edu, 573-586-7830. Marilyn Welsh, Ph.D.,
School of Psychological Sciences, marilyn.welsh@unco.edu, 970-351-2236.

Purpose and Description: This study is designed to determine the associations between emotional
regulation, risk-taking, and college adaption. The need to examine the associations and relationships
between these three variables within a college population is necessary to provide information to further
prevention and intervention programs targeting attrition and graduation rates.

Procedure for Participation: The current study uses five questionnaires, including the Domain-
Specific Risk-Taking (DOSPERT) Scale, the Emotion Regulation Questionnaire (ERQ), the Cognitive
Emotion Regulation Questionnaire (CERQ), the Difficulties in Emotional Regulation (DERS), and the
Student Adaptation to College Questionnaire (SACQ), all of which have been widely used. You will be
asked to complete the surveys, through Qualtrics, and this can be done through a personal cellphone or
personal laptop. This research project would be classified as exempt because the questionnaires focus on
typical college behavior and should not evoke any additional stress or cause any harm.

Confidentiality. We keep all information you give us confidential and follow high standards to make
ensure your answers are kept safe. Your personal answers are not connected to your name at all, as your
data are connected through a random participant number. Only the researchers will have access to this
information. All data will be stored on a password protected computer that no one except for researchers
would have access to.

Risks and Benefits. Some questions ask about techniques in coping with emotions and emotional
regulation, as well as about particular risk-taking behaviors. They may arouse stressful feelings in some
people. However, if at any point you feel too upset or uncomfortable, you may stop. You may also skip
any question or any part of the study. No further risks are expected other than those that naturally come
with computer work on a college campus. The testing session will not exceed one hour. As
compensation, you will have the option to enter a lottery for a chance to win a $50 gift-card.

Participation is voluntary. You may decide not to participate in this study and if you begin
participation you may still decide to stop and withdraw at any time. Your decision will be respected and
will not result in loss of benefits to which you are otherwise entitled. Please take your time to read and
thoroughly review this document and decide whether you would like to participate in this research study.
If you decide to participate, your completion of the research procedures indicates your consent. Please
keep or print this form for your records. If you have any concerns about your selection or treatment as a
research participant, please contact Nicole Morse, Office of Research, Kepner Hall, University of
Northern Colorado Greeley, CO 80639; 970-351-1910. If you would like to participate, please click
'Next'.