Emotional Intelligence and its Relationship to Alcohol and Marijuana Use on College Campuses

A thesis submitted to the Miami University Honors Program
in partial fulfillment of the requirements
for University Honors with Distinction

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May 2010
Oxford, Ohio
ABSTRACT

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Alcohol use and marijuana use are common drugs utilized by college students. Increases in use in the recent years have lead to colleges and universities developing prevention strategies and interventions. A possible mechanism for these interventions is emotional intelligence. Emotional intelligence is defined as one’s ability to understand and modulate his or her emotions and recognize emotions in others. A sample of university students completed an online survey that examined the relationship between emotional intelligence and alcohol and marijuana use. Emotional intelligence and problem drinking was mediated by drinking motives. Emotional intelligence was not related to marijuana motives and expectancy. Emotional intelligence could be a possible gateway for alcohol interventions. However, the pathways between emotional intelligence and problematic substance use differed depending on the target substance.
Acknowledgements

This study was funded by the Undergraduate Research Committee. Special thanks to Dr. Rose Marie Ward for all her guidance and support.
# Table of Contents

Abstract.......................................................................................................................................................... ii

Acknowledgements........................................................................................................................................ iii

Table of Contents.......................................................................................................................................... iv

List of Figures................................................................................................................................................ v

Introduction................................................................................................................................................... 1

Methods........................................................................................................................................................ 3

Results........................................................................................................................................................... 6

Discussion..................................................................................................................................................... 8

References..................................................................................................................................................... 11

Figures.......................................................................................................................................................... 14
List of Figures

Figure 1. Drinking Motives and Alcohol Expectancies Model........................................14

Figure 2. Drinking Motives Model..............................................................................15

Figure 3. Alcohol Expectancies Model.......................................................................16

Figure 4. Marijuana Motives and Expectancies Model...............................................17

Figure 5. Marijuana Motives Model ..........................................................................18

Figure 6. Marijuana Expectancies Model ...................................................................19
Substance use is a problem that is prevalent on college campuses. As rates of alcohol use and marijuana use continue to escalate, colleges and universities are struggling to find effective interventions and prevention strategies. One possible entrance point to substance use interventions or prevention strategies is emotional intelligence. The current study sought to examine the relationship between substance use and emotional intelligence.

Alcohol use is highly prevalent among college students (Ham & Hope, 2003). The National Survey on Drug Use and Health found that young adults aged 18 to 22 enrolled full time in college were more likely than their peers not enrolled full-time (i.e., part-time college students and persons not currently enrolled in college) to use alcohol in the past month, binge drink, and drink heavily (Substance Abuse, 2008). National samples of college students also show that nearly 81% report consuming alcohol in the past year, 67% report monthly use, and 41% report binge drinking (five plus drinks in a row) in the past two weeks (Johnston, O’Malley, Bachman, & Schulenberg, 2008; Simons, 2007). Furthermore, the prevalence of heavy or problematic alcohol use among college students is alarming. Vik, Carrello, Tate, and Field (2000) found that as many as 84.2% of college students reported heavy drinking or a binge drinking episode (defined as more than five standard drinks for men and more than four for women in one sitting) within the previous 90 days, and Gaher and Simons (2007) found that 60% of college students reported more than one binge drinking occasion in the past 30 days. Past research has shown the importance of alcohol motives in the prediction of alcohol use in the college population (Carey & Correia, 1997; Read, Wood, Kahler, Maddock, & Palfai, 2003; Simons, Gaher, Correia, Hansen, & Christopher, 2005). In addition, Agostinelli and Miller (1994) found that students who drink more heavily often view the consequences or perceived risks to be less risky.
Marijuana is the nation’s most commonly used illicit drug (National, 2005; Substance Abuse, 2008). Among young adults aged 18 to 25, 16.4% used marijuana (National, 2007). However, unlike alcohol, annual marijuana use is the same among college students and high school graduates of the same age who are not in college (Johnston et al., 2008). National samples of college students also show that nearly 32% report using marijuana in the past year, 17% report monthly use, and 4% report daily use in the past 30 days (Johnston, O’Malley, Bachman, & Schulenberg, 2008; Simons, 2007). Previous research has found that marijuana motives contribute significantly in understanding and predicting marijuana use (Simons, Correia, Carey, & Borsari, 1998; Simons et al., 2005). Kilmer, Hunt, Lee, and Neighbors (2007) also extended Agostinelli and Miller’s alcohol research by showing that perceived risk for academic and social consequences was greater among non-users of marijuana that those who reported use of marijuana.

Emotional intelligence was first defined by Salovey and Mayer (1990) as “the subset of social intelligence that involves the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking actions” (pg. 189). A meta-analytic study assessing EI and health behaviors found that higher EI was significantly associated with better health (Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007). Studies have established a negative relationship between emotional intelligence and alcohol consumption (Austin, Saklofske, & Egan, 2005; Trinidad & Johnson, 2002). Furthermore, Brackett, Mayer, and Warner (2004) found that males with lower emotional intelligence demonstrated significantly more involvement than females in potentially harmful behaviors such as using illegal drugs and drinking alcohol excessively.
While previous studies have established a link between emotional intelligence and other problematic substance use, the research has yet to examine the relationship between emotional intelligence and problematic marijuana use. In addition, previous research has established a link between motives, expectancies, and problematic substance use, but has not examined the impact of emotional intelligence on these relationships. The purpose of this study was to establish a relationship between emotional intelligence and alcohol and marijuana use.

**Method**

**Participants**

The participants for this study consisted of 354 university students, 207 female (58.5%) and 125 male (40.0%), from a mid-sized Midwestern public university. Average age of the participants was 19.57 years (SD=1.90, range 17-47), with an average GPA 3.28 (SD=0.44). Participants were primarily third-year students (42.4%) and Caucasian (87.9%).

**Procedure**

All procedures were approved by the university’s Institutional Review Board. Participants were recruited through various management, psychology, chemistry, and kinesiology and health classes containing at least 20 students. The study was described as a survey containing questions about emotion regulation and understanding, frequency of alcohol and marijuana use, motives for alcohol and marijuana use, and expectancies from alcohol and marijuana use. Only participants reporting any alcohol and/or marijuana use were asked questions regarding frequency of, motives for, and expectancies from alcohol and marijuana use. Participants were offered extra credit at the discretion of the professor.

The survey was administered through Prezza Checkbox, an internet-based survey host. Professors posted the survey link on their class Blackboard site for student access. Before
beginning the survey, students were asked to review and sign an Informed Consent Form, which stated the purpose of the research and expressed that participation was voluntary. Response answers were confidential, and participant identification information was stripped before analyses were run. IP addresses were not pursued. Upon completion of the survey, participants were thanked for their participation and directed to a debriefing page. The debriefing page also contained a link to an external survey in which students could identify their name and class so that extra credit could be given appropriately. The external survey was not connected to the original data in any way.

**Measures**

In addition to basic demographics, participants responded to the following measures:

**Emotional Intelligence Scale** (EIS; Schutte et al., 1998). The Emotional Intelligence Scale measures the respondent’s ability to perceive and manage his/her own and others’ emotions and to use this information to guide decision-making (Salovey & Mayer, 1990). This scale is comprised of 33 items rated on a five-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*. High scores indicate an increased ability to perceive and manage emotions. Items include statements such as, “I can tell how people are feeling by listening to the tone of their voice,” or “I know when to speak about my personal problems to others.” Cronbach’s alpha for this scale was 0.93.

**Alcohol Use Disorders Identification Test** (AUDIT; Saunders et al., 1993). The Alcohol Use Disorders Identification Test is a 10-question scale used as a screening instrument for hazardous and harmful alcohol consumption. Questions 1-3 measure alcohol consumption, 4-6 drinking behavior, 7-8 adverse reactions, and 9-10 alcohol-related problems. Each question is scored from 0 to 4, and the range of possible scores is from 0 (for non-drinkers) to 40. A score
of 8 or more indicates a strong likelihood of hazardous or harmful alcohol consumption. Cronbach’s alpha for this scale was 0.81.

**Drinking Motives Measure** (DMM; Cooper, 1994). The Drinking Motives Measure evaluates the respondent’s reasons for engaging in drinking behavior. This scale is comprised of 20 items rated on a five-point Likert scale ranging from (1) *almost never/never* to (5) *almost always/always*. Participants were asked, “How often would you say that you drink for each of the following reasons?” Items include statements such as, “Because it helps you enjoy a party,” and “To cheer up when you are in a bad mood.” The DMM consists of four subscales: (1) Social, (2) Coping, (3) Enhancement, and (4) Conformity. Higher scores on a subscale indicate a stronger likelihood to drink for social, coping, enhancement, and conformity motives, respectively. Cronbach’s alpha for this scale was 0.87.

**Alcohol Expectancy Questionnaire** (AEQ; Goldman et al., 1997). The Alcohol Expectancy Questionnaire measures the respondent’s alcohol expectancies. This scale is comprised of 68 items, divided into six subscales, structured in an *agree-disagree* format. Respondents are asked to select *agree* if the item is always or sometimes true and to select *disagree* if the item is never true. The AEQ consists of six expectancy domains: (1) Global Positive Changes, (2) Sexual Enhancement, (3) Social and Physical Pleasure, (4) Social Assertiveness, (5) Relaxation, and (6) Arousal/Aggression.

**Cannabis Use Disorders Identification Test** (CUDIT; Adamson & Sellman, 2003). The Cannabis Use Disorders Identification Test is a 10-question scale based on the AUDIT. This scale screens for cannabis abuse or dependence of the respondent. Questions 1-3 measure cannabis use, 4-6 behavior associated with cannabis use, 7-8 adverse reactions, and 9-10 cannabis-related problems. Each question is scored from 0 to 4, and the range of possible scores is from 0
(for non-users) to 40. A score of 8 or more indicates a strong likelihood of hazardous or harmful cannabis use. Cronbach’s alpha for this scale was 0.70.

**Marijuana Motives Measure** (MMM; Simons et al., 1998). The Marijuana Motives Measure evaluates the respondent’s reasons for using marijuana. This scale is comprised of 25 items rated on a five-point Likert scale ranging from (1) *almost never/never* to (5) *almost always/always*. Participants were asked, “How often would you say that you use marijuana for each of the following reasons?” Items include statements such as, “Because it helps me enjoy a party,” and “To be more open to experiences.” The MMM consists of five subscales: (1) Social, (2) Coping, (3) Enhancement, (4) Conformity, and (5) Expansion. Higher scores on a subscale indicate a stronger likelihood to drink for social, coping, enhancement, conformity, and expansion motives, respectively.

**Marijuana Effect Expectancy Questionnaire** (MEEQ; Schafer & Brown, 1991). The Marijuana Effect Expectancy Questionnaire measures the respondent’s marijuana expectancies. This scale is comprised of 48 items, divided into six subscales, structured in an *agree-disagree* format. Similarly to the AEQ, respondents are asked to select *agree* if the item is always or sometimes true and to select *disagree* if the item is never true. The six expectancy domains include: (1) Cognitive and Behavioral Impairment, (2) Relaxation and Tension Reduction, (3) Social and Sexual Facilitation, (4) Perceptual and Cognitive Enhancement, (5) Global Negative Effects, and (6) Craving and Physical Effects.

**Results**

Of the 354 participants, 83.6% (n=296) reported ever drinking an alcohol beverage and 35.6% (n=126) reported drinking alcohol somewhat often. Of the students who reported ever drinking alcohol, participants reported drinking an average of 2.10 days (*SD*=1.64; 10.7%, *n*=38, ...
reported 0 days) in a typical week, 4.87 drinks ($SD=3.04$; 5.1%, $n=18$, reported 0 drinks) on a
typical day, 6.42 drinks ($SD=13.29$; 6.2%, $n=22$, reported 0 drinks) on drinking days in the past 30
days, and 7.59 drinks ($SD=5.15$; 5.6%, $n=20$, reported 0 drinks) as the highest number of drinks
on any one occasion in the last 30 days. Of the 354 participants, 33.3% ($n=118$) reported ever
using marijuana. Of the students who reported ever using marijuana, participants reported
smoking an average of 1.28 days ($SD=2.19$, 19.8%, $n=70$, reported 0 days) in a typical week and
an average of 4.88 days ($SD=8.25$, 13.3%, $n=47$, reported 0 days) in the last 30 days.

The relationships between the constructs were assessed within a structural equation
likelihood estimation. Models were proposed based upon theoretical predictions and examined
using the following criteria: (1) theoretical salience, (2) microfit indices (parameter estimates
and residuals), (3) macrofit indices, and (4) parsimony. To meet criteria for theoretical fit, the
model must be predicted from documented theory and previous research. A well fitting model
is one whose macrofit indices are greater than .90. Requiring parsimony will lead to the retention
of a model with the fewest parameters that still meets the other criteria.

For each substance, three models were entertained. The first model had emotional
intelligence and problematic use mediated by motives and expectancies. The second model had
emotional intelligence and problematic use mediated by motives only. The third model had
emotional intelligence and problematic use mediated by expectancies only.

For the models examining alcohol use, the first model fit the data well, $\chi^2(n = 329, 50) =
203.31$, $CFI = .95$, $TLI = .94$, $RMSEA = .10$. See Figure 1 for the parameter estimates. The second
model (see Figure 2) examining the mediational impact of drinking motives fit the data, $\chi^2(n =
329, 8) = 71.89$, $CFI = .93$, $TLI = .88$, $RMSEA = .16$. Since this model is nested within the first
model, a chi-square difference test examined the fit and was significant, $\Delta \chi^2(42) = 131.42$, $p < .001$. The third model (see Figure 3) examining the mediational impact of alcohol expectancies fit the data well, $\chi^2(n = 329, 19) = 40.90$, CFI = .99, TLI = .99, RMSEA = .06. The chi-square difference test between the first model and the third model was significant, $\Delta \chi^2(31) = 162.41$, $p < .001$. Given the significant chi-square test and the parsimony criteria, the third model is a significant improvement on the first model.

For the models examining marijuana use, the first model fit the data, $\chi^2(n = 329, 61) = 756.76$, CFI = .91, TLI = .89, RMSEA = .19. See Figure 4 for parameter estimates. The second model (see Figure 5) examining the mediational impact of marijuana motives fit the data well, $\chi^2(n = 329, 13) = 111.18$, CFI = .96, TLI = .93, RMSEA = .15. Since this model is nested within the first model, a chi-square difference tested examined the fit statistics and was found to be significant, $\Delta \chi^2(48) = 645.58$, $p < .001$. The second model significantly fits the data better than the first model. The third model (see Figure 6) examining the mediational role of marijuana expectancies fit the data, $\chi^2(n = 329, 19) = 303.20$, CFI = .94, TLI = .92, RMSEA = .21. The chi-square difference test between the first model and the third model was significant, $\Delta \chi^2(42) = 453.56$, $p < .001$.

**Discussion**

Contrary to expectations, emotional intelligence was not related to alcohol and marijuana problems directly. Emotional intelligence was found to be related to problematic drinking levels indirectly through drinking motives, but this relationship disappeared when alcohol expectancies was removed from the model. In all models for both alcohol and marijuana, a significant relationship was found between motives and expectancies, motives and problematic use, and expectancies and problematic use. This is consistent with previous
research on alcohol (Agostinelli & Miller, 1994; Carey & Correia, 1997; Read et al., 2003; Simons et al., 2005) and marijuana (Kilmer et al., 2007; Simons et al., 1998; Simons et al., 2005).

With the exception of the relationship between emotional intelligence, drinking motives, and problematic drinking, emotional intelligence was not found to be related to any other variable for either alcohol or marijuana. Specifically, emotional intelligence was not found to be directly related to alcohol expectancies, problematic alcohol use, marijuana motives, marijuana expectancies, or problematic marijuana use. This is somewhat surprising with regards to alcohol given that previous research establishes a negative relationship between emotional intelligence and alcohol consumption (Austin, Saklofske, & Egan, 2005; Trinidad & Johnson, 2002). However, these studies only assessed general alcohol consumption rather than problematic consumption (measured by the AUDIT and CUDIT) as seen in the current study. Future research should also examine the relationship between emotional intelligence and general alcohol and marijuana use instead of problematic use alone.

The current study may be limited by the use of self-report measures. As with all self-report measures, responses are subjective and may be inaccurate. However, some research suggests that student self-report of alcohol use has good reliability and validity (Lintonen & Rimpelä, 2001). Another limitation of this study is the large number of third year (42.4%), Caucasian (87.9%) participants. Future studies could replicate this study using a more diverse population.

While the current study replicated findings from previous research, it failed to find an impact of emotional intelligence on alcohol or marijuana use. It is possible that the use of other measures, such as the Bar-On EQ-i or MSCEIT for emotional intelligence, would bring different
results within the given models. Additionally, emotional regulation may instead be more appropriate to study with regards to substance use.
References


Figure 1. Drinking Motives and Alcohol Expectancies Model

![Diagram of Drinking Motives and Alcohol Expectancies Model]

- **Enhancement**
- **Social**
- **Coping**
- **Conformity**

**Emotional Intelligence**
- .11*
- .01
- .09

**Drinking Motives**
- .88
- .88***
- .79***
- .71***

**Alcohol Expectancies**
- .46***
- .71***
- -.16**

**Global Positive Changes**
- .88***
- .89***
- .90***
- .92***
- .93***

**Social and Physical Pleasure**
- **Social Assertiveness**
- **Relaxation**
- **Arousal/Aggression**

**Alcohol Drinking Problems**
- .01
- .71***

Significance levels:
- *p < 0.05
- **p < 0.01
- ***p < 0.001
Figure 2. Drinking Motives Model

![Diagram of Drinking Motives Model](image-url)
Figure 3. Alcohol Expectancies Model

Emotional Intelligence

- .06

.09

.17**

Alcohol Expectancies

.81

.87***

.89***

.90***

.92***

.93***

Alcohol Drinking Problems

Global Positive Changes

Sexual Enhancement

Social and Physical Pleasure

Social Assertiveness

Relaxation

Arousal/Aggression
Figure 4. Marijuana Motives and Expectancies Model

Emotional Intelligence

Marijuana Motives

Enhancement
Conformity
Expansion
Coping
Social

Marijuana Expectancies

Cognitive and Behavioral Impairment
Relaxation and Tension Reduction
Social and Sexual Facilitation
Perceptual and Cognitive Enhancement
Global Negative Effects
Craving and Physical Effects

Global Negative Effects
Craving and Physical Effects

Emotional Intelligence

Marijuana Problems

.92
.87***
.93***
.95***
.93***

.01
.01
.04
-.16**
.82***
.80***
-.16**

.97
.98***
.98***
.99***
.98***
.97***
Figure 5. Marijuana Motives Model

![Diagram showing the Marijuana Motives Model with Emotional Intelligence and Marijuana Problems as factors, and various motives like Enhancement, Conformity, Expansion, Coping, and Social as nodes connected by arrows with correlation coefficients.](image-url)
Figure 6. Marijuana Expectancies Model

- Emotional Intelligence
- Marijuana Expectancies
- Marijuana Problems
- Cognitive and Behavioral Impairment
- Relaxation and Tension Reduction
- Social and Sexual Facilitation
- Perceptual and Cognitive Enhancement
- Global Negative Effects
- Craving and Physical Effects