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Using Sleep Quality and Alcohol Expectancies as Predictors for Problematic Alcohol Use

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**USING SLEEP QUALITY AND ALCOHOL EXPECTANCIES AS PREDICTORS
FOR PROBLEMATIC ALCOHOL USE**

A Thesis

Submitted to the Graduate faculty of
Louisiana State University
Agricultural and Mechanical College
in partial fulfillment of the
Requirements for the degree of
Master of Arts

in

The Department of Psychology

by
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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS.....	iii
ABSTRACT.....	iv
INTRODUCTION.....	1
METHODS.....	14
RESULTS.....	19
DISCUSSION.....	23
APPENDIX A. THE ALCOHOL USE DISORDERS IDENTIFICATION TEST: SELF- REPORT VERSION (AUDIT).....	32
APPENDIX B. COMPREHENSIVE EFFECTS OF ALCOHOL (CEOA).....	33
APPENDIX C. THE DAILY DRINKING QUESTIONNAIRE (DDQ).....	37
APPENDIX D. THE PITTSBURGH SLEEP QUALITY INDEX (PSQI).....	38
REFERENCES.....	41
VITA.....	47

LIST OF ILLUSTRATIONS

Table 1. Demographics.....	27
Table 2. T-Tests.....	28
Table 3. Moderation.....	29
Table 4. Linear Regression.....	30
Participant Flow Chart.....	31

ABSTRACT

College students who experience problematic alcohol use report poorer health and endorse more health-related problems, like sleep deprivation, than their counterparts who engage in safer alcohol consumption behaviors (Demartini & Carey, 2009; Ham & Hope, 2003). Students who engage in higher rates of problematic alcohol use also report the anticipated effect of relaxation and tension reduction as part of their decision to consume alcohol than students who do not engage in problematic alcohol use (Brown, Christiansen, & Goldman, 1987). The link between sleep problems and the use of alcohol as both a relaxant and sleep aid increase the risk for the development of alcohol-related problems (Brower, 2001). The current study supported previous literature in regards to the effectiveness of the Brief Alcohol Screening and Intervention for College Students (BASICS) in improving sleep quality and lowering the strength of endorsed tension-reducing alcohol-related expectancies due to their influence on sleep quality. Additionally, the study found that a predictive relationship between alcohol related expectancies and problematic alcohol use in that an increased number of alcohol related expectancies predicted higher rates of problematic alcohol use. Future research could look to see if the effect of sleep quality and tension reducing alcohol expectancies on problematic alcohol use is evident in a larger population as well as examine the effect of the inclusion of sleep and health-related information during the BASICS intervention in reducing risky drinking behaviors.

INTRODUCTION

College Students and Alcohol Use

Problematic alcohol use is an issue that spans across age groups. In general, among people aged 12 and older, 140.6 million people identified as current alcohol users (Bose et al., 2017). Moreover, in 2015, among adults aged 18 and over, 15.1 million adults were identified as having an Alcohol Use Disorder (AUD) (National Institute of Alcohol Abuse and Alcoholism, 2018). Furthermore, 88,000 deaths related to alcohol use occur every year making it the third-leading cause of preventable death following tobacco and obesity (National Institute of Alcohol Abuse and Alcoholism, 2018; Sacks et al., 2013; Stahre et al., 2014). In addition to causing a number of preventable deaths the economic burden related to alcohol use is staggering.

In the United States in 2010, according to the Center for Disease Control (CDC), the cost of excessive alcohol amounted to \$249 billion, of which 77% was due to binge drinking (Center for Disease Control, 2018; Sacks et al., 2013; Sacks et al., 2015). Binge drinking is defined as consuming five or more drinks on the same drinking occasion for men and four or more drinks on the same drinking occasion for women. The high cost associated with alcohol use is mostly due to loss of workplace productivity, health care expenses related to excess drinking, law enforcement expense, and expenses related to motor vehicle accidents (Center for Disease Control, 2018; Sacks et al., 2015). In 2017, 66.6 million Americans in the United States were identified as binge drinkers, making up 47.4% of current alcohol users (Bose et al., 2017; Esser et al., 2014; Kanny et al., 2018).

Currently, 19.3 million young adults ages 18-25 identified as current alcohol users,

of which 36.9% were identified as binge drinkers within the past month (Bose et al., 2017; Esser et al., 2014; Kanny et al., 2018). Among young adults, only 37.9% reported any perceived harm associated with weekly binge drinking which was lower than the percentage of risk perception of both alcohol users aged 12-17 (43.6%) and alcohol users aged 26 and older (45.8%) (Bose et al., 2017; Esser et al., 2014; Kanny et al., 2018). In addition, 1 in 10 current young adult alcohol users meet criteria for an alcohol use disorder (Bose et al., 2017; Esser et al., 2014).

Young adults ages 18-25 make up approximately 61.8% of all undergraduate students (National Center for Education Statistics, 2018). Studies have found that 85% of college students report drinking alcohol in the last month and the average college student experienced an average of two binge episodes (5+ standard drinks for men and 4+ for women in one sitting) per week (Demartini & Carey, 2009; Vik, Carrello, Tate, & Field, 2000). O'Malley & Johnston (2002) approximate that every 2 in 5 students are binge drinkers. Binge drinkers are of special concern in that they are significantly more likely to develop alcohol-related problems, such as legal problems, especially if bingeing occurs frequently (Weschler, 2000). Binge drinkers can be characterized by goal-directed drinking behavior, specifically in relation to drinking in order to get drunk. To achieve this effect, binge drinkers consume larger amounts of alcohol at a higher frequency (Weschler, 1995). Problematic drinking can also lead to signs of physical dependence such as blackouts, increased alcohol tolerance, and withdrawal symptoms (Gilles, Turk, & Fresco, 2006).

Problematic alcohol use, specifically binge drinking, has also been linked to decreased physical health as well as sleep problems. College students who experience

problematic alcohol use also report poorer health and health-related problems, like sleep deprivation (Demartini & Carey, 2009; Ham & Hope, 2003). Binge drinking is also associated with severe health risks, for instance, higher risk for auto crashes, assault, and aggressive behavior – such as engaging in assault or battery, engaging in verbal altercation, or engaging in physical altercations in comparison to those who consume alcohol without bingeing (Weschler, 1995). Binge drinking and even the decision to drink in general are greatly influenced by alcohol expectancies.

Alcohol Expectancies and Problematic Alcohol Use

Alcohol expectancies can be defined as the effects one anticipates after drinking alcohol. Expectancy theory postulates that there is a cognitive component that is part of the process of decision-making in regard to drinking (Brown, Christiansen, & Goldman, 1987). Expectancies perform an important role in a person's experience of the effects of alcohol and in the decision to drink alcohol. Expectancies in combination with a person's rating of the desirability of the situation to be expected can influence the decision to consume alcohol. Together both components of the expectancy itself and its desirability may form a pattern of drinking once the drinking behavior itself has been initialized. As the drinking pattern becomes more routine, the process of anticipating a specific effect and the evaluation of its desirability may fade as drinking becomes more automatic (Oei & Baldwin, 1994). For instance, numerous studies have found that simply believing that one had ingested alcohol can influence social, sexual, and aggressive behavior (Abrams & Wilson, 1979; Lang et al., 1975; Wilson, 1977). Furthermore, alcohol expectancies, such as "After a few drinks of alcohol, I would be more likely to act sociable" or "After a few drinks of alcohol, I would be

more likely to act aggressively” are strong predictors of problematic alcohol use (Brown, 1985; Fromme, Stroot, & Kaplan, 1993; Ham & Hope, 2003; Martin & Hoffman, 1993; Reis & Riley, 2000; Wood et al., 1992).

Research has also demonstrated that an increased number of endorsed alcohol-related expectancies is related to higher rates of binge-drinking among college students (Rohsenow, 1983; Southwick et al., 1981). In addition, those who scored higher on the Alcohol Expectancy Questionnaire (AEQ; Brown, Christiansen, & Goldman, 1987), a measure of alcohol-related expectancies, had a higher chance of developing problematic alcohol-related behaviors as compared to those who scored lower on the measure. These problematic alcohol-related behaviors included blacking out and driving while intoxicated (Read et al., 2006). Further, problematic drinkers are more likely to endorse alcohol-related expectancies (Brown et al., 1987; Kidorf et al., 1995; Lewis & O’Neill, 2000).

College Students and Sleep

Poor sleep quality, like problematic alcohol use, is also an issue faced by college students. The Center for Disease Control (CDC), recommends that adults get seven or more hours of sleep each night for optimal well-being (Watson et al., 2015). Attaining less than seven hours of sleep within a twenty-four hours is categorized as “short sleep” (Center for Disease Control, 2018). Approximately, 32.2% of adults aged 18-24 receive less than seven hours of sleep per night, or short sleep (Center for Disease Control, 2018). Individuals who have chronic short sleep have an increased risk of developing a number of conditions that are detrimental to health, including obesity, smoking, and excessive alcohol use in comparison to those who receive sufficient sleep, more than seven hours of sleep per every

twenty-four hours (Center for Disease Control, 2018). Approximately, 50-70 million adults have a sleep disorder, for example insomnia (American Sleep Association, 2018). Though less severe, general sleep disturbances are also pervasive among adults in the United States.

Sleep disturbances, trouble initiating and maintaining sleep, are one of the most commonly reported disturbances among young adults (Amaral, Soares, Pinto, Pereira, Madeira, Bos, Marques, Roque, & Macedo, 2018). In general, college students tend to report chronically constrained or limited sleep, which can be defined as the condition of not attaining enough sleep. Lund et al. (2010) found that only 29.4% of students reported getting 8 or more hours of total sleep time per night, the average amount required for young adults. Yang et. al. (2003) also found that students report difficulty attaining sufficient sleep as well as trouble staying asleep.

Students also tend to report poorer sleep quality as well as lower sleep quantity compared to normal subsets of the population (Lund et al., 2010; Tsai & Li, 2004). Approximately 65% of college students in the United States meet the cut-off criteria for poor sleep as measured by the Pittsburgh Sleep Quality Index (PSQI) (Becker, Jarrett, Luebke, Garner, Burns, & Kofler, 2018). Correspondingly, poor sleep quality, shortened sleep duration, and delayed sleep onset latency are related to higher rates of daytime sleepiness, which can have adverse effects, such as increased risk for automobile accidents. Similarly, alcohol has adverse effects on the quality of sleep in addition to the quantity of sleep. Rundell et al. (1972) found that consuming alcohol before bedtime significantly decreases the amount of rapid eye movement (REM) sleep which is considered the most restorative type of sleep. A lack of REM sleep leads to feelings of grogginess and trouble

focusing upon waking up. Consuming alcohol prior to bedtime also effects the circadian rhythm, or sleep-wake cycle which may lead to waking before fully rested (National Sleep Foundation, 2018). In addition, alcohol consumed before bedtime increases brain activity which decreases the amount of deep sleep a person attains at night, resulting in poorer quality and less restorative sleep (National Sleep Foundation, 2018). Also, chronic poor sleep has been linked to poorer overall mental health and worse health outcomes for individuals with chronic illnesses (Manocchia, Keller, & Ware, 2001). Poor-quality sleepers also tend to report significantly more physical illness, such as diabetes, high blood pressures, and heart disease than optimal- and borderline-quality sleepers (Fossey et al., 1991; Lund et al., 2010; Pilcher, Ginter, & Sadowsky, 1997; Shahar et al., 2001).

Approximately, 75% of students reported feeling “dragged out, tired, or sleepy” once a week or more, and 15% reported falling asleep in class once a week or more (Lund et al., 2010). In addition, poor sleep quality, characterized by delayed sleep-wake cycles, shorter amounts of sleep time, sleep disorders, and daytime sleepiness have been found to be associated with significantly higher self-reported negative moods and stress (Lund et al., 2010; Owens, 2014).

Problematic Alcohol Use and Sleep

Poorer sleep quality has been shown to be correlated with binge drinking (Kenney et al., 2012). In addition to negative physical and mental health, poor-quality sleepers also report drinking more alcohol per day than optimal-quality sleepers (Lund et al., 2010; Taylor & Bramoweth, 2010). Studies have demonstrated that poor-quality sleepers have reported being twice as likely to use alcohol in order to induce sleep than those who report

borderline poor sleep quality or optimal sleep quality (Kenney, et al., 2014; Lund et al., 2010). Furthermore, Lund et al. (2010) found that poor-quality sleepers who said they used alcohol to induce sleep consumed significantly more alcoholic beverages per week, compared to poor-quality sleepers who did not report using alcohol to sleep.

Research indicates that sleep problems are linked to a range of negative outcomes including alcohol-related consequences and health-risk behaviors such as drowsy driving, violence, sexual activity, and substance abuse (Kenney et al., 2012; McKnight-Eily et al., 2011, Stutts et al., 2003; Taylor & Bramoweth, 2010; Telzer et al., 2013; Wells & Vaughn, 2012). For example, insufficient sleep is associated with higher odds of drug and alcohol use as well as aggressive behavior, though the neural mechanisms that link these two factors have not yet been discovered (Telzer et al., 2013). McKnight-Eily et al. (2011) found that students who attain insufficient sleep were more likely to be sexually active with one or more sexual partners in the last three months than those who gained eight or more hours of sleep per night. O' Brien and Mindell (2005) found that students who sleep less than 6 hours and 45 minutes a night reported higher alcohol use scores compare to students who slept at least the recommended 8 hours per night. In addition, amongst those who are already drowsy, alcohol acts as a sleep aid in that levels of sleepiness increase as alcohol is consumed (Stutts et al., 2003). Further, poorer sleep quality exacerbates the effect of heavier alcohol use and alcohol-related harm, such as injuries related to binge drinking, and may increase alcohol-related risk among at-risk drinkers (Kenney et al., 2012).

Demartini and Fucito (2014) found that sleep-wake problems are especially common in at-risk college student drinkers, but that different students experience different gradients

and manners of problems. These problems included difficulty falling asleep, oversleeping, and falling asleep in class. Furthermore, those who experienced sleep disturbance, as well as the highest level of sleep-related impairment, tended to exhibit the highest levels of alcohol consumption, alcohol-related consequences, and illicit substance use (Demartini & Fucito, 2014). The combination of heavy drinking and high levels of sleep debt, the amount of sleep one should get minus the amount of actual time sleeping, and sleep-related impairment may confer risk of harm as sleep deprivation and alcohol both have negative effects on cognitive functioning and psychomotor performance, which may act in tandem. Moreover, individuals do not accurately perceive their levels of impairment from alcohol and/or sleepiness, so they may place themselves at risk by engaging in dangerous or harmful behaviors while in an inebriated state. Insufficient sleep and late bedtimes may be related to neurobiological mechanisms that increase risk taking behaviors such as promiscuous sex and substance abuse, particularly in adolescents due to impairments in cognitive control and less recruitment of the dorsolateral prefrontal cortex (DLPFC) (Telzer et al., 2013). College students with high sleep pattern delay, in which sleep is delayed by two or more hours beyond their conventional bedtime, may not only engage in heavy drinking but also other rewarding behaviors (e.g. illicit substance use) that place them at greater risk for alcohol-related consequences (Demartini & Fucito, 2014).

Alcohol Expectancies and Sleep

A common belief is that alcohol makes it easier to fall asleep. The Alcohol Expectancy Questionnaire (AEQ) measures factors related to relaxation and tension reduction, including sleep. Students who engage in higher rates of problematic alcohol use

report the expectation of more relaxation and tension reduction when consuming alcohol (Brown, Christiansen, & Goldman, 1987). Prior research has also found that tension reduction is a common reason that people cite for consuming alcohol (Cappell & Greeley, 1987; Greeley & Oei, 1999; Young, Oei, & Knight, 1990).

Johnson et al. (1998) found evidence of the use of alcohol as a sleep aid with many users stating that they consumed alcohol specifically with the expectation that it would ease them into sleep. However, those who reported using alcohol as a sleep-aid described having further difficulty falling and stay asleep after consuming alcohol, and higher rates of daytime sleepiness (Johnson et al., 1998). In addition, research has found that sleep problems may act as a risk factor in the development of alcohol-related problems, especially among those who use alcohol as a sleep aid (Brower, 2001).

Using alcohol with the expectation that it will ease sleep is also common among those diagnosed with Post-Traumatic Stress Disorder (PTSD) as it increases sleep duration (Nishith, Resick, & Mueser, 2001). Additionally, alcoholics often consume alcohol before bed in order to aid in falling asleep (Brower, 2001). It is estimated that approximately 13% of adults in the United States use alcohol as a sleep aid, and nearly one in five adults have reported trying to use alcohol with the expectation of its effect as a sleep aid (Johnson et al. 1998; National Sleep Foundation, 2000).

Brief Alcohol Screening and Intervention for College Students (BASICS)

For those college students who do engage in problematic drinking behaviors, interventions like the Brief Alcohol Screening and Intervention for College Students (BASICS) uses motivational enhancement, cognitive-behavioral intervention, expectancy

challenge, and skills training in an effort to motivate college students to change their drinking behavior in addition to teaching them skills to help modify their drinking behavior (Dimeff et al., 1999). BASICS typically consists of two separate 50-minute sessions. The first session focuses on assessing a student's typical alcohol consumption and the pattern of their drinking behavior. The second session consists of individualized feedback regarding the student's individual risks related to alcohol use. By discussing the student's specific alcohol-related expectancies, the placebo effect of alcohol, harm reduction, and providing normative feedback while enhancing motivation, BASICS aims to motivate students to change their own drinking behavior (Dimeff et al., 1999). Research has also shown that there is evidence for the effectiveness of shorter interventions in specific populations. Martens, Smith, and Murphy (2013) found that a 15-20-minute brief alcohol intervention focused on personalized normative feedback was efficacious in reducing alcohol use, even at 6-month follow-up among college students. In addition, Kuleza (2008) found that a BASICS intervention as short as 10 minutes significantly reduces the number of drinks participants consumed, even more so than a 50-minute intervention session. BASICS has also been shown to be efficacious in reducing alcohol consumption and the strength of endorsed alcohol-related problems across many different populations. Prior research has found BASICS to be effective in both mandated and volunteer college students in reducing problematic drinking behavior with students reporting drinking an average of 7.32 drinks less per week (Kulesza et al., 2010; Proctor, 2014; Terlecki et al., 2010).

Motivational interviewing (MI) is one of the cornerstones of the BASICS intervention (Miller & Rollnick, 1991; 2002). Building motivation for change is one of the

key factors in an effective alcohol use intervention. Prochaska, DiClemente, and Norcross (1992) created the Stages of Change model which conceptualizes change into five stages: precontemplation, contemplation, preparation, action, and maintenance. In BASICS, the goal of the therapist is to move the student's stage of change from ambivalence, or precontemplation, to the next stage by expressing empathy, avoiding argumentation, "rolling" with resistance, supporting the student's self-efficacy, and by pointing out the discrepancies between a person's present behavior and their values (Miller & Rollnick, 1991).

Summary

Research has previously demonstrated that 85% of college students report drinking alcohol in the last month and that approximately every 2 in 5 students are binge drinkers (Demartini & Carey, 2009; O'Malley & Johnston, 2002; Vik, Carrello, Tate, & Field, 2000). Heavy drinking has been linked to decreased physical health and increased reports of sleep deprivation (Ham & Hope, 2003; Demartini & Carey, 2009). Studies have also established that alcohol expectancies are strong predictors of problematic alcohol use, and that an increased number of endorsed alcohol-related expectancies are related to higher rates of binge-drinking among college students (Brown, 1985; Ham & Hope, 2003; Martin & Hoffman, 1993; Reis & Riley, 2000; Rohsenow, 1983; Southwick et al, 1981; Wood et al., 1992). Lund et al. (2010) found that poor-quality sleepers who reported using alcohol to induce sleep consumed significantly more alcoholic beverages per week than poor-quality sleepers who did not report using alcohol to sleep. This finding is troublesome given the link between sleep problems and the use of alcohol as a sleep aid, which when used in tandem,

act as a risk factor for the development of alcohol-related problems (Brower, 2001).

Current Study

The current study operated within the framework of a larger Brief Alcohol Screening and Intervention for College Students (BASICS) study that aimed to measure if the effects of alcohol consumption reduction generalize to smoking behavior as well. The current study aimed to establish a relationship between global sleep quality (as measured by the Pittsburgh Sleep Quality Index; PSQI) and problematic alcohol use (as measured by the Alcohol Use Disorders Identification Test; AUDIT) that was moderated by tension-reducing alcohol expectancies (as measured by the Comprehensive Effects of Alcohol Questionnaire; CEOA).

Given the previously established links among all three of these constructs, the study aimed to determine the relationship among these three variables. It was hypothesized that global sleep quality predicted problematic alcohol use and that effect was moderated by the strength of endorsed tension-reducing alcohol expectancies. The study also aimed to evaluate the effectiveness of the Brief Alcohol Screening and Intervention for College Students (BASICS) in improving sleep quality (as measured by the PSQI) and lowering the strength of endorsed tension-reducing alcohol-related expectancies (as measured by the CEOA) due to their influence on sleep quality. It was hypothesized that overall sleep quality (as measured by the PSQI) would be higher post-BASICS intervention when compared to overall sleep quality at pre-BASICS levels. Furthermore, it was hypothesized that the strength of endorsed tension-reducing alcohol-related expectancies (as measured by the CEOA) would be lower post-BASICS intervention in comparison to the strength of

endorsed alcohol-related expectancies at pre-BASICS levels due to their relationship to sleep quality. In addition, the current study looked at pre-intervention measures of sleep quality (as measured by the PSQI) and tension-reducing alcohol expectancies (as measured by the CEOA) as a method to predict post-intervention problematic alcohol use (as measured by the AUDIT) in the hopes of creating further individualized brief health-focused interventions that address sleep hygiene in addition to problematic alcohol use. Lastly, it was hypothesized that overall sleep quality (as measured by the PSQI) and the strength of tension-reducing alcohol-related expectancies (as measured by the CEOA) would be able to positively predict post-BASICS intervention problematic alcohol use (as measured by the AUDIT).

METHODS

Participants

Participants were recruited through the Louisiana State University (LSU) Psychology Department undergraduate research participant pool. Participants received research credit for participating in the study. All participants met the following inclusion criteria: be at least 18 years of age and an undergraduate student at Louisiana State University.

Power Analysis and Sample Size

For the study, a total of 55 participants was needed in order to obtain an estimated medium effect size ($f^2 = 0.15$) with a power of .80 and alpha level of .05 (calculated with G*power; Faul, Erdfelder, Lang & Buchner, 2007); based on improvements in sleep quality, as measured by the PSQI following a behavioral intervention for college students (Trockel et al., 2011). 1,044 participants completed the screener survey. Of the 1,044 participants who completed the screener, 594 participants did not qualify for the intervention portion of the study, 323 participants qualified for the intervention portion of the study, and 127 participants were disqualified from the study. Of the 127 participants who were disqualified from the study 80 participants were disqualified due to meeting the exclusion criteria based on their National Institute on Alcohol Abuse and Alcoholism (NIAAA) score indicating an alcohol use disorder. Participants who were disqualified based on their NIAAA score were given resources for alcohol treatment programs. The remaining 47 participants were disqualified due to incomplete measures. Of the 323 participants who were qualified for the intervention portion of the screener, 40 participants completed the intervention portion of

the study. Of the 40 participants, 8 participants did not complete the 4-week follow-up measures and an additional 2 participants completed only part of the measures and were not included in analyses, resulting in 30 total participants.

Materials

The Brief Alcohol Screening and Intervention for College Students (BASICS; Dimeff et al., 1999) BASICS is a brief motivational interview for those students who are identified as high-risk or problematic drinkers. BASICS encompasses a brief alcohol screening and feedback session with aims to reduce problematic alcohol use. Participants are encouraged to make better decisions in regards to alcohol consumption through education regarding the risks associated with problematic drinking and the development of skills to moderate drinking. The BASICS treatment seeks to reduce alcohol consumption and their adverse consequences, promote healthier choices among young adults aged 18-24, and provide health education concerning coping skills for alcohol risk reduction.

Measures

Alcohol Use Disorder Identification Test: Self-Report Version (AUDIT; Babor et al., 2002). See Appendix A. Problematic drinking was measured using the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT was used to identify people with hazardous and harmful patterns of alcohol consumption. It provided an outline for intervention to help hazardous and harmful drinkers reduce or cease alcohol consumption. A score above an 8 for men and above a 5 for women on the AUDIT is recommended as an indicator for being at risk for problematic drinking. The results indicate high internal consistency with a sensitivity of .84 and test-retest reliability ($r=.86$) (Babor et al., 2002;

Fleming, Barry, & MacDonald, 1991).

The Comprehensive Effects of Alcohol Questionnaire (CEOA; Fromme, Stroot, & Kaplan, 1993). See Appendix B. The Comprehensive Effects of Alcohol Questionnaire (CEOA) was used to measure discrete expectancies related to the effects of alcohol. The CEOA uses thirty-eight items that make up seven factor, four of which are positive (Sociability, Tension Reduction, Liquid Courage, and Sexuality) and three which are negative (Cognitive and Behavioral Impairment, Risk and Aggression, and Self-Perception) to which respondents indicate their degree of agreement that a particular effect will likely occur if they drink alcohol, on a scale from one to four (1 = disagree, 4 = agree). The CEOA demonstrates adequate test-retest reliability, $r = .66-.72$ (Positive Expectancy), $r = .59-.78$ (Positive Value), $r = .75-.81$ (Negative Expectancy), and $r = .53-.65$ (Negative Value) as well as adequate construct validity with loadings on the Positive Expectancy factor ranging from .15 to .84; for Positive Value from .35 to .78; Negative Expectancy from .32 to .69; and on Negative Value from .61 to .83 (Fromme, Stroot, & Kaplan, 1993).

The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985). See Appendix C. The Daily Drinking Questionnaire (DDQ) was used to assess typical weekly drinking in the previous month. Participants were first provided with the definition of a standard drink and then instructed to “consider a typical week within the past month” before answering. Binge drinking was also assessed by asking participants how many times they consumed 4 (female) or 5 (male) drinks within a two-hour period within the last two weeks. The DDQ is moderately reliable ($r=.58$) and a reported test-retest reliability of ($r=.86$) (Carey, Carey, Maisto, & Henson, 2006; Miller et al., 2002).

Pittsburg Sleep Quality Index (PSQI; Buysse et al., 1989). See Appendix D. Global sleep quality was assessed using the Pittsburg Sleep Quality Index (PSQI), which measures past-month sleep habits, use of sleeping medications, and daytime drowsiness. The PSQI assesses past month sleep using seven subscales: sleep duration, sleep latency, sleep disturbance, use of sleeping medication, daytime sleepiness, sleep efficiency, and overall sleep quality. Scores range from 0-21 and higher cumulative scores indicate poorer global sleep quality. A global score greater than 5 is indicative of a poor-quality sleeper, whereas a score of 5 or less is indicative of a good-quality sleeper. The test–retest reliability for the PSQI is high for the global score and all subscores ($r=.87$) (Backhaus, Junghanns, Brooks, Riemann, & Hohagen, 2002).

Study Procedure

The study was approved by the university’s Institutional Review Board prior to data collection. Interested participants provided informed consent and completed a series of screening measures via online survey using surveymonkey.com. The larger clinical trial aimed to discover if the BASICS intervention effect in reducing problematic drinking outcomes generalizes to smoking behavior. The current study, which specifically looked at sleep and its effect on outcomes of BASICS, operated within the framework of the larger BASICS clinical trial.

If participants met the following criteria: five or more drinks on a single drinking occasion for women or six or more drinks on a single drinking occasion for men as measured by the DDQ and/or the endorsement of any alcohol-related problems at the rate of 3-5 times in the last three years or more (as measured by the RAPI), they were asked to

complete the assessment and feedback portion of the BASICS study.

Qualified participants were asked to complete an in person combined assessment and feedback session at the Louisiana State University Psychological Services Center (PSC), which lasted approximately an hour to an hour and a half. The assessment portion consisted of a graduate-level clinician asking questions in order to assess alcohol use in accordance with the Brief Alcohol Screening and Intervention for College Students (BASICS) protocol. After completing the assessment phase, participants were asked to complete another series of measures via online survey using surveymonkey.com, including measures of sleep (PSQI) relevant to the current study. After completion of the measures, the participant received individualized feedback in regards to their alcohol use based on information from the screener measures and knowledge obtained during the assessment phase. Following the combined assessment and feedback session, participants were emailed a follow-up online survey using surveymonkey.com, four weeks after their in-person appointment.

In the current study, reduced alcohol consumption as a result of BASICS was conceptualized as a manipulation check as a necessary prerequisite before the primary aims and main hypotheses of the study, involving sleep quality and tension-reducing alcohol-related expectancies, were tested.

RESULTS

Demographics

Participants were volunteers recruited through the LSU Department of Psychology's online research pool, SONA. Of the 30 participants 21 were female and 9 were male and were primarily Caucasian (71.1%) with a mean age of 19.97 ($SD = 1.47$). Significant mean differences were found in the number of endorsed alcohol-related problems between participants who did not complete all three parts of the study and those thirty participants who completed the study, $p = 0.003$ in that those students who completed the study were more likely to experience alcohol-related problems. No significant mean differences were found between non-completers' and completers' age, drinking frequency, drinking quantity, and endorsed tension-reducing alcohol expectancies (refer to Participant Flow Chart and Table 1. Demographics).

Manipulation Check

To determine the effectiveness of the BASICS intervention in reducing problematic alcohol use (as measured by the AUDIT), as a pre-requisite before running further analyses, a t-test was conducted to detect any changes in problematic alcohol use pre and post-BASICS intervention. The BASICS intervention elicited a statistically-significant decrease in problematic alcohol use ($M = 6.73$, $SD = 3.68$) compared to pre-BASICS problematic alcohol use ($M = 7.70$, $SD = 3.88$), and the difference between the pre- and post- measures was 0.97, $t(29) = -3.778$, $p < .001$, $d = -.70$ (refer to Table 2. T-Tests).

Analysis 1

To determine the effectiveness of the BASICS intervention in improving overall

global sleep quality (as measured by the PSQI), a t-test was conducted to detect any changes in sleep quality pre and post-BASICS intervention. It was hypothesized that overall sleep quality (as measured by the PSQI) would be higher post-BASICS intervention when compared to overall sleep quality at pre-BASICS levels. The BASICS intervention did not elicit a statistically significant increase in sleep quality ($M = 5.23$, $SD = 2.50$) compared to pre-BASICS sleep quality ($M = 5.53$, $SD = 2.89$), a decrease of .30, $t(29) = -.91$, $p < .37$, $d = -.17$ (refer to Table 2. T-Tests).

Analysis 2

To determine the effectiveness of the BASICS intervention in reducing the strength of endorsed tension-reducing alcohol-related expectancies (as measured by the CEOA), due to their relationship to sleep quality, a t-test was conducted to detect any changes in the strength of tension-reducing alcohol-related expectancies pre and post-BASICS intervention. It was hypothesized that the strength of endorsed tension-reducing alcohol-related expectancies (as measured by the CEOA) would be lower post-BASICS intervention in comparison to the strength of endorsed alcohol-related expectancies at pre-BASICS levels due to their relationship with sleep quality. The BASICS intervention did not elicit a statistically significant decrease in the strength of tension reducing alcohol expectancies ($M = 2.77$, $SD = 0.64$) compared to pre-BASICS strength of tension reducing alcohol expectancies ($M = 2.74$, $SD = 0.57$), an increase of .02, $t(29) = .147$, $p < .884$, $d = .02$ (refer to Table 2. T-Tests).

Analysis 3

A hierarchical multiple regression was conducted using measures of pre-BASICS

global sleep quality (as measured by the PSQI) and strength of tension-reducing alcohol expectancies (as measured by the CEOA) to predict pre-BASICS intervention problematic alcohol use (as measured by the AUDIT). It was hypothesized that global sleep quality would predict problematic alcohol use and this effect would be moderated by the strength of endorsed tension-reducing alcohol expectancies. The model was significant $R^2 = .27$, $F(3,26) = 3.27$, $p < .04$. The interaction term was not significant ($\beta = -.83$, $se = .51$, $p = .11$) indicating that pre-BASICS alcohol tension reducing expectancies was not a significant moderator of the effect of sleep quality on problematic alcohol use. The effect of sleep quality on problematic alcohol use was positive and non-significant ($\beta = 2.58$, $se = 1.40$, $p = .08$), conditional on tension reducing alcohol expectancies. The conditional effect of tension reducing alcohol expectancies was positive and significant ($\beta = 7.22$, $se = 2.92$, $p = .02$) conditional on sleep quality (refer to Table 3. Moderation).

Analysis 4

A linear regression was conducted using pre-BASICS intervention measures of global sleep quality (as measured by the PSQI) and strength of tension-reducing alcohol-related expectancies (as measured by the CEOA) to predict post-BASICS intervention problematic alcohol use (as measured by the AUDIT). It was hypothesized that overall sleep quality (as measured by the PSQI) and the strength of tension-reducing alcohol-related expectancies (as measured by the CEOA) would be able to positively predict post-BASICS intervention problematic alcohol use (as measured by the AUDIT). R^2 for the overall model was 27.9% with an adjusted R^2 of 22.6%, with a large size effect according to Cohen (1988). Pre-BASICS global sleep quality and pre-BASICS tension reducing alcohol expectancies

statistically significantly predicted post-BASICS problematic alcohol use, $F(2,27) = 5.231$, $p < .012$. Pre-BASICS tension reducing alcohol expectancies added statistically significantly to the prediction, $p < .05$, though pre-BASICS global sleep quality did not (refer to Table 4. Linear Regression).

DISCUSSION

The current study examined the relationship between problematic alcohol use, sleep quality, and tension reducing alcohol expectancies. The results were mixed, and only partially supported the hypotheses. It was expected that the BASICS intervention would decrease rates of problematic alcohol use and this effect was observed in the study. Rates of problematic drinking dropped on average by 0.97, nearly a full point supporting the effect of the BASICS intervention in reducing problematic alcohol use (Kulesza et al., 2010; Proctor, 2014; Terlecki et al., 2010).

It was also expected that sleep quality would be higher post-BASICS; however, this was not the case. Sleep quality did improve post-intervention, on average by .30, though this improvement was not statistically significant. Past research supports the idea that those who engage in higher rates of problematic alcohol use also experience poorer sleep quality (Demartini & Fucito, 2014). Therefore, it was expected that as problematic alcohol use decreased sleep quality would improve. However, though the BASICS intervention did significantly reduce problematic alcohol use, this effect did not translate to a statistically significant improvement in sleep quality which may be a result of the small sample size. Furthermore, the four-week follow-up surveys were completed by participants later in the respective semester. Typically, class demands increase as a semester progresses so the lack of significant sleep improvement could be potentially explained by increasingly difficult coursework rather than problematic alcohol use.

Additionally, it was predicted that the strength of tension-reducing alcohol expectancies would decrease post-intervention. However, this effect was not evident in the

study. Post-intervention there was an increase in the strength of tension reducing alcohol expectancies of 0.2, though this effect was not statistically significant. Prior research supports that endorsing alcohol expectancies as a strong predictor of problematic alcohol use (Brown, 1985; Fromme, Stroot, & Kaplan, 1993; Ham & Hope, 2003; Martin & Hoffman, 1993; Reis & Riley, 2000; Wood et al., 1992). It was predicted that the effect of decreased problematic use would mirror a decrease in the strength of alcohol related expectancies, specifically tension reducing expectancies. The results of the study do not support this claim. Future studies looking at the BASICS intervention effect in increasing the strength of tension-reducing alcohol expectancies would be beneficial in determining if this outcome replicates.

It was also predicted that the relationship between pre-BASICS sleep quality and problematic alcohol use would be moderated by pre-BASICS tension reducing alcohol expectancies. Though the model itself was significant the interaction effect was not, indicating that pre-BASICS alcohol tension reducing expectancies was not a significant moderator of the effect of sleep quality on problematic alcohol use. Though past research supports a relationship between sleep quality and problematic alcohol use, problematic alcohol use and alcohol related expectancies, as well as sleep quality and alcohol related expectancies when these three variables were placed in a moderation model, there was not a significant moderating effect of tension reducing alcohol expectancies on the relationship between sleep quality and problematic alcohol use (Demartini & Fucito, 2014; Ham & Hope, 2003; Johnson et al., 1998).

Lastly, it was predicted that pre-intervention sleep quality and tension-reducing

alcohol-related expectancies would be able to positively predict post-BASICS intervention problematic alcohol use. This effect was observed in the study and accounted for 22.6% of the variance. However, sleep quality did not statistically add to the prediction of problematic alcohol use rates, so the predictive relationship was solely between alcohol related expectancies and problematic alcohol use.

In the current study, the relationship between problematic alcohol use and sleep quality was not evident; though the study was able to establish a relationship between pre-intervention alcohol related expectancies and post intervention problematic alcohol use. Additionally, the study was able to further add to the literature in support of the effectiveness of the BASICS intervention in reducing problematic alcohol use. One possible explanation for the lack of relationship between sleep quality and problematic alcohol use is that the four-week follow-up measures were completed later in the semester for students. As the semester progresses, academic demands typically increase, which may have resulted in decreased sleep quality that was unrelated to alcohol behaviors. Additionally, the BASICS intervention does not specifically focus on related health behaviors like sleep, which may account for the non-significant effect on sleep quality. Surprisingly, the BASICS intervention did not show a decrease in the strength of tension-reducing alcohol expectancies. A limitation of the study which may explain the lack of effect is a small sample size. Additionally, the sample was primarily Caucasian and therefore the results may not generalize to the increasingly diverse college student population. In the future, research could look to see if the effect of sleep quality and tension reducing alcohol expectancies on problematic alcohol use is evident in a larger population. Furthermore, research on the

inclusion of specific health-related information like sleep within the BASICS intervention could be beneficial in reducing problematic alcohol use and poor sleep, two problems experienced by a majority of college students.

Table 1. Demographics

Demographic information

	Total Sample Number (%)	Non-Completers (%)	Completers (%)	P- Values
Gender				
Male	218 (21.1%)	210 (21.0%)	8 (26.7%)	0.04*
Female	808 (78.3%)	786 (78.4 %)	22 (73.3%)	0.01*
Other	6 (0.6%)	6 (0.6%)	0(0.0%)	0.01*
Race				
Hispanic/Latino	35 (3.4%)	35 (3.5%)	0 (0.0%)	0.02*
Black	102 (9.9%)	100 (10.0%)	2 (6.7%)	0.01*
White	795 (77.0%)	768 (76.6%)	27 (99.0%)	0.01*
Native American	6 (0.6%)	6 (0.6%)	0 (0.0%)	0.01*
Asian	63 (6.1%)	63 (6.3%)	0 (0.0%)	0.02*
Multiracial	28 (2.7%)	27 (2.7%)	1 (3.3%)	0.03*
Other	3 (0.3%)	3 (0.3%)	0(0.0%)	0.01*
	M (SD)	M (SD)	M (SD)	P- Values
Age	19.75 (1.93)	19.74 (1.92)	19.97 (1.47)	0.784
DDQ-Frequency	1.76 (1.51)	1.74 (1.50)	2.43 (1.56)	0.176
DDQ-Quantity	3.05 (1.75)	3.02 (1.70)	3.64 (2.76)	0.461
RAPI	8.64 (9.74)	8.52 (9.80)	12.87 (6.19)	0.003*
CEOA-TR	2.63 (0.70)	2.63 (0.70)	2.62 (0.69)	0.921

Daily Drinking Questionnaire (DDQ)

Rutgers Alcohol Problem Index (RAPI)

Comprehensive Effects of Alcohol Questionnaire – Tension Reduction Subscale (CEOA-TR)

Table 2. T-Tests

Differences in manipulated variables for Time 1 and Time 2

	Time 1			Time 2			t-test	Cohen's d
	Mea n	SD	N	Mea n	SD	N		
Variables								
AUDIT	7.70	3.8 8	3 0	6.73	3.6 8	3 0	- 3.78***	-0.7
CEOA-TR	2.74	.57	3 0	2.77	.64	3 0	0.15	.02
PSQI	5.53	2.8 9	3 0	5.23	2.5 0	3 0	-0.91	-0.17

* $p < .05$; ** $p < .01$, *** $p < .001$

Table 3. Moderation
Hierarchical Multiple Regression

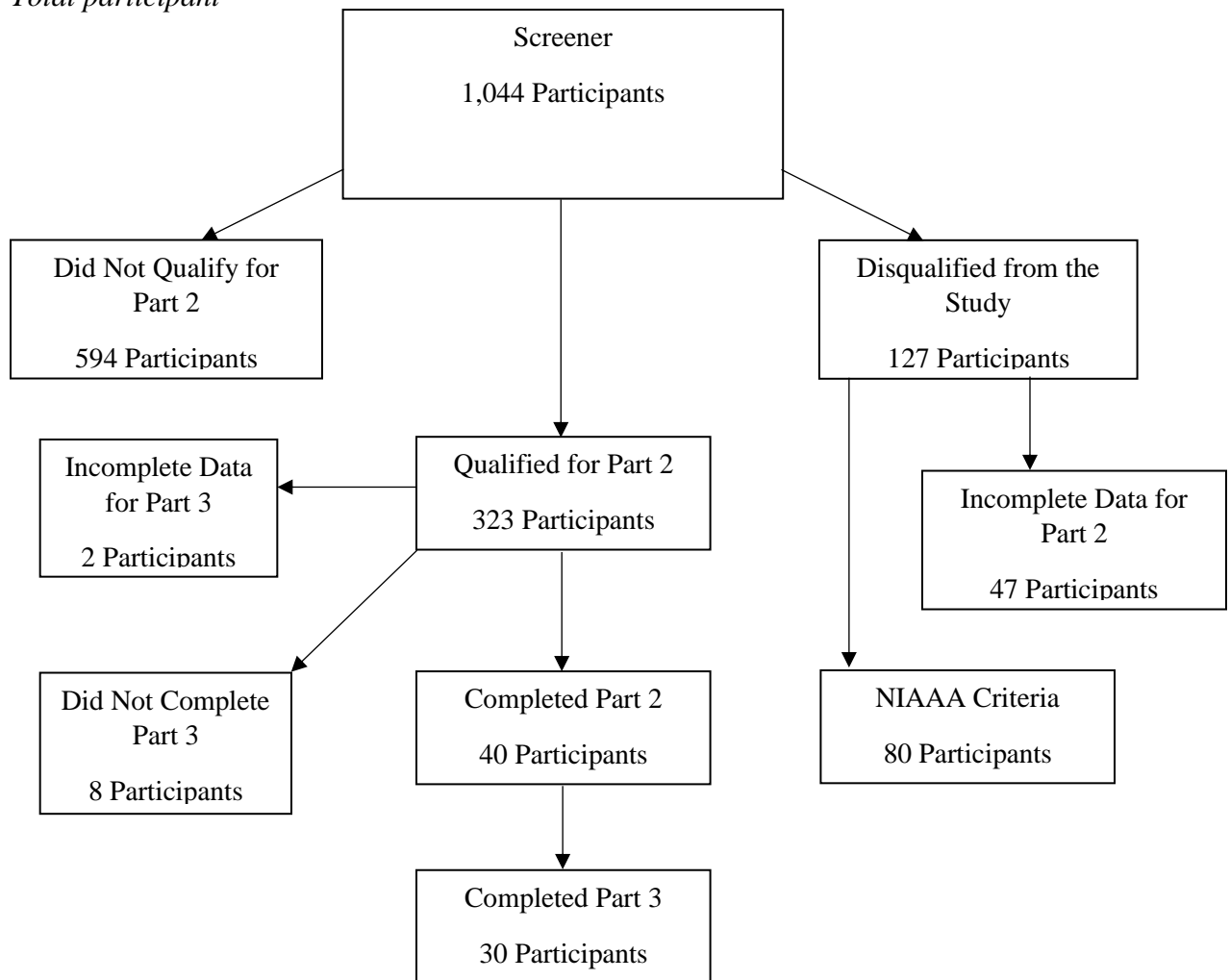
	β	SE	t	Sig.
Variables (Step 1)				
Constant		1.55	4.10	0.63
PSQI	0.18	0.24	0.96	0.35
Variables (Step 2)				
Constant		-13.94	-1.70	0.10
PSQI	1.40	2.58	1.85	0.08
CEOA-TR	2.92	7.22	2.48	0.02*
Interaction	0.51	-0.83	-1.64	0.11

Linear Regression

Linear Regression

	B	SE	β	t	Sig.
Variables					
Constant	-3.99	3.38	--	-1.18	0.25
CEOA-TR	3.34	1.07	0.51	3.11	1.13
PSQI	0.28	0.21	0.22	1.35	-0.15

Participant Flow Chart
Total participant



APPENDIX A.

The Alcohol Use Disorders Identification Test: Self-Report Version

(AUDIT)

PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest. Place an X in one box that best describes your answer to each question.

1. How often do you have a drink containing alcohol?

· Never · Monthly or less · 2-4 times a month · 2-3 times a week · 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical day when drinking?

· 1 or 2 · 3 or 4 · 5 or 6 · 7 to 9 · 10 or more

3. How often do you have six or more drinks on one occasion?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

4. During the past year, how often have you found that you were not able to stop drinking once you had started?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

5. During the past year, how often have you failed to do what was normally expected of you because of drinking?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

7. During the past year, how often have you had a feeling of guilt or remorse after drinking?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

8. During the past year, have you been unable to remember what happened the night before because you had been drinking?

· Never · Less than monthly · Monthly · Weekly · Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

· No · Yes, but not in the past year · Yes, during the past year

10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?

· No · Yes, but not in the past year · Yes, during the past year

APPENDIX B.

Comprehensive Effects of Alcohol (CEOA)

- 1) What would you expect to happen if you were under the influence of alcohol, and
- 2) whether you think the effect is good or bad

INSTRUCTIONS

A. Choose from “disagree to agree” depending on whether you expect the effect to happen to you if you were under the influence of alcohol. These effects will vary, depending on the amount of alcohol you typically consume. Circle one answer for the first set of numbers after each statement.

B. Choose from BAD TO GOOD depending on whether you think the particular effect is bad, neutral, good, etc. We want to know whether you think a particular effect is bad or good, regardless of whether or not you expect it to happen to you. Circle only one answer for the last set of numbers after each statement.

Example: 1. I would be.... 1 2 3 4 This effect is 1 2 3 4 5

IF I WERE UNDER THE INFLUENCE FROM DRINKING ALCOHOL:

1 = Disagree 2 = Slightly disagree 3 = Slightly agree 4 = Agree

1 = Bad 2 = Slightly Bad 3 = Neutral 4 = Slightly Good 5 = Good

- | | | | |
|--|---------|----------------|-----------|
| 1. I would be outgoing | 1 2 3 4 | This effect is | 1 2 3 4 5 |
| 2. My senses would be dulled | 1 2 3 4 | This effect is | 1 2 3 4 5 |
| 3. I would be humorous | 1 2 3 4 | This effect is | 1 2 3 4 5 |
| 4. My problems would seem worse | 1 2 3 4 | This effect is | 1 2 3 4 5 |
| 5. It would be easier to express my feelings | 1 2 3 4 | This effect is | 1 2 3 4 5 |
| 6. My writing would be impaired | 1 2 3 4 | This effect is | 1 2 3 4 5 |

7. I would feel sexy	1 2 3 4	This effect is 1 2 3 4 5
8. I would have difficulty thinking	1 2 3 4	This effect is 1 2 3 4 5
9. I would neglect my obligations	1 2 3 4	This effect is 1 2 3 4 5
10. I would be dominant	1 2 3 4	This effect is 1 2 3 4 5
11. My head would feel fuzzy	1 2 3 4	This effect is 1 2 3 4 5
12. I would enjoy sex more	1 2 3 4	This effect is 1 2 3 4 5
13. I would feel dizzy	1 2 3 4	This effect is 1 2 3 4 5
14. I would be friendly	1 2 3 4	This effect is 1 2 3 4 5
15. I would be clumsy	1 2 3 4	This effect is 1 2 3 4 5
16. It would be easier to act my fantasies	1 2 3 4	This effect is 1 2 3 4 5
17. I would be loud, boisterous, or noisy	1 2 3 4	This effect is 1 2 3 4 5
18. I would feel peaceful	1 2 3 4	This effect is 1 2 3 4 5
19. I would be brave and daring	1 2 3 4	This effect is 1 2 3 4 5
20. I would feel unafraid	1 2 3 4	This effect is 1 2 3 4 5
21. I would feel creative	1 2 3 4	This effect is 1 2 3 4 5
22. I would be courageous	1 2 3 4	This effect is 1 2 3 4 5
23. I would feel shaky or jittery the next day	1 2 3 4	This effect is 1 2 3 4 5
24. I would feel energetic	1 2 3 4	This effect is 1 2 3 4 5
25. I would act aggressively	1 2 3 4	This effect is 1 2 3 4 5
26. My responses would be slow	1 2 3 4	This effect is 1 2 3 4 5
27. My body would be relaxed	1 2 3 4	This effect is 1 2 3 4 5
28. I would feel guilty	1 2 3 4	This effect is 1 2 3 4 5
29. I would feel calm	1 2 3 4	This effect is 1 2 3 4 5

30. I would feel moody	1 2 3 4	This effect is 1 2 3 4 5
31. It would be easier to talk to people	1 2 3 4	This effect is 1 2 3 4 5
32. I would be a better lover	1 2 3 4	This effect is 1 2 3 4 5
33. I would feel self-critical	1 2 3 4	This effect is 1 2 3 4 5
34. I would be talkative	1 2 3 4	This effect is 1 2 3 4 5
35. I would act tough	1 2 3 4	This effect is 1 2 3 4 5
36. I would take risks	1 2 3 4	This effect is 1 2 3 4 5
37. I would feel powerful	1 2 3 4	This effect is 1 2 3 4 5
38. I would act sociable	1 2 3 4	This effect is 1 2 3 4 5

APPENDIX C.

The Daily Drinking Questionnaire (DDQ)

INSTRUCTIONS

For each day of the week, fill in both the number of drinks consumed and the number of hours you typically drink.

Please be sure to fill out the information regarding your gender, weight, and height.

QUESTION 1

For the past month, please fill in a number for each day of the week including the typical number of drinks you usually consume on that day, and the typical number of hours you usually drink on that day.

Number of Drinks	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of Hours							

Weight

Gender

Height

QUESTION 2: RESIDENCE AND EMPLOYMENT

In the last quarter (or equivalent time period), please circle the most appropriate answers. Please choose one answer for each column. In responding to the question "Paid employment?", please circle the answer closest to the average number of hours you worked during that quarter.

Were you enrolled in college? This college/university Other college/university No

Were you a Greek member? Yes No

Where did you live? Greek House Dorm With Parents Apartment Other

Paid employment? No ¼ time ½ time ¾ time Full-time

APPENDIX D.

The Pittsburgh Sleep Quality Index (PSQI)

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?

BED TIME _____

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?

NUMBER OF MINUTES _____

3. During the past month, what time have you usually gotten up in the morning?

GETTING UP TIME _____

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

HOURS OF SLEEP PER NIGHT _____

For each of the remaining questions, check the one best response. Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you . . .

a) Cannot get to sleep within 30 minutes

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

b) Wake up in the middle of the night or early morning

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

c) Have to get up to use the bathroom

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

d) Cannot breathe comfortably

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

e) Cough or snore loudly

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

f) Feel too cold

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

g) Feel too hot

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

h) Had bad dreams

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

i) Have pain

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

j) Other reason(s), please describe_____

How often during the past month have you had trouble sleeping because of this?

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

6. During the past month, how would you rate your sleep quality overall?

Very good _____

Fairly good _____

Fairly bad _____

Very bad _____

7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

Not during the past month_____

Less than once a week_____

Once or twice a week_____

Three or more times a week_____

9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

No problem at all _____

Only a very slight problem _____

Somewhat of a problem _____

A very big problem _____

10. Do you have a bed partner or roommate?

No bed partner or roommate _____

Partner/roommate in other room_____

Partner in same room, but not same bed _____

Partner in same bed _____

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