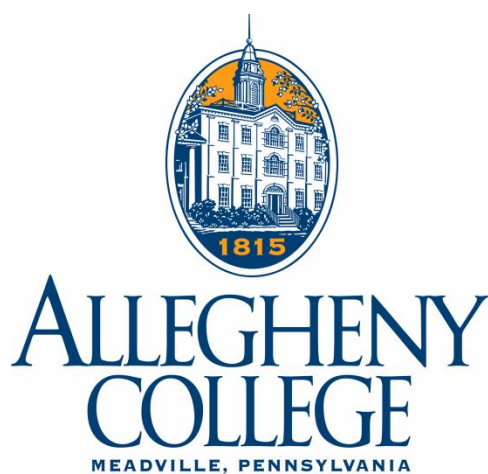


RESILIENCE AS A MEDIATOR OF HOPELESSNESS AND HEAVY DRINKING



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RESILIENCE AS A MEDIATOR OF HOPELESSNESS AND HEAVY DRINKING

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Resilience as a Mediator of Hopelessness and Heavy Drinking

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ABSTRACT

Prior research has found that Hopelessness and Heavy Drinking have a significant positive relationship, Hopelessness and Resilience have a significant negative relationship, and that Resilience can work as a protective factor against Heavy Drinking. Even though the prior research explores Resilience as a moderating factor, it does not explore the role of Resilience as a mediating factor of Hopelessness and Heavy Drinking. Based on the prior research, the current study hypothesized that Resilience would work as a mediating factor for the relationship of Hopelessness and Heavy Drinking. The current study examined this role of Resilience as a mediator in a sample of $N=38$ college students attending a small, private, liberal arts college in the Northeastern United States. Participants completed questionnaires measuring levels of Resilience, levels of Hopelessness, and Heavy Drinking tendencies. Then correlations, regression analyses that modelled Hopelessness and Resilience, and Hopelessness, Resilience and Heavy Drinking, and a mediation analysis that modelled the mediation of Resilience on Hopelessness and Heavy Drinking were conducted to analyze the data. In the present study, the relationship between Hopelessness and Resilience was the only significant finding. The hypothesized relationship of Resilience acting as a mediator for the relationship of Hopelessness and Heavy Drinking was insignificant. Differences between previous literature and the present study are discussed.

Resilience as a Mediator of Hopelessness and Heavy Drinking

By college students, drinking is viewed as an essential part of a student's social life (Segrist & Pettibone, 2009). Around forty-four percent of college students report drinking five or more drinks on a single occasion in the past thirty days (White & Hingson, 2013). This pattern of drinking has been termed as heavy or binge drinking which is observed more among college students rather than their peers who do not attend college (O'Malley & Johnson, 2002; NIAAA, 2002). According to White and Hingson (2013), only about thirty-six percent of 18-22 year olds who were not enrolled in college engaged in heavy drinking compared to the sixty-four percent of 18-22 year olds who were enrolled in college. The National Institute on Alcohol Abuse and Alcoholism (2002), attributed the differences in heavy drinking tendencies to the differences in certain aspects of college life that can expose a student to an environment that promotes heavy drinking. These include, an unstructured time schedule, the widespread availability of alcohol, limited interactions with parents and other adults, and the inconsistency of the enforcement of underage drinking laws.

A difference in heavy drinking tendencies also have been observed within college students as well. College students who attend school full-time tend to consume more alcohol and have more heavy drinking episodes than those students who attend part-time (NIAAA, 2002). Because heavy drinking appears to be more prevalent among full-time college students, continuing and broadening the research on full-time college students' drinking behaviors has been ongoing. Prior research also has explored the seriousness of the consequences that follow these heavy drinking practices (White & Hingson, 2013). On a small scale, these consequences can include: missing classes, falling behind, performing poorly on assignments and exams, and receiving poorer grades overall (NIAAA, 2002; White & Hingson, 2013). On a large scale, the

consequences of heavy drinking in college include: injury, assault, sexual assault, and death (NIAAA, 2002; White & Hingson, 2013). The National Institute on Alcohol Abuse and Alcoholism (2002) states that about 1,825 college students, 18-24 years old, died from alcohol related injuries, including car accidents; about 696,000 students are assaulted by another student who is under the influence of alcohol; and about 97,000 students report experiencing alcohol-related sexual assault or date rape. Unfortunately, the number of college students who have been injured while under the influence of alcohol has not changed substantially over the years (Hingson, Zha, & Weitzman, 2009). In 2013 it was observed that an estimated 599,000 students were unintentionally injured, 646,000 were assaulted by another student who had been drinking, more than 97,000 students had been victims of alcohol related sexual assault, and more than 1,800 died each year because of alcohol (White & Hingson, 2013). Because of these harmful consequences of heavy drinking, the subject has been explored in a wide variety of ways. Some of the questions that have been explored include, heavy drinking perceptions and when college students perceive it as problematic (Segrist & Pettibone, 2009), how depressive symptoms effect the patterns of alcohol use (Pedrelli et al., 2009), and how personality changes relate to heavy drinking (Littlefield et al., 2012).

However, there are many gaps in the literature that should be explored. One of these gaps is studying resilience as a mediating variable of hopelessness and heavy drinking. The Tension Reduction theory is one of the many lenses that heavy drinking has been explored through. This theory is “derived from drive theory, such that alcohol works in a way that attenuates states like fear or anxiety, these consequent decreases in negative emotional states reinforce alcohol use” (Maisto, Bishop, & Hart, 2012, p 92). From this view, alcohol reduces tension and this reduction of tension is the reason why individuals partake in drinking behavior. Therefore, this theory can

explain how individuals believe that alcohol will alleviate the negative emotions that they feel. In research that has studied this theory among college students, it was found that students in their first year reported tension reduction motives for drinking (Maisto, Bishop, & Hart, 2012). This theory can relate to the present study because some students may believe that partaking in heavy drinking behaviors allows them to diminish the feelings of hopelessness that they may have. Since this theory looks at the role negative emotions play on why individuals drink, it is necessary to explore what a positive trait, such as resilience, can do when placed as a mediator for the relationship between a negative emotion, hopelessness, and the outcome of heavy drinking.

The present study aimed to explore this mediating relationship between hopelessness, resilience, and heavy drinking among college students. Hopelessness and heavy drinking (Baines, 2016; Beck, Weisman, Lester, & Trexler 1974; Mushquash et al., 2013; Hjemdal, Friborg, & Stiles, 2012) and resilience and heavy drinking (Fletcher & Sakar, 2013; Smith et al., 2008; Lipowski et al., 2016; Wong et al., 2006; Johnson, Dinsmore, & Hof, 2011) have been well studied in prior literature; while, the role of resilience as a mediator of hopelessness and heavy drinking has not been studied. Although it has been found in previous literature that resilience can act as a protective factor against heavy drinking caused by hopelessness, the research did not conduct a mediation model between these three variables (Lipowski et al., 2016; Wong et al., 2006). Since hopelessness can have the effect of increasing heavy drinking habits (Mushquash et al., 2013; Hjemdal, Friborg, & Stiles, 2012; Marmorstein, 2008; Malmberg, 2009; Stewart et al., 2011; Kelly, 2005) and resilience can have the effect of decreasing feelings of hopelessness (Lipowski et al., 2016; Haines, Barker, & Rice, 2006; Wong et al., 2006; Bernard, 1991; Block, 2002; Brady & Sonne, 1999; Grotberg, 1995), resilience could be looked

at as a mediating factor between both variables. Even though this mediation role has not been established in previous literature, it is important to investigate because if resilience acts as a mediator of hopelessness and heavy drinking, then it shows that resilience can be a trait that can possibly prevent heavy drinking among college students. Since this mediation model has not been conducted addressing resilience as a mediating factor of hopelessness and heavy drinking, this is a knowledge gap would need to be explored.

Hopelessness and Heavy Drinking

Baines (2016) defines hopelessness as, “pessimism toward oneself and one’s future, often co-occurring with depression and anxiety sensitivity” (p. 65). Beck, Weisman, Lester, and Trexler (1974) constructed a hopelessness scale in order to reflect the negative expectancies of clinical patients. To do this, the researchers explored three factors: feelings about the future, loss of motivation, and future expectations. Feelings about the future was measured by asking patients how optimistic/pessimistic they felt about their future. Loss of motivation was measured by asking the patients about how motivated/unmotivated they felt they were. Future expectations was measured by asking the patients what they expected their futures to be like. Beck et al. (1974) used their scale on clinical samples and compared the levels of hopelessness the participants had reported while they were in treatment and again when they were released. Since Beck et al. (1974) developed the Beck Hopelessness Scale, the research behind hopelessness has been expanded greatly, including research that explores correlations with heavy drinking (Mushquash et al., 2013; Marmorstein, 2008; Malmberg, 2009; Kelly, 2005).

It has been demonstrated that hopelessness is one of the core characteristics of depression (Beck et al., 1974). Since hopelessness is a core component of depression, it is important to note that depressive symptoms, including hopelessness, are related to heavy episodic drinking

(Mushquash et al., 2013; Hjemdal, Friborg, & Stiles, 2012). Mushquash et al. (2013) studied the reciprocal effects between heavy drinking and hopelessness. The researchers found that hopelessness significantly predicted heavy episodic drinking, but heavy episodic drinking did not contribute to increases in hopelessness (Mushquash et al., 2013). Interestingly, other literature has found that heavy drinking does contribute to increases in hopelessness (Marmorstein, 2008). This finding can be attributed to either the physiological effects of heavy drinking or the consequences of problem use, like family, work, or school problems (Marmorstein, 2008). The findings in these studies are important because they show that hopelessness and heavy drinking may have a reciprocal relationship.

Since underage drinking is prevalent and hopelessness is observed in adolescent years, the majority of the research on hopelessness and heavy drinking has been conducted with adolescents. Malmberg (2009) aimed to examine whether the four subcategories of the Substance Use Risk Profile Scale (SURPS): anxiety sensitivity, hopelessness, sensation seeking, and impulsivity would be related to age of onset and lifetime use of tobacco, cannabis, alcohol, and poly-drug use in early adolescence (11-15 year olds). This study was conducted on Dutch adolescents and had two findings relevant to the issue of hopelessness and alcohol use in adolescence. First, the researchers found that hopelessness and sensation seeking were predictive of alcohol, tobacco, cannabis, and poly-drug use. Along with this, the researchers found that higher levels of feelings of hopelessness produced a greater likelihood of alcohol or cannabis use at an earlier age. Finally, the researchers found that adolescents, with greater feelings of hopelessness and higher levels of sensation seeking, seem to be at a greater risk for the early onset of substance use and poly-substance use. In another article (Stewart et al., 2011), researchers aimed to study whether or not high levels of hopelessness are more susceptible to

depressive symptoms through drinking to cope. They explored whether or not this drinking to cope tendency led to heavy drinking. This study found that greater feelings of hopelessness led to heavy drinking in adolescents who were about fifteen years old.

Even though hopelessness and heavy drinking have been studied more with younger populations, hopelessness and heavy drinking also have been explored among college students. Kelly (2005) used the Beck Hopelessness Scale to measure hopelessness while investigating hopelessness and self-destructive tendencies in college students. This study found that hopelessness and other self-destructive tendencies (neglectfulness, defying authority, careless self-indulgence) may lead to risk-taking, including heavy drinking, in college students. This study draws a link between hopelessness and heavy drinking by explaining how hopelessness increases the chances of risk-taking behavior, including heavy drinking. While exploring prior research on hopelessness and heavy drinking, it seems that doubt in one's future and an overall pessimistic feeling about the future, key parts of hopelessness, can be reasons as to why college students participate in heavy drinking (Kelly, 2005). This could be attributed to the numbing effect that heavy drinking has. Heavy drinking can allow students to not think about what goes on in their daily lives and allow them to ignore the doubt they feel about their future (Kelly, 2005).

Resilience as a Protective Factor for Heavy Drinking

There are different forms of resilience that people can exhibit such as, physical resilience, emotional resilience, and psychological resilience. Even though there are many different forms of resilience, psychological resilience best fits the studies on resilience and heavy drinking. Psychological resilience is defined by Fletcher and Sarkar (2013) as, "the role of mental processes and behavior in promoting personal assets and protecting an individual from the

potential negative effect of stressors” (p. 16). This definition is focused on the mental aspects of resilience and the ability to “bounce back” from stressful situations (Smith et al., 2008).

Interestingly, one-way resilience has been studied as a protective factor for youth (Lipowski et al., 2016) as it allows them to recover from hard times more easily. Placing resilience as a protective factor (moderator) can help to explain why resilience may act as a mediator between hopelessness and heavy drinking. If resilience is placed as a mediator it may be found that the relationship between hopelessness and heavy drinking is diminished. In another study that looked at resilience as a protective factor, Wong et. al (2006) explored resilience levels and onset of alcohol use in children with alcoholic parents. These children were interviewed five times within three-year intervals: time 1, 3-5 years old; time 2, 6-8 years old; time 3, 9-11 years old; time 4, 12-14 years old; and time 5, 15-17 years old. The researchers found that children with higher levels of resilience were less likely to begin using alcohol, unlike children with lower levels of resilience. This study shows that higher resilience levels are associated with a later onset of alcohol use or no alcohol use at all.

Resilience as a protective factor has been studied with participants who are in college, not just adolescents. Haines, Barker, and Rice (2006) studied the protective behaviors of college student drinkers. In this study, the researchers looked at the role of resilience and how “individuals deal effectively with behavioral risks and aversive conditions without eliminating them” (p. 69). This can mean that instead of just eliminating their heavy drinking behavior, students attempt to drink more responsibly or have others to help them (protective factors) when they have been heavily drinking. Resilience can affect this because if the student bounces back from the aversive situation more quickly they may not partake in drinking at all. If the student has low levels of resilience they may turn to drinking and be more susceptible to heavy drinking

tendencies in order to cope with their situations. There have been other studies that have indicated individuals with low levels of resilience may be more likely to use ineffective coping skills, like using drugs or alcohol to manage stress (Bernard, 1991; Block, 2002; Brady, Sonne, 1999; Grotberg, 1995). Johnson, Dinsmore, and Hof (2011) found that there is a negative correlation between alcohol use and resilience level among college students. This negative correlation between alcohol use and resilience suggests that a prediction could be made as to which students have a higher probability of heavy drinking based on their level of resilience.

Hopelessness and Resilience

Hopelessness and resilience relate to each other because hopelessness can be caused by depressing or aversive situations; while, resilience is a trait that allows someone to bounce back from the aversive events that lead to hopelessness. In prior research, the relationship between resilience and hopelessness has been explored in a variety of ways. Wartelsteiner, Mizuno, Frajo-Apor, Kemmler, Pardeller, Sondermann, Wetle, Fleischhscker, Uchida, and Hofer (2016) studied how to improve people's quality of life with schizophrenia. This study examined to what extent resilience, self-esteem, hopelessness, and psychopathology are correlated to their quality of life. Results suggest that effort should be made to promote self-esteem and resilience in order to diminish hopelessness in schizophrenic patients (Wartelsteiner et al., 2016). Resilience and hopelessness were also studied with regards to suicidal ideation in individuals with psychosis-spectrum disorders (Johnson, Gooding, Wood, Taylor, and Pratt, 2010). The Johnson et al. (2010) study examined whether a proposed resilience factor (positive self-appraisals) gave the ability to cope with emotions and difficult situations in order to buffer against the negative impact of hopelessness. The researchers found that positive self-appraisals were observed to decrease levels of hopelessness within this group of individuals.

While the relationship between hopelessness and resilience has been studied in people with psychological disorders, the relationship has also been studied with healthy individuals. Hjemdal, Friborg, and Stiles (2012) examined the incremental validity of the Resilience Scale for Adults (RSA) as a predictor for levels of hopelessness. The results of this study indicated that the RSA measures protective factors that significantly predict lower levels of hopelessness. These studies establish the negative correlation between hopelessness and resilience. This means that when an individual has high levels of resilience then they should produce relatively lower levels of hopelessness and vice versa.

Because of the research that has been conducted exploring the relationships between hopelessness and heavy drinking, resilience as a protective factor for heavy drinking, and hopelessness and resilience, a link may be missing where resilience plays a mediation role between the relationship of hopelessness and heavy drinking. This mediation role may exist since hopelessness and heavy drinking have been shown to positively correlate together, while resilience and hopelessness have been shown to negatively correlate together. Adding resilience into a mediation model between hopelessness and heavy drinking should decrease the relationship observed between hopelessness and heavy drinking overall. Decreasing this relationship would show that resilience is an important trait when looking at heavy drinking tendencies among college students.

Aims of Current Study

According to prior research, higher levels of hopelessness have played a role in more heavy drinking; while, resilience levels have been shown to lower the probability of heavy drinking. Because of these observed relationships, the current study aimed to explore resilience as a mediator of hopelessness and heavy drinking among college students. Adding resilience as a

mediator of hopelessness and heavy drinking is unique to the literature. In the current study, each participant's levels of hopelessness and resilience were recorded along with their heavy drinking habits. After data collection, regression analyses, inter-correlations, and a mediation model were assessed.

Placing resilience as a mediating variable in the hopelessness and heavy drinking relationship should decrease, or mediate, the positive relationship observed between hopelessness and heavy drinking. Because of the independent relationships observed between hopelessness and heavy drinking, resilience and heavy drinking, and hopelessness and resilience it was predicted that adding resilience as a mediator would decrease the significant relationship between hopelessness and heavy drinking. Therefore, it was hypothesized that resilience would act as a mediator of hopelessness and heavy drinking in college students.

Method

Participants

Participants were a convenience sample of ($N = 38$) undergraduate students at a small, private, liberal arts college in the Northeastern United States. The participants all signed up to participate through an online recruiting website affiliated with the college. The participants were compensated for their participation with course credit and a chance to voluntarily place their name into a drawing for a 10\$ gift card to a local business. This sample was comprised of twenty-three female students (61%), and fifteen male students (39%).

Measures

Demographic variables. General characteristics of the participants were measured. Sex was reported as either male, female, or other (male = 1; female = 0). Varsity Athlete status, Club

Athlete status, and non-athlete status also was reported by participants, 50% of the participants said they were athletes, while 50% of the participants said they were non-athletes.

Hopelessness. The Beck Hopelessness Scale (BHS) measured the participant's general feelings of hopelessness (Beck et al., 1974). This scale consists of twenty true-false statements that assess hopelessness by measuring three factors: feelings about the future, loss of motivation, and future expectations. Each of the statements are either scored as a 1 or a 0 and if there is no response this also is scored as 0. The items are summed to get a total score that can range from zero to twenty, where the higher scores indicate greater hopelessness. Scores on the BHS in the 0-3 range indicate minimal hopelessness, scores in the 4-8 range indicate mild hopelessness, scores in the 9-14 range indicate moderate hopelessness, and in the 14-20 range indicate severe hopelessness. Beck et. al (1974) found the overall internal consistency for the BHS to be $\alpha=.93$ and the item-total correlation coefficients ranged from .39 to .76. Durham (1982) used the BHS to test three different populations, psychiatric patients, a forensic psychiatric group, and undergraduate college students. He found the test-retest reliability to be .86 for the psychiatric population, .83 for the forensic psychiatric group, and .65 for college samples. Internal consistency was good as well with $\alpha=.88$. Concurrent validity was also determined with a population of depressed patients in a psychiatric unit of the Hospital of the University of Pennsylvania by comparing it with other Hopelessness measures. The correlation of the BHS with the Stuart Future Test was .60 ($p < .001$) and the correlation with the pessimism item of the Depression Inventory was .63 ($p < .001$) (Beck et al., 1974).

Resilience. The Brief Resilience Scale (BRS) measures a participant's ability to "bounce back" or recover from stress. This scale consists of six items that are measured on a 5-point Likert-Scale on the basis of agreement (1=strongly disagree; 2=disagree; 3=neutral; 4=agree;

5=strongly agree). Three of the items are positively worded (items 1, 3, and 5) while three are negatively worded (items 2, 4, and 6). To score this scale, the negatively worded items are reverse coded and then the mean of all six items is calculated. The BRS was administered, within the U.S., to two groups of undergraduate students, a sample of cardiac rehabilitation patients and a sample of fibromyalgia patients. These groups found that the BRS has good internal consistency ranging from $\alpha = .80$ to $\alpha = .91$ (Smith et al. 2008). The BRS also is positively correlated with other resilience measures like, optimism, purpose in life, measures of social support and negatively correlated with anxiety, depression, and negative affect, meaning that this scale can be generalized to other feelings that share common aspects of resilience (Smith et al. 2008).

Heavy drinking. Heavy drinking was measured by asking men the frequency of them having 5 or more drinks on a single occasion over the past thirty days. Women were asked the frequency of them having four or more drinks on a single occasion over the past thirty days. For both men and women their answers could have been, I did not drink alcohol in the past 30 days, I drank, but never had 5+ (4+) drinks, one time, two times, about one time a week, about two times a week, about three times a week, about four times a week, about five times a week, about six times a week, or daily.

Procedure

The present data were collected in person at the psychology building on campus. Each participant was ensured complete confidentiality about the answers they gave. After consent had been given, the participants were given four measures separately in the following order, demographics, Beck Hopelessness Scale, Brief Resilience Scale, and Heavy Drinking Measure. Once finished, each participant was asked to place their measures in an envelope and seal it.

They were then debriefed and asked if they would like their name to be placed in a drawing for a \$10 gift card to a local business. All methods and procedures in this study were approved by the Institutional Review Board and there were no reportable incidents while conducting this research.

Results

Descriptive statistics for participants are presented in Table 1. The participants for this study were 39% male, and 50% of participants were involved in athletics (club or varsity). Hopelessness had a mean of $M=2.95$ ($SD=3.22$) in a scale with possible scores that ranged from 0-20, resilience had a mean of $M=3.41$ ($SD=0.78$) in a scale with possible ratings that ranged from 1-5, and heavy drinking had a mean of $M=2.92$ ($SD= 4.11$) heavy drinking occasions in the prior thirty days. Pearson product-moment correlation analyses were conducted (see Table 2). Note that only one correlation was statistically significant. This correlation was hopelessness and resilience $r=-0.545$.

Mediation Analysis

The hypothesis of this study was for resilience to mediate the relationship between hopelessness and heavy drinking. The presence of mediation is predicated on meeting three criteria. First, hopelessness (X) must significantly predict heavy drinking (Y) in isolation; second, X must significantly predict resilience (M), and last, M must significantly predict Y (Meyers, Gamst, & Guarino, 2017). Since the first criterion was not met for the mediation analysis (X did not significantly predict Y) there was no basis for the rest of the criterion of the Mediation Analysis. Since there was no significant relationship found between hopelessness and heavy drinking, the Mediation Analysis could not yield a significant relationship for resilience as a mediator of hopelessness and heavy drinking. Even though there was no way for the Mediation

Analysis to yield a significant relationship, a Sobel Test was conducted through an online calculation tool (Preacher & Leonardelli, 2010) for educational purposes of the author. The Sobel Test yields a test statistic testing whether a mediator carries the influence of an independent variable to a dependent variable (Preacher & Leonardelli, 2010). For the current study, the Sobel Test yielded a test statistic of .026, $SE = .137$, and $p < .979$, meaning that, as expected, resilience did not play a significant role as a mediator of hopelessness and heavy drinking.

Regression Analyses

To follow up the Sobel test, data were analyzed with a simple linear regression to predict heavy drinking based on hopelessness and resilience. An insignificant regression was found, $F(2,35) = 0.733$, $p < 0.488$, with an R^2 of 0.040, meaning 4% of the variability in heavy drinking was accounted for by the variation in hopelessness and resilience. For every one-unit increase in Resilience and Hopelessness there was a .027 and .259 unit decrease in heavy drinking, respectively. There was also no multi-collinearity found between the two predictor variables ($VIF=1.423$). A subsequent simple linear regression to predict resilience based on hopelessness was also conducted. A significant regression was found, $F(1,36) = 15.228$, $p < .000$, with an $R^2=.297$, suggesting that 30% of the variability in resilience is accounted for by the variation in hopelessness.

Discussion

The present study attempted to explore how resilience could act as a mediator for the relationship between hopelessness and heavy drinking; unfortunately, this hypothesized relationship was not found. The present study was based on previous literature that established the positive relationship between hopelessness and heavy drinking (Baines, 2016; Beck &

Weisman, 1974; Mushquash et al., 2013; Hjemdal, Friborg, & Stiles, 2012; Marmorstein, 2008; Malmberg, 2009; Stewart et al., 2011; and Kelly, 2005) and other studies which explored resilience as a protective factor for heavy drinking (Fletcher & Sakar, 2013; Smith et al., 2008; Lipowski et al., 2016; Haines, Barker, & Rice, 2006; Wong et al., 2006; Bernard, 1991; Block, 2002; Brady & Sonne, 1999; Grotberg, 1995; Johnson, Dinsmore, & Hof, 2011). The present study attempted to collect hopelessness levels, resilience levels, and heavy drinking tendencies in order to conduct a mediation model. It was hypothesized that hopelessness and heavy drinking would have a positive relationship that would be mediated by the negatively correlated relationships that resilience shared with hopelessness and heavy drinking. The goal of the present study was to fill a gap in the prior literature by exploring resilience as a mediating factor of hopelessness and heavy drinking. Setting this study apart from others which had explored resilience as a moderating factor of heavy drinking. The results of the present mediation analysis did not support the study's hypothesis. There was no significant relationship found between the core variables of the mediation analysis (hopelessness and heavy drinking) possibly because the Sobel Test works better with larger sample sizes than the one in the present study. The type of participants in this study could have also had a big impact on the studies findings. Therefore, there was no foundation for a mediation analysis to be conducted. There was also no significant finding in the regression analysis where heavy drinking was predicted by hopelessness and resilience. Only 4% of the variability of in heavy drinking was accounted for by the variation in hopelessness and resilience. This discussion section will focus on some potential reasons why the predicted results were not observed in the present study.

Hopelessness and Heavy Drinking

Not only was there no significant relationship between hopelessness and heavy drinking, but the relationship found was positive instead of the expected negative relationship. There have been studies that have shown that hopelessness can lead to higher levels of heavy drinking and vice versa (Baines, 2016; Beck & Weisman, 1974; Hjemdal, Friborg, & Stiles, 2012; Marmorstein, 2008; Malmberg, 2009; Stewart et al., 2011; and Kelly, 2005), but interestingly, another prior study (Musquash et al., 2013) did not show a reciprocal relationship between these two variables like the other studies did. One potential reason that the results in the present study were inconsistent with most prior research could be because the levels of hopelessness reported by participants had been relatively low compared to what other studies have found. For example, in the study by Stewart et al. (2011) the researchers found a mean of 14.1 compared to the mean of 2.95 in the present study. This restricted range (See Figure 1) could have affected the present study negatively because more reports of high levels of hopelessness were needed to make an impact on the study's findings. A potential reason why the levels of hopelessness could have been low is because even though Beck Hopelessness Scale has been tested on non-clinical samples the majority of the research conducted with this measure has been on clinical samples (Beck & Weisman, 1974). Because of the nature of the college that the participants attend, they may not have as high of levels of hopelessness as other populations because they are bettering their futures by being enrolled in higher education. Therefore, the BHS may not have been the best scale to use with the population that was in the present study. There was also a restricted range for heavy drinking (See Figure 2) because the reported instances of heavy drinking were concentrated on the lower end of the scale. This could have affected the outcome of this study

because higher levels of heavy drinking were needed to be reported in order to have higher levels of hopelessness.

Resilience and Heavy Drinking

In the present study, an insignificant relationship was observed between resilience and heavy drinking, which is contrary to patterns of results in prior research. According to prior research, resilience had been studied as a protective factor against heavy drinking (Fletcher & Sakar, 2013; Smith et al., 2008; Lipowski et al., 2016; Haines, Barker, & Rice, 2006; Wong et al., 2006; Bernard, 1991; Block, 2002; Brady & Sonne, 1999; Grotberg, 1995; Johnson, Dinsmore, & Hof, 2011), meaning that as resilience had been negatively correlated with heavy drinking. Interestingly, in the present study, the relationship between resilience and heavy drinking was not only insignificant, but also in the positive direction instead of the expected negative. This could be contributed to the restriction of range in both the heavy drinking (see Figure 2) and resilience (see Figure 3) variables. The resilience levels were more concentrated on the higher end of the scale while the reported heavy drinking was greatly concentrated on the lower end of the scale. The majority of the participants reported having either zero or one instances of heavy drinking over the past thirty days. This finding could be attributed to the fact that data was collected right around finals, a time of year where students are overwhelmed with work and have little time to go out and partake in heavy drinking. The low reporting of heavy drinking occasions and high reporting of resilience levels could also be because of the nature of the college that the participants attend. They may be more focused on school because of the rigor of the institution rather than focused on heavy drinking. There was one outlier who reported twenty instances of heavy drinking in the past thirty days, but when the regression analyses were conducted without this participant's responses it did not significantly affect the data. Other

studies had looked at resilience as a protective factor for harmful activities (including heavy drinking), but none just looked directly at heavy drinking tendencies in college students (Lipowski et al., 2016; Wong et. al, 2006).

Hopelessness and Resilience

In the present study, hopelessness and resilience had a significant negative relationship. Other than gender and resilience, this was the only significant finding in this study. This significant finding also was reported in prior literature (Wartelsteiner et al., 2017; Johnson et al., 2010; Hjemdal, Friborg, & Stiles, 2012) illustrating the important role resilience plays in decreasing feelings of hopelessness. Despite the lower levels of hopelessness that were reported by participants and the higher levels of resilience reported by participants the present study still provided a significant negative correlation between these two variables. With typically lower levels of hopelessness and higher levels of resilience the significant relationship could have developed because of the nature of the participants as a whole. In addition, the regression analysis that predicted resilience from hopelessness was also significant, with results that explained that 30% of the variability in resilience is accounted for by the variation in hopelessness. This means that resilience and hopelessness have a statistically significant negative relationship which can allow for a decreased relationship between hopelessness and heavy drinking overall.

Limitations

There were a number of limitations to the present study. The first limitation was the restriction of who could participate in this study. Since the way of recruiting participants was through a college owned recruiting site, the only students who could participate were the ones that attended that particular college. Even though the recruiting site is available to all students on

campus there is more of a chance of getting psychology or other science majors to participate in the studies available because those disciplines use the site the most. Since the college that the participants attend is a small, selective, private, Liberal Arts college, the findings produced by this participant pool may look completely different than findings that may derive from other colleges. Other colleges that are not as selective, have a bigger student body, or are public may have students who are more likely to partake in heavy drinking unlike the students at this particular college. Students at other colleges also may have higher levels of hopelessness and lower levels resilience. The small sample size could have also affected the outcome of the Sobel Test because this test is made to work better with larger sample sizes (Preacher & Leonardelli, 2010) rather than small ones. The size of the sample along with the type of participants in this study could have negatively affected the findings of this study.

Another limitation of the present study could have been that the age requirement of this study was that the participants had to be age eighteen or older to participate. Therefore, if some participants were underage they may have lied about their Heavy Drinking tendencies because it is illegal for them to be drinking at all. This study was also collecting data on sensitive subjects (hopelessness and heavy drinking) which may have led to a limitation on self-reports of all variables. Participants could have been dishonest or not want to participate in the study at all because of the sensitivity of these topics. Another limitation of this study could also be contributed to the length of the the Brief Resilience Scale. Since this scale only had six questions it may not have accurately measured the resilience levels of the participants, a longer measure may have changed this.

Future Directions

In a large sense, future research should focus on how to decrease the negative consequences students face because of heavy drinking. To this end, future research should explore variables (like resilience) that can decrease heavy drinking in college students. An understanding of the relationship between hopelessness and resilience can contribute to this because resilience is observed to alleviate feelings of hopelessness, while greater feelings of hopelessness are observed to increase heavy drinking tendencies. Within the current study the pool of participants was particularly small, future study should focus on attaining a larger pool of participants because the current study's participant pool size could have had a negative effect on the findings, especially the outcome of the Sobel Test. Opening the pool of participants would be beneficial because the study would generalize better, the participants would not all necessarily come from the same sample, and the Sobel Test could possibly yield a better test statistic. It would also allow for a larger variety of participants. The use of different scales for hopelessness and resilience may be beneficial for future study as well (as long as the study is still focused on college students). A more in depth resilience scale may be more beneficial because it gives the researcher more to factor in when looking at what is reported by the participant. Also, using a hopelessness scale that is mainly focused on a healthy population rather than a clinical sample could be beneficial to future research. This could be beneficial because other scales may be exploring hopelessness among healthy individuals, rather than on individuals with mental health issues.

Conclusion

Although no significant effect was found for resilience acting as a mediator of hopelessness and heavy drinking, it is important for future research to see how this effect could

take place with additional research. Future researchers should be aware of the independent relationships that resilience and hopelessness have with heavy drinking. Researchers also should be aware that when conducting research using these three variables it is important to have a diverse participant pool and to consider the sensitivity of the variables being explored. This study was limited because of the small pool of participants, the way in which the participants were recruited, and the surveys that were used. Even though there was no significant relationship found for the mediation analysis in the present study, future research should revisit the possibility because of all of the limitations that this study faced. All in all, future research should focus on the ways that resilience can help to mediate the relationship between hopelessness and heavy drinking.

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Table 1

Descriptive Statistics

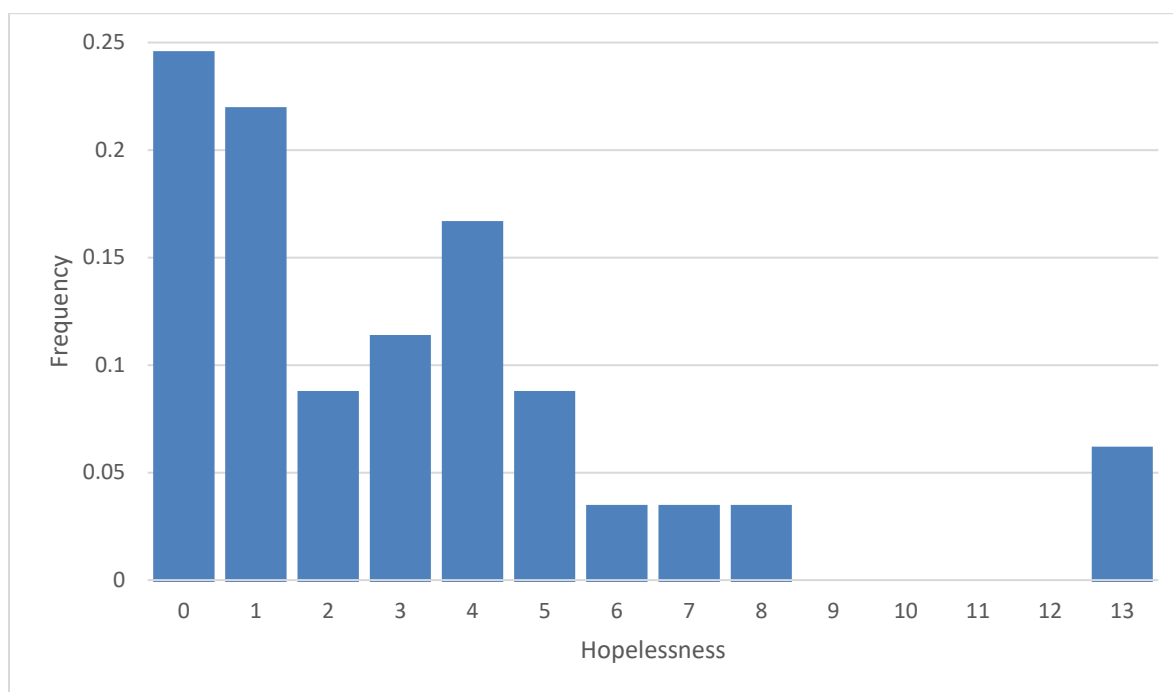
Variable	<i>M or %</i>	<i>SD</i>	<i>Minimums/Maximums</i>
Gender (% Male)	39	-	-
Athlete Status (% Participant)	50	-	-
Hopelessness	2.95	3.22	0/13
Resilience	3.41	0.78	1.833/4.833
Past 30-Day Heavy Drinking	2.92	4.11	0/20

Note. Resilience was measured on a scale ranging from 1 to 5. Hopelessness was measured on a scale ranging from 0 to 20. Heavy Drinking was measured on a scale ranging from 0 to 30.

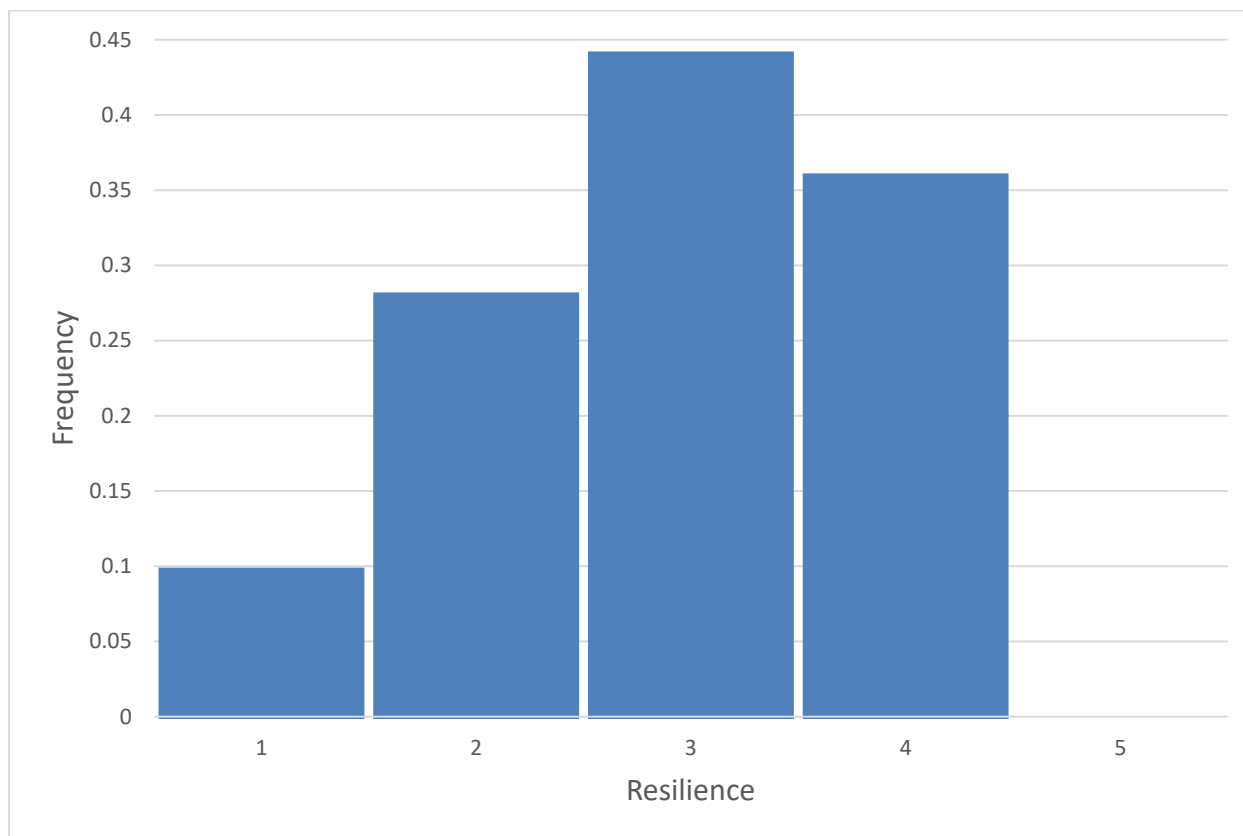
Table 2
Pearson Correlations

Variable	1	2	3	4	5
1. Gender (1=Male)	--	.162	-.122	.347*	.016
2. Athlete Status (1=Participant)	--	--	-.315	.273	.032
3. Hopelessness	--	--	--	-.545**	.106
4. Resilience	--	--	--	--	-.200
5. Past 30 Day Heavy Drinking	--	--	--	--	--

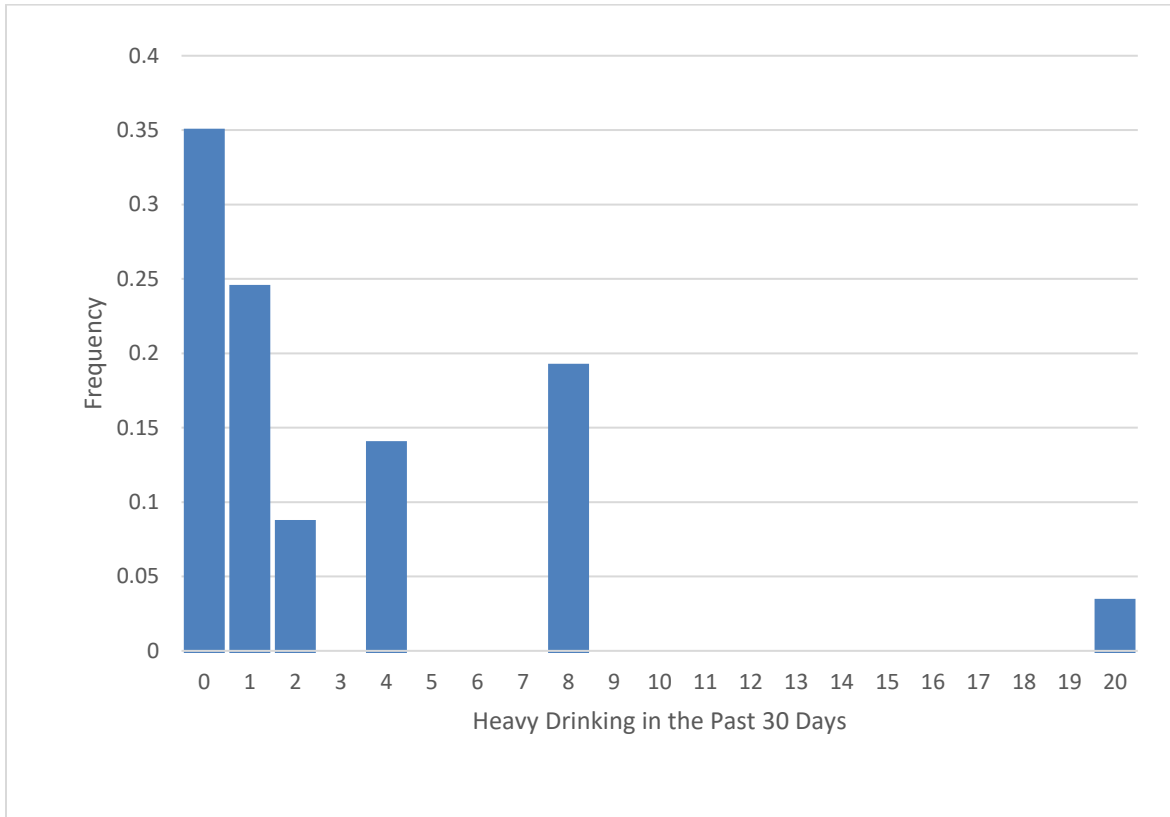
Note. * $p < .05$. ** $p < .01$.

Figure 1. Hopelessness Frequency Distribution

Note. Minimum score is 0 and maximum score is 20. Scores in the 0-3 range indicate minimal hopelessness, scores in the 4-8 range indicate mild hopelessness, scores in the 9-14 range indicate moderate hopelessness, and in the 14-20 range indicate severe hopelessness.

Figure 2. Resilience Frequency Distribution

Note. Range of this scale is a minimum of 1 and a maximum of 5.

Figure 3. Heavy Drinking Frequency Distribution

Note. Score of 0 indicates 0 instances of Heavy Drinking in the past 30 days (minimum), 1 indicates 1 instance, 2 indicates 2 instances, 4 indicates Heavy Drinking once a week, 8 indicates Heavy Drinking twice a week, 12 indicates Heavy Drinking 3 times a week, 16 indicates Heavy Drinking 4 times a week, 20 indicates Heavy Drinking 5 times a week, 24 indicates Heavy Drinking 6 times a week, 30 indicates daily Heavy Drinking (maximum).

APPENDIX A

Research Participant Consent Form

College Drinking Study

Brianna Ashley

Allegheny College

Department of Psychology

Purpose of Research: The purpose of this research is to explore resilience, hopelessness and heavy drinking.

Specific Procedures: I understand that I will be asked to complete three measures.
I understand that this study will take about 30 minutes to complete.

Risks to the Individual: I understand that the risks of participating in this study are no more than I would experience in everyday life.

Benefits to the Individual or Others: I understand that the primary potential benefit of this research will be obtained by other college students in the future and that the benefit to me is minimal.

Compensation: I understand that to compensate for my participation in this study, my name will be entered in a drawing for a gift certificate to Subway in the amount of \$10. I am free not to enter my name. I may also receive course credit for my involvement in this study.

Anonymity: I understand that the data I provide today are completely anonymous and that my name never will be associated with the data I provide. I understand that the researcher is not interested in any one person's responses and that, therefore, the researcher will combine the data I provide with that of all other participants and will then look for general patterns in the combined data and my information will remain anonymous. Any reports made based on the data in this study will focus solely on these general patterns. Furthermore, I understand that I will place the questionnaires I have answered in a sealed envelope for the researcher that will not be opened until data collection is complete. I also understand that all data will be maintained under lock and key in the Department of Psychology. I understand that this consent form will also be stored under lock and key, but separately from my data. In addition, I understand that my entry in the drawing will never be associated with my data or consent form. I understand that when the data I provide today are no longer needed, they will be shredded.

Voluntary Nature of Participation: I understand that I do NOT have to participate in this study. Furthermore, I understand that if I agree to participate I can withdraw my participation at any time without penalty. In addition, I understand that I may skip any individual questions that I do not wish to answer and any procedures that I do not wish to complete.

Contact Information: If I have any questions or concerns about this research project, I can contact Brianna Ashley at 814-566-0688 or ashleyb@allegheny.edu or I can contact Patricia Rutledge at 814-332-6271 or at prutledg@allegheny.edu. If I have any questions or concerns about the treatment of research participants (including myself), I can contact Rich Bowden, Chair of the Allegheny College Institutional Review Board (IRB) at 814-332-2869 or rbowden@allegheny.edu.

I understand that my signature below indicates that I am at least 18 years of age at the time of my participation in this study and that I have received a copy of this informed consent form. My questions have been answered, and I agree to participate in the study.

Name (printed): _____

Signature: _____

Date: _____

APPENDIX B

RESEARCH PARTICIPANT DEBRIEFING

College Drinking Study
Brianna Ashley
Allegheny College
Department of Psychology

Thank you very much for your participation in today's study! Your assistance is greatly appreciated!

Purpose of Research: The purpose of this research was to see how resilience worked as a mediator between hopelessness and heavy drinking.

Compensation: To compensate you for your participation, please enter your name and email address to be put in an optional drawing for a gift card at the end of data collection.

Anonymity: The data provided by all participants are completely anonymous and participants' names never will be associated with the data they provide. After the participant had filled out the questionnaires they placed their responses in a sealed envelope that will not be opened until data collection is completed. Also, all data will be stored under lock and key in the Department of Psychology at Allegheny College. The consent form you signed will also be stored under lock and key, but separately from the data. If you entered the drawing, your entry never will be associated with the data or the consent form. When the data are no longer needed, they will be shredded.

Additional Sources of Information:

Bernard, B. (1991). Fostering Resilience in Kids: Protective Factors in the Family School and Community. *Western Center for Drug-Free Schools and Communities*. 5-20.

Johnson, N., Dinsmore, J. A., Hof, D. D. (2011). The Relationship Between College Students' Resilience Level and Type of Alcohol Use. *International Journal of Psychology: A Biopsychosocial Approach*, 8, 67-82.

Contact Information: Please feel free to contact any of the following people.

- If you have any questions or concerns about this research project, you may contact Patricia Rutledge at 814-332-6271 or at prutledg@allegheny.edu. Also, you may contact the researcher, Brianna Ashley at 814-566-0688 or ashleyb@allegheny.edu
- If you have questions or concerns about the treatment of research participants, including yourself, you may contact Rich Bowden, Chair of the Allegheny College Institutional Review Board (IRB) at 814-332-2869 or rbowden@allegheny.edu.
- If you have any concerns of psychological nature, you may contact the Allegheny College Counseling Center at 814-332-4368.
- If you have any health-related concerns, please contact the Allegheny College Health Center (Winslow Health Center) at 814-332-4355 or your personal physician.

THANK YOU AGAIN FOR YOUR PARTICIPATION.

APPENDIX C

Demographics Questionnaire

1. What is your sex?

1. Male 2. Female 3. Other

2. Are you a Varsity Athlete??

1. Yes 2. No

3. Are you a Club Athlete?

1. Yes 2. No

4. Are you a non-athlete

1. Yes 2. No

3. Are you affiliated with a social fraternity or sorority on campus?

1. Yes 2. No

The Brief Resilience Scale

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I tend to bounce back quickly after hard times.	1	2	3	4	5
2. I have a hard time making it through stressful events.	1	2	3	4	5
3. It does not take me long to recover from a stressful event.	1	2	3	4	5
4. It is hard for me to snap back when something bad happens.	1	2	3	4	5
5. I usually come through difficult times with a little trouble.	1	2	3	4	5
6. I tend to take a long time to get over set-backs in my life.	1	2	3	4	5

Heavy Drinking Survey (For Men)

1. In the past thirty days, how often did you drink alcohol ?			
☐ 0 times (never)	☐ about 1 time a week	☐ about 4 times a week	☐ daily
☐ 1 time	☐ about 2 times a week	☐ about 5 times a week	
☐ 2 times	☐ about 3 times a week	☐ about 6 times a week	

1a. In the past thirty days, when you drank alcohol, how many drinks did you usually have on one occasion?			
☐ I did NOT drink alcohol this past 30 days	☐ 1 drink	☐ 5 drinks	☐ 9 drinks
Note that “drink” means any of the following: ▪ Can or bottle of beer (12oz) ▪ Can or bottle of wine cooler (12oz) ▪ Can or bottle of malt beverage (12 oz) (e.g., Mike’s Hard Lemonade) ▪ Glass of wine (14oz)	☐ 2 drinks	☐ 6 drinks	☐ 10 drinks
	☐ 3 drinks	☐ 7 drinks	☐ 11 drinks
	☐ 4 drinks	☐ 8 drinks	☐ 12 or more drinks

2. In the past thirty days, how often did you have 5 or more drinks on a single occasion?			
☐ I did NOT drink alcohol this past 30 days	☐ 1 time	☐ about 3 times a week	☐ daily
☐ I drank, but never had 5+ drinks	☐ 2 times	☐ about 4 times a week	
	☐ about 1 time a week	☐ about 5 times a week	
	☐ about 2 times a week	☐ about 6 times a week	

Heavy Drinking Survey (For Women)

1. In the past thirty days, how often did you drink alcohol ?			
☐ 0 times (never)	☐ about 1 time a week	☐ about 4 times a week	☐ daily
☐ 1 time	☐ about 2 times a week	☐ about 5 times a week	
☐ 2 times	☐ about 3 times a week	☐ about 6 times a week	

1a. In the past thirty days, when you drank alcohol, how many drinks did you usually have on one occasion?			
☐ I did NOT drink alcohol this past 30 days	☐ 1 drink	☐ 5 drinks	☐ 9 drinks
Note that “drink” means any of the following: ▪ Can or bottle of beer (12oz) ▪ Can or bottle of wine cooler (12oz) ▪ Can or bottle of malt beverage (12 oz) (e.g., Mike’s Hard Lemonade) ▪ Glass of wine (14oz)	☐ 2 drinks	☐ 6 drinks	☐ 10 drinks
	☐ 3 drinks	☐ 7 drinks	☐ 11 drinks
	☐ 4 drinks	☐ 8 drinks	☐ 12 or more drinks

2. In the past thirty days, how often did you have 4 or more drinks on a single occasion?			
☐ I did NOT drink alcohol this past 30 days	☐ 1 time	☐ about 3 times a week	☐ daily
☐ I drank, but never had 5+ drinks	☐ 2 times	☐ about 4 times a week	
	☐ about 1 time a week	☐ about 5 times a week	
	☐ about 2 times a week	☐ about 6 times a week	