The Influence of Different Stressors on Alcohol Consumption and Binge Drinking

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Abstract

Throughout literature, alcohol consumption has very often been used as a method to cope with stress. Many studies have also documented, more specifically, binge drinking as a method to deal with this stress. This study looks at if average stress, interpersonal stress, work stress and college stress will all predict both general alcohol consumption and binge drinking if controlled for in a singular model. 136 participants were recruited for this study via convenience sampling. 85 females and 51 males took part. As not all participants attended both college and work, 112 of these 136 participants completed the questions relating to work stress and 65 of the 136 participants recorded answers about attending college. The ages of participants ranged from 18 to 75. Two multiple regression models were ran to investigate if these stressors predicted alcohol consumption in the first model and binge drinking in the second model. Results showed that average stress was a significant predictor of alcohol consumption and that college stress was a significant predictor of both alcohol consumption and binge drinking. This study had its limitations in that alcohol consumption and binge drinking were self-report measures, convenience sampling was used, and the sample size was relatively small. These findings could have implications in helping students to find better ways to cope with college stress other than drinking alcohol.

Contents

Introduction

Alcohol accounted for 3 million deaths in 2016, representing 5.3% of all deaths for the year (World Health Organization [WHO], 2018). Alcohol accounted for more deaths in 2016 than tuberculosis (2.3%), HIV/AIDS (1.8%), diabetes (2.8%) and digestive diseases (4.5%) (WHO, 2018). As well as preventable deaths, alcohol has been linked to several health deficits and illnesses, such as one study showing how alcohol consumption has a strong causal relationship with major depression in participants (Bodden & Fergusson, 2011). Alcohol use also caused an estimated 132.6 million disability-adjusted life years (DALYs) which represented 5.1% of all DALYs in that year in 2016 (WHO, 2018). The disability-adjusted life year is a measure of the overall burden of a disease in terms of number of years lost due to the deficit or illness (Lopez & Murray, 1998). It also must be mentioned the major problem of injuries and or death caused by alcohol inflicted violence or accidents, with alcohol accounting for an estimated 0.9 million injury deaths in 2016, with 370,000 deaths due to road injuries, 150,00 due to self-harm and 90,000 due to interpersonal violence (WHO, 2018). Of the road fatalities, 187,00 of these deaths were not the individuals driving the car (WHO, 2018). It is clear from these figures alone how alcohol consumption is a major problem in society today, causing millions of preventable deaths, whether it be from an alcohol contracted disease, an alcohol related accident or alcohol related violence.

Another well-known problem in terms of alcohol consumption is due to a phenomenon known as ‘binge drinking’ and contributes to a significant number of alcohol related deaths (Chikritzhs, Jonas, Stockwell, Heale, & Dietze, 2001; Courtney and Polich, 2009). Although a commonly used term, the exact definition of binge drinking appears to vary across the literature (Jang, Patrick, Keyes, Hamilton, & Schulenberg, 2017). Throughout the 20th century, binge drinking was commonly defined throughout literature as ‘a heavy

drinking bout' (Crabbe, Harris, & Koob, 2011). However, in 2004, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) redefined the definition of binge drinking to be when and individual's blood alcohol concentration (BAC) levels are 0.08 gram percent or above (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2004). In the average adult, it would require 5 standard units of alcohol for men and 4 standard units for women within a two hour period to reach this level of BAC, which became known as the '5/4 rule'. This definition of 4 or 5 drinks was then adopted by the Centers for Disease Control and Prevention of the USA (NIAAA, 2004). However, the WHO refer to binge drinking as 'heavy episodic drinking' and is defined as consuming at least 60g of alcohol per drinking session, which amounts to at least 6 drinks (WHO, 2014).

Binge drinking can be extremely harmful to an individual, as drinking an excess amount of alcohol on one occasion can lead to alcohol poisoning, pancreatitis and many other unintentional injuries due to events such as drink driving (Courtney & Polich, 2009). This is not to mention possible death due to overdose because of the neurotoxicity of the alcohol on vital organs in the body (Crabbe, Harris, & Koob, 2011). Yet, with all these health risks of alcohol consumption and heavy episodic drinking, individuals continue to drink alcohol problematically at a very high rate, with 2.3 billion people being recorded as regular alcohol drinkers in 2016 with an estimated 60% of these drinkers engaging in heavy episodic drinking on at least one occasion per month (WHO, 2018). For the purpose of this study, binge drinking will be referred to using the definition defined by the WHO, as this is the definition for binge drinking that the Health Service Executive (HSE) of Ireland use (HSE, 2006). As this study will be looking at a population within Ireland, this definition will be used.

Stress

There can be many reasons as to why one drinks alcohol, however, a well-documented cause of intensified alcohol consumption across literature can be contributed to stress. Stress can be defined as a trigger of negative emotions when one is in a time of difficult circumstances and can cause severe emotional distress in individuals (Hammen, 2005; Barnes, 2013). Stress can also be defined as the process by which any highly overwhelming physiological or emotional event results in an adaptive or maladaptive process to regain stability (McEwen, 2007; Sinha, 2008). This process occurs when we are exposed to potential stressors. The HPA axis is activated and the brain releases numerous transmitters and hormones throughout the body, all of which target the stressors in order to bring our organism back to stability, i.e. homeostasis (Joëls and Baram, 2009). These stressors can be emotional or physiological. Examples of emotional stressors could be a break up with a long-time partner or interpersonal conflict, whereas an example of a physiological stressor may be drug withdrawal or severe illness (Sinha & Jastreboff, 2013). There have been many documented cases of several health deficits associated with stress (Sinha & Jastreboff, 2013). Stress has been shown to have a strong casual association with depression in many studies (Hammen, 2005), notably in cases of chronic stress, which is stress over a long period of time (Luine, Gomez, Beck, & Bowman, 2017). The constant stimulation of the HPA axis due to stress has several health consequences, such as cardiovascular defects (Bairey Merz et al., 2002; Lupien et al., 2009), eating disorders (Mobus & Kalton, 2015), difficulties with sleeping (Maddock & Pariante, 2001; Oken et al., 2015) and increased risk of cancer (Maddock & Pariante, 2001).

Average Stress

In order to reduce the negative health consequences caused by chronic stress, individuals looks towards various methods to cope with the negative health consequences and emotions caused by this stress (Lazarus, 2000). Lazarus (2006) defined coping as an individual's attempts to manage environmental stress. As noted earlier, stress can arise by the prompting of many different stressors. Many stressors can differ in in the severity of impact they have on an individual, causing the individual to search for different coping mechanisms to cope with these hardships (Keyes, Hatzenbuehler & Hasin, 2011). Carver, Scheier, & Weintraub (1989) defined that coping mechanisms can be separated into three distinct categories; problem-focused coping, emotion-focused coping and dysfunctional coping. Problem-focused coping entails of coping mechanisms, such as, planning, seeking social support for instrumental reasons, and active coping. Emotion-focused coping entails of coping mechanisms such as humour, turning to religion and seeking social support for emotional reasons (Baqutayan, 2015). Dysfunctional coping entails of mechanisms such as denial, behavioural disengagement and alcohol use (Hasking, Lyvers, & Carlopio, 2011). Alcohol use can be defined as a dysfunctional way of coping, as it is indeed a way of mental disengagement from the stressor or situation at hand.

Throughout the literature, stressful life events have been seen to be very commonly associated with alcohol consumption and the potential for the development of alcohol abuse or addiction (Enoch, 2011; Boden, Fergusson & Horwood, 2014; Magrys, & Olmstead, 2015). Corbin, Farmer, & Nolen-Hoekesma (2013) found individuals to actively use alcohol consumption as a coping strategy for stress. In relation to binge drinking, many studies on several populations have shown relationships between stress and binge drinking also. This

can be seen notably in the population of college students, with one study showing how students with higher stress engaged in higher binge drinking (Chen & Feeley, 2015). Several other populations have been studied and showed positive correlations with binge drinking, ranging from pregnant women under the severe stress of pregnancy in South Africa (Watt et al., 2014) down to teenage drinkers (Goldstein, Déry, Pilgrim, Ioan, & Becker, 2016).

Interpersonal Stress

As noted earlier, stressors can vary in severity and the impact in which they have on an individual. Interpersonal stress is a well-known and well documented stressor. Throughout literature, studies have very frequently shown that disharmony in one's interpersonal relationships can be a common cause of stress. Interpersonal stress can be defined as stressful episodes between two or more people that involve arguments, quarrels or a negative atmosphere between the two that in turn make one feel uncomfortable (Kato, 2008). An example of this stress would be diminished relationships with family, tensions with friends or a break up with a romantic partner (Hankin, Stone, & Wright, 2010). Interpersonal stress is one of the most regularly encountered stressors and can have a strong effect on distress and well-being (Maybery & Graham, 2001). This can be seen in a study by Coiro, Bettis, & Compas (2017), who found that students who reported higher levels of interpersonal stress reported higher levels of anxiety, depression and somatization. This can also be seen in a study by Sheets & Craighead (2014) who found a very strong relationship between depression risk factors and interpersonal stress, most commonly in adolescents (Sumner, Griffith, Mineka, Rekart, Zinbarg, & Craske, 2011). Another study by Nolte, Guiney, Fonagy, Mayes, & Luyten (2011) showed how interpersonal stress is also positively correlated with anxiety disorders. Armeli, Dehart, Tennen, Todd, & Affleck (2007) found

there to be a positive predictive relationship between carless individuals alcohol consumption and interpersonal stress.

As interpersonal stress is a common stressor related to a vast majority of individuals, this is a very interesting stressor to study in relation to alcohol consumption in every day individuals rather than careless individuals. It was also found how days where individuals reported higher levels of interpersonal stress, they reported increased alcohol consumption in a solitary setting (Mohr et al., 2001). The relationship between alcohol consumption and interpersonal stress is also strengthened in a review by Keyes, Hatzenbuehler & Hasin (2013), who found interpersonal stress and alcohol consumption to have a significant correlation. Stemming on from this, it would be assumed that interpersonal stress would be a clear predictor of alcohol consumption as a method to cope in individuals. It is also interesting to note that those with higher levels of interpersonal stress are more likely to binge drink (Bradstock et al., 1988). This finding was then backed up years later in the study by Grzywacz & Almeida (2008), who found there to be a positive relationship between binge drinking and interpersonal stress. This seems to be particularly evident for college students, as a recent study by Pedersen (2017) found interpersonal stressors to be a significant predictor of binge drinking.

Work Stress

Another heavily researched stressor in regard to its relationship with alcohol consumption is work stress (Frone, 1999; 2003; 2016). Work stress can occur when disputes occur in a workplace or someone is just overall generally unhappy with their job or place of employment (Yao, Fan, Guo, & Li, 2014). Work stress can be defined as a change in physical or mental state of an employee due in response to a threat to said employee in their place of work (Colligan & Higgins, 2006). There are many examples of contributors to work stress,

such include; a toxic work environment, types of hours worked, isolation, managerial disputes, harassment and disputes with co-workers (Ganster & Rosen, 2013; Colligan & Higgins, 2006). This stressor could in turn lead to psychological and or psychological problems for the worker in question (Beehr, 2014). As a result, individuals may turn to alcohol as a form of dysfunctional coping (Hasking et al., 2011). Thus, research appears to show clear support for a strong relationship between work stress and alcohol consumption, with a study by Aldridge-Gerry, Roesch, Villodas, McCabe, Leung and Da Costa (2011) showing work related stress having a significant correlation with daily alcohol consumption. A study by Azagba and Sharaf (2011) also showed how work stress had a significant impact on increased alcohol consumption in employees. However, when it comes to work related stress and binge drinking, research is not very extensive. Nonetheless, from the studies present, research has shown a potential correlation between work related stress and binge drinking, yet notes the exception that more work must be done in the area (Grzywacz & Almeida, 2008). This is an interesting observation, as it leads to a gap in the research. Stemming on from this observation, it begs the question if work stress may potentially influence binge drinking in an individual.

College Stress

College stress is another very prominent stressor amongst literature. College students have to take on a lot of responsibilities in their everyday lives, whether it be academic stress, housing stress, personal stress etc. (Bulo & Sanchez, 2014). Stress associated with college has been linked to many negative health benefits in students, such as one study by Lunau (2012) showing that in a survey of 1600 Canadian students, over 50% of these students reported feelings of hopelessness and overwhelming anxiety over 12 months. Another study on Canadian students conducted the following month in a different university by Craggs

(2012) showed that 88.8% of students reported feelingly greatly overwhelmed, 50.22% feeling overwhelmed with anxiety, 66.2% reporting general sadness and 34.2% documenting feelings of depression. Although these figures are related to Canadian students, literature appears to show support for these figures amongst students from different demographics also, with the National Union of Students, on behalf of the All Party Parliamentary Group on Students (2015), surveyed 1093 British college students, which showed 78% of students reported having a mental health issue in the past year.

Although drinking patterns have been studied very heavily in USA, yet not so heavily in Europe, research still suggests the common trend among both that university students drink more than their non-university counterparts (Carter, Obremski-Brandon. & Goldman 2010; Dawson, Grant, Stinson, & Chou 2004; Hingson, Heeren, Winter, & Wechsler, 2005; Karam, Kypri, & Salamoun, 2007; Kypri, Langley, McGee, Saunders, & Williams, 2005). Following on from this research, studies have shown how stress in college can increase voluntary alcohol consumption in college students (Park, Armeli, & Howard, 2004; Magrys & Olmstead, 2015). A study by Rice & Van Arsdale (2010) showed how college stress had a significant relationship with student's reporting drinking alcohol to cope with this stress. A study by Johnston, O'Malley, Bachman & Schulenberg in 2011 also showed 37% of full time college students have also reported to engage in heavy episodic drinking, with a study by Jessor, Costa, Krueger, & Turbin (2006) finding that high stress levels in students predicted heavy episodic drinking. These findings were also replicated by Chen & Feeley (2015), who instead found a positive correlation between high college stress and binge drinking. With all discussed here, it seems evident that college stress appears to prompt increased alcohol consumption and also binge drinking in students.

Rationale

It is evident that findings show how stress has been positively associated with alcohol consumption and binge drinking in regard to coping. The literature discussed appears to show evident support that average, interpersonal, work and college stress all have a positive relationship with alcohol consumption and binge drinking across various populations. Alcohol consumption and its relationship with stress has been well documented throughout literature (Corbin, Farmer, & Nolen-Hoekesma, 2013). To add to this, interpersonal stress, work stress and college stress have all been documented in their own studies (Alrdridge-Gerry, 2011; Armeli, 2007; Magrys & Olmstead, 2015). In each instance, a positive relationship between alcohol consumption and each stressor has been found, showing the potential influence of theses stressors on alcohol consumption. The same can be said for various stressors' relationships with binge drinking (Grzywacz & Almeida, 2008; Jessor, Costa, Krueger, & Turbin, 2006). However, a gap appears amongst this literature that most of these studies are conducted on predominately US populations. Many studies have documented the excessive drinking culture that is very prevalent in Ireland as a nation. This can evidently be seen from the 2018 Global status report on alcohol and health, which shows that the Irish population consumes 13 litres of pure alcohol per capital, which is the joint seventh highest number of litres consumed in the world alongside Luxembourg (WHO, 2018). As well as this, 46.5% of the Irish drinking population reported binge drinking in the past 30 days of when the study was reported. It is quite evident for such a small nation that Ireland drinks to excess. For this reason, this study looks to measure the levels of alcohol consumption and binge drinking in an Irish population in order to see how an Irish population copes with the various outlined stressors and if they will use general alcohol consumption and or binge drinking as a coping method.

It must also be noted how most studies examining alcohol consumption and binge drinking's relationships with stress rarely account for an age and gender difference in their studies. In terms of gender differences, many studies have consistently shown how the male population drink larger quantities, more frequently and tend to binge more than women (WHO, 2018; Wilsnack, Wilsnack, Kristjanson, Vogeltnaz-Holm, & Gmel, 2009). This figure is also true for the Irish population. Although the WHO reports the Irish population consuming 13 litres of pure alcohol per capital, the male population consumes 20.3 litres per capital in comparison to only 5.8 litres in women. This is a very large difference between the two sexes, showing that gender must be accounted for when measuring these stressors with alcohol consumption and binge drinking.

Age must also be accounted for when measuring alcohol consumption and binge drinking in relation to the various stressors. It is well documented across literature that young adults tend to consume more alcohol than elderly adults (WHO, 2014; WHO, 2018), especially so when it comes to binge drinking (Parikh, Junquera, Canaan, & Oms, 2015). Hence, there is a gap to be exploited in accounting for all ages in a study measuring alcohol consumption and binge drinking's relationship with these stressors.

Aims and Hypotheses

It must also be noted that in each study discussed, alcohol consumption and binge drinking's relationship with the various stressors were measured in separate studies. This study looks to see if these various stressors discussed will predict alcohol consumption and binge drinking, when all stressors are controlled for, rather than studying a single stressor on its own. Hence, probing the question of which stressor is the best predictor of alcohol consumption and binge drinking if these stressors are put into a single model. Binge drinking is an extremely common, yet dangerous, form of drinking, which has been documented to

lead to increased alcohol consumption in later life (Flegel, MacDonald, & Hébert, 2011; Naimi et al., 2003). None of the previous studied examined alcohol consumption and binge drinking in conjunction with each other. Hence, as this study tends to look at a population with an extensive age range, this study also looks to see if alcohol consumption and binge drinking are both increased simultaneously in reaction to the documented stressors. This may provoke interesting results, as there is so much research supporting increased alcohol consumption and binge drinking in relation to these stressors, the question arises that if the same population is used for both forms of consumption, will both forms of consumption be increased. As previous literature shows constant support for alcohol consumption and binge drinking's relationship with stress, more specifically, work stress, interpersonal stress and college stress, this study's hypoytheses will be as follows;

- That average stress will significantly predict alcohol consumption and binge drinking in individuals

- That work stress will significantly predict alcohol consumption and binge drinking in individuals

- That interpersonal stress will significantly predict alcohol consumption and binge drinking in individuals

- Lastly, that college stress will significantly predict alcohol consumption and binge drinking in individuals.

Methods

Design

The research design of this study was a within-groups design, as it is looking at the same group of people at one specific point in time and the data is of a quantitative nature. Correlational research was used for this study. As correlational research does not manipulate any variables, there were no independent or dependent variables, rather comparing variables against each other. As this study hypothesises that average stress, the stressor of interpersonal relationships, the stressor of work and the stressor of college will all predict increased binge drinking and increased alcohol consumption, the stressors were this study's predictor variables and increased binge drinking and increased alcohol consumption were the study's criterion variables for the regression analyses that were ran. As gender and age are accounted for in the demographics and have been seen to have an effect in alcohol consumption in the studies outlined, these were accounted for also as predictor variables within the regression analysis of the study.

Participants

For this study, participants were recruited via convenience sampling from the social media website Facebook, via a link for the study that was shared on to the researcher's Facebook page. This sample was the most convenient to use in terms of a parsimony experiment and so that the data could be collected and recorded in a short space of time.136 participants completed the survey, with 85 females (62.5%) and 51 (37.5%) males taking part. As not all participants attended both college and work, 112 of the 136 participants completed questions about work stress and 65 participants recorded answers about attending college. The ages of participants ranged from 18 to 75. The average age of the 136 participants was 31. 18 was the required youngest age to partake in this study, due to this

being the legal drinking age in Ireland. The target population of this study was individuals living in Ireland over the legal drinking age.

Materials

Participants partook in the study via an online questionnaire that was devised using the web app Google Documents. When all results were submitted and recorded, they were exerted to a Microsoft Excel file into which they were then transferred into an SPSS file.

In order to measure the various variables that were present in this study, several psychological assessments were used. In order to measure one's levels of alcohol consumption and potential binge drinking, the Alcohol Consumption Measure (Lac, Crano, Berger, & Alvaro, 2013) was used. This measure contained three simple questions about alcohol consumption in the past month, which were; a) on how many days in the past 30 days did you drink, b) on these days, how many standard drinks did you normally consume per occasion and c) on the days you drank during the past 30 days, what was the most number of drinks you consumed on any occasion?. A reliability analysis for this measure reported a Cronbach's Alpha of 0.7. These three open-ended questions were each standardized and averaged to be measured as a total score.

In order to measure binge drinking, participants were asked a singular question in regard to their binge drinking. Following on from the previous three questions in regard to alcohol consumption, this question simply asked; "on the days that you drank during the last 30 days, on how many occasions did you consume 6 or more standard drinks of alcohol?". This question was taken and slightly altered from the annual Behavioural Risk Factor Surveillance System (BRFSS) (Centers for Disease Control and Prevention [CDC], 2011).

The slight alteration made was that the units of alcohol were changed in order to match the Irish definition for binge drinking. The original question from the BRFSS asked participants about occasions where they had consumed 5 or more drinks for men and 4 or more drinks for women, as this is the definition for binge drinking accepted across predominately American research (Timberlake et al., 2007; Wechsler et al., 2000). Participants in the current study were provided with the Irish measurements of one standard drink on screen, which are; a pub measure of spirits (35.5ml), a small glass of wine (12.5% volume), a half pint of normal beer and an alcopop (275ml bottle) as provided by the HSE (HSE, 2006).

In order to measure one's level of average stress, the Perceived Stress Scale ([PSS], Cohen, Kamarck, & Mermelstein, 1994) was used. This is a 10 item questionnaire that asks the participants about various thoughts and feelings in the past month and how they felt about these feelings. Items in the scale are designed to measure how unpredictable and uncontrollable one finds events in their lives. Participants had the option to choose answers between 0 and 4 (0 = Never 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, 4 = Very Often). Scores were obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0) to the four positively stated items (items 4, 5, 7, and 8) and then summing up all of the scale items together. The maximum score one could obtain was 40. A reliability analysis for this scale reported a Cronbach's Alpha of 0.91.

To measure one's level of interpersonal stress for the second hypothesis, the Bergen Social Relationships Scale ([BSRS] Bancila & Mittelmark, 2009) was used. This questionnaire asked participants six simple questions about their relationships with a person they have thought about and have a social relationship with, e.g. a family member or a friend. Questions are answered on a scale of 1 to 4 (1 = describes me very well, 2 = describes me

quite well, 3 = does not describe me very well, 4 = does not describe me at all) and answers are added up at the end. The maximum score one could obtain was 24. A reliability analysis for this scale reported a Cronbach's Alpha of 0.72.

To measure work stress for those who work, the Stress in General Scale ([SIG] Stanton, Balzer, Smith, Parra, & Ironson, 2001) was used. This questionnaire contains 15 words or phrases and asked participants to indicate if these items describe their feelings about their work using yes, no or cannot decide (0 = no, 1.5 = cannot decide, 3 = yes). The maximum score one could obtain was 45. A reliability analyses for this scale reported a Cronbach's Alpha of 0.85.

To measure college stress for those who attend college, the College Student Stress Scale ([CSSS] Feldt, 2008) was used. 11 statements about college life were presented to participants who were then asked to rate how they felt about these occurrences or feelings during college life on a 5 point scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Very Often). The maximum score one could obtain was 55. A reliability analysis for this scale reported a Cronbach's Alpha of 0.85.

Procedure

Once this study was shared on to the researcher's Facebook page, participants were invited to click the link to the google documents webpage where they could complete the questionnaire. The first page that participants were greeted with was the information sheet, which outlined what exactly the study entailed of and how the participant had the right to withdraw from the study at any time and how answers would be completely anonymous. Once participants read and understood this information sheet, they ticked the "I consent" box

on the page to participate in the study. Once consent had been given, participants were first introduced to the demographics page, in which they input their age and their gender. The next section was to document alcohol consumption and binge drinking using the three questions from the Alcohol Consumption Measure (Lac et al., 2013) and the one separate binge drinking question (CDC, 2015). Once these were answered, the participants continued on to the average stress section. This section would measure average stress by using the PSS (Cohen, Kamarck, & Mermelstein, 1994). At the top of this page, the purpose of the scale and how to answer the questions were clearly outlined to the participants. Once they completed this section, they clicked on to the next section, which showed them a page asking them questions about interpersonal stress using the BSRS (Bancila & Mittelmark, 2009). Once again, how to answer the questions was outlined to the participants at the top of the webpage. Following on from this, participants were introduced to the question of if they currently work or not. If they answered yes, they were brought on to the work stress section, in which they answered 15 questions from the SIG (Stanton et al., 2001). If they answered no, these set of questions were automatically skipped for these participants. Once these set of questions were either skipped or completed, participants were then prompted with the question if they attended college or not. As with the question on whether they work or not, if they answered yes, they continued on to answer questions about their college life using the CSSS (Feldt, 2008). If no, these set of questions were automatically skipped. Once these final set of questions were skipped or answered, the participants were shown the debrief sheet. The debrief sheet thanked them for their participation, outlined why this research was conducted and supplied them with contact numbers for any helplines if needed. The participants then clicked submit at the end of this page, which submitted their final results to the researcher.

Results

Descriptive Statistics

Frequencies on the demographic variables for this study are present in Table 1. Descriptive statistics for each of the measured variables in the current study are presented in Table 2. Preliminary analysis indicated that college stress approximated normality. However, average stress, work stress and relationship stress all appeared to approximate normality from observing histograms, however, upon further examination of the Kolmogorov-Smirnov test of normality, each variable showed to be non-normally distributed. Further analysis showed age and binge drinking were largely positively skewed with the number of binge drinking cases containing numerous outliers. For the purposes of the current study these outlying scores were retained. Z-scores were computed for raw scores in the alcohol consumption data set. On average, the individuals who attend college within this sample have relatively high levels of college stress (N = 65), however the relatively large standard deviation suggests a good deal of variability around this figure. Average binge drinking levels were also low, however the relatively large standard deviation suggests a good deal of variability around this figure. Work stress (N = 112) and average stress levels were moderate-to-low. Interpersonal stress levels were moderate to high. Despite the small sample size, the relatively low standard error values, and close 95% confidence intervals suggests that the current sample is reasonably representative of the Irish population.

Table 1. Frequencies for the current sample on each demographic variable (n = 136)

Variable	Frequency	Valid Percentage
Gender		
Male	51	37.5
Female	85	62.5

Table 2. Descriptive statistics of all continuous variables (n = 136)

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
Age	31.49 (28.84 – 34.15)	1.34	21	15.67	18-75
Alcohol Consumption	.00 (-.42 - 42)	.20	-.07	2.37	-3.95 - 6.21
Binge Drinking	3.14 (2.53 – 3.75)	.31	2	3.58	0-17
Average Stress	17.90(16.61 – 19.18)	.65	16	7.56	2-36
Interpersonal Stress	16.62(15.96 – 17.28)	.33	17	3.90	6-24
Work Stress	12.03 (11.29 – 12.77)	.37	12	3.95	4 – 21
College Stress	32.72 (30.63 – 34.81)	1.05	32	8.44	17-51

Inferential Statistics

Multiple regression analysis was performed to determine how well alcohol consumption could be explained by six variables including gender age, average stress levels, interpersonal stress, work stress and college stress.

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables and the criterion variable included in the study were examined (see Table 3 for full details). Two of the six predictor variables were significantly correlated with the criterion variable, and these significant effects ranged from r = .32(age) to r = .16 (work stress). The correlations between the predictor variables were also assessed with r values ranging from .064 to .753. These results indicated that there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the analysis. The six predictor variables explained 28.6% of variance in alcohol consumption levels ($F(6, 43) = 2.87$, $p = .019$). Three of the six variables were found to uniquely predict alcohol consumption to a statistically significantly level: age ($\beta = -.46$, $p = .007$), average stress ($\beta = -.53$, $p = .03$), and college stress ($\beta = .70$, $p = .003$) (see Table 3 for full details).

Multiple regression analysis was performed to determine how well binge drinking could be explained by six variables including gender age, average stress levels, interpersonal stress, work stress and college stress.

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables and the

criterion variable included in the study were examined (see Table 4 for full details). Four of the six predictor variables were significantly correlated with the criterion variable, and these significant effects ranged from r = .06(interpersonal stress) to r = .29 (age). The correlations between the predictor variables were also assessed with r values ranging from .064 to .753. These results indicated that there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the analysis. The six predictor variables explained 27.7% of variance in alcohol consumption levels ($F(6, 43) = 2.75$, $p = .024$). Two of the six variables were found to uniquely predict alcohol consumption to a statistically significantly level: age ($\beta = -.30$, $p = .048$) and college stress ($\beta = .65$, $p = .007$) (see Table 4 for full details).

Table 3. Multiple regression model predicting alcohol consumption.

	R^2	Adj R^2	β	B	SE	CI 95% (B)
Model	.29*					
Age			-.46**	-.06	.02	-.11 / -.02
Gender			-.22	-1.08	.73	-2.56 / .40
Average Stress			-.53*	-.17	.07	-.32 / -.02
Interpersonal Stress			.17	.16	1.00	-.09 / .30
Work Stress			.03	.02	.09	-.17 / .20
College Stress			.70**	.20	.06	.07 / .32

Note. R^2 = R-squared; Ajd R^2 = Adjusted R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; CI 95% (B) = 95% confidence interval for B; N = 136 ; Statistical significance: *p < .05; **p < .01; ***p < .001

Table 4. Multiple regression model predicting binge drinking.

	R^2	Adj R^2	β	B	SE	CI 95% (B)
Model	.28*					
Age			-.30*	-.07	.03	-.13 / -.00
Gender			-.28	-2.06	1.11	-4.30 / .18
Average Stress			-.36	-.17	.11	-.40 / .05
Interpersonal Stress			.05	.05	.14	-.24 / .34
Work Stress			.14	.13	.14	-.16 / .41
College Stress			.65**	.27	.10	.08 / .47

Note. R^2 = R-squared; Ajd R^2 = Adjusted R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; CI 95% (B) = 95% confidence interval for B; N = 136 ; Statistical significance: *p < .05; **p < .01; ***p < .001

Discussion

Two regression analyses were ran to determine if average stress, interpersonal stress, work stress and college stress significantly predicted alcohol consumption and binge drinking. Age and gender were also accounted for in each regression model, due to the extensive research showing the influence of age and gender on alcohol consumption and binge drinking levels in individuals (Parikh, Junquera, Canaan, & Oms, 2015; Wilsnack, Wilsnack, Kristjanson, Vogeltnaz-Holm, & Gmel, 2009; WHO, 2014;WHO, 2018). This study had four hypotheses, which were; that average stress would predict alcohol consumption and binge drinking in individuals, that work stress would predict alcohol consumption and binge drinking, that interpersonal stress would predict alcohol consumption and binge drinking and lastly, that college stress will predict alcohol consumption and binge drinking. From looking at the results, it can be seen how very mixed results were found.

First Hypothesis Findings and Implications

The first hypothesis of this study was that average stress would significantly predict alcohol consumption and binge drinking in individuals. Looking at both regression analyses that were ran, average stress was in fact a significant predictor of alcohol consumption, but not for binge drinking, hence, leading to the first part of the hypothesis being significant, with the second part of the hypothesis failing to be significant. In relation to alcohol consumption, these results show to support the original findings by Corbin et al., (2013) who found that individuals experiencing stress tend to use alcohol as a coping mechanism. These findings could be of great implications to further research, as they show across a broad age range that alcohol consumption could be used as a potential coping mechanism for stress, whereas the majority of previous literature focuses on alcohol use for stress within younger populations (Enoch, 2011). This finding could have the potential future implication towards allowing

future researchers to produce a larger and nationwide study of the relationship between alcohol consumption and average stress as a potential means of coping. If results of these studies support the current research, it could allow an intervention programme of some sort be introduced into Irish society by the government, to educate individuals on the different methods and strategies to deal with the hardships of stress as opposed to alcohol consumption, which could potentially lead to alcohol use disorder or alcohol related injuries (Zucker, 2008). This potential programme could educate individuals to seek problem based or emotion based solutions to coping with their stress, and turn their coping strategies into a positive outcome, rather than consume excess alcohol (Baqutayan, 2015).

In relation to binge drinking, the results of this regression analysis proved surprising. As discussed earlier, previous literature appears to show strong support for stress predicting binge drinking (Chen & Feeley, 2015). However, in saying this, previous literature upon stress as a whole and its relationship with binge drinking was conducted across very different populations as opposed to the population this study was conducted on. This can be seen as most literature focuses on binge drinking in a young and college settings (Goldstein, Déry, Pilgrim, Ioan, & Becker, 2016; Jessor, Costa, Krueger, & Turbin, 2006). It must be noted that the population studied in this research's age ranged from 18-75, this could lead to the potential question if the very large age range played a role in the non-significant result between average stress and binge drinking. It can be seen from the results that age was a significant predictor for binge drinking in the regression analysis. Research has constantly shown how alcohol use is prevalent among elderly and middle aged populations, but that binge drinking, however, is not so frequent (Greenfield & Rogers, 1999; Grant et al., 2004). This could potentially allow for further research into examining stress and binge drinking focusing on the impact of age on binge drinking. This results also shows that alcohol consumption and binge drinking are not increased simultaneously in relation to the

documented stressors, as documented above. Nonetheless, further research must be done into this area to distinguish further potential reasons as to why average stress did not significantly predict binge drinking.

Second Hypothesis Findings and Implications

The second hypothesis that this study looked at was that interpersonal stress would significantly predict alcohol consumption and binge drinking. Looking at the two regression models, although the models were both significant in predicting alcohol consumption and binge drinking, interpersonal stress was not a significant predictor in both models. Looking at previous literature, these results were not expected. Previous research showed clear support for the relationship between both alcohol consumption and binge drinking with interpersonal stress. When looking at the study by Grzywacz & Almeida (2008), a positive significant correlation was found between interpersonal stress and binge drinking. These results could lead one to probe the famous statement across literature that 'correlation does not imply causation' (Gardner, 2000) and prompts the question if this relationship was down to chance. Yet, looking at the research from Pedersen (2017), interpersonal stress was found to be a significant predictor of binge drinking, hence potentially nullifying the argument that Grzywacz & Almeida's study was down to potential chance. A potential reason for results not showing significance in this study may be down to the population chosen. As stated in the introduction, no study has appeared to have been carried out amongst an Irish population accounting for all ages until this one just conducted. The studies conducted by Grzywacz & Almeida and Pedersen were conducted on American samples, and more specifically a college population for the study conducted by Pedersen. Hence, this leads to a gap for further research in this area, potentially running a study to focus solely on measuring interpersonal stress and binge drinking in the Irish population, rather than interpersonal stress in a

regression model. Future research must be conducted to explain further potential reasons as to why the results shown from this test contradicted previous literature on predicting the relationship between interpersonal stress and binge drinking.

Following on from this, it is also very surprising that interpersonal stress did not appear to be a predictive variable for alcohol consumption in individuals. Further research must also be conducted into the topic of alcohol consumption and interpersonal stress. Although evidence from Armeli et al., (2007) and Mohr et al. (2001) appears to be quite conclusive in showing alcohol consumption's positive relationship with interpersonal stress, the date that these studies were published may play a role in the results found in this study. These two studies are quite outdated in terms of literature, as new studies appear quite regularly in the field of psychology every year. However, in terms of interpersonal stress and its relationship with alcohol consumption, there are not many more studies present bar ones from an earlier date, such as seen here. This could potentially lead on to the results of this study proving very important. It is very possible that over the past few years, the way interpersonal stress is studied and dealt with has changed, leading to the non-significant result in this study showing this exactly. Regardless of the hypothesis being rejected, the results found from this study lead to very interesting results for future implications, as future research may consider that there potentially is in fact no link between interpersonal stress and its relationship with alcohol consumption and binge drinking as a method to cope.

Third Hypothesis Findings and Implications

The third hypothesis to be measured was that work stress would predict alcohol consumption and binge drinking in individuals. Again, looking at the regression analyses it can be seen that this hypothesis is proven to be non-significant. These results provide a clear gap for further studies in literature. Looking at the model to predict binge drinking, it can be

seen how work stress is not a significant predictor. However, correlation analysis ran alongside the multiple regression model showed work stress and binge drinking to have a significant small correlation (r=.2) and also work stress and alcohol consumption was found to have significant small correlation also (r=.16) However, as work stress is not a significant predictive factor for binge drinking or alcohol consumption, the statement from earlier that correlation does not infer causation may be relevant in this case (Gardner, 2000), as this correlation may purely be due to chance. However, in noting this, this could be a potential gap for further research. Following on from the study by Aldridge-Gerry et al. (2011), who found work stress to correlate positively with alcohol consumption, these correlations could show further support for this study. It is possible that if studied further, a relationship could be found between work stress and alcohol consumption, however, did not appear to be a significant predictor variable in the model created in this study. This could be due to the fact that work stress was measured alongside other stressors. It would be interesting to see what results would arise if further research looked into measuring the relationship between work stress and alcohol consumption and binge drinking solely, as opposed to alongside other stressors in a regression model.

As for work stress and binge drinking, as discussed earlier, there is not a large amount of research present on whether or not work stress predicts binge drinking, bar the study by Grzywacz & Almeida (2008) who showed a potential correlation between the two variables, yet noted more research needed to be conducted. This study did in fact conduct further research and showed that work stress does not significantly predict binge drinking when compared alongside various other stressors. As this study showed no significant prediction, it leads one to question the potential correlation found in the study by Grzywacz & Almeida. Hence, this allows for a much larger gap in the literature, as correlations between work stress and binge drinking, and between work stress and alcohol consumption were found, yet no

prediction were found for either two. It is evident that more research must be conducted into this area to examine as to why these potential correlations occurred, yet work stress did not predict alcohol consumption and binge drinking in both cases.

Fourth Hypothesis Findings and Implications

The fourth and final hypothesis was that college stress would predict alcohol consumption and binge drinking. From the regression analyses ran, this hypothesis was proven to be statistically significant. In both models, college stress did in fact show a significant prediction for alcohol consumption and binge drinking. These results agree heavily with the literature present. As Rice & van Arsdale (2010) found a strong significant correlation between college stress and alcohol consumption and Magrys & Olmstead (2015) showing that college stress predicted alcohol consumption in students, it was expected that college stress in this model would significantly predict alcohol consumption, in which it did.

It also appeared clear that college stress would predict binge drinking in this model, with Jessor et al., (2006) finding that college stress significantly predicted binge drinking, and also Chen & Feeley (2015) finding a very strong positive correlation between college stress and binge drinking. As the results show, this proved to be significant, with college stress significantly predicting binge drinking. Across literature, it appears evident that with the stress taken on by academia and college matters, that individuals tend to reach out to use alcohol as a coping mechanism (Park & Grant, 2005; Park, 2004), whether this be by binge drinking (Jessor et al., 2006) or solely alcohol consumption. Although there is literature present that appears to dispute that college students' alcohol consumption increases with college stress (Perera, Torabi, & Kay, 2011), the results found in this study further strengthens the vast literature that has found a significant effect for college stress predicting alcohol consumption. These results can lead to future research focusing more in depth on

college stress and how to potentially find new methods for students to cope with this stress rather than consuming alcohol. Although, it could be argued that in a sample of college goers that alcohol consumption and binge drinking levels will quite regularly be high regardless of stress levels, due to the college drinking culture (White & Hingson, 2013), one must consider the vast research found supporting the link between alcohol consumption and college stress and as a result. Potential implications should be looked into ways of reducing the number of students using alcohol as a method to cope, such as support groups to potentially cope with the college stress that they are experiencing (Brougham, Zail, Mendoza, & Miller, 2009). Hence, with all discussed, it is fair to say that college stress proves to be the best predictor of alcohol consumption and binge drinking within this sample.

Further Comments

Following on from all discussed, it was noted in the introduction, that age and gender would be controlled for in these regression models. In both models, gender did not contribute as a significant predictor variable for binge drinking and alcohol consumption, however, age did contribute as a significant predictor variable. It is surprising that gender was not a significant predictor variable in each case, due to males consuming a considerable larger amount of alcohol than females in the Irish population (WHO, 2018). This result could potentially be due to the very small sample size that was obtained via convenience sampling and did not account for a large proportion of Irish females.

It is also important to look at the age range of the sample chosen when measuring alcohol consumption and binge drinking. The only hypothesis which was fully significant was the last hypothesis, which was that college stress would predict alcohol consumption and binge drinking. As discussed earlier, literature appears to constantly show support for increased alcohol consumption and binge drinking in the younger and college based

populations, as opposed to middle aged and elderly populations (Greenfield & Rogers, 1999; Grant et al., 2004). This probes the question if the very large age range had a big part to play in two of the hypotheses not being at all supported and one hypothesis only being partially supported, as college students only amounted for 65 of the 136 participants in this study. Further research should replicate this study, however, focusing on specific age ranges, e.g. carrying out this study on Irish individuals under 25, or between 25 and 35 or 35 and older etc.

Limitations

As with all research, this study had its limitations. To begin, the first limitation of this study was that convenience sampling was used to collect the data set. This in turn makes the sample size in question less accurate in terms of predicting the desired population. Future studies should look towards a more representative method of collecting a sample size, e.g. stratified sampling. The second limitation of this study was that self-report measures were used to measure participant's alcohol consumption and binge drinking. Self-report can lead to inaccurate answers and potential mistakes from participants reporting their answers. The third limitation of this study was the relatively small sample size, especially when accounting for college stress (N=65). This can lead to potentially unrepresentative results that may not be generalizable to the desired population. Hence, future research should look to obtaining a larger sample size than the one obtained in the present study.

Conclusion

Nonetheless, this study has many potential implications for future research, as was outlined in the above paragraphs. This study has found many interesting and contrasting results, that creates a gap in the literature. Although not every hypothesis was supported, a broad insight was gained into the topic of which stressors were the best predictors of alcohol consumption and binge drinking. Researchers in the future can further investigate the contrasting results of this study to previous literature. For the hypotheses that were supported, which were that college stress predicted alcohol consumption and binge drinking and the first part of the first, which was that hypothesis that average stress would predict alcohol consumption, this research provides further support for the previous research and creates openings in the literature to further study the Irish population. Although each model was a significant predictor of alcohol consumption and binge drinking, it is possible that when each stressor was controlled for in each model that this had an effect on the significance of its relationship with alcohol consumption and binge drinking. Nonetheless, it would be interesting to see future research create a similar model accounting for all stressors to predict which stressor is the best predictor of alcohol consumption and or binge drinking to see if results will be replicated or differ.

This research appears to be one of the first of its kind on an Irish population, hence these results may be completely significant and true to the Irish population. Further research is essential to further investigate the results found. Nonetheless, the results found are of great benefit and wholly add to the existing literature on stress and its relationship with alcohol consumption and binge drinking.

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Appendices

Information Sheet

Dear Participant,

First off, I would like to thank you for participating in my study. It is important that you are over the age of 18 in order to partake in this study and that you are of full capability to consent to this study. This study will be looking at the relationship between alcohol consumption, binge drinking and various stressors.

Participation and confidentiality
You may withdraw from this study at any stage, without prejudice. All data recorded is anonymous and will be accessible, in an encrypted form, only by myself. Once you have submitted your data, you will not be able to retract it due to the anonymous nature of its storage

Questions
In this study, you will be presented with five simple questionnaires, in order to measure the relationship between alcohol consumption, binge drinking and various stressors. The first screen you will see will ask you to provide your demographics, i.e. age, gender and marital status. Once this is completed, you'll be asked about your drinking patterns in the past 30 days. The second set of questions you will see on your screen when you continue will be measuring the average stress in one's life in the past 30 days. The third part of this study will ask you about the stress associated with your social relationships. The fourth set of questions will measure your stress levels associated with work if you are currently working and the final set of questions will measure your stress levels associated with college if you currently attend college. The questionnaire as a whole will take roughly 5-10 minutes to complete. Once all questions are completed, you will be taken to the debrief page where you will click 'submit' to finalise your answers.

If you understand and are happy with everything that has been provided, please tick the CONSENT box at the end of this page. If you are not satisfied, you do not have to partake and may exit the study page.

Regards,

Colm Cunneen (Researcher).

Figure 1. Information Sheet

Debrief

Thank you again for your participation in my final year thesis looking at the influence of different stressors on alcohol consumption and binge drinking. I was particularly interested in studying this topic for my thesis as there is little research done on the relationship between the specific stressors and alcohol consumption. The objective of this study is to gain a broader insight into which specific stressors have a relationship with alcohol consumption and binge drinking and to measure how strong and or weak these relationships are. Hence, this study is aimed at the population of alcohol drinkers who are over the age of 18.

Once all data has been collected it will be added into my study with the permission of my supervisor. Once the study is approved, the study will be published as a printed and electronic thesis. The printed thesis will be bounded and on display in the library of the National College of Ireland, where as an electronic copy of the thesis will be available on the National College of Ireland website. This study will also be presented in April 2019 in the National College of Ireland.

If you at all became uncomfortable during or after this study, I have provided some exceptional helplines which may help support and or comfort you:

-(01) 671 0071 – Samaritans Ireland (24-hour mental health support)
- 1800 80 48 48 – Depression and mental health support
-(01) 873 2699 – Al Anon (Support for family and friends of problem drinkers)
-(01) 842 0700 – Alcohol Anonymous Ireland (Help for those suffering due to their drinking)

If you have any questions or queries about this questionnaire and or study, feel free to contact me at my email: x16422274@student.ncirl.ie.

Once you click submit at the end of this page your results will be recored and you may exit the browser. Thank you.

Figure 2. Debrief Sheet.

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Alcohol Consumption Measure

Items
(a) On how many days in the past 30 days did you drink? (frequency)
(b) On the days you drank during the past 30 days, how many drinks did you usually consume per occasion? (quantity)
(c) On the days you drank during the past 30 days, what was the most number of drinks you consumed on any occasion? (maximum)

Figure 3. Alcohol Consumption Measure.

On average, on the days that you drank during the last 30 days, on how many occasions did you consume 6 or more standard drinks of alcohol?

Figure 4. Altered binge drinking measure.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Figure 5. Perceived Stress Scale.

Bergen Social Relationships Scale

Items

Think about everyone (children, parents, siblings, spouse or significant other, neighbors, friends, colleagues, and others you know) while you answer the following.

_____ (a) There are people in my life that I care about, but who dislike one another
_____ (b) There is a person in my life that needs my help, but whom I don't know how to help
_____ (c) There is an important person in my life that wants to support me, but who often hurts my feelings instead
_____ (d) There is a person I have to be around almost daily that often henpecks me
_____ (e) There are people that make my life difficult because they expect too much care and support from me
_____ (f) There is someone I care about that expects more of me than I can manage

1 = describes me very well
2 = describes me quite well
3 = does not describe me very well
4 = does not describe me at all

Figure 6. Bergen Social Relationship Scale.

1) Demanding
2) Pressured
3) Hectic
4) Calm
5) Relaxed
6) Many things stressful
7) Pushed
8) Irritating
9) Under control
10) Nerve-wracking
11) Hassled
12) Comfortable
13) More stressful than I'd like
14) Smooth running
15) Overwhelming

Figure 8. Stress in General Scale.

College Student Stress Scale

For the following items, report how often each has occurred this semester using the following scale:

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

1. felt anxious or distressed about personal relationships _____
2. felt anxious or distressed about family matters _____
3. felt anxious or distressed about financial matters _____
4. felt anxious or distressed about academic matters _____
5. felt anxious or distressed about housing matters _____
6. felt anxious or distressed about being away from home _____
7. questioned your ability to handle difficulties in your life _____
8. questioned your ability to attain your personal goals _____
9. felt anxious or distressed because events were not going as planned _____
10. felt as though you were NO longer in control of your life _____
11. felt overwhelmed by difficulties in your life _____

Figure 8. College Student Stress Scale.