An examination of the relationship between timing of binge drinking onset and associated consequences

Annaliese Corace

Follow this and additional works at: https://commons.emich.edu/honors

Part of the Psychology Commons
An examination of the relationship between timing of binge drinking onset and associated consequences

Abstract
This study focused on the timing of binge drinking initiation (pre- or post-college matriculation) and its associated consequences. Relative to those who never engaged in binge drinking, we compared current and non-current binge drinkers with respect to whether their first binge episode was in highschool or college. Using online survey methodology, college student participants provided data on demographics, social activities, alcohol use and related consequences, depression, impulsivity, and peer pressure. It was hypothesized that students who were involved in Greek life and sports would be more likely to participate in binge drinking than those who were not involved but this hypothesis could not be tested because there were very few participants in Greek life or in sports. It was hypothesized that students who began to binge drink before attending college would face more detrimental effects and consequences compared to their peers who did not begin binge drinking until they entered college. This hypothesis was supported, with significant results for alcohol consequences scales reflecting social/interpersonal consequences, impaired control, diminished self perception, poor self care, risky behavior, role impairment, and blackouts. It was hypothesized that college students who were more driven to 'fit in' and conform with their peers would be more likely to participate in binge drinking; we anticipated that the college onset group would be highest on conformity, but this hypothesis was not supported. Finally, it was hypothesized that binge drinkers would be elevated on measures of impulsivity relative to non-binge drinkers, and those who started binge drinking in high school would be highest, overall. This hypothesis was supported. The results of this study can be used to assist future research on the topic of binge drinking and discuss ways to discourage binge drinking.

Degree Type
Open Access Senior Honors Thesis

Department
Psychology

First Advisor
Karen K. Saules

Second Advisor
Natalie Dove

Third Advisor
Carol Freedman-Doan

Keywords
Binge drinking, college, social life, consequences
Subject Categories
Psychology
AN EXAMINATION OF THE RELATIONSHIP BETWEEN TIMING OF BINGE DRINKING ONSET AND ASSOCIATED CONSEQUENCES

By
Annaliese Corace
Eastern Michigan University
Honors College
In Partial Fulfillment of the Requirements for Graduation
with Honors in Psychology
Approved in Ypsilanti, Michigan, on this date:
June 15, 2018

Supervising Instructor: Karen K. Saules

Honors Advisor: Natalie Dove

Ramon Caponeglo
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>3</td>
</tr>
<tr>
<td>Literature Review</td>
<td>4</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>7</td>
</tr>
<tr>
<td>Methods</td>
<td>8</td>
</tr>
<tr>
<td>Procedure</td>
<td>10</td>
</tr>
<tr>
<td>Analytic Plan</td>
<td>11</td>
</tr>
<tr>
<td>Results</td>
<td>13</td>
</tr>
<tr>
<td>Discussion</td>
<td>20</td>
</tr>
<tr>
<td>Conclusion</td>
<td>24</td>
</tr>
<tr>
<td>References</td>
<td>26</td>
</tr>
<tr>
<td>Appendix</td>
<td>29</td>
</tr>
</tbody>
</table>
Abstract

This study focused on the timing of binge drinking initiation (pre- or post-college matriculation) and its associated consequences. Relative to those who never engaged in binge drinking, we compared current and non-current binge drinkers with respect to whether their first binge episode was in high school or college. Using online survey methodology, college student participants provided data on demographics, social activities, alcohol use and related consequences, depression, impulsivity, and peer pressure. It was hypothesized that students who were involved in Greek life and sports would be more likely to participate in binge drinking than those who were not involved but this hypothesis could not be tested because there were very few participants in Greek life or in sports. It was hypothesized that students who began to binge drink before attending college would face more detrimental effects and consequences compared to their peers who did not begin binge drinking until they entered college. This hypothesis was supported, with significant results for alcohol consequences scales reflecting social/interpersonal consequences, impaired control, diminished self perception, poor self care, risky behavior, role impairment, and blackouts. It was hypothesized that college students who were more driven to “fit in” and conform with their peers would be more likely to participate in binge drinking; we anticipated that the college onset group would be highest on conformity, but this hypothesis was not supported. Finally, it was hypothesized that binge drinkers would be elevated on measures of impulsivity relative to non-binge drinkers, and those who started binge drinking in high school would be highest, overall. This hypothesis was supported. The results of this study can be used to assist future research on the topic of binge drinking and discuss ways to discourage binge drinking.
AN EXAMINATION OF THE RELATIONSHIP BETWEEN TIMING OF BINGE DRINKING ONSET AND ASSOCIATED CONSEQUENCES

Trends in Binge Drinking

Binge drinking is defined as the consumption of at least five or more drinks in a row at least once in the past two weeks for men, and four or more drinks in a row for women, over a two hour period (Wechsler & Nelson, 2001). Regarding prevalence, 20.8% of high school students and 26.1% of college students age 18-24 have engaged in binge drinking (CDC). Looking strictly at the state of Michigan, 27% of adults and 10% of youth age 17 and younger engaged in binge drinking (MDHHS). Using the “5/4” definition, approximately two out of every five college students have participated in binge drinking at least once during the previous two weeks (Hingson, 2002). Binge drinking puts the student at risk for negative outcomes including missing class/work, forgetting events while drinking, getting into fights, and unplanned sexual activity (Wechsler, 1998). If the behavior continues, the student can face even more dire future consequences, including, alcohol dependence, alcohol overdose, and death (Wechsler, 1998). Due to the seriousness of the binge drinking epidemic, further studies are imperative to understand the risk and protective factors for binge drinking. Once the risk factors and trends of binge drinking are fully examined, one can begin to hypothesize how binge drinking can be reduced in future generations.

Risk Factors for Binge Drinking

Perhaps one of the biggest risk factors that was examined in the study was which, if any, extracurricular activity the student joined while attending college. Greek organizations tend to have a greater influence on their members drinking due to lack of adult supervision, an increased
opportunity for their members to drink, having members who hold more tolerant attitudes towards drinking, and having members who are more likely to adhere to binge drinking norm (Borsari & Carey, 1999). Greek members, in comparison to other college students, are more likely to believe that drinking alcohol leads to enhanced social activities, makes women sexier, and facilitates bonding. Greek members are more likely to have friends who approve of their heavy/binge drinking (Alva, 1998).

Among binge drinkers more generally, several motives have been identified: internally generated, positive reinforcement motives (enhancement), externally generated, positive reinforcement motives (social), internally generated, negative reinforcement motives (coping), and externally motivated, negative reinforcement motives (conformity) (Cooper, 1994). About 80% of students report stress on a daily basis, and many report feeling stress to the point of burnout (Anderson & Cole, 2001). Students who are just about to enter college and newly enrolled college freshmen often report feeling “overwhelmed by obligations” (Pryor, 2012). Among college students, binge drinking to cope is a fairly common behavioral response, emerging as a short term solution to situational stress put posing the potential to be a long term coping style that is a strong predictor of heavy alcohol use in the future (Park & Levenson, 2002). Whether it is to cope with stress or motivated by other factors, binge drinking is an extremely risky behavior that can lead to serious consequences.

Consequences of Binge Drinking

Due to the large amount of alcohol college students consume on a daily basis, 60-75% of them experience at least one hangover a year, 27% report one to two hangovers a year, and 34% report twelve to fifty-one hangovers a year (Howland, 2009). A hangover is a collection of symptoms usually linked to a recent bout of heavy drinking. Symptoms can include feeling sick,
nauseous, dizzy, sleepy, or confused (Mayo Clinic). Students with higher levels of disposable income are more likely to drink and engage in binge drinking relative to students with less spending money (Martin, 2009). Male students reported they were more likely to engage in fighting, whereas female students reported more frequent memory loss, bodily injury, and unwanted sexual contact (Wagoner, 2009). Another study found that 47% of frequent binge drinkers were more likely to engage in unplanned sexual contact, get into trouble with campus law enforcement, damage property, or experience injuries (Castillo, 1994). In today’s college social scene, the majority of college students “drink to get dunk” also known as “blackout or blackout.” However, with harmful sayings that normalize excessive alcohol intake, students are more likely to drink in higher quantities and experience negative consequences of drinking, such as combining alcohol and drugs, vomiting, experiencing a hangover, and passing out after drinking (Bush, 2011). Research has also shown that students who binge drink tend to have lower GPA’s than those who do not drink, and the more these students binge drink, the lower their GPA (Pascarella, 2007).

Binge drinking is also associated with sleep problems; research has shown that students who engage in binge drinking are more likely to experience disturbed sleep, which can turn into daytime sleepiness. As a result, this may diminish their academic performance (Singleton & Wolfson, 2008). Finally, binge drinking hinders learning and academic development through an increase of neurocognitive deficiencies, and such problems in underage students’ intellectual development can affect adult cognitive functioning (Ziegler, 2005). With all of the negative consequences a student can face from binge drinking, one would think that the student would not participate in such a dangerous activity. However, college students do not always think about
consequences. Conformity and “fitting in” with their peers is what they often most care about the moment they begin to binge drink.

Hypotheses

1. It was hypothesized that students who were involved in Greek life and sports would be more likely to participate in binge drinking than those who were not involved.

2. It was hypothesized that high school students who began to binge drink before attending college would face more detrimental effects and consequences compared to their peers who did not begin binge drinking until they entered college.

3. It was hypothesized that college students who were more driven to “fit in” and conform to their peers would be more likely to participate in binge drinking; we anticipated that the college onset group would be highest on conformity.

4. It was hypothesized that binge drinkers would be elevated on measures of impulsivity relative to non-binge drinkers, and those who started binge drinking in high school would be highest, overall.

Method

Participants

This study gained IRB approval to conduct a survey through the SONA system at Eastern Michigan University. This survey was available to be taken on the SONA system from November 2017- April 2018. A total of 400 participants took this survey; 347 people provided usable data based on passing the validity check (“We know this is a lengthy survey, and we appreciate you continuing to answer questions. To make sure you are still "with us", please select option #3 below”) and completing all of the survey questions. A majority of participants were female (72%; n=262). Within the racial demographic, 65.4% (n=225) identified as White,
18.0% (n=62) identified as Black/African American, 3.2% (n=11) identified as Hispanic, 0.3% (n=1) identified as American Indian, 2.3% (n=8) identified as Asian, 2.9% (n=10) identified as Middle Eastern, and 7.6% (n=26) identified as bi or multi-cultural. Though participants were not provided monetary incentives for their participation in the survey, they were eligible for psychology course research credit through the SONA system.

Measures

**Depression Anxiety Stress Scales (DASS).** - The DASS, created by Lovibond (1995), is a 42 item self report scale used to measure the three related negative emotional states of depression, anxiety, tension/stress. Respondents are asked to use 4 point severity/frequency scales to rate the extent to which they have experienced depression, anxiety, tension/stress over the past week.

**Young Adult Alcohol Consequences Questionnaire (YAACQ).** - The YAACQ, created by Read, Kahler, Strong, and Colder (2006), was created to assess the broad range of harmful drinking consequences that young adults may face. The experiences may range from low (e.g. hangovers, embarrassment) to high level events (driving drunk). The YAACQ asks 48 questions, all of which fall into 8 sub-categories. The eight categories of adverse consequences include social/interpersonal (e.g., “I have become very rude, obnoxious, or insulting after drinking.”), academic/occupational (e.g., “I have neglected my obligations to family, work, or school because of my drinking.”), risky behavior (e.g., “I have taken foolish risks when I have been drinking.”), impaired control (e.g., “I have often drank more than I originally had planned.”), poor self care (e.g., “I have been less physically active because of my drinking.”), diminished self perception (e.g., “I have felt badly about myself because of my drinking.”), blackout drinking (e.g., “I have awakened the day after drinking and found that I could not remember a part of the evening...
before.”), and physiological dependence (e.g., “I have felt anxious, agitated, or restless after stopping or cutting down on drinking.”)

**Impulsive Behavior Scale (UPPS)** - This scale, created by Whiteside and Lynam (2001), was created to assess different facets of impulsivity, and it has been linked to a number of maladaptive outcomes. The factor structure of the scale was established through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). This yielded four traits including, negative urgency (the tendency to act rashly under extreme negative emotions), lack of premeditation (the tendency to act without thinking), lack of perseverance (the inability to remain focused on a task), and sensation seeking (the tendency to seek out novel and thrilling experiences) (Whiteside and Lynam, 2001).

**Center for Epidemiologic Studies Depression Scale (CES-D)** - This is a 20-item measure that asks respondents to rate how often over the past week they experienced symptoms associated with depression, such as restless sleep, poor appetite, and feeling lonely. It was created by Radloff in 1977. Scores range from 0-60, with higher scores indicating higher levels of depression. The scale also provides cutoff scores (16 or higher) that help in identifying individuals who are at risk for clinical depression.

**Adverse Childhood Experiences Survey (ACES)** - Created by the Centers for Disease Control and Kaiser Permanente (1997), the ACES survey consists of three parts, abuse, neglect, and household dysfunction. The higher the ACES score, the more at risk the individual is at for anxiety, depression, mental distress, and other physical and mental health problems.

**Peer Pressure Questionnaire (PPQ)** - The PPQ survey (Santor, 1998) consists of 18 questions that ask participants how they would act in certain hypothetical situations. An example question is, “My friends could push me into doing just about anything.” Item scores range from 1
to 4, with 1 being strongly agree and 4 being strongly disagree. Those with lower scores were suggested to give more easily into peer pressure. It is important to note that a formatting oversight resulted in some of the survey questions not being included in our survey; therefore, a total score could not be calculated, and this measure was only used at an item level of analysis.

Procedure

The sample of participants from which the data for the present study were drawn was from the SONA system. The SONA system is an online research website that allows undergraduate students to sign up and participate in online and in person research studies in order to obtain class credit or compensation of some sort. Starting in November and going into the end of April, undergraduate students were able to take the Corace Binge Drinking Survey, and data from that survey were used for this senior thesis. Though participants were not compensated monetarily, they received classroom research credit where applicable. All participation was voluntary, data were kept confidential, and before the survey was administered, the study was approved by the Eastern Michigan University Human Subjects Review Committee. The survey consisted of the DASS, YAACQ, UPPS, CES-D, ACES, and PPQ, along with demographic questions such as race, age, gender, and extracurricular activities (Greek life, sports, etc.). A check was made in the middle of the survey, “to make sure that you are still ‘with us’ please select option #3 below,” to make sure that each participant was accurately reading and answering the survey truthfully. After completing the survey, the student was given the option to press a link to be directed to a separate, unlinked survey to provide identifying information so that research credit could be granted in the SONA system.

Analytic Plan
For hypothesis one, I looked at how many participants selected that they were involved in either sports teams or Greek life or both. I hypothesized that more students who were actively involved in either or both of these extracurricular activities were more likely to report that they had participated in binge drinking. This was to be tested via a 2 (Greek yes/no) by 2 (Binge drink yes/no) Chi-Square analysis. According to the Self-Reported Alcohol Use of College Fraternity and Sorority Members research study, it was found that Greek members, in comparison to other college students, were more likely to believe that drinking alcohol leads to enhanced social activities, makes women sexier, and facilitates bonding. The study also found that Greek members are more likely to have friends that approve of their heavy/binge drinking (Alva, 1998). Because of this research and other reports, I expected that my hypothesis would be validated; however, a lack of study participants who were members of Greek Life or sports teams made this hypothesis untestable.

The second hypothesis focused on students who began to binge drink before entering college, investigating if they would face more detrimental effects as compared to their peers because they began binge drinking after college matriculation. No research has been done up to date about this specific question. I hypothesized that participants who began binge drinking before college would face more detrimental effects, as they would be unable to face the significant changes that college brings and would instead use alcohol and binge drinking to cope. One-way ANOVA analyses were used to compare the scores for the following groups: (1) never participated in binge drinking (“Never”), (2) participated in binge drinking this past month and started before college (i.e. high school, “C_HS”), (3) participated in binge drinking this past month but started in college (“C_Coll”), (4) did not participate in binge drinking this past month but did binge drink in high school (“NC_HS”), and (5) did not participate in binge drinking this
past month but first started binge drinking in college ("NC_Coll"). These groups were compared on the YAACQ, UPPS, DASS, ACES, PPQ items, and CES-D. Group differences that emerged for the YAACQ, UPPS, and PPQ are discussed below; there were no significant group differences on the DASS, ACES, or CES-D.

Examining the third hypothesis, it was hypothesized that college students who were more drawn to “fit in” and conform to their peers would be more likely to participate in binge drinking. Previous research data that supports my hypothesis includes that among binge drinkers more generally, several motives have been identified: internally generated, positive reinforcement motives (enhancement), externally generated, positive reinforcement motives (social), internally generated, negative reinforcement motives (coping), and externally motivated, negative reinforcement motives (conformity) (Cooper, 1994).

Examining the fourth hypothesis, it was hypothesized that binge drinkers would be elevated on measures of impulsivity relative to non-binge drinkers, and those who started binge drinking in high school would be highest, overall. This hypothesis was tested through examination of group differences on the UPPS scales.

Results

To start our analysis, we first explored the distribution of students across binge drinker categories. First, we looked at three categories: never participated in binge drinking (17.6%; n=51); first participated in binge drinking in high school (50.5%; n=146); and first participated in binge drinking after entering college (31.8%; n=92). A total 16.7% (n=58) participants did not answer the binge drinking survey question. Breaking it down into more sub-groups, it was found that 28.0% (n=81) of participants participated in binge drinking this past month and started before college. It was also found that 22.5% (n=65) participants did not engage in binge drinking
in the past month, but did first start binge drinking in high school. When these two percentages are added together, it totals the 50.5% of participants who first began binge drinking while in high school. It was found that 14.9% (n=43) participants engaged in binge drinking in the past month, and did not start binge drinking until they entered college. It was also found that 17.0% (n=49) participants had not engaged in binge drinking in the past month, however they had engaged in binge drinking at some point since entering college. When these two percentages are added together, it totals the 31.8% of participants who first began binge drinking in college.

Moving on to our first hypothesis, it was stated that, “students who are involved in Greek life and sports would be more likely to participate in binge drinking than those who are not
involved." Unfortunately, hypothesis one will remain untestable, as only 18 participants endorsed to being in a fraternity, and only 20 participants admitted to being in a sorority. With cumulative greek life involvement only being at 5%, results and conclusions as to whether Greek life involvement impacted student drinking could not be drawn.

Examining the second hypothesis, it was stated that, “high school students who began to binge drink before attending college would face more detrimental effects and consequences compared to their peers who did not begin binge drinking until they entered college.” Results for the YAACQ scale revealed significant differences on the following subscales: social/interpersonal, impaired control, diminished self perception, poor self care, risky behavior, role impairment, and blackout. In the figures below, depicting these findings, C_HS stands for current binge drinker, started in high school, C_Coll stands for current binge drinker, started in college, NC_HS stands for not a current binge drinker but participated in binge drinking in high school, and NC_Coll stands for not a current binge drinker but started binge drinking in college.

![Graph showing group differences on YAACQ Social/Interpersonal Subscale](image)

Figure 1: Group differences on YAACQ Social/Interpersonal Subscale

N<C_HS, p=.000; N<C_Coll, p=.000; NC_HS<C_HS, p=.000; NC_Coll<C_HS, p=.03
Figure 2: Group differences on YAACQ Impaired Control Subscale

N<C_HS, p=.000; N<C_Coll, p=.001; C_HS<NC_HS, p=.009; C_HS<NC_Coll, p=.015

Figure 3: Group differences on YAACQ Diminished Self Perception Subscale

N<C_Coll, p=.034
Figure 4: Group differences on YAACQ Poor Self Care Subscale

N< C_HS, p=.000; C_HS< NC_HS, p=.025

Figure 5: Group differences on YAACQ Risky Behavior Subscale

N< C_HS, p=.000; N< C_Coll, p=.015; C_HS< NC_Coll, p=.000
Figure 6: Group differences on YAACQ Role Impairment Subscale

N<C_HS, p=.002; C_HS<NC_HS, p=.015

Figure 7: Group differences on YAACQ Blackout Subscale

N<C_HS, p=.000; N<C_Coll, p=.000; C_HS>NC_HS, p=.000; C_HS>NC_Coll, p=.000

Although many significant differences were observed, the hypothesized difference between college and high school onset binge drinkers was not observed. However, the C_HS group consistently scored highest across all YAACQ subscales.

The third hypothesis stated that, “college students who are more driven to “fit in” and conform to their peers would be more likely to participate in binge drinking; we anticipated that the college onset group would be highest on conformity.” Based on our findings, this hypothesis was not supported, as the results seem to suggest that C_HS or high school onset binge drinkers report showing the most consistent pattern for succumbing to peer pressure. The following show significant differences according to the PPQ.

1) My friends could push me into doing just about anything. Results- NC_HS < C_HS

3) When at school, if a group of people asked me to do something, it would be hard to say no.
Results- N<C_HS

4) At times, I’ve broken rules because others have urged me to. Results- NC_Coll<C_HS

5) At times, I’ve done dangerous or foolish things because others dared me to. Results-
N<C_HS, N<C_Coll, NC_HS<C_HS

6) I often feel pressured to do things I wouldn’t normally do. Results- overall significance, but no
significant between group diffs

8) I’ve skipped classes, when others have urged me to. Results- N<C_HS, N<C_Coll

11) At times I’ve felt pressured to do drugs, because others have urged me too. Results-
NC_Coll<NC_HS

12) If a teacher asks me to do something, I usually do it. Results-N<NC_Coll

13) I usually do what I am told. Results- N<C_HS

Moving forward, the fourth hypothesis stated that, “binge drinkers would be elevated on
measures of impulsivity relative to non-binge drinkers, and those who started binge drinking in
high school would be highest, overall.” This was found to be significant, but only for the
sensation seeking subscale of the UPPS. The one way ANOVA between groups showed a
significant overall effect \(p=.001\). Looking further into this finding, a multiple comparisons
analysis revealed that it was the two groups that started binge drinking in highschool that were
elevated, relative to never binge drinkers. See Figure 8 below.
Examining our first hypothesis, it was stated that, “students who are involved in Greek life and sports would be more likely to participate in binge drinking than those who are not involved.” This was not able to be supported or unsupported, as there were not enough participants who took the survey who reported also being involved in Greek life or in sports. For future studies it would be recommended that the opportunity to participate in this survey be presented at Greek life meetings or events, and at sports team practices. This way more Greek life and sports team members would be able to participate in the study and results could be drawn based on the data. However, it should be noted that these individuals would not receive any additional benefits for participating in the study, other than receiving extra credit where and when applicable, so recruitment might be difficult.

Examining our second hypothesis, it was stated that, “high school students who began to binge drink before attending college would face more detrimental effects and consequences compared to their peers who did not begin binge drinking until they entered college.” Results for the YAACQ scale revealed significant differences on the following subscales:
social/interpersonal, impaired control, diminished self perception, poor self care, risky behavior, role impairment, and blackout. In the first figure, which reflects social and interpersonal consequences, it can be seen that the current binge drinkers who started in high school demographic had the highest rate of reported negative social and interpersonal effects. The second highest report of negative social and interpersonal effects came from the current binge drinkers who had started in college. This is not too surprising as previous studies such as Castillo (1994) and Wagoner (2009) have shown that the earlier students begin to participate in binge drinking, the more adverse social and interpersonal effects they will begin to face, including but not limited to, becoming rude or obnoxious after drinking, or having other undesirable personality traits.

In the second figure, reflecting the impaired control subscale, both those who binge drank in high school and those who binge drank in college were comparable. This shows that participants who participated in binge drinking while in high school and in college have higher chances of not being able to do what they originally intend to do. For example, those with higher reports of having impaired control also report drinking more in one night than they had originally planned. As seen in previous studies, (Wechsler, 1998) drinking more than one originally intends can lead to dangerous situations, including but not limited to those of the sexual nature.

In the third figure, which depicts results for the diminished self perception subscale, those who were current binge drinkers in college had the highest scores. This means that participants who only reported having engaged in binge drinking since the start of college faced the highest amount of diminished self perception, or lowered self esteem. This is somewhat surprising, as it was assumed that binge drinkers who began in high school students would have the lowest self regard, followed by their college onset counterparts. However, based on these survey results, the
converse was true, with college student binge drinkers scoring highest on this type of adverse consequence.

In the fourth figure, depicting results for the poor self care subscale, the current binge, started in High School group scored highest. This means that participants who reported binge drinking in high school and in college reported being the most unable to take care of themselves. For example, they report having been less physically active because of their drinking, and they also report having not cared for themselves as they should.

In the fifth figure, depicting results for the risky behavior subscale, the current binge drinker, started in High School group again scored highest. This means that participants who began binge drinking in high school were greater risk takers. In 2015, the CDC released a report that showed that 17.7% of high school students surveyed had had five or more drinks of alcohol in a row on at least one day within the previous month (Perry, 2016). However, with binge drinking can come larger amounts of risks being taken by these teenagers, including but not limited to, unprotected sexual intercourse, physical fighting, and driving while intoxicated.

In the sixth figure, depicting the role impairment subscale results, those who binge drank in high school were once again the highest. This means that participants who started binge drinking in high school appear to have more difficulties performing certain life tasks including but not limited to, getting to school/work on time, being fully engaged in whatever they were doing, etc. This is especially problematic, as college can be a hectic and busy time in one’s life. Without the ability for high school student binge drinkers to multitask or even to perform certain life tasks such as making it to classes and turning in homework on time, it may become very difficult for them to stay in college and do well academically and socially.
The final figure reflects group differences on the blackout scale, and once again those who binge drank in high school scored highest. A blackout involves memory loss due to excessive alcohol or drug abuse. Blacking out from drinking is usually caused by binge drinking, and the condition is induced when a person’s blood alcohol content (BAC) reaches 0.15 (American Addiction Centers, 2018). Blacking out can perhaps be one of the most risky effects of binge drinking, as it does not always mean that a person will lose consciousness. At times when a person experiences a blackout, they can still engage in drunk driving, fight with other people, and encounter risky sexual situations.

Examining our third hypothesis, it was stated that, college students who were more driven to “fit in” and conform to their peers would be more likely to participate in binge drinking; we anticipated that the college onset group would be highest on conformity. Based on our findings, this hypothesis was not supported, as the results seem to suggest that C_HS or high school onset binge drinkers report showing the most consistent pattern for succumbing to peer pressure. Peer pressure seemed to be one of the most prevalent issues in regards to being a risk factor towards binge drinking. One way to reduce peer pressure is to encourage students to hang out with peer groups who do not engage in dangerous activity, or to join student groups that are academic and not solely social in nature.

Examining our fourth hypothesis it was stated that, binge drinkers would be elevated on measures of impulsivity relative to non-binge drinkers, and those who started binge drinking in high school would be highest, overall. This was found to be significant, but only for the Sensation Seeking subset of the UPPS. It was again found that the group who currently binged but started binge drinking in high school was highest, overall. The Sensation Seeking subscale of the UPPS reflects the tendency to seek out new and thrilling experiences. Though this may not
seem like a negative thing at first, teenagers and young adults can be quite impulsive and as a result the new experiences they seek out could include dangerous activities such as binge drinking. One thing that I would recommend for future studies would be to ask more survey questions based on if the participants try new things regularly. Once this key, critical component of the participant’s personality is decided, one would be able to know if they were more at risk for engaging in binge drinking or not.

Conclusion

In conclusion, this study was limited to a sampling of students from Eastern Michigan University. Future studies would do well if the survey was given to a national college population across the United States. Other limitations of this survey included the fact that the Peer Pressure Questionnaire did not have all of the questions on the survey, so results from the questionnaire could only be used at an item level analysis and not as a part of the total score. One final way that this study could have been improved was by students who are in Greek Life and in sports having participated more in the survey. Because there were not enough students in Greek Life and sports who took the survey, the first hypothesis, “students who were involved in Greek life and sports would be more likely to participate in binge drinking than those who were not involved,” was not able to be supported.

The goal of this thesis was to support others in their research in regards to binge drinking, and to understand how different age-of-onset groups may face different risk factors and consequences. Through drawing conclusions as to some risk factors in regards to binge drinking and the different onset with regards to age, future studies will know how to tailor their studies based on what has already been studied.
References
The Adverse Childhood Experiences (ACE) Study. cdc.gov. Atlanta, Georgia: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Violence Prevention. May 2014.


Read RP; Kahler CW; Strong DR; Colder CR. Development and preliminary validation of the Young Adult Alcohol Consequences Questionnaire. *Journal of Studies on Alcohol 67*(1):169-177, 2006.


Appendix

YAACQ

Below is a list of things that sometimes happen to people either during, or after they have been drinking alcohol. Next to each item below, please mark an “X” in either the YES or NO column to indicate whether that item describes something that has happened to you \textbf{IN THE PAST YEAR}.

In the \textit{past year}...

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. While drinking, I have said or done embarrassing things.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The quality of my work or schoolwork has suffered because of my drinking.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I have felt badly about myself because of my drinking.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I have driven a car when I knew I had too much to drink to drive safely.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I have had a hangover (headache, sick stomach) the morning after I had been drinking.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I have passed out from drinking.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I have taken foolish risks when I have been drinking.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I have felt very sick to my stomach or thrown up after drinking.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>I have gotten into trouble at work or school because of drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>I often drank more than I originally had planned.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents, or other near relatives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>I have been unhappy because of my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>I have gotten into physical fights because of drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>I have spent too much time drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>I have felt like I needed a drink after I'd gotten up (that is, before breakfast).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>I have become very rude, obnoxious or insulting after drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I have felt guilty about my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>I have damaged property, or done something disruptive such as setting off a false fire alarm, or other things like that after I had been drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Because of my drinking, I have not eaten properly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>I have been less physically active because of drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>22.</strong></td>
<td>I have had &quot;the shakes&quot; after stopping or cutting down on drinking (e.g., hands shake so that coffee cup rattles in the saucer or have trouble lighting a cigarette).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>23.</strong></td>
<td>My boyfriend/girlfriend/spouse/parents have complained to me about my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>24.</strong></td>
<td>I have woken up in an unexpected place after heavy drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>25.</strong></td>
<td>I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>26.</strong></td>
<td>As a result of drinking, I neglected to protect myself or my partner from a sexually transmitted disease (STD) or an unwanted pregnancy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>27.</strong></td>
<td>I have neglected my obligations to family, work, or school because of drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>28.</strong></td>
<td>I often have ended up drinking on nights when I had planned not to drink.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>29.</strong></td>
<td>When drinking, I have done impulsive things that I regretted later.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>30.</strong></td>
<td>I have often found it difficult to limit how much I drink.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>31.</strong></td>
<td>My drinking has gotten me into sexual situations I later regretted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>32.</strong></td>
<td>I've not been able to remember large stretches of time while drinking heavily.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>33.</strong></td>
<td>While drinking, I have said harsh or cruel things to someone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>34.</strong></td>
<td>Because of my drinking I have not slept properly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>My physical appearance has been harmed by my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>I have said things while drinking that I later regretted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>I have awakened the day after drinking and found that I could not remember a part of the evening before.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>I have been overweight because of drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>I haven't been as sharp mentally because of my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>I have received a lower grade on an exam or paper than I ordinarily could have because of my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>I have tried to quit drinking because I thought I was drinking too much.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>I have felt anxious, agitated, or restless after stopping or cutting down on drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td>I have not had as much time to pursue activities or recreation because of drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44.</td>
<td>I have injured someone else while drinking or intoxicated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.</td>
<td>I often have thought about needing to cut down or stop drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46.</td>
<td>I have had less energy or felt tired because of my drinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47.</td>
<td>I have had a blackout after drinking heavily (i.e., could not remember hours at a time).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.</td>
<td>Drinking has made me feel depressed or sad.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

<table>
<thead>
<tr>
<th></th>
<th>Rarely or none of the time (less than 1 a day)</th>
<th>Some or a little of the time (1-2 days)</th>
<th>Occasionally or a moderate amount of time (3-4 days)</th>
<th>Most or all of the time (5-7 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was bothered by things that usually don’t bother me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I did not feel like eating; my appetite was poor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt that I could not shake off the blues even with help from my family or friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt I was just as good as other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I had trouble keeping my mind on what I was doing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt depressed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt that everything I did was an effort.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt hopeful</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I thought my life had been a failure.

I felt fearful.

My sleep was restless.

I was happy.

I talked less than usual.

I felt lonely.

People were unfriendly.

I enjoyed life.

I had crying spells.

I felt sad.

I felt that people dislike me.

I could not get “going.”

SCORING: zero for answers in the first column, 1 for answers in the second column, 2 for answers in the third column, 3 for answers in the fourth column. The scoring of positive items is reversed. Possible range of scores is zero to 60, with the higher scores indicating the presence of more symptomatology.
UPPS

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you Agree Strongly circle 1, if you Agree Somewhat circle 2, if you Disagree somewhat circle 3, and if you Disagree Strongly circle 4. Be sure to indicate your agreement or disagreement for every statement below. Also, there are a few more questions on the next page.

1. I have a reserved and cautious attitude toward life.
2. I have trouble controlling my impulses.
3. I generally seek new and exciting experiences and sensations.
4. I generally like to see things through to the end.
5. My thinking is usually careful and purposeful.
6. I have trouble resisting my cravings (for food, cigarettes, etc.).
7. I'll try anything once.
8. I tend to give up easily.
9. I am not one of those people who blurt out things without thinking.
10. I often get involved in things I later wish I could get out of.
11. I like sports and games in which you have to choose your next move very quickly.
12. Unfinished tasks really bother me.
13. I like to stop and think things over before I do them.
14. When I feel bad, I will often do things I later regret in order to make myself feel better now.
15. I would enjoy water skiing.
16. Once I get going on something I hate to stop.
17. I don't like to start a project until I know exactly how to proceed.
18. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.
19. I quite enjoy taking risks.
20. I concentrate easily.
21. I would enjoy parachute jumping.
22. I finish what I start.
23. I tend to value and follow a rational, "sensible" approach to things.
24. When I am upset I often act without thinking.
25. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.
26. I am able to pace myself so as to get things done on time.
27. I usually make up my mind through careful reasoning.
28. When I feel rejected, I will often say things that I later regret.
29. I would like to learn to fly an airplane.
30. I am a person who always gets the job done.
31. I am a cautious person.
32. It is hard for me to resist acting on my feelings.
33. I sometimes like doing things that are a bit frightening.
34. I almost always finish projects that I start.
35. Before I get into a new situation I like to find out what to expect from it.
36. I often make matters worse because I act without thinking when I am upset.
37. I would enjoy the sensation of skiing very fast down a high mountain slope.
38. Sometimes there are so many little things to be done that I just ignore them all.
39. I usually think carefully before doing anything.
40. Before making up my mind, I consider all the advantages and disadvantages.
41. In the heat of an argument, I will often say things that I later regret.
42. I would like to go scuba diving.
43. I always keep my feelings under control.
44. I would enjoy fast driving.
45. Sometimes I do impulsive things that I later regret
DASS

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1 I found myself getting upset by quite trivial things
2 I was aware of dryness of my mouth
3 I couldn't seem to experience any positive feeling at all
4 I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)
5 I just couldn't seem to get going
6 I tended to over-react to situations
7 I had a feeling of shakiness (eg, legs going to give way)
8 I found it difficult to relax
9 I found myself in situations that made me so anxious I was most relieved when they ended
10 I felt that I had nothing to look forward to
11 I found myself getting upset rather easily
12 I felt that I was using a lot of nervous energy
13 I felt sad and depressed
14 I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)
15 I had a feeling of faintness
16 I felt that I had lost interest in just about everything
17 I felt I wasn't worth much as a person
18 I felt that I was rather touchy
19 I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion
20 I felt scared without any good reason
21 I felt that life wasn't worthwhile

Reminder of rating scale:
Page 2
0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

22 I found it hard to wind down
23 I had difficulty in swallowing

24 I couldn't seem to get any enjoyment out of the things I did

25 I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)

26 I felt down-hearted and blue

27 I found that I was very irritable

28 I felt I was close to panic

29 I found it hard to calm down after something upset me

30 I feared that I would be "thrown" by some trivial but unfamiliar task

31 I was unable to become enthusiastic about anything

32 I found it difficult to tolerate interruptions to what I was doing

33 I was in a state of nervous tension

34 I felt I was pretty worthless

35 I was intolerant of anything that kept me from getting on with what I was doing

36 I felt terrified

37 I could see nothing in the future to be hopeful about

38 I felt that life was meaningless

39 I found myself getting agitated
I was worried about situations in which I might panic and make a fool of myself

I experienced trembling (eg, in the hands)

I found it difficult to work up the initiative to do things
Adverse Childhood Experience (ACE) Questionnaire

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often ... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?
   Yes No If yes enter 1 _______

2. Did a parent or other adult in the household often ... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?
   Yes No If yes enter 1 _______

3. Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Try to or actually have oral, anal, or vaginal sex with you?
   Yes No If yes enter 1 _______

4. Did you often feel that ... No one in your family loved you or thought you were important or special? or Your family didn’t look out for each other, feel close to each other, or support each other?
   Yes No If yes enter 1 _______

5. Did you often feel that ... You didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
   Yes No If yes enter 1 _______

6. Were your parents ever separated or divorced?
   Yes No If yes enter 1 _______
**Peer Pressure Items Questionnaire**

1. My friends could push me into doing just about anything.
2. I give into peer pressure easily.
3. When at school, if a group of people asked me to do something, it would be hard to say no.
4. At times, I've broken rules because others have urged me to.
5. At times, I've done dangerous or foolish things because others dared me to.
6. I often feel pressured to do things I wouldn't normally do.
7. If my friends are drinking, it would be hard for me to resist having a drink.
8. I've skipped classes, when others have urged me to.
9. I've felt pressured to have sex, because a lot of people my own age have already had sex.
10. I've felt pressured to get drunk at parties.
11. At times I've felt pressured to do drugs, because others have urged me too.
12. If a teacher asks me to do something, I usually do it.
13. I usually do what I am told.
15. I follow my parents' wishes even when it means not doing something I want to do.
16. Even when I disagree with my parents' wishes, I usually do what I am told.
17. I break rules frequently.
18. I rarely follow the rules.