Health Issue: Understanding Underage Drinking

Ruth Maghsoudi, Matthew Kuofie

Grand Canyon University, USA

rmaghsoudi@my.gcu.edu, matthew.kuofie@my.gcu.edu, mhkuofie@msn.com

Abstract

This study address one of the many of the public health issues that face the American young population is underage drinking. Grant and Dawson (1997) argue that underage consumption of alcohol may have serious health implication to the users during adulthood, including health disorders and other negative behaviors related to alcohol abuse. The sample size for this study was 35 with a majority of the respondents being male as compared to their female counterparts. This may indicate that the number of underage males consuming alcohol may be greater that the number of females. In addition, the study finds that a majority of the respondents belonging to the age category of 16-17 years. The study finds that many of the underage respondents start drinking when they are in the age category of between 14 and 15 years. A small number of the underage students sampled showed that they started drinking while they were in the age category of between 10 and 11 years. The confidence intervals for the mean of drinks the underage youths consume in a week was 7.63±1.0, implying that on average, an underage consumes between approximately 7 to 9 drinks in a week. Previous research argues that majority of the underage alcohol consumers may end up being absent in school, having family problems, doing poorly in school and driving under the influence of alcohol.

Keywords: Underage drinking, health, alcohol, American youth, adulthood

Introduction

One of the many of the public health issues that face the American young population is underage drinking. Research has shown the majority of American youth in recent decades consume alcohol at a very young age. According to Hingston (2009), underage drinking poses significant mortality and morbidity in adolescence and childhood. Similarly, Grant and Dawson (1997) argue that underage consumption of alcohol may have serious health implication to the users during adulthood, including health disorders and other negative behaviors related to alcohol abuse. For instance, according to data collected by the Centers of Disease Control and Prevention (2006-2010), it indicates that approximately 4358 on average of underage deaths are associated with underage drinking were reported on average yearly.

The study will focus on finding the ages at which underage children start consuming alcohol, whether there is a statistically important difference in the amount of alcohol consumed among underage males and females and find out the worst impacts of underage drinking. To achieve these objectives, a random sample of 50 students was selected from a Mall in National City California. The target population was those who were 17 years and below, and who were considered underage. However, those who have never consumed alcohol were never included in this study after screening the questionnaires. Of the fifty respondents, 35 of them (70%) were found to have consumed alcohol while 30% had not consumed alcohol before.

A survey including both qualitative and quantitative questions was administered at random and only 35 of them completed the questionnaires. The 35 respondents formed the sample for this study. The study employed inferential and descriptive statistics to analyze the

data collected. Data analysis was performed using Microsoft Excel. The results of the findings are discussed below.

Frequency Tables

Table 1: Sex

Sex	Frequency
Male	19
Female	16

Table 1 shows that the number of male respondents (19) was greater than that of female respondents in the study.

Table 2: Age

Age Interval	Frequency
12-13	8
14-15	12
16-17	15

Table 2 shows that most respondents in the sample belongs to the age category of between 16-17 years, while few respondents belong to the age category of between 12 and 13 years. This can also be shown in bar Graph 1..

Table 3: Frequency Table

Age when they started drinking	*Frequency*
10-11	6
12-13	9
14-15	13
16-17	7

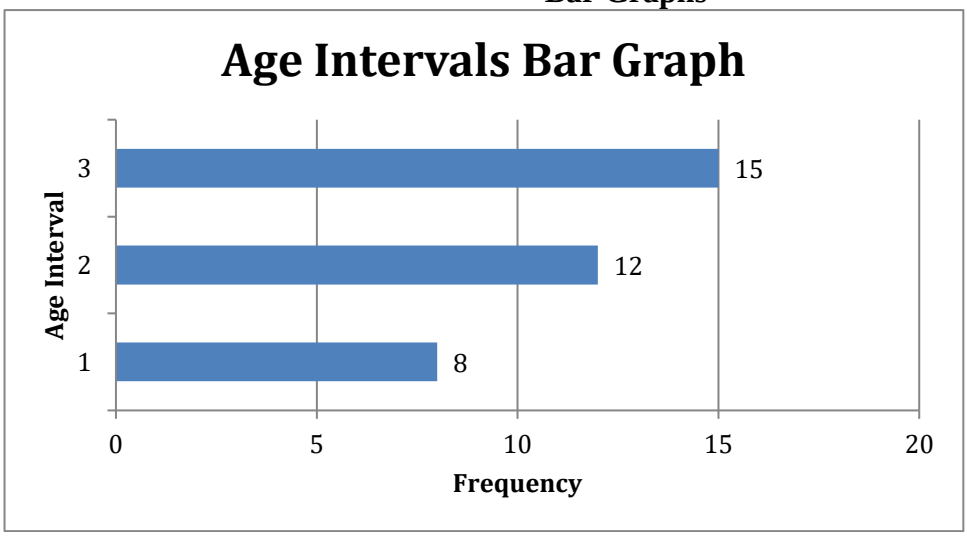
Table 3 indicates that many of the underage respondents start drinking when they are in the age category of between 14 and 15 years. A small number of the underage students sampled showed that they started drinking while they were in the age category of between 10 and 11 years.

Table 4: Frequency Table 2

Age when started drinking	*Frequency*	*Cumulative frequency*
10-11	6	6.00
12-13	9	15.00
14-15	13	28.00
16-17	7	35.00

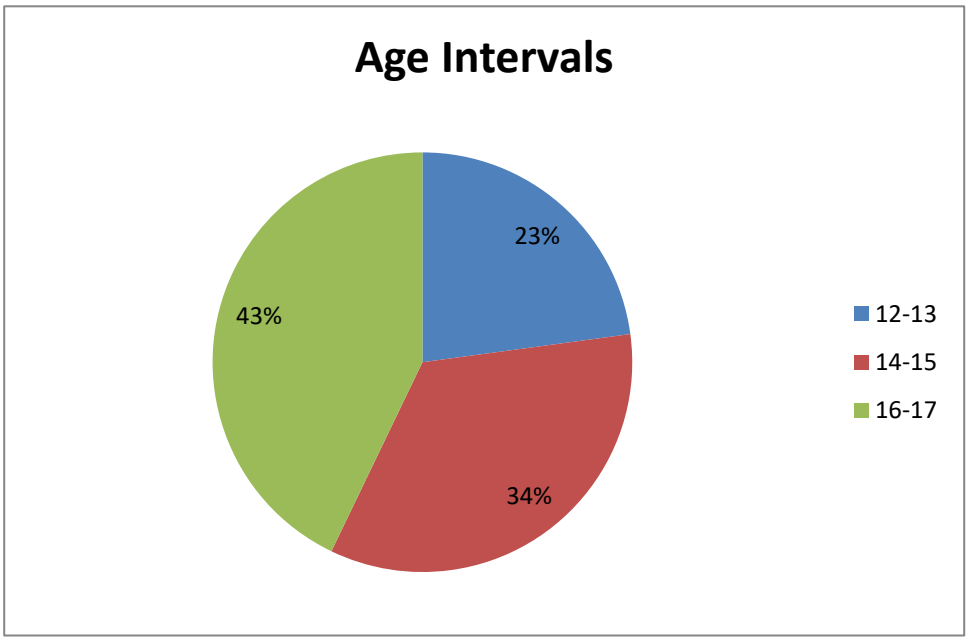
Bar Graph 1: Age Intervals of respondents

Bar Graphs

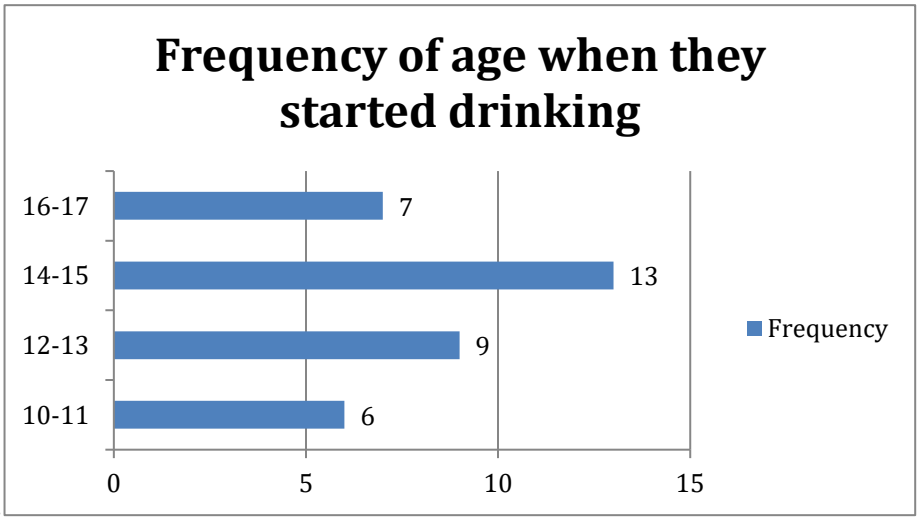


Pie Charts

Pie Chart 1: Age Intervals excel



Bar Graph 2: When They Started Drinking



.

Pie Chart 2: When They Started Drinking

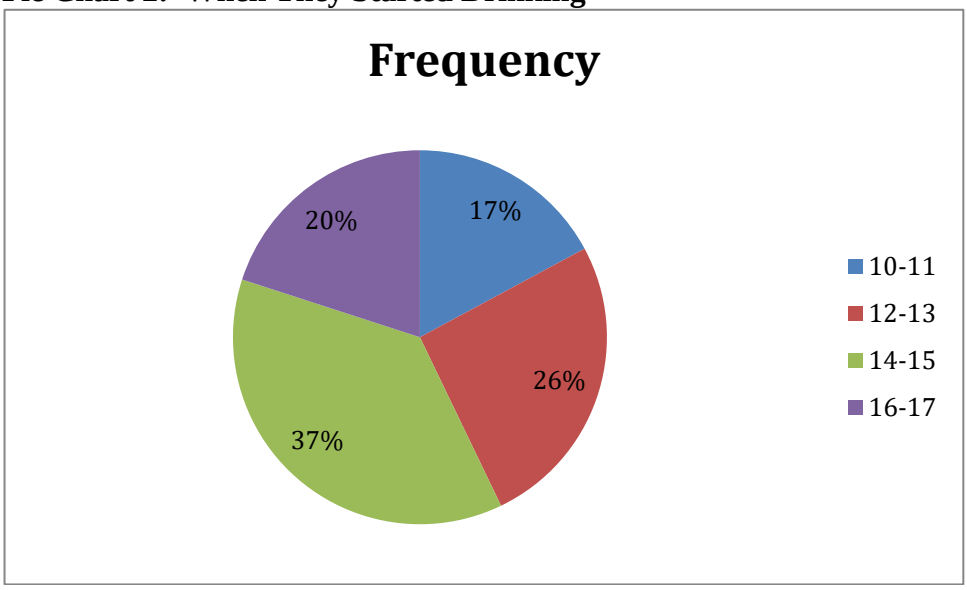
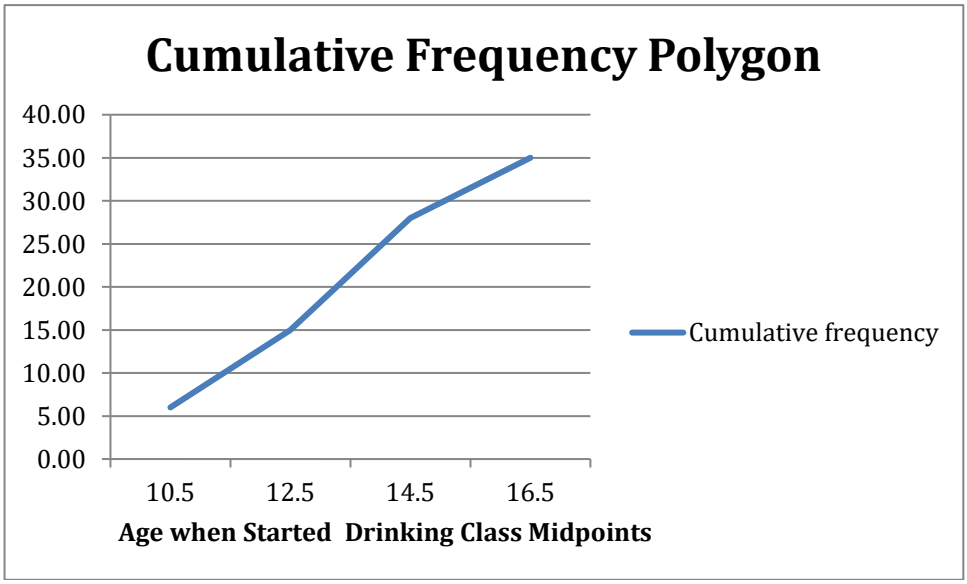


Chart 1: Cumulative Frequency Polygon



Descriptive Statistics

Table 5: Summary Statistics

Statistic	*Drinks Per Week*	*Age when started Drinking*
Mean	7.629	13.629
Median	8	14
Mode	10	15
Standard Deviation	3.388	2.340
Sample Variance	11.476	5.476

The probability that each event occurs for each variable is 1 since the inclusions criteria was only those underage students who drink were selected as the respondents.

Confidence Intervals

Confidence interval for the mean amount of drinks per week

The best estimate for the population mean is 7.63, which is approximately 8 as shown in the descriptive statistics table above.

Table 6: Confidence Intervals

Drinks Per Week	
Confidence Level (95.0%)	1.164
Confidence Level (98.0%)	1.398
Confidence Level (90.0%)	0.968

95% confidence Interval

Sample statistic ± margin of error

7.63 ± 1.16 which is approximately equal to 7.63 ± 1.0

98% confidence Interval

Sample statistic ± margin of error

7.63 ± 1.39 which is approximately equal to 7.63 ± 1.0

90% confidence Interval

Sample statistic ± margin of error

7.63 ± 0.97 which is approximately equal to 7.63 ± 1.0

Interpretation of the confidence interval

This implies that the same sampling distribution was used in selecting a different sample and to compute the different interval estimates, the true population mean of the average number of drinks per week will fall between the ranges of (7,9) as defined by the 95% confidence interval of the sample.

Test of Hypothesis

A T-test was used to test whether there was a mean difference in the number of drinks consumed in a week between females and males. The purpose of this hypothesis is to determine whether the drinking behaviors of females were different from that of males.

1. **Hypotheses**

H_0: There is not much difference between the mean of drinks per week between boys and girls

H_1: There is an important difference between the mean of drinks per week among boys and girls

2. **Level of Significance**

α=0.05

3. **Rejection Region**

Reject the null hypothesis if T calculated< T stat for two tailed t-test assuming unequal variances

4. **Computation of T Statistic**

Table 7: Computed T statistic results

t-Test: Two-Sample Assuming Unequal Variances

	Males	*Females*
Mean	7.80952381	7.307692308
Variance	12.96190476	10.73076923
Observations	21	13
Hypothesized Mean Difference	0	
Df	27	
t Stat	0.418	
P(T<=t) one-tail	0.340	
t Critical one-tail	1.703	
P(T<=t) two-tail	0.680	
t Critical two-tail	2.052	

From the results above, the computed t-statistic t critical two tail = 2.0518 > t stat = 0.4178.

5. Conclusion

Since t-critical = 2.052> t-stat =0.417, the null hypothesis is rejected. A conclusion is therefore there is adequate statistical evidence to indicate that there is a significant difference between the mean of drinks per week between boys and girls.

Summary of the Results and Conclusion

The study employed inferential and descriptive statistics to weigh the data collected. Descriptive statistics were used to find out the sample characteristics such as the mean, mode, standard, deviation and medians of particular variables. The independent sample t-test assuming unequal variances was used to develop the null hypotheses stating that there is no important difference in the mean of drinks taken per week between boys and girls against the alternative hypothesis of existence of an important difference statistically.

In summary, this sample size for this study was 35 with a majority of the respondents being male as compared to their female counterparts. This may indicate that the number of

underage males consuming alcohol may be greater that the number of females. In addition, the study finds that a majority of the respondents belonging to the age category of 16-17 years; this may indicate that the numbers of underage youths increase as they progress toward adulthood. The confidence intervals for the mean of drinks the underage youths consume in a week was 7.63±1.0, implying that on average, an underage consumes between approximately 7 to 9 drinks in a week. Previous research argues that majority of the underage alcohol consumers may end up being absent in school, having family problems, doing poorly in school and driving under the influence of alcohol. This supports earlier claims, such as by Hingston (2009) who argues the significant negative impacts of alcohol consumption can have on underage.

Finally, the test of hypothesis using the independent sample t-test at 5% alpha level finds a statistically notable difference in the mean number of drinks per week between boys and girls. However, the study fails to determine which among them was higher and therefore recommends further studies to be conducted in future using larger samples. In this case, the sample size was small and the results cannot be generalized to represent the group from where the sample was drawn.

References

Centers for Disease Control and Prevention (2016). Fact Sheet - Underage Drinking - Alcohol, Atlanta, GA. Available at: https://www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm

Grant, B.F., & Dawson, D.A. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse*, 9,103–110.

Hingson, R.W. (2009). The legal drinking age and underage drinking in the United States. *Archives of Pediatrics and Adolescent Medicine*, 163,598–600.

Appendix

Questionnaire for Underage Drinking

1. What was your age on your last birthday?
   1 _____ 12-13 2. _____ 14-15 3. _____ 16-17

2. What is your sex?

   1._____ Male
   2._____ Female

2. Where do you live?
   _____ State

4. What is the average number of drinks you have had for the past one week?

5. State the worst thing that you have ever done because you used alcohol

6. At what age did you start drinking?