Currently, two thirds of US adults have been diagnosed as being overweight (BMI > 25 kg/m2) and 15% of adolescents as obese (BMI > 30 kg/m2). Not only does obesity affect quality of life and overall health but it has been linked to cardiovascular disease, diabetes, and even some forms of cancer (Chu *et al.,* 2012). In the past few decades the greatest increase in obesity was found for young adults specifically in the college students rising from 10.6% to 17.8%. This increase in obesity continued up to around 21% in some college students in recent years and even more recent data shows that somewhere up to 35% of college students may be overweight or obese. However previous studies have used alternative methods, such as dietary practices and physical activity levels, to try and predict or estimate obesity rates in college students. These studies showed that over 20% of college students were overweight and approximately 5% of students were obese, using BMI as a measure. In addition, more than two-thirds of students were found to consume less than the recommended fruit and fiber servings per day as well as reporting fewer than 3 days/week with physical activity (Huang *et al., 2010).* This study shows that a sizeable fraction of college, approximately 25%, were at least overweight and not adhering to healthy living habits in general.

For this particular study, I was interested in whether the student body at [redacted] reflected this previous study and its results of obesity for the sample measured. Specifically, I hypothesized that the student body at [redacted] would closely resemble the observed proportions of obesity seen in the previous experiment. To collect our data, a survey was sent out with IRB approval to the entire student body asking them to input their age, height, and weight. There was no penalty for not completing the survey and it was totally anonymous.

From the responses, I was able to calculate the body mass index (BMI) for each sample. Using SPSS statistical analysis software program, I input the data and ran analyses to show

both descriptive information and distribution for the variables of age and BMI.

From a total sample size of 139 students, we were able to gain a somewhat representative view of both age and BMI of the student body. In terms of the variables of age, we found a mean age of 20.15 +/- 1.262 years old for our sample (n=139). The somewhat bimodal distribution of this data shows a slight positive skew along with the distribution being less strong clustered around the mean, or slightly, platykurtic (Fig. 1). In terms of variable of BMI, we found a BMI of 24.308 +/- 4.639 for our sample (n=139). The unimodal distribution for this data showed a strong positive skew along with a leptokurtic distribution, or more tightly clustered around the mean (Fig. 2). In addition to these distributions, we found that approximately 31% (43/139) of the students sampled were found to be clinically overweight (BMI > 25 kg/m^2) and approximately 14% (19/139 students) were found to be clinically obese (BMI >30 kg/m^2; Fig. 2).

However we did have some significant limitations within our study. Firstly, the variables of age and BMI were found to have strong evidence of non-normality, or more simply were found to most likely to be not normally distributed. While we did not run any statistical tests, distributions that are normally distributed usually provide a better overall ·picture of the sample measured, and subsequently the population being questioned. Therefore, since our distributions were not normally distributed should be careful the number of inferences we draw from our conclusions seen here. To help solve this problem, one could rerun this study gaining a larger sample size which usually helps to increase the normality seen in distributions. As a result this would give us a more representative picture of the population in question, which is college students as a whole.

Overall, we can see that we found some descriptive evidence to support our question of whether the student body at [redacted] would resemble previous study's observed overweight and obesity proportions for college students. Specifically, we found that approximately 31% of students were found to be overweight according to their reported BMI as compared to previous studies which showed around 20% overweight prevalence. Also we found that about 14% of student were clinically obese according to their BMI as compared to previous

studies showing around 5% of college students being obese. The increased percentages for [redacted] student body may be explained due to small sample size which is snapshotting a local "hotspot" for obesity possibly with a number of students coming from the surrounding [redacted] area. However, future studies would need to be done to conclude these assumptions. In conclusion, overweightness and obesity still appear to have a stronghold in the American way of living, especially in college student lifestyles. In order to hopefully overcome this obesity problem someday, we must continue to as the questions that drive research into understanding the disease itself. Only then we will make progress into learning how to rid our country, and maybe even the world, of this "excess weight."

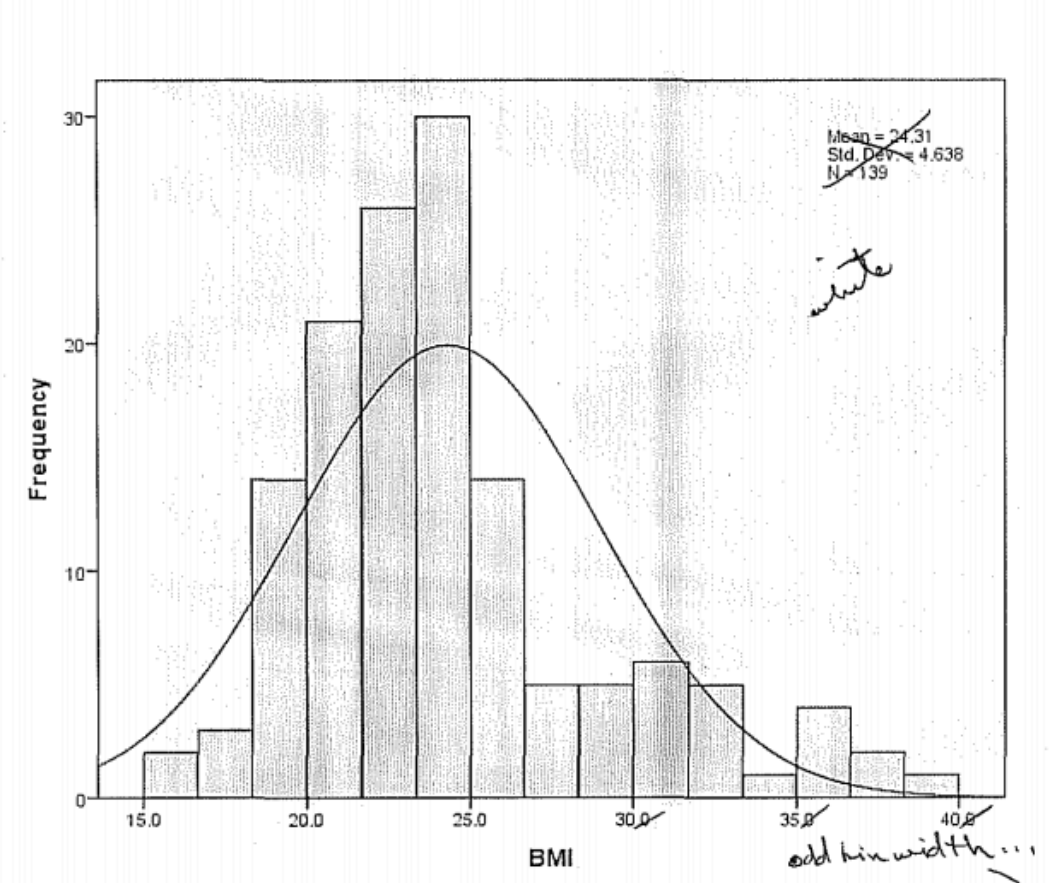

Figure 2. Distribution of BMI in Washington & Jefferson College students. The unimodal distribution seen above is positively skewed (1.063) as well as leptokurtic (0.867). The sample (n=139) was found to have strong evidence of non-normality (Shapiro-Wilk, P-value <0.001). Mean (24.308 ± 4.639 kg/m^2). Overweight is signified by a BMI > 25 kg/m^2, and obese is signified by a BMI > 30 kg/m^2.

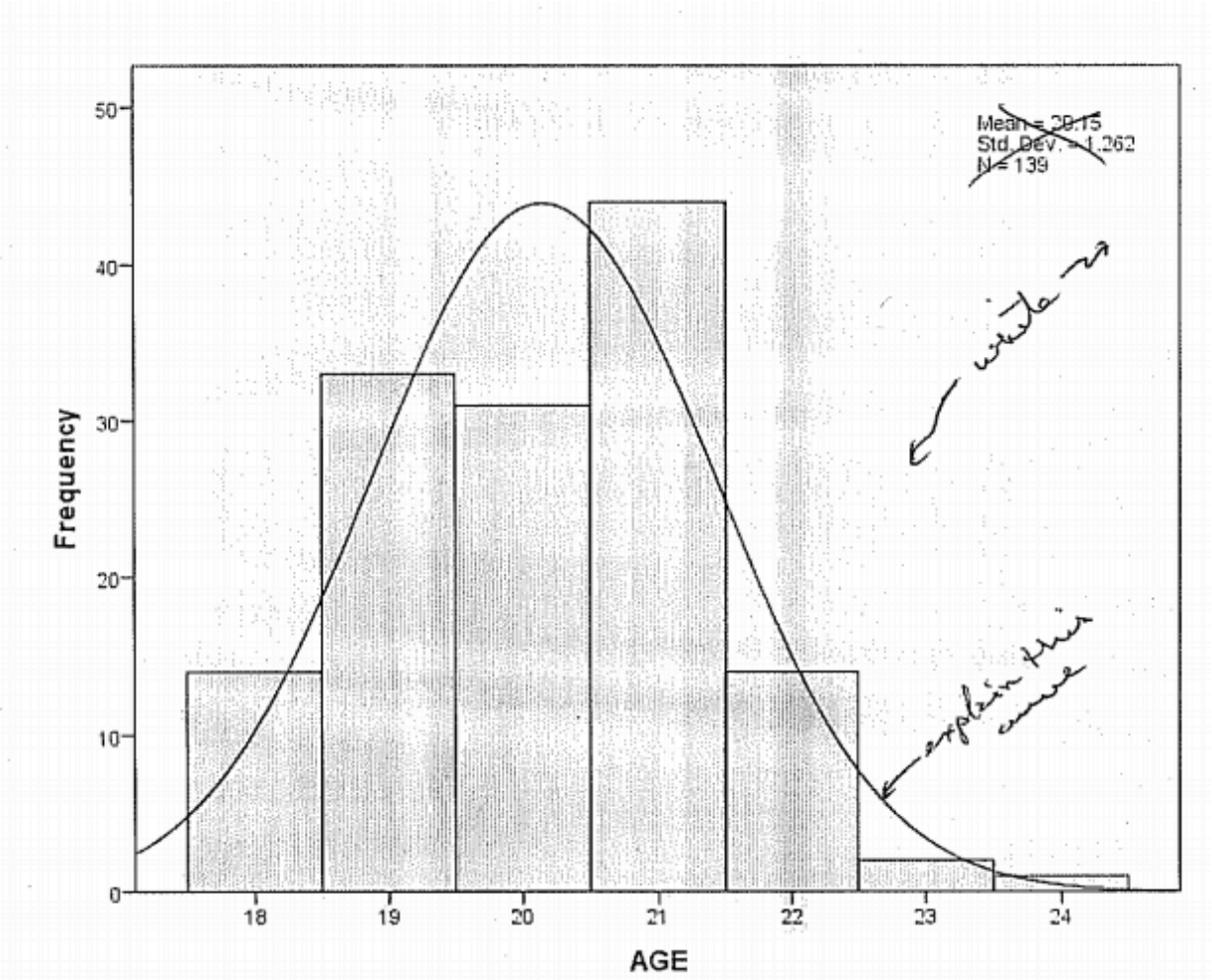

Figure 1. Distribution of age in Washington & Jefferson College students. The bimodal distribution seen above is slightly positively skewed (0.206) as well as slightly platykurtic (-0.396). The sample (n=139) was found to have strong evidence of non-normality (Shapiro-Wilk, P-value <0.001). Mean (20.15 ± 1.262 years).

References

1. Chu C-Y, Chen C-F, Rajendran RS, Shen C-N, Chen T-H, et al. (2012) Overexpression of Akt1 Enhance Adipogenesis and Leads to Lipoma Formation in Zebrafish. PloS ONE 7(5): e36474. doi:10.1371/journal.pone.0036474

2. Huang, Terry T.-K., Kari Jo Harris, Rebecca E. Lee, Niaman Nazir, Wendi Born, and Harsohena Kaur. "Assessing Overweight, Obesity, Diet, and Physical Activity in College Students." *Journal of American College Health* 52.2 (2003): 83-86. *Taylor & Francis Online*. Web. 11 May 2014. http://www.tandfonline.com/doi/abs/10.1080/07448480309595728#previe w.

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Work Sample Evaluation

Subject Area: Introduction to Statistics
Task Title: Investigating Body Mass Index
Student Work Sample Title: Untitled

The document was scored using the *CCR Task Bank Rubric for Scientific Research Plans and Reports.* The final scores are indicated in the following chart.

Scoring Criteria	Insufficient Evidence	Developing	Progressing	Accomplished	Exceeds
Hypothesis Development		**X**			
Research Plan		**X**			
Results and Interpretation		**X**			
Communication			**X**		
Organization			**X**		
Accuracy			**X**		

Annotations: The following evidence from the work sample and the reviewer's comments support the scores above. Page and line numbers refer to the original work sample.

Scoring Criteria	Page #	Line #	Commentary about the work sample
Hypothesis Development: *Locating resources in order to develop a thesis or hypothesis*	5	1	The references list includes authoritative journal sources, but provides a limited number of resources.
	1	17-21	The author states a hypothesis that his/her data will closely resemble findings from previous experiments (though does not clearly cite or identify the specific previous study, referring to it generally throughout the report)
Research Plan: *Planning, conducting, and describing an experiment or study*	1	17-23	The author mentions that data were collected through a survey, but does not provide specifics on how the survey was disseminated or address limitations of the sampling method.
Results and Interpretation: *Describing and interpreting results in relation to the hypothesis*	All		While author provides and cites background information on obesity in the introduction of the report, he/she does not clearly include any textual evidence to relate findings to his/her own findings.
	2	2	"somewhat representative view" is vague and author does not explain how he/she determined this.
Communication: *Using subject appropriate language and considering audience*	All		Author uses discipline-specific language and presents statistical data in an appropriate manner.
	1	2	Author does not define or explain the meaning of BMI in the introduction. Refers to it as 'body mass index' later on Page 1, Line 24, but does not provide a definition or describe the means for calculating BMI.
	1-2		The author switches between 3rd person (introduction paragraph), 1st person (Page 1, line 17) and 1st person plural (Page 2, Line 2). The use of 1st person creates an informal tone to the report.
Organization: *Structuring main ideas and incorporating supporting information*	All		Paper is organized overall, with a clear introduction, transitions, and supporting information that is suitable for the task.
Accuracy: *Attending to detail, grammar, spelling, conventions, citations, and formatting*	1	3-5	Several commas missing throughout the report. For example, on Page 1 after "health" on line 3, after "adults" on line 5, and after "students" on line 5)
	1	4	Incorrect citation method for both in-text citations and reference list (task/instructor specifically asks for MLA citation).
	1	1-16	The opening paragraph does not consistently cite sources for the information provided.