Health and wellness analysis using College Student Sleep Study

The College Student Sleep Study evaluated the relationship between lifestyle, GPA, and sleep by questioned a sample of 253 college students from a liberal arts college in the northeastern United States[1]. The students did surveys about their lifestyle, classes, and sleep. They also completed cognitive tests. The registrar's office provided their GPA.

The estimate for average combined depressed, anxious, stressed score (DASscore) for the population of 253 college students is 20.04 (mean score) with SD of 16.54. The estimate for the population of college students who pulled all-nighters (AllNighter) for this population is 15%. Graphs and tables were shown below followed by discussion.

Table 1. DASscore analysis results of 253 students in the liberal arts college.

Mean	Median	Lower quartile	Upper quartile	Range	Std Dev	95% CL mean		95% CL Std Dev		T value	Pr >|t|
20.04	16.00	7.00	28.00	0-82	16.54	17.99	22.09	15.22	18.12	19.27	<0.0001

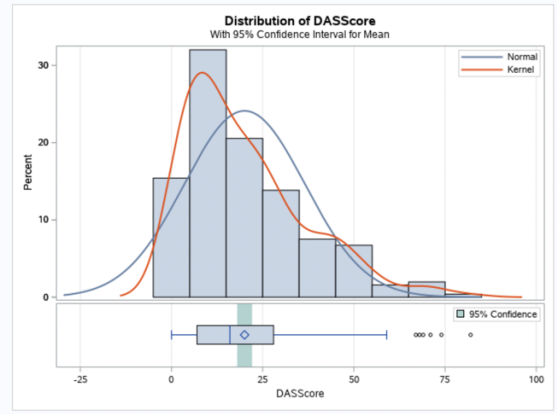

Figure 1. DASscore distribution of 253 students in the liberal arts college.

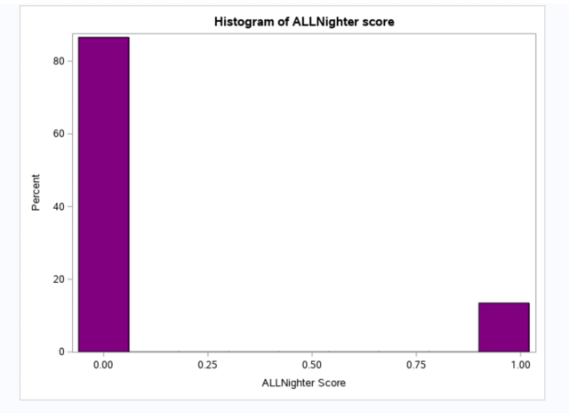

Figure 2. AllNighter histogram of 253 students in the liberal arts college. 1 means students reported that they had an all-nighter this semester while 0 means they did not have any all-nighter this semester.

According to **Table 1.** and **Figure 1.**, the mean DASscore of the population is 20.04 with SD of 16.54. We are 95% confident that the interval from 17.99 to 22.09 contains the true mean DASscore for students in the liberal arts college. The distribution is not normal (not Bell-shaped) and positively skewed which it has a long tail to the right. The center of the distribution is around the median (16.00) which is smaller than the mean (20.04). The distribution is unsymmetric. The variability is observed from the population of n=253. Since higher DASscore indicates higher mood complaints, the low mean DASscore indicates that the students in the liberal arts college have relatively low mood complaints.

According to AllNighter histogram in **Figure 2.**, 85% of the students did not have an all-nighter while 15% of the students has an all-nighter this semester. We are 95% confident that the interval from 0.09% to 018% contains the true proportion of all-nighter students in the liberal arts college. Since the percentage of all-nighter is low, we can assume that the most students may not under heavy academic pressure.

The estimate for average combined depressed, anxious, stressed score (DASscore) for the population of 253 college students is 20.04 (mean score) with SD of 16.54. The estimate for the population of college students who pulled all-nighters (AllNighter) for this population is 15%. The study may have limitation due to the observation numbers since we made assumptions that the sample size is large enough to represent the population. Survey details including distribution time and location should be studied. Future work can be done to combine studies of other variables to explore the cause of high DAS score to better plan the course load to promote healthier study environment.

[1] Onyper, S. V., Thacher, P. V., Gilbert, J. W., & Gradess, S. G. (2012). Class start times, sleep, and academic performance in college: a path analysis. *Chronobiology International*, *29*(3), 318-335.

Appendix/Appendices

```
proc import
  DATAFILE = "/home/u59373588/My SAS/homework 1/SleepStudy (1).csv"
  OUT = SleepStudy
  DBMS = csv
  REPLACE;
  GETNAMES = yes;
run;


proc sgplot DATA=SleepStudy;
VBOX DASscore;
TITLE "Boxplot of DASscore";
YAXIS label="DAS Score";
run;
```

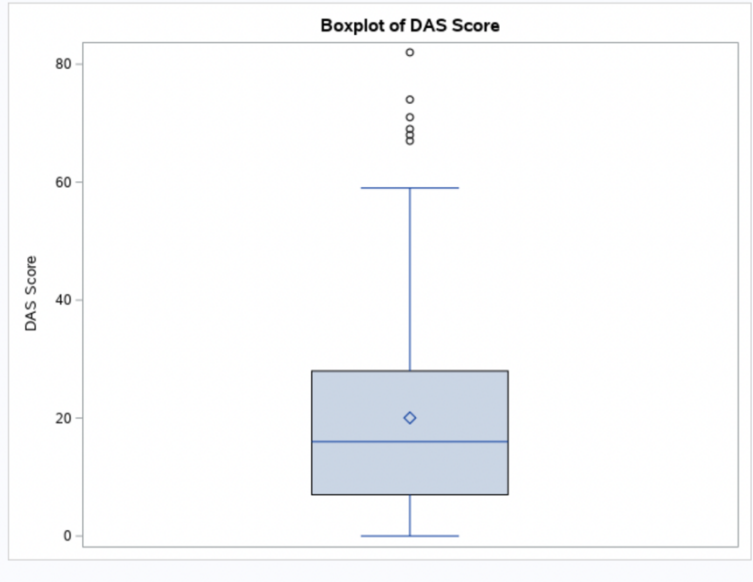

Figure 3. Boxplot of DASscore of 253 students in the liberal arts college.

```
proc sgplot DATA=SleepStudy;
            HISTOGRAM DASscore /  fillattrs=(color=blue);
            TITLE "Histogram of DAS Score";
            XAXIS label="DAS Score";
run;
```

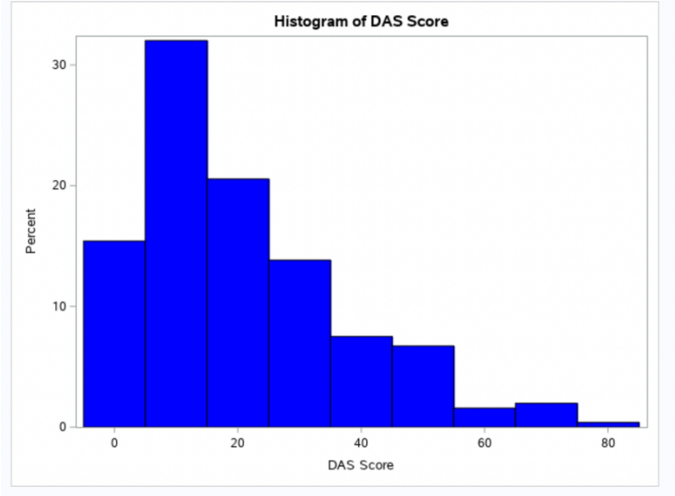

Figure 4. Histogram of DASscore of 253 students in the liberal arts college.

```
proc sgplot DATA=SleepStudy;
        HISTOGRAM AllNighter /  fillattrs=(color=purple);
        TITLE "Histogram of Average Sleep Score";
        XAXIS label="Sleep Score";
        run;
```

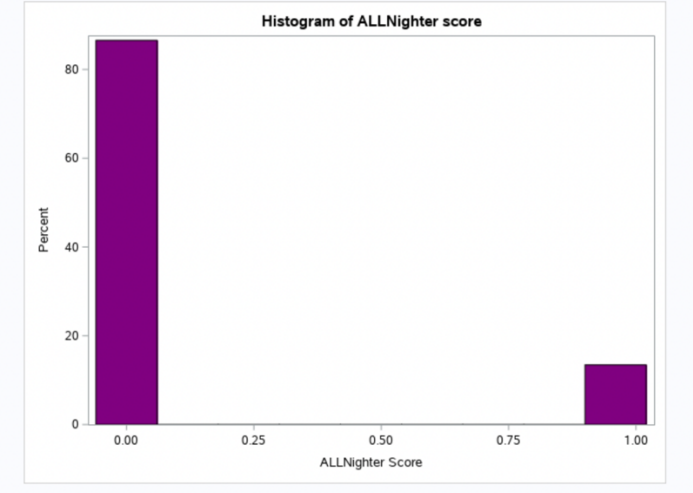

Figure 5. Histogram of AllNighter score of 253 students in the liberal arts college.

```
proc import
        DATAFILE = "/home/u59373588/My SAS/homework 1/SleepStudy (1).csv"
        OUT = SleepStudy
        DBMS = csv
        REPLACE;
        GETNAME = yes;
run;
```

```
proc means data=SleepStudy chartype MEAN MEDIAN Q1 Q3 QRANGE RANGE MIN MAX
STD maxdec=2;
VAR DASscore;
RUN;
```

Table 2. Analysis results of DASscore of 253 students in the liberal arts college.

Analysis Variable : DASScore								
Mean	Median	Lower Quartile	Upper Quartile	Quartile Range	Range	Minimum	Maximum	Std Dev
20.04	16.00	7.00	28.00	21.00	82.00	0.00	82.00	16.54

```
proc ttest data = SleepStudy alpha=0.05;
        VAR DASscore;
run;
```

Table 3. Analysis results of DASscore of 253 students in the liberal arts college.

The TTEST Procedure

Variable: DASScore

N	Mean	Std Dev	Std Err	Minimum	Maximum
253	20.0395	16.5419	1.0400	0	82.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
20.0395	17.9914	22.0877	16.5419	15.2151	18.1240

DF	t Value	Pr > |t|
252	19.27	<.0001

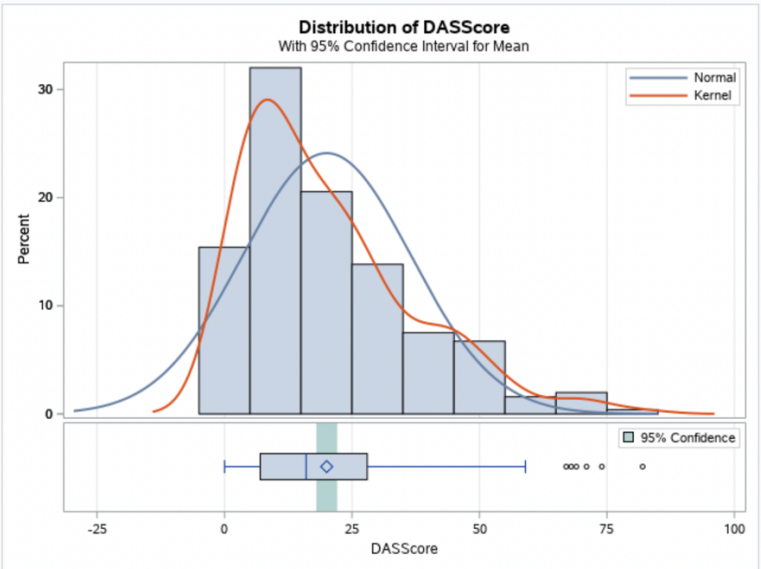

Figure 6. Distribution graph of DASscore of 253 students in the liberal arts college.

```
proc ttest data = SleepStudy alpha=0.05;
        VAR AllNighter;
run;
```

Table 4. Analysis of AllNighter score of 253 students in the liberal arts college.

Variable: AllNighter

N	Mean	Std Dev	Std Err	Minimum	Maximum
253	0.1344	0.3417	0.0215	0	1.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0.1344	0.0921	0.1767	0.3417	0.3143	0.3744

DF	t Value	Pr > |t|
252	6.25	<.0001

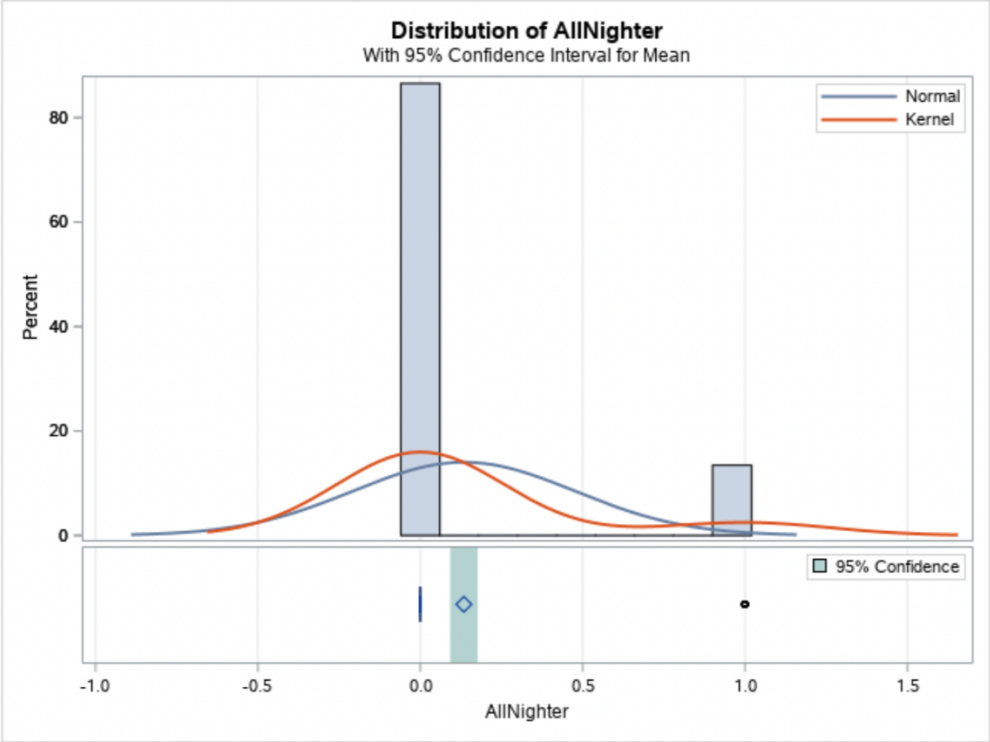

Figure 7. Distribution graph of AllNighter score of 253 students in the liberal arts college.