# BMI and Self-Perception

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A survey (Appendix III) was sent out to women undergraduates at Scripps College in Claremont, California in order to investigate the effect that individual's body mass index (BMI) has on their self-perceived abilities and characteristics. Specifically, we were interested if our participant's self-reported ratings in the categories of intellect, probable future job success, social adeptness, and health could be significantly predicted by their placement in one of four BMI groups (1 = underweight through 4 = obese). There are important implications to this research, such as helping to provide an empiric account for the basis self-confidence and, socially, explaining the potential for self-perceptions to impact actual life outcomes. We hypothesized that there would be significantly lower self-ratings in the aforementioned categories by respondents in the highest BMI category when compared to those in the normal and low BMI ranges.

## Results

The statistical software SPSS was used to analyze the data collected from the participant survey. A series of between-subject one-way ANOVA's and Tukey Multiple Comparisons HSD tests were run at an alpha level of .05 on the mean responses (Appendix I) given by each BMI group (Groups 1; n =9, 2; n = 62, 3; n = 13, and 4; n = 5) to the questions about Perceived Intellect, Predicted Job Success, Social Success, and Health Success. Out of a possible score of 8 in each of these categories (calculated by combining two 4-scale, experimental Likert questions), higher scores indicated more self-rated confidence.

The ANOVA tests (Appendix II) revealed significant differences in the categories of Perceived Intellect, $F(3, 85) = 3.191$, $p < .05$, Predicted Job Success, $F(3, 87) = 3.118$, $p < .05$, and Health Success, $F(3, 85) = 10.087$, $p < .01$, but not in that of Social Success, $F(3, 86) = .691$,

$p > .05$. Furthermore, all the categories had a relatively small magnitude of effect size revealed by an eta-squared score of less than 0.2, except for Health Success, eta-squared = .263. The Tukey post-hoc tests indicated that the significant differences were due to BMI group 1 response's being greater than group 2's for the category of Perceived Intellect, 1 & 2 being greater than 4 for Predicted Job Success, and 1 & 2 being greater than 4 and 1 being greater than 3 in the Health Success category.

*Additional Tests*

While the ANOVA tests listed above were the most directly useful in analyzing our data, we also ran additional statistical tests from a non-categorical perspective in order to better understand the results. Pearson's correlations tests were run to look for trends between BMI groups and the different categories discussed above. The results for correlations between Perceived Intellect, $r(89) = -.095$ and Social Success, $r(90) = .091$ both had p-levels which were not significant. However, in line with the ANOVA data above, there was some negative correlation between BMI increasing and Predicted Job Success, $r(91) = -.291$, $p < .05$, and a quite strong negative correlation connecting higher BMI ranges with decreased health success, $r(89) = -.505$, $p < .01$.

One last continuous statistical approach was used, a simple linear regression for each of the categories, which resulted in R values which were all significant and consistent with the Pearson's r-values. Once again, the most notable regression equation came from modeling BMI vs. Health Success, $y = 8.188 - 1.099X$, the Predicted Job Success regression showing somewhat less of a trend, $y = 7.494 - .485X$, and the other two categories revealing still much smaller slopes. While these additional tests did not factor into our final conclusions, they do support from a different statistical perspective the results of the one-way ANOVA and post-hoc tests.

## Discussion

Although our study had at least 89 respondents answer every question in a way that we could code and analyze, it was limited by the fact that our group of interest, BMI range 4, only had 5 respondents, probably due to the relative scarcity of obesity on college campuses. Nevertheless, the data analysis supported our hypothesis, at least with regards to Predicted Job Success and Health Success, and revealed a trend of women who are overweight and/or obese giving themselves lower ratings for these categories. One encouraging finding was that, for our sample of Scripps College undergraduates, there appears to be no effect of BMI on perceived social success.

Continuing to carry out this type of research may illuminate social and private attitudes about body-image in college and its implications for future success. We propose that future research may control for the possible priming effects of being asked about (and therefore being forced to think about) height and weight by having a group answer these questions at the end of the survey instead. In the near future, it may well be possible to detect that, in certain environments, an individual's BMI is only viewed as an indicator of their health status.

## Appendices

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Perceived Intellect | 6.89 | 6 | 6.6 | 6.1 |
| Job Success | 6.78 | 6.56 | 6.15 | 5.2 |
| Social Success | 6.56 | 5.92 | 6 | 5.8 |
| Health Success | 7 | 6.19 | 5.3 | 3.8 |

Appendix I: Variable Means (DV) vs. BMI ranges 1-4 (PV)

Appendix II: ANOVA results

| | df(between, within) | F-value | sig (one-tailed) |
|---|---|---|---|
| Perceived Intellect | (3, 85) | 3.191 | 0.028 |
| Job Success | (3, 87) | 3.118 | 0.030 |
| Social Success | (3, 86) | 0.691 | 0.560 |
| Health Success | (3, 85) | 10.087 | 0.000 |

Appendix III: Example Survey Questions

Height to the nearest inch?
Weight?
On a 1-4 Likert scale:
I feel that…
I am smart.
I am confident when meeting new people.
I will be successful in my future job.
I have a good amount of friends.
I am healthy.