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| **Design Brief** |

**Project Title: ​How is Obesity Affected by Socioeconomic Level?**

**Client: ​Kelly Pang and Sabrina Nguyen**

**Designers: Nick Avellaneda and Edgar Sigala**

**Problem Statement:**

Considered an epidemic, obesity is a problem that appears to permeate the American population as a whole. As the World Health Organization states in their recent 2016 fact sheet on “Obesity and Overweight,” obesity has doubled worldwide from the 1980’s, with America in the lead for the single highest BMI as a high income country. However, obesity is considered prevalent only in low-income American communities but not high income American communities. **What would account for this discrepancy?** Unlike the higher income communities which can afford to pay for nutrient delicacies, people in the low to middle income communities are more vulnerable to obesity due to the cheap, sugary, fatty foods offered such as fast food. These foods that lack in nutrient content can lead to many other problems, such as cardiovascular disease, diabetes, musculoskeletal disorders, and different varies of cancer. Another factor is the poor food offering in public, such as public schools and the rarity of offering fresh ingredients served in meals due to the lack of money. According to the WHO, “changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, agriculture, transport, urban planning, environment, food processing, distribution, marketing, and education,” and these are the areas in which lower-income communities are lacking. In summary, people in poverty are less active due to efforts to bring in more money, thus contributing to the higher obesity rate found among Americans of lower socioeconomic class.

**What is the proportion of low-income obese citizens in the US compared to the high-income population?**

* question made by Nick Avellaneda and Edgar Sigala

**Citations:**

Obesity and overweight. (2106, June). Retrieved February 01, 2017, from [http://www.who.int/mediacentre/factsheets/fs311/en/](http://www.who.int/mediacentre/factsheets/fs311/en/%20)

Dinsa, G., Goryakin, Y., Fumagalli, E., & Suhrcke, M. (2012, November). Obesity and socioeconomic status in developing countries: a systematic review. Retrieved February 01, 2017, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3798095>

<http://www.irp.wisc.edu/publications/dps/pdfs/dp133908.pdf>

Maximilian D. Schmeiser. (2008, July). *Expanding Wallets and Waistlines: The Impact of Family Income on the BMI of Women and Men Eligible for the Earned Income Tax Credit*. Retrieved from <http://www.irp.wisc.edu/publications/dps/pdfs/dp133908.pdf>

**Design Statement:**

A graphical concept of the difference in proportions between low-income and high-income obese citizens who live in the US will be produced. It is inferred to be most influential to inform the general public about dilemmas in a creative way to successfully attract the attention necessary. The design will include graphical representations comparing the two populations in order to grasp a heightened understanding of the issues that face those in low-income. It will also contain easy to understand code and information in order to appeal and educate individuals of all backgrounds. The group would like to influence people how obesity is a rising predicament that will only achieve greater disasters if left alone. A friendly and open feeling will be created from bright and vivid colors. For this particular topic, our inspiration is how there are many friends and family around us who suffer from obesity; discovering if there truly is a correlation between the incomes would help us aid those in need. In terms of design, any ideas that will bring attention to the topic is gladly accepted, but the positive tone to this design is what is wanted to be kept.

**Constraints:**

1. One week time limit
2. amount of data used
3. must have data with 30 or more live points

**Conclusion:**

The question interpreted was “What is the proportion of low-income obese citizens in the US compared to the high-income population?” The reason for this interpretation is because the clients’ question explicitly criticized how many of the obese population would be expected to have a low income. Assuming bias is directed towards how deficient “low income” obese citizens’ lifestyle is, the proportion of low and high income citizens was compared. The results were the proportions of the two groups did differentiate, the lower income population being the larger group for the most part. First located was what the proportion of obese citizens in each year amounted to be per state in a single year: 2000, 2010, and 2014. Since there was no relation to their incomes most of the time, the average income each year and the total population of citizens in each state was documented. By multiplying the obese proportion by the total population, the predicted population of obese citizens in each state was discovered. The code stratifies each obese population, high or low income, depending if the states’ average income was indicated to be below the net average income of the U.S. thus being defined as low income if below the average U.S. income. A pie chart was created using these results. The data could have been incorrect because of the fact that nothing was on the same site. Another possible solution could be that the low income obese population is actually smaller than the high income population because some states had a larger proportion of obesity than others.