Public Health Problems: Childhood Obesity

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# Public Health Problem in my Community.

Obesity, a widespread condition in the world, is associated with the presence of abnormal, excessive and unhealthy amounts of fat in the body tissue. This condition causes an individual’s ideal weight to increase by 20 percent. (Franks et al., 2010). The prevalence of obesity is a major health concern in both the developing and developed parts of the world. However, childhood obesity is one of the most prevalent disorders among children in the United States. While it is higher in some ethnic groups as compared to others, the total average of those suffering from obesity is way above average. According to NHANES i.e. the National Health Nutrition Examination Survey, obesity is an issue that affects all pediatric ages, genders, different races, and ethnicities (Ogden, Carroll, Kit, & Flegal, 2014).

In the last three decades, the rise of obesity among children, as well as young adults is a health crisis that requires immediate attention. The recent trends observed in the US show a positive inclination towards the elevation of the detrimental effects of obesity to the society, however, more than thirteen million children still suffer from this terrible affliction. According to an estimate, more than thirty percent of children and young adults between the ages of 2 and 19 are considered overweight, with the percentage of them being obese exceeding seventeen percent (Ogden et al., 2014).

# Study of the issue in my geographical area, along with biostatistical procedures involved.

According to an estimate, among all the states that make the US, New York has the seventh lowest rate of adult obesity in the nation, holding the 45th position among 51 states. However, it is the 20th highest among youngsters between the ages of 10 to 17. The current obesity rate shows an average of 13.2%, with most black American (33.4%), men (26.1%) suffering from the condition (The State of Obesity in New York, 2017). While it has been reported that the situation with childhood obesity in New York is improving with time, however, the difference is nominal at best. In order to study the situation in detail, my research will require assistance using biostatistical procedures, for which I will have to identify both independent and dependent variables in the scenario. In the study of *“The Prevalence and Risk Factors of Childhood Obesity in School Children in New York City”,* the independent variable was the type of food consumed, the calorie intake with respect to the food consumed, and the hours of physical activity undertaken for the day. The dependent variable, in this regard, would be the amount of weight gained or lost, recorded on a weekly basis. The interplay of these two variables over a specific period of time will provide our research with the raw data needed to evaluate the possible outcomes of the research.

# The level of measurement of each variable

Variables, in any scientific study, can be classified into two basic types, i.e. Numerical and Categorical. Categorical variables are further divided into a dependent and an independent variable, both of which have been discussed previously.

On the other hand, the numerical variables are further divided into Quantitative and Qualitative variables. The qualitative variables are then further classified into Nominal and Ordinal variables, while the quantitative variables include intervals and ratios.

For the purpose of this research, the nominal variable is the gender of children picked for the study, with respect to their ages, the ordinal variable will be the percentage of a child’s deviation from their respective BMI. Furthermore, the interval variable would be time lapsed and the change in the child’s weight and BMI. The ratio variable would be the amount of weight lost by the child based on calories consumed, in comparison to the regular physical activity of the child.

# Illustration of data obtained using graphs

A large number of graphs being published in scientific journals primarily relates to two variables, mostly showing a relationship between one on the x-axis and the other on the y-axis. For the purpose of this experiment, in order to provide readers with a comprehensible illustration of the data obtained, a minimum of two to three different types of graphs will be used.

First off, frequency distribution will be done to reorganize and make the raw data obtained, easier to tabulate. Here, class intervals will be created and frequencies tallied. That would serve as the baseline of any and all graphical illustrations it can be subjected to.

When the variables are straightforward and exhibit a progression of numerical information, line graphs are used. These graphs display information as a series of data points that are called markers. These are connected by a straight line and is a basic type of chart that is used in a number of fields. For the purpose of this experiment, line graphs will be used to track the weight loss or weight gained by children of a particular age group with respect to the time lapsed.

In order to understand the frequency of score occurrence in a particular data set, one that has been divided into class, histograms are used for the purpose of graphical illustration. For this experiment, the histogram will be used to graphically represent the nominal and the ordinal variables used in the experiment.

# The most appropriate measure of central tendency for present data

The center of a range in which my data falls, i.e. the central tendency is critical to analyzing any data and drawing meaningful conclusions from it. For most experiments and the data obtained, ‘mean’ is the most used measure of central tendency. It is generally considered to be one of the best measures of central tendency and will be frequently used and quoted in the present study. However, in other situations, the median or mode is the preferred mode of central tendency.

Median will be used if the data set contains any outliers. These extreme scores, when present in a data set, can shift the central tendency towards the outlier and have a great impact on the result. Median can also be used if some data is missing or some values are yet to be determined in your data set. Since mean requires the presence of a complete dataset, using the median, in this case, would be a good way to go. This can be done to evaluate questionnaires, where subjects tend to ignore, or refuse to answer certain questions. Median is also used in the frequency distribution of data obtained is open-ended. This makes the calculation of a correct mean impossible. Finally, mean is always the preferred central tendency measure for the ordinal variable scale and would be perfect for that particular observation.

The mode is preferred for nominal variables of our data set (Illowski & Dean, 2019).

# Sampling Strategies to Study Population

Researches commonly look into the various parameters of a population they have chosen to study. From this, they pick a certain aspect or characteristics of parameters they would like to study and build their research on. A sample group is the representative of an entire group and there is more than just one method to study it in avid detail.

Since the target of this experiment is primary and middle school student, non-probability sampling would be the preferred method of sampling. It would also include diversity sample, so as to include people from all races and ethnicities into the study. Additionally, we would also purposive sampling, to target children of a certain age and gender groups (Creswell & Creswell, 2017).

# Analytical approach to justify the essential elements of research

Analytical approaches are often used to find solutions and simplifying complex problems. Its use is especially prevalent in numerical and experimental results, to develop an insight into the subject (Kundu, Cohen, & Dowling, 2011). The analytical approach to be taken to develop an estimate of the prevalence of obesity is determined by a number of factors. For the purpose of this study, multiple analytical analysis will be employed to study the prevalence of obesity in a single population, which will provide one with rough estimates that are easy to understand and graphically represent. We will also analytically study the prevalence of obesity between different populations, in order to see how obesity affects various groups. We will also observe how the implementation of a certain policy or initiative, like physical activities for the purpose of this experiment, can provide a broad picture of the status of changes observed in a population, before and after the implementation of the policy. We will also access how individuals do over a period of time to access trajectories and/or intrapersonal change. Finally, we will compare our findings to the national estimate to observe where our community stands on the issue of obesity and how big of a change we were able to achieve with our efforts (National Academies of Sciences, 2016).

# Bibliography

Franks, P. W., Hanson, R. L., Knowler, W. C., Sievers, M. L., Bennett, P. H., & Looker, H. C. (2010). Childhood obesity, other cardiovascular risk factors, and premature death. *New England Journal of Medicine*, *362*(6), 485–493.

Illowski, B., & Dean, S. (2019). *When to use each measure of Central Tendency*. Retrieved from Lumen: https://courses.lumenlearning.com/introstats1/chapter/when-to-use-each-measure-of-central-tendency/

Kundu, P., Cohen, I., & Dowling, D. (2011). Fluid Mechanics. In i. Kundu, I. Cohen, & D. Dowling, *Fluid Mechanics* (p. 920). Academic press.

National Academies of Sciences, E. (2016). *Assessing prevalence and trends in obesity: navigating the evidence*. National Academies Press.

Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011-2012. *Jama*, *311*(8), 806–814.

*The State of Obesity in New York*. (2017). Retrieved from The State of Obesity: https://www.stateofobesity.org/states/ny/