STA130 Course Project: Individual Project Proposal

Team Preference

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*** Preference for a team of three

***** Visualization & Assumption**

Analysis 1: Correlation of Greeting Strangers and Awareness of Social Importance on Mental Health

Hypothesis: People who frequently greet strangers (e.g., by saying hello or good morning) are more likely to be aware that social connection is important for mental health.

A. **Variables to Explore**
   a. CONNECTION_activities_greeted_stranger_p3m

      (In the PAST THREE MONTH, how often have you... - greeted a stranger (e.g., by saying hello or good morning)?)

   b. KNOWLEDGE_important_mental

      (Did you know that social connection was important for your mental health?)

B. **Analysis to Perform**:
   We will use correlation analysis to investigate whether the frequency of greeting new faces is linked to higher awareness of the impact social connections have on mental health.

   We're assuming a straight-line relationship between greeting strangers and understanding the importance of mental health. The data should be roughly normally distributed, and the variability of one variable should be

fairly consistent across all levels of the other variable. Correlation analysis makes sense here since it helps us examine the linear relationship between two continuous variables and understand any possible connections.

C. **Possible Results**:
We expect to find a positive correlation between the two variables. In that case, the result would suggest that people who approach strangers more often are also more cognisant of the mental health benefits brought by social connection.

D. **Relevance to Project Objectives**:
This analysis could demonstrate the value of simple social actions, like saying hi or good morning to someone you don't know, in spreading awareness about mental health, which would be a meaningful discovery that will help bring forth campaigns or generate effective community strategy.

Analysis 2: Hunger vs. Loneliness Regression Analysis

Hypothesis: Nutrition quality will positively correlate with improvements in self-control over time.

A. **Variables to Explore**:
   a. NUTRITION_three_factor_eating_questionnaire_frequency_of_hunger

      (How often do you feel hungry?)

   b. LONELY_direct

      (During the PAST WEEK, have you felt lonely)

B. **Analysis to Perform**:
Regression analysis will be used to explore if the frequency of feeling hungry is associated with higher reported levels of loneliness.

We're assuming there's a straight-line relationship between how often someone feels hungry and their loneliness. Observations should be

independent, and the variance of the differences between predicted and actual values should be consistent across all levels of hunger frequency and should also follow a normal distribution. Using linear regression is a good fit here because it helps us see how changes in hunger frequency might explain changes in loneliness, making it effective for finding relationships between these variables.

C. **Possible Results**:
   Our hypothesis will be that more frequent feelings of hunger are related to higher loneliness in hopes of reflecting how unmet physical needs can worsen the sense of emotional distress.
D. **Relevance to Project Objectives**:
   This analysis could indicate the connection between physiological and emotional states, helping us dive deeper into what might play a major factor in creating and exacerbating loneliness. This will emphasize the need to address basic needs to improve mental well-being and thus community involvement.

Analysis 3: Self-Rated Mental Health Comparing by Number of Roommates

Hypothesis: The number of roommates an individual lives with is negatively associated with their self-rated mental health.

A. **Variables to Explore**:
   a. GEO_housing_live_with_roommate

      (How many people from each of the groups below do you live with at least 50% of the time?)

   b. WELLNESS_self_rated_mental_health

      (At the present time, would you say your MENTAL HEALTH is:)

B. **Analysis to Perform**:
We will use group comparison analysis. In this case, each group are distinguished by the number of roommates one has. For instance, one group will represent the ones living alone, another group will be the ones that have 1 roommate and so on. Then we will compare these groups and see if the number of people one lives with is tied to their self-rated mental health

The assumption is that self-rated mental health scores for each group are normally distributed, and the variances across groups are about the same. The observations should also be independent from one another. Group Comparison works well here because it checks if there are significant differences in mental health ratings among groups with different numbers of roommates.

C. **Possible Results**:
It could turn out that living with more people boosts mental health because of more social interactions and availability of emotional support. In contrast, it might worsen one's mental well-being if the stress of shared living is overwhelmingly high.

D. **Relevance to Project Objectives**:
The final results can provide insights into how living arrangements, specifically the number of people you're living with, influence mental health. CASCH may use this data to promote housing policies or programs that take into account what we find out during the group comparison analysis.