Study Topic 1: The association of being vaccinated and wearing a mask.

Research Question: Does a person's vaccination status affect their mask-wearing behavior? Are two groups of fully vaccinated individuals biased on wearing masks frequently?

Variable selection:

COVID_vaccinated: participantes would be classified using their vaccination status, for instance, "fully vaccinated," "partially vaccinated," or "not vaccinated".

COVID_prevention_masks: the variable results will be interpreted to measure adherence to wearing masks to a certain extent like "very closely", "sometimes".

Analysis method:

Group analysis: Vaccination status (for example, "fully vaccinated," "partially vaccinated," and "not vaccinated") of the participants is one of the factors that were studied. Mask-wearing compliance among these groups was investigated.

Chi-square test: This statistical test will be employed to determine if there is a significant relationship between vaccination status and mask-wearing behavior.

Visualization: A grouped bar chart will highlight the vaccine status' correlation with the mask-wearing behavior among the individuals with different vaccination status. This can be done to create a clear view regarding the vaccination status and wearing masks.

Expected results:

The outcome might be in case of the fully vaccinated group reflecting relaxed wearing of masks, they might think that the vaccination has secured them against the virus enough and it can lead to dropping of the mask wearing altogether. Alternatively, if all vaccinated people keep on sporting masks steadfastly, it can mean there is a strong following of health measures despite personal beliefs on safety or more brandy add-ons like existing laws.

Study Topic 2: Age and Loneliness and Loneliness.

Research Question: Is there any remarkably horizontal aspect, such as companions' needs, being excluded, or feeling of being separated, between different age groups?

Variable Selection: Age, UCLA Loneliness Scale Companionship, UCLA Loneliness Scale Left Out, UCLA Loneliness Scale Isolated.

Analysis of Loneliness Variables:

Isolation Test: Analysis of Variance (ANOVA): A sample will be subdivided by an age category for studying variation in loneliness indexes between particular age groups.

Visualization: For example, a boxplot could show pale distribution of loneliness across diverse age groups about the first variable.

Expected Outcome: Through this study, attention will be given to generation gaps with age as one aspect of the research. It may reveal the diversities in the main emotions they experience, such as being excluded or isolated.

Differences in Loneliness Across Age Groups:

Increased Loneliness in Older Adults: It is anticipated that older individuals may report higher levels of "feelings of exclusion" and "feelings of isolation" compared to younger individuals. This may point to a geriatric loneliness, especially hardening with age, an age when people usually lose the availability of a social circle, a broad chance to communicate with others, and the death of family members and close friends.

Greater Companionship Needs in Younger Individuals: Today's younger adults may demonstrate higher scores in the "companionship need" function, and this is evident from the precedence of social interactions they engage in, and for which they seek friends and strength uplifts. However, the companionship demand of mid-age individuals, especially the ones who are so thoroughly committed to work and family, is huge but insufficiently met considering the limited time available for socializing

Social Contact Patterns by Agegruppen:

Lower feelings of loneliness among youth: If younger persons report lower "feelings of exclusion" and "feelings of isolation," that may lend itself to an impression that they have more social opportunities, or are more a part of social networks.

High Levels of Loneliness Across All Age Groups: As noted earlier in this report, high levels of loneliness across all age groups is a signal that loneliness is a problem across demographic groups that deserves broad societal attention.

Study Topic 3: The Impact of Anxiety and Depression Symptoms on Well-Being

Research Question

Do anxiety and depression symptoms diminish an individual's happiness? More specifically, do individuals experiencing more severe symptoms report lower well-being?

Variable Selection

Anxiety Score:
WELLNESS_gad_anxious: This measures an individual's anxiety level, with higher scores indicating greater anxiety.

Depression Score:
WELLNESS_phq_little_interest: This reflects how often an individual loses interest in daily activities.
WELLNESS_phq_feeling_down: This indicates whether an individual tends to feel depressed.

Happiness Score:
WELLNESS_subjective_happiness_scale_happy: This assesses an individual's subjective happiness, with higher scores representing greater happiness.

Analytical Methods

Correlation Analysis:
The study will analyze the relationship between anxiety and depression symptoms and well-being to determine if there is a significant negative correlation.

Regression Analysis:

Using anxiety and depression symptoms as independent variables and happiness as the dependent variable, multiple regression analysis will be conducted to evaluate how much anxiety and depression influence happiness. It is hypothesized that both negatively affect happiness, meaning that higher levels of anxiety and depression correlate with lower happiness.

Visualization:
Box Plot or Group Bar Chart: These will illustrate the distribution of happiness across varying levels of anxiety and depression. A box plot can display the median and distribution of happiness, while a grouped bar chart can visually compare happiness scores at different anxiety and depression levels.

Expected Outcomes
Negative Impact of Anxiety and Depression Symptoms:
Lower Happiness: Individuals with more severe anxiety and depression symptoms are expected to have lower happiness scores. This suggests that negative emotions (like anxiety and depression) significantly detract from well-being; in other words, the more intense an individual's anxiety or depression symptoms, the lower their well-being.

Happiness Variations Among Different Symptoms:
High Anxiety and Depression: Happiness Scores of Individuals with High Anxiety and Depression Will Be Significantly Lower than those of Individuals with No or Mild Symptoms. That difference would represent the negative impact of negative emotional state on well-being.

Impacts of Mid Range Symptoms: Moderate anxiety and depression may also contribute to lower quality of life but not as much as half-symptom patients. That can help to explain why low,

moderate, and high negative emotion is differentially associated with well-being.