

Individual project proposal Zhixin Chen

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1. State the Problem Problem Statement: This study aims to investigate the psychological and social impacts of the COVID-19 pandemic. Specifically, it explores three key areas: (1) the effect of social support on loneliness, (2) the relationship between health activities and burnout levels, and (3) the influence of mental health indicators on subjective well-being.

Goals:

Estimate the association between social support and loneliness scores, focusing on whether family support can alleviate feelings of loneliness. Analyze if participation in wellness activities (e.g., walking) correlates with reduced burnout levels. Examine the relationship between mental health indicators (such as anxiety and depression) and subjective happiness to understand if improved mental health contributes to higher well-being.

2. Describe Variables Variable Set 1: Social Support and Loneliness Variables: LONELY_ucla_loneliness_scale_score (Numerical, Continuous): Measures the level of loneliness on a continuous scale. PSYCH_zimet_multidimensional_social_support_family_subscale_score (Numerical, Continuous): Measures perceived family support on a continuous scale. Rationale: These variables are essential to understanding whether increased family support can reduce loneliness, especially during periods of social isolation. Summary: A histogram or box plot can visualize the distribution of loneliness scores and family support levels to understand their ranges and central tendencies.

Variable Set 2: Health Activities and Burnout Variables: CONNECTION_activities_walk_pm (Categorical, Binary): Indicates whether a person engages in health activities like walking (Yes/No). WELLNESS_malach_pines_burnout_measure_score (Numerical, Continuous): Measures burnout levels on a continuous scale. Rationale: Examining whether wellness activities like walking can reduce burnout levels may help identify activities that promote better mental health. Summary: Use bar charts to show the frequency of participants in each category of wellness activity. A KDE plot or box plot can display burnout scores to observe trends among those who engage in activities versus those who do not.

Variable Set 3: Mental Health and Subjective Happiness Variables: WELLNESS_gad_score (Numerical, Continuous): Measures anxiety levels on a continuous scale. WELLNESS_subjective_happiness_scale_score (Numerical, Continuous): Measures subjective happiness on a continuous scale. Rationale: These indicators help analyze if better mental health (lower anxiety) links to higher happiness, which is crucial for well-being. Summary: A scatter plot or box plot can help visualize the relationship between anxiety and happiness scores, showing if lower anxiety corresponds with higher happiness levels.

3. Analysis Method Analysis Techniques: Regression Analysis: Apply linear regression for continuous variables, such as between family support and loneliness or mental health indicators and happiness. ANOVA: If comparing burnout levels across groups based on activity engagement, use an ANOVA test. Assumptions: Linearity: For linear regression, the relationship between the independent and dependent variables (e.g., family support and loneliness) should be approximately linear. Independence: Each observation should be independent to avoid bias. Homoscedasticity: Variance in the dependent variable should be similar across all levels of the independent variable. Normality:

Residuals (differences between observed and predicted values) should follow a normal distribution to ensure the validity of the test results. 4. Develop Hypotheses Hypotheses for Family Support and Loneliness Null Hypothesis (H0): Family support has no effect on loneliness. Alternative Hypothesis (H1): Family support negatively affects loneliness (increased support is associated with reduced loneliness). Implications: If family support significantly reduces loneliness, it would underscore the importance of family connections during periods of social isolation. Hypotheses for Wellness Activities and Burnout Null Hypothesis (H0): Wellness activities do not affect burnout. Alternative Hypothesis (H1): Wellness activities reduce burnout levels. Implications: A significant finding here would suggest that simple activities like walking can be effective in managing burnout, providing practical insights for mental health management strategies. Hypotheses for Mental Health and Happiness Null Hypothesis (H0): Mental health indicators (e.g., anxiety, depression) have no effect on happiness. Alternative Hypothesis (H1): Better mental health correlates with increased happiness (lower anxiety/depression is associated with higher happiness). Implications: Demonstrating a significant relationship between mental health and happiness would support mental health interventions as a path to improving well-being.