

# The Loma Linda Longevity Study: Association Between Lifestyle factors on COVID-19 Among Elderly

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## Background

Longevity and lifestyle are related factors that translate into the number of years that people live. Older people have various factors that contribute to their long lives, surpassing the life expectancy years. Literature provides insights on the association between a healthy lifestyle, sleep, and spirituality to long life. Understanding these factors narrows the existing gap in knowledge on how these factors are related to the COVID-19 diagnosis and severity among the elderly population.

Modifiable risk factors like physical activity, diet [1], smoking cessations, and mid-day naps are the secrets of long life, where environmental interactions and behavior may also determine longevity [2]. In a study done by Chacón and her colleagues, dietary habits and lifestyle among 90 to 109 years old residents from the "Blue Zone" area of Nicoya Peninsula of Costa Rica were examined, and participants were found to be physically active throughout their life [3]. In another study, the authors also concluded that the local diet and lifestyle were consistent with evidence-based recommendations for a high intake of fiber-rich foods to promote long and healthy lives. The authors also found that sleep was another important factor contributing towards longevity [4]. A 10-year cohort study in Italy with a mean age of 80 years old concluded physical activity to have a protective effect for advanced age in increasing longevity [5].

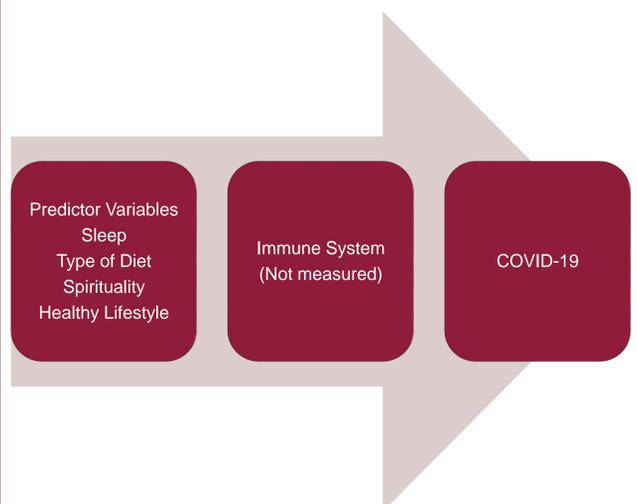
Most longevity studies have included exclusive ethnicities related to that particular zone or race [6]. Even the Adventist Health Study-2 only represents White and Black Americans [7]. Therefore, the Loma Linda Longevity Study will collect data including all ethnicities in this age range. Therefore, the study will be able to describe potential common characteristics of longevity in this elderly population over 80 years old across the Inland Empire. The study will also verify the effect of a healthy lifestyle and spirituality on the diagnosis of COVID-19 and among the COVID-19 positive participants, the same association with the severity of the disease.

## Research Questions

Is there an association between these predictors' variables and demographics with COVID-19 diagnosis and severity in this sample of the oldest of the old residents from multiple ethnicities of San Bernardino and Riverside counties?

1. Sleep and COVID-19?
2. Type of diet and COVID-19?
3. Spirituality and COVID-19?
4. Healthy lifestyle and COVID-19?

## Theoretical Framework

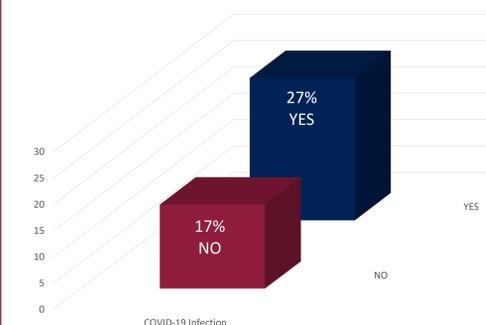
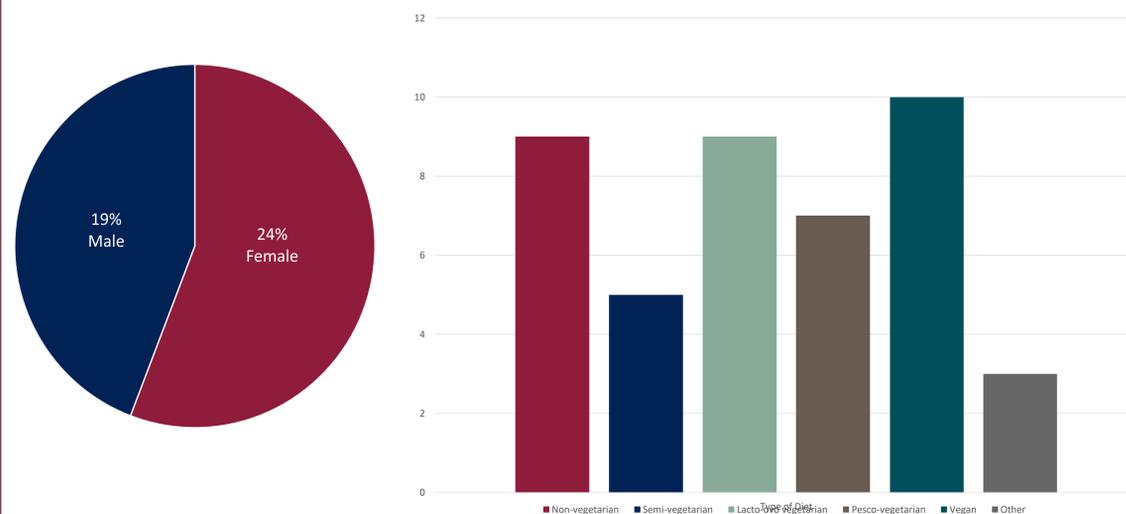


## Methods

- This is a cross-sectional study that consists of either in-person or phone interviews with male and female participants who are 75 years old or older and living in the San Bernardino and Riverside counties in California, U.S.
- The online Qualtrics survey instrument will be completed in-person (or via the phone) by meeting with the participants.
- Recruitment for the study will go from October 2021 to June 2022. We plan to recruit about 254 subjects for the study.
  - **Independent Variable:** Sleep, diet, spirituality, lifestyle.
  - **Dependent Variables:** COVID-19 diagnosis, COVID-19 severity.
  - **Confounding Variables:** Gender, age, BMI, marital status, race/ethnicity, annual income, occupation, and education.
- We will conduct a **logistic regression analysis** with:
  - The independent variable of sleep and dependent variable as COVID-19 diagnosis and then again with COVID-19 severity.
  - The next analysis will assess diet as the independent variable with COVID-19 diagnosis and then severity as the dependent variable.
  - Lastly, we will assess spirituality as the independent variable with COVID-19 diagnosis and then severity as the dependent variable.

## Preliminary (Descriptive) Results

Out of the projected 254, 43 surveys were collected as of February 20, 2022.



- 19 participants have Master's degree or more.
- 27 participants were non smokers.
- 19 participants reported that they never consumed alcohol.
- The mail symptoms to those who have had COVID-19 were fever, cough, and body aches.
- 29 participants were fully vaccinated.
- 14 participants are Seventh-Day Adventist.
- 19 participants rated their quality of life to be very good, while 12 rated their quality of life to be good.

## Conclusion

Our hypotheses for this research are:

- Among the oldest of old residents from multiple ethnicities of San Bernardino and Riverside counties, sleep quality has a positive association with COVID-19 (better sleep quality leads to less severity of COVID-19).
- Among the oldest of old residents from multiple ethnicities of San Bernardino and Riverside counties, type of diet has a positive association with COVID-19 (healthy diet leads to less severity of COVID-19).
- Among the oldest of old residents from multiple ethnicities of San Bernardino and Riverside counties, spirituality has a positive association with COVID-19 (the more spiritual the individual is, the more likely to get over the COVID-19 infection or the less likely to have sever COVID-19 symptoms).
- Among the oldest of old residents from multiple ethnicities of San Bernardino and Riverside counties, healthy lifestyle has a positive association with COVID-19 (the healthier the lifestyle, the less likely to get infected with COVID-19 or the less likely to have sever COVID-19 symptoms).

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The research presented in this poster is that of the authors and does not reflect the official policy of the NIH. The data collected had the approval from the Loma Linda University Institutional Review Board (IRB# 5210280), and the study is being conducted with all the ethics and safety concerns.

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.