

# Healthy Lifestyle and COVID-19: Implications for Promoting a Healthier Nation and Moving Forward

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## Objective

Both infectious and chronic diseases are major contributors to early mortality and decreased quality of life and have become a public health crisis as the nation faced this massive COVID-19 pandemic. Abundant research has indicated the association of lifestyle with promoting chronic disease, but to date, little analysis has been conducted assessing lifestyle practices and the potential impact of COVID-19 infection. Therefore, the purpose of this study was to examine the association between lifestyle (i.e. exercise, sleep) and spirituality and the severity of COVID-19 illness across different communities and socio-demographics

## Background

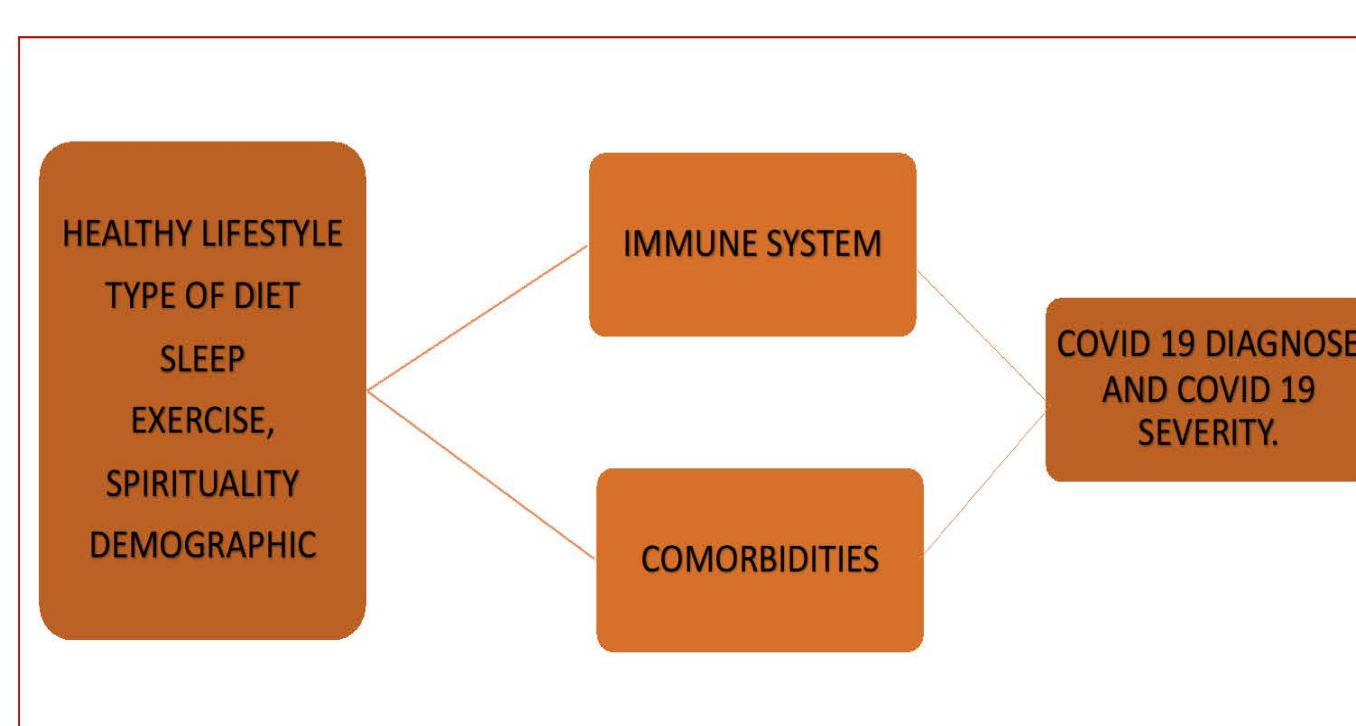
A healthy lifestyle coupled with physical activity, adequate sleep, and nutrition reduces non-communicable, chronic disease risk by modulating inflammation and oxidative stress, improving lipid profiles, managing weight and providing better blood circulation.. The mechanisms by which a healthy lifestyle reduces the risk of communicable diseases incidence and progression have been suggested by supporting optimal immune functionality and then mitigating the risk of infection, morbidity, interaction, and death associated with viral infections, including influenza and SARS-CoV-2. Physical activity lowers the incidence, magnitude of symptoms, and death from numerous viral infections. Nutrition deficiencies have been related to lower function of the immune system as well as sleep deprivation. However, there is no specific research on how a comprehensive healthy lifestyle combined with a satisfactory dietary pattern, participation in physical exercise, adequate sleep, and positive spiritual beliefs have reduced the severity and risk associated with COVID-19.

## Purpose of the study

The Lifestyle and Infectious Diseases study examines the association between lifestyle and self-reported infectious diseases such as COVID-19 in the United States population. This study intends to use a Cross-sectional survey design to assess the potential association between lifestyle and spirituality and the diagnose and severity of COVID-19.

## Research Questions

- 1- Is a healthy lifestyle associated with reported diagnosis and severity of COVID-19 after adjusting for potential confounders?
- 2- Is dietary pattern associated with reported diagnosis and severity of COVID-19 after adjusting for potential confounders?
- 3 - Is exercise associated with reported diagnosis and severity of COVID-19 after adjusting for potential confounders?
- 4 - Is sleep associated with reported diagnosis and severity of COVID-19 after adjusting for potential confounders?
- 5 Is spirituality associated with reported diagnosis and severity of COVID-19 after adjusting for potential confounders?



## Methods

Using a cross-sectional survey approach data was collected across the United States via social media, health expos, and conferences and included questions on lifestyle (i.e. exercise, diet, sleep, spirituality) as well as COVID-19 infection and severity, comorbidities, and socio-demographics (i.e. income). With IRB approval, survey collection has been ongoing since Aug.09, 2021.

## Study Design

Data is taken from the Lifestyle and Infectious Diseases Study which is currently being implemented by the Preventive Care Research Group and already approved by the LLU IRB #5210088. Data has been collected by Qualtrics and hardcopy surveys from the time the IRB approved the project. Flyers and word of mouth have been used for advertising the research in the neighborhood, churches, community clinics, and health expo, and in the Office of Preventive Care at Loma Linda University. Also, the survey has been implemented through social media around the country and the aim is to collect 1,000 participants (641 already collected). Considering a population of 329.5 million in the United States, we estimate the sample size of 1000 individuals to be able to reach a 95% Confidence level. The study will collect primary data which will be analyzed using SPSS software. Participants will first read the informed consent before agreeing to participate in the survey, and they will respond to the survey that usually takes 15 minutes to complete. The survey is completely anonymous. After completing the survey, the researcher will then verify the completed forms for any discrepancies. Participants will be instructed not to include any identifying factors such as name, email, or phone number during the survey. They will be informed that the information gathered will remain confidential; however, the findings will be published. The researcher will safely store all forms to protect provided information further. Participants are also invited to join a prize drawing as a token for their participation.

## Independent and Dependent Variables

**Participants/Inclusion criteria:** The sample size will be collected via email, social media, health expos, and office visits. Participants must be 18 years old or older and living in the US.

**Dependent variables:** The dependent variable is COVID-19 diagnose and severity and is based on looking at a number of questions: COVID-19 diagnose yes or no  
Hospitalizations (yes or no)  
Days hospitalized (0 vs 1+)  
Needing a ventilator (yes or no)

## Independent Variables

The independent exposure variables include a lifestyle index, dietary patterns, sleep, exercise, presence of comorbidities, smoking, alcohol drinking, and the Duke spiritual scale.

## Statistical analysis

Two dependable variables, COVID-19 diagnosis and disease severity, will be compared to the independent variables individually using ANOVA for bivariate analyzes. Significantly associated variables will be used in a logistic regression model now also using confounder variables. Another logistic model will be created to explore the association between the spiritual index and COVID-19 diagnosis and severity. A lifestyle Index will be created similar to the Harvard Lifestyle Index (Healthy Living Guide 2020) in order to use it in the regression models.

## Preliminary Results

AGE	%	INCOME	%	RACE	%
34 or less	56	Less \$20,000	29.1	White	41.61
35-54	22.3	20,000-49999	25.65	Asian	21.64
Over 55	21.5	50+	45.1	Hispanic	12.58
				African	6.71
GENDER		EDUCATION		INFECTIONS	
F	69.5	Associate/Less	12.7	Cold	26.73
M	30.5	Bachelors	29.1	Flu	12.7
		Graduate	50.44	COVID	12.5

## Conclusion

A healthy lifestyle coupled with physical activity, adequate sleep, and nutrition reduces non-communicable, chronic disease risk by modulating inflammation and oxidative stress, improving lipid profiles, managing weight and providing better blood circulation. The same lifestyle might impact communicable diseases and that is the main goal of this study

We hope to find a connection between lifestyle and spirituality in the diagnose and severity of COVID 19 infection. If this is true, the study will shed more light on the prevention of COVID 19 and, maybe, other pandemics and add to the measures used by clinicians to tame those diseases.

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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# 5210088 ), and the study was conducted with all the ethics and safety concerns.

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