



# Examining anxiety, sleep quality, and physical activity as predictors of depression among university students from Saudi Arabia during the second wave of the COVID-19 pandemic

## Prepared by:

Hanan Alhebshi – Student ID 437202534  
Aljawharah Alkhodair – Student ID 437200640

## Supervised by:

Dr. Tahani Alshammari

# Outline

Introduction

Objectives

Methods

Results

Conclusion

# Introduction

The COVID-19 pandemics' preventive measures such as lockdown impact people's psychological well-being, especially among college students who exhibit increased stress and anxiety (Son et al., 2020) and may not be able to cope with the stress adequately (Wang et al., 2020).

In addition, anxiety and depression levels in college students can be affected by physical activity (Rogowska et al., 2020), and insomnia (Kram et al., 2019).

# Introduction

To the best of our knowledge, no study in KSA has assessed the link between physical activity, mental health, and insomnia during the COVID-19 pandemic.

The output of this study would characterize depression, anxiety, and sleep quality in Saudi undergraduate students. Secondly, we would examine the link between them and highlight the need to establish supportive programs.

# Objectives

- **Estimating Saudi students' prevalence of physical activity.** *In alignment with the WHO recommendation ( $\geq 150$  min per week) (Rogowska et al., 2020).*
- **Analyzing the impact of COVID-19 on mental health.** *By examining anxiety, depression (Rogowska et al., 2020) and sleep quality (Buysse et al., 1991).*
- **Investigate the link between physical activity, anxiety and depression in light of different variables, such as exposure to COVID-19.**

## Methods

- **Participants:** Undergraduate college students from universities located in different geographical regions in Saudi Arabia (n=207)
- **Recruitment:** Convenient sampling.
- **Time period:** June 3rd to August 18th, 2021.
- **Tool:** Validated questionnaires included the level of exposure to COVID-19, perceived impact of COVID-19, a measure of physical activity, Generalized Anxiety Disorder-7 (GAD-7) to assess anxiety, depression was measured using Patient Health Questionnaire-9 (PHQ-9), and sleep quality using Pittsburgh Sleep Quality Index (PSQI).
- **Analysis:** Pearson's  $\chi^2$  independence test, linear correlation, and multiple regression.

# Results

# Results

- Table 1: Demographic Characteristics

Total (n)	Gender		Marital status		Geographical region				
	Female	Male	Married	Single	Central	Western	Eastern	Southern	Northern
207	89.37%	10.63%	6.28%	93.72%	85.51%	4.83%	3.86%	1.45%	4.35%



# Results

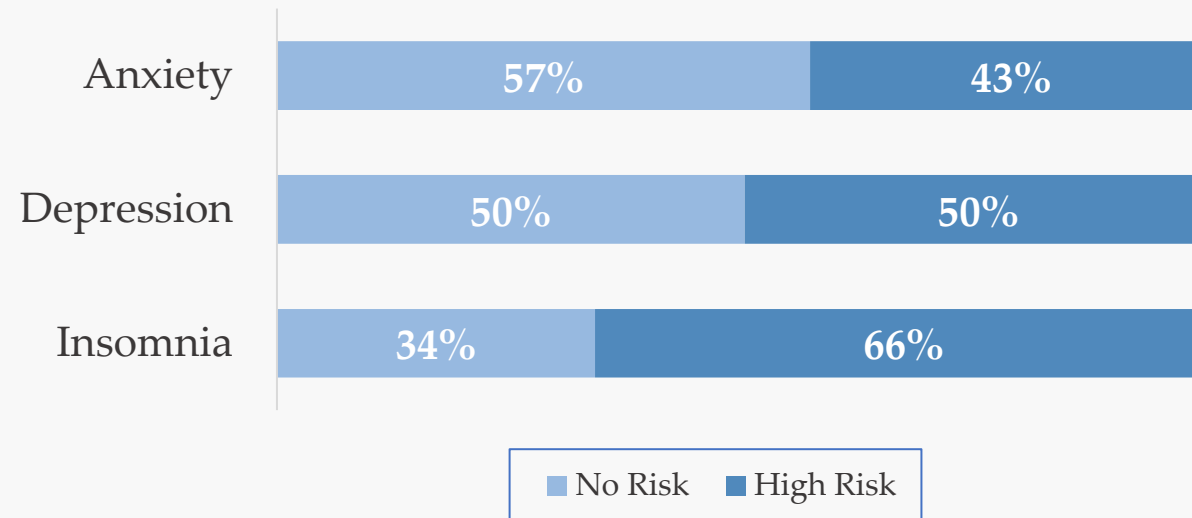
- **Table 2: Descriptive Statistics**

	PHQ-9	GAD-7	PSQI	PNIC-SES	PNIC-SR
<b>Range</b>	0-27	0-21	0-16	1-5	1-5
<b>M</b>	10.14	8.83	8.12	3.12	3.32

**GAD-7** : a seven-items scale of General Anxiety Disorder ; **PHQ-9** : a nine-items scale of Patient Health Questionnaire ; **PSQI** : the Pittsburgh Sleep Quality Index ; **PNIC-SES** : Socio-Economic Status of the Perceived Negative Impact of Coronavirus ; **PNIC-SR** : Social Relationships of the Perceived Negative Impact of Coronavirus.

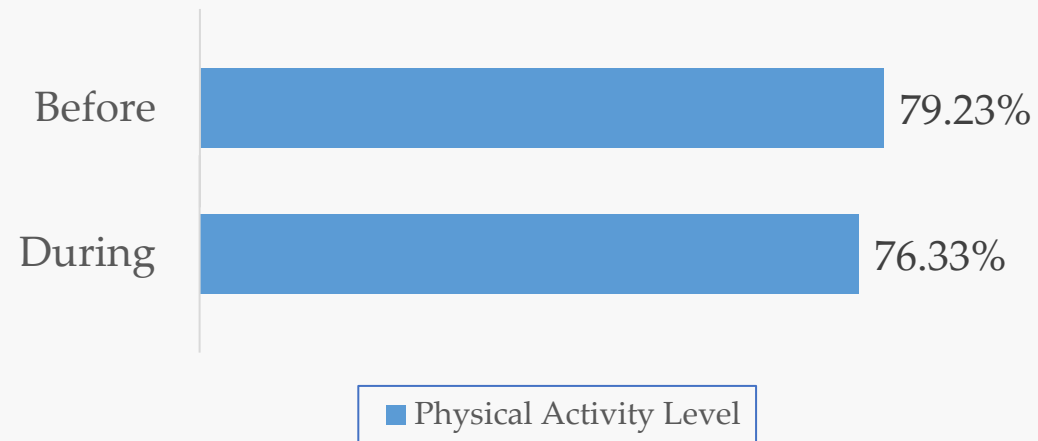
# Results

• Figure 1: Prevalence of Anxiety, Depression and Insomnia



## Results

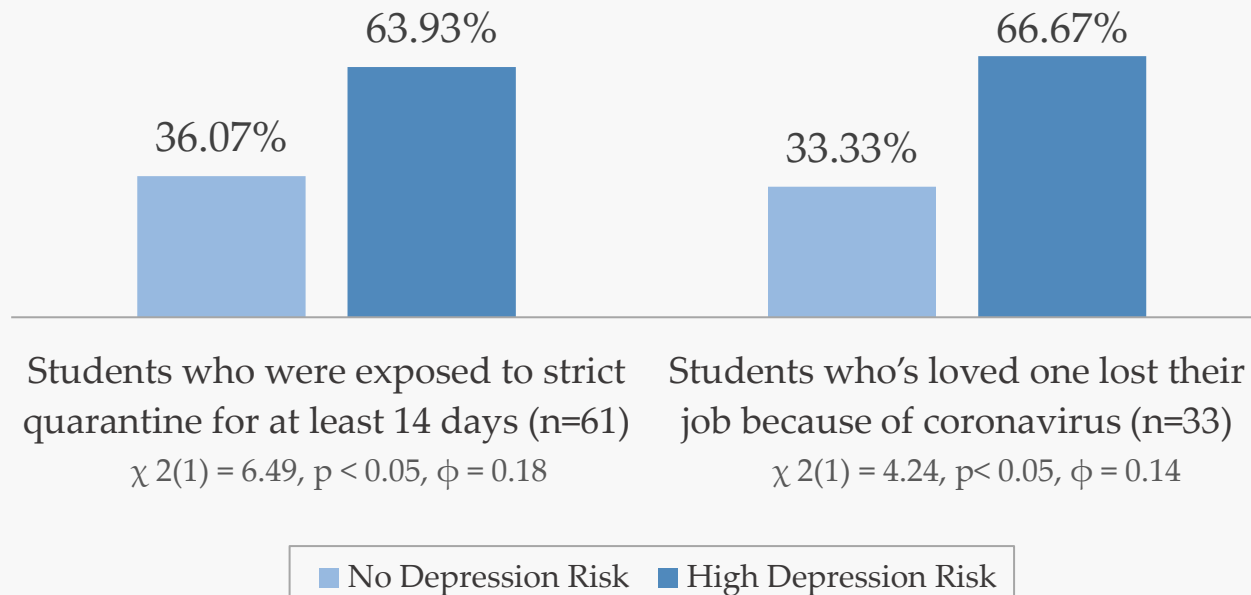
- Figure 2: The Difference Between Physical Activity Level Before and During the Pandemic



2.90% difference (95% CI = -3.18%; 8.98%)

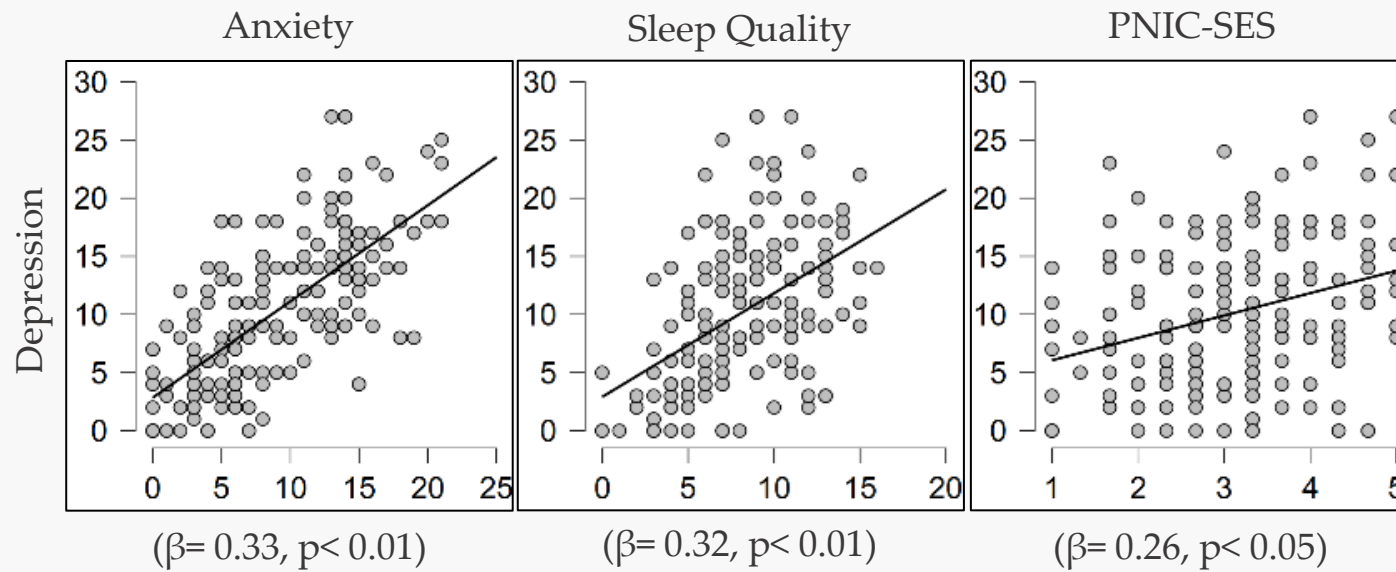
# Results

• **Figure 3: The Association of Exposure to COVID-19 Pandemic with Risk of Depression**



# Results

- Figure 4: Predictors of Depression Among All Other Variables



# Study Limitations

- Most of the participants are from the central region.
- Most of the sample are single females. Some literature indicated that both, being single and female, are considered risk factors for anxiety and stress.
- The output of this study is significant, consistent with published studies and the sample size is adequate, yet the number of the participants is not considered a large sample size. However, a similar sample size was acceptable in GAD-7 and PHQ-9 studies .

## Conclusion

Previous studies published during the COVID-19 pandemic era showed that frequent depression and anxiety symptoms and stress are more prevalent among college students than non-students and that college students reported increased stress and anxiety due to the COVID-19 pandemic.

Our study highlights the socio-economic impact of this pandemic and the overwhelming prevalence of depression.

The study findings recommend establishing and developing institutional mental health preventive and support programs focused on improving sleep quality and decreasing anxiety and depression among university students.



**Thank you,**  
Do you have any questions?



### **References:**

- Son C, Hegde S, Smith A, Wang X, Sasangohar F. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. *J Med Internet Res.* 2020;22(9):e21279. Published 2020 Sep 3. doi:10.2196/21279
- Wang, Xiaomei et al. “Investigating Mental Health of US College Students During the COVID-19 Pandemic: Cross-Sectional Survey Study.” *Journal of medical Internet research* vol. 22,9 e22817. 17 Sep. 2020, doi:10.2196/22817
- Rogowska, Aleksandra M et al. “Does Physical Activity Matter for the Mental Health of University Students during the COVID-19 Pandemic?.” *Journal of clinical medicine* vol. 9,11 3494. 29 Oct. 2020, doi:10.3390/jcm9113494
- kram, U., et al., *The Relationship between Depression and Insomnia Symptoms Amongst a Sample of UK University Students.* Sleep Medicine Research, 2019.
- Buysse, D.J., et al., *Quantification of Subjective Sleep Quality in Healthy Elderly Men and Women Using the Pittsburgh Sleep Quality Index (PSQI).* Sleep, 1991.