Relationship between Physical Activity and Psychological Status during Covid-19 among Nursing Students at Al Baha University.

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Abstract

Background: Recent research has shown that levels of poor mental health are high during COVID-19-related social distancing. Social distancing measures may result in people becoming more anxious, angry, stressed, agitated, and withdrawn. Engaging in physical activity may influence mental health during social distancing related to COVID-19. A large body of literature exists showing that regular and sustained participation in physical activity is associated with positive mental health. **The study aimed to** investigate the relationship between physical activity and psychological status during Covid-19 among nursing students AlBaha university. **The setting of the study**: The study was conducted at the faculty of applied medical sciences AlBaha university. **Research Design:** A descriptive co-relational design was used to achieve the aim of the study. **Data collection**: Three tools were used; Tool (1): Structured Socio-demographic and clinical characteristics Interview Questionnaire. Tool (II): Depression, Anxiety, and Stress Scale (III): an adapted version of the short form of the International Physical Activity Questionnaire (IPAQ-SF). **Results:** The findings of the study revealed that the majority of the participants in the study (62.5%) were from the fifth level. 50% of them were male and 50% were females. Also illustrated that; Physical exercise and psychological status were statistically significantly correlated (stress, anxiety, and depression). **Conclusion**: It was concluded that a negative change in physical activity compared to pre-COVID-19 restrictions was associated with poorer mental health.

Keywords: COVID-19, physical activity, Psychological Status, Nursing Students**.**

Introduction

The infectious agent causing "Coronavirus disease 2019" (COVID-19), an emerging communicable ailment with a very high infection rate and somewhat high mortality, is "Severe Acute Respiratory Syndrome Coronavirus type 2" (SARS-CoV-2). The World Health Organization (WHO) has formally declared this viral outbreak, which originated in the city of Wuhan, province of Hubei, mainland China, as a global pandemic, affecting most countries worldwide. **(Cucinotta and Vanelli, 2020)**.

Countries around the world have implemented several safety measures to stop the COVID-19 pandemic from spreading **(Parnell et al., 2020)**. In Saudi Arabia, these strategies include the closing of schools and shopping centers, limiting travel and sporting events, preventing social gatherings, and enforcing a partial or total lockdown. **(Yezli and Khan, 2020)**. The lockdown lasted for almost three months, from the middle of March to the end of June, and was either partial (often from 3 pm to 6 am) or total (24 h). **(Ministry of Health in Kingdom of Saudi Arabia, 2020).** Because of this, people might spend the majority of their time at home playing video games or watching television, which could negatively affect how often they exercise, impairing their general health. **(Lesser and Nienhuis, 2020)**.

The COVID-19 pandemic may have several negative effects on people's lives, particularly students. For example, students may experience chronic and acute stress, fear, worry, unanticipated bereavement, a sudden closure of schools, home confinement, more time spent online and on social media, and concern for the nation's and their family's financial future. **(Guessoum. ET AL., 2020)**. insecurity and anxiety due to the disruption of the student's schooling, physical activity, and socialization chances are also linked to home quarantine. Long-term absence from a regulated school environment causes disruptions in routine, boredom, and a lack of creative ideas for engaging in a variety of recreational and educational activities. A recent study found that older students and young people are more anxious

about academic activities, exchange programs, and exams being postponed. (**Lee,2020**).

Different psychological reactions to the epidemic may occur, such as stress, anxiety, depression, and worry about one's own health as well as the health of their family, friends, and loved ones. (**Chew et al., 2020**). The majority of participants in a recently released study done during the early stages of the COVID-19 outbreak reported a moderate to severe psychological impact. This may be accounted for by the epidemic's spread, the accompanying severe symptoms, and the resulting greater mortality rate. However, on the effect of COVID-19 on the general population's psychological health state, there is presently little information available. (**Wang et al., 2020 and Alkhamees et al., 2020**).

Since 2012, physical inactivity has been deemed a global pandemic, with 28% of the world's population (1.4 billion people) now believed to be still inactive. Physical inactivity is one of the top global causes of cardiovascular disease, diabetes, obesity, and premature mortality, thus this situation is very concerning. Since the presence of diabetes, obesity, hypertension and other comorbidities associated with physical inactivity can worsen the COVID-19 prognosis, public health agencies will face an even greater challenge if the population's levels of physical activity continue to decline during this period of physical separation. (**Puccinelli et al., (2021)**.

physical activity may have concerning mental health during social distancing brought on by COVID-19 is not currently known, although it has been demonstrated to be good for mental health. Although it has not yet been scientifically tested, it is assumed that physical activity will guard against poor mental health in this situation. This data will be crucial as countries continue to manage peri-COVID-19 and prepare for a post-COVID-19 recovery phase, as inactive people with poor mental health may need further help. (**Jacob. et al 2020**). Therefore, this study aimed to investigate the relationship between physical activity and psychological status during Covid-19 among nursing students AlBaha university.

Significance of the study

The prevalence of physical inactivity within Saudi Arabia ranges between 26% and 85% among Saudi males and between 43% and 91% among Saudi females (**Hamed et al., 2022**). Physical inactivity is a public health problem in Saudi Arabia. Physical inactivity has been ranked as the fourth most important risk factor for mortality worldwide (6% of deaths worldwide) (**Awadalla et al., 2014**). Physical inactivity is a significant contributor to the onset and progression of chronic, non-communicable disorders like obesity. The obesity rate in the Kingdom of Saudi Arabia is among the highest in the world. Public health precautions have been implemented during the coronavirus disease 2019 (COVID-19) pandemic. These included home quarantine measures, disguising, reducing the number of hours worked each day, avoiding social events, and social isolation. These ultimately limited one's capacity to engage in routine physical activity (**Hamed et al., 2022**).

The COVID-19 pandemic enhanced not only the chance of the virus causing bodily harm but also unfavorable psychological impacts on the p the population. The psychological pressures endured by persons in confinement included a lengthy quarantine period, the anxiety of infection, frustration, limited supplies, poor communication, financial loss, and discrimination. (**Alanazi M, 2022**). It is necessary to take action to reverse the trend that the COVID-19 epidemic and the associated public health limitations are having on mental health. An overall drop in well-being, a worsening of mental health, and an increase in psychological distress such as stress, anxiety, sadness, and feelings of loneliness were observed in people. The positive relationship between physical exercise and mental health has been well-established, but during the COVID-19 pandemic, with various restrictions, the space and facilities for physical exercise are limited. (**Ai X, et al., 2021**) Therefore, this study aimed to investigate the relationship between physical activity and psychological status during Covid-19 among nursing students AlBaha university.

Subjects and Methods
Aim of the study:
The present study aimed to investigate the Relationship between physical activity and psychological status during Covid-19 among nursing students AlBaha university

Through the following Objectives
- Investigate the physical activity level during Covid-19 among nursing students

- Investigate the psychological status level during Covid-19 among nursing students
- Investigate the difference between male and female section

Research hypothesis:

H1. Levels of depression, anxiety, and stress will Increase during Covid-19 Among nursing students

H2. Level of physical activity will decrease during Covid-19 among nursing students

Study design:

A descriptive co-relational design was utilized to achieve the aim of the study. This design describes two or more variables and their relationships.

Setting

The study was carried out at the faculty of applied medical sciences AlBaha university. The College of Applied Medical Sciences consists of five academic scientific departments: The Department of Laboratory Medicine, the Department of Dental Health, the Department of Nursing, the Department of Optometry, and the Department of Community Health Sciences (public health) track in both sections, males and females. The male section is located in Al-Aqiq and the female section is located in Bahr, Al-Baha region.

Subjects

All of the nursing students at Al-Baha University's faculty of applied medical sciences. The total number of male and female students in both sections is 417, 207 male and 210 male students in all academic years

Sample Size

a convenience sample of all Nursing Department male and female students who consented to participate.

Study Instruments:

Online self-administered questionnaires were used. It is composed of three tools:

Instrument one: Structured Socio-demographic and clinical characteristics Interview Questionnaire.

It was developed by the researchers and used to obtain information about the student's gender, age, body mass index, and student level

Instrument two: Depression, Anxiety, and Stress Scale - 21 Items (DASS-21)

It was developed by **Lovebird, & Lovibond, (1995)**. The Depression, Anxiety, and Stress Scale - 21 Items (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety, and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic nonspecific arousal. It assesses difficulty relaxing, nervous arousal, being easily upset/agitated, irritable / over-reactive, and impatient. Scores for depression, anxiety, and stress are calculated by summing the scores for the relevant items.

- Subjects are asked to use 4 –point severity /frequency responses ranging from: did not apply to me at all, to apply to me very much, or most of the time, to rate the extent to which they have experienced each state over the past two to three weeks.

- **Recommended cut-off scores for conventional severity labels (normal, moderate, severe) are as follows:**

	Depression	**Anxiety**	**Stress**
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Instrument three: an adapted version of short-form of the International Physical Activity Questionnaire (IPAQ-SF)

It was developed by **Booth, M. L. (2000)**. The questions of IPAQ-SF allowed us to assess physical activity in the past seven days by providing information about the minutes per day or days per week, at any time of the day, spent doing activities before the COVID-19 emergency and in the last four weeks. Participants reported the frequency and duration of different types of activity: vigorous (i.e. heavy lifting, performing intense aerobic exercises, using a bike or treadmill); moderate (i.e. carrying light loads and bicycling at a regular pace carry, working out in the garden); walking activities, as well as the average

time, spent sitting on a weekday, including sitting at work.

Scoring the IPAQ.

Results can be reported in categories (low activity levels, moderate activity levels, or high activity levels)

Physical activity categories:

<u>**Scoring** a **HIGH level of physical activity**</u> on the IPAQ means your physical activity levels equate to approximately one hour of activity per day or more at least a moderate intensity activity level.

Those who score HIGH **on the IPAQ engage in**

• Vigorous-intensity activity on at least 3 days achieving a minimum total physical activity of at least 1500 MET minutes a week

OR

• 7 or more days of any combination of walking, moderate intensity, or vigorous intensity activities achieving a minimum total physical activity of at least 3000

MET minutes a week.

<u>**Scoring a MODERATE level of physical activity**</u> on the IPAQ means you are doing some activity more than likely equivalent to half an hour of at least moderate-intensity physical activity on most days.

Those who score MODERATE **on the IPAQ engage in**

• 3 or more days of vigorous-intensity activity and/or walking of at least 30 minutes per day

OR

• 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day

OR

• 5 or more days of any combination of walking, moderate intensity, or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET minutes a week.

<u>**Scoring** a **LOW level of physical activity**</u> on the IPAQ means that you are not meeting any of the criteria for either MODERATE or HIGH levels of physical activity.

Reliability of the tools:

Reliability was evaluated for testing the internal consistency of the tool through administration to the same participants before the actual data collection to determine its clarity and simplicity. Reliability was evaluated among 20 participants by using a test-retest method with two weeks intervals between two points of measurement. The correlation coefficient was estimated between the two scores. The correlation coefficient was 0.80 for tool (2) and 0.81 for tool (3) which indicates that the questionnaire is reliable to detect the objectives of the study.

Validity of the tools:

The tool was tested for its content by a panel of five experts in the field of psychiatric and mental health Nursing to ascertain relevance and completeness.

Pilot Study:

A pilot study was conducted at the beginning of the study. It included 10% of the total sample to estimate the needed time for data collection and to test the feasibility, objectivity, and applicability of the tools. All subjects recruited in the pilot study meet the inclusion criteria of the study. The pilot study revealed that some items needed to be clarified and remove repeatedly items. The pilot study sample was excluded from the actual study.

Ethical consideration

Ethical approval was obtained by the Committee of faulty of Applied Medical Sciences, Albaha University. A formal permission letter was also obtained from the Dean of the Faculty of Applied Medical Sciences, at Albaha University. All participants were pre-informed about the study's aim and each participant had full right to withdraw their verbal consent to participate in the study. Confidentiality was maintained and assured by nameless responses.

Statistical analysis:

The data were collected on an excel spreadsheet, then processed, tabulated, and analyzed by IBM SPSS Statistics for Windows, Version 22.0. (Armonk, NY: IBM Corp.). Descriptive statistics were expressed as mean, standard deviation (X + SD), frequency, and percentage. Measures of central tendency and variation were used for descriptive analysis. Binary logistic regression analysis was used to examine the association between the study variables.

Results

Table 1: revealed nearly two-thirds of the participants in the study (62.5%) were from the

fifth level. 50% of them were male and 50% were females; 52% of them weighed between (33 and 60 pounds), and only 3% were over 100. 53.5% of them are between 161 and 180 cm tall. Regarding BMI, more than half were in the range of 20.3 to 30.4.

Table (4): portrayed that there was no statistically significant correlation between the study sample's overall depression scores and its socio-demographic characteristics.

Table (5): portrayed that Only a statistically significant correlation existed among the study sample's overall anxiety scores, gender, and academic level.

Figure (1) According to Figure 1, 13% of the studied subjects had mild depression, 20% had moderate depression, 10% had severe depression and 7% had extremely severe depression.

Figure (2) showed that only 6% of people reported extremely severe anxiety, whereas 22% had moderate anxiety.

Figure (3) illustrated that 17 % had moderate stress and only 3% had extremely severe stress

Figure (4) portrayed that 57% of participants engaged in little or no physical activity, while 21% were highly active.

Table 2: illustrated that; stress, anxiety, and depression exhibited a statistically significant positive association. In other words, when stress and anxiety levels rise, so does depression

Table 3: illustrated that; Physical exercise and psychological status were statistically significantly correlated (stress, anxiety, and depression).

Table (6): portrayed that only a statistically significant correlation existed among the study sample's total stress scores, gender, and academic level.

Table (7): portrayed that there was no statistically significant correlation between the examined sample's overall activity scores and its demographic characteristics.

Table 1 Distribution of The Studied Participants According to Socio-Demographic and clinical characteristics.

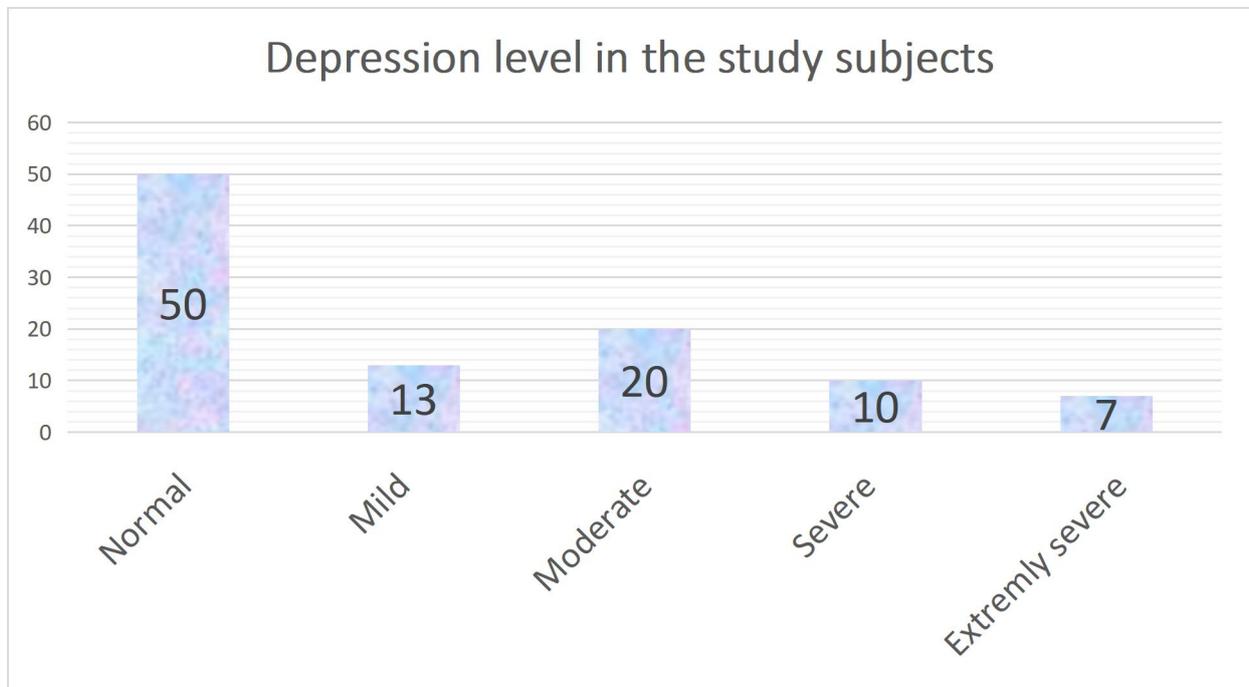| Socio-demographic characters	The study group(N= 200)	
	No.	**%**
Gender		
Male	100	50.0
Female	100	50.0
Academic levels		
Level 1	24	12.0
Level 3	25	12.5
Level 5	125	62.5
Level 7	26	13.0
Height		
133-160	86	43.0
161- 180	107	53.5
>180	7	3.5
Weight		
33-60	104	52.0
61-80	67	33.5
81- 100	23	11.5
>100	6	3
BMI		
14.1-20	58	29.0
20.3-30.4	114	57.0
31. 3- 44.9	28	14.0

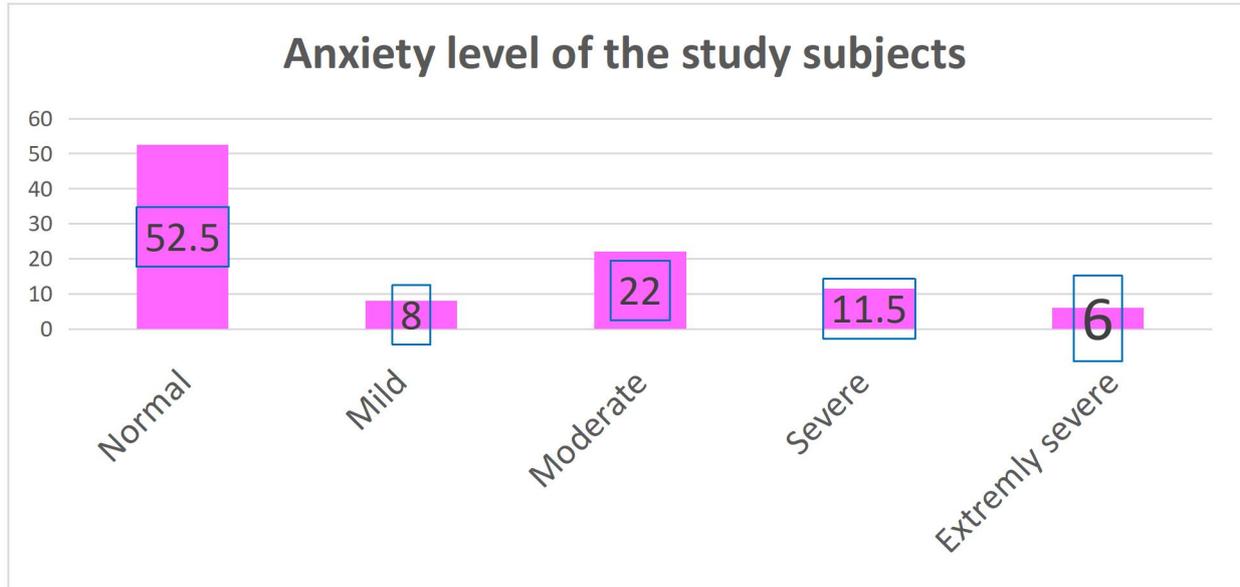**Figure (1) Depression level in the study subjects (N= 200)**
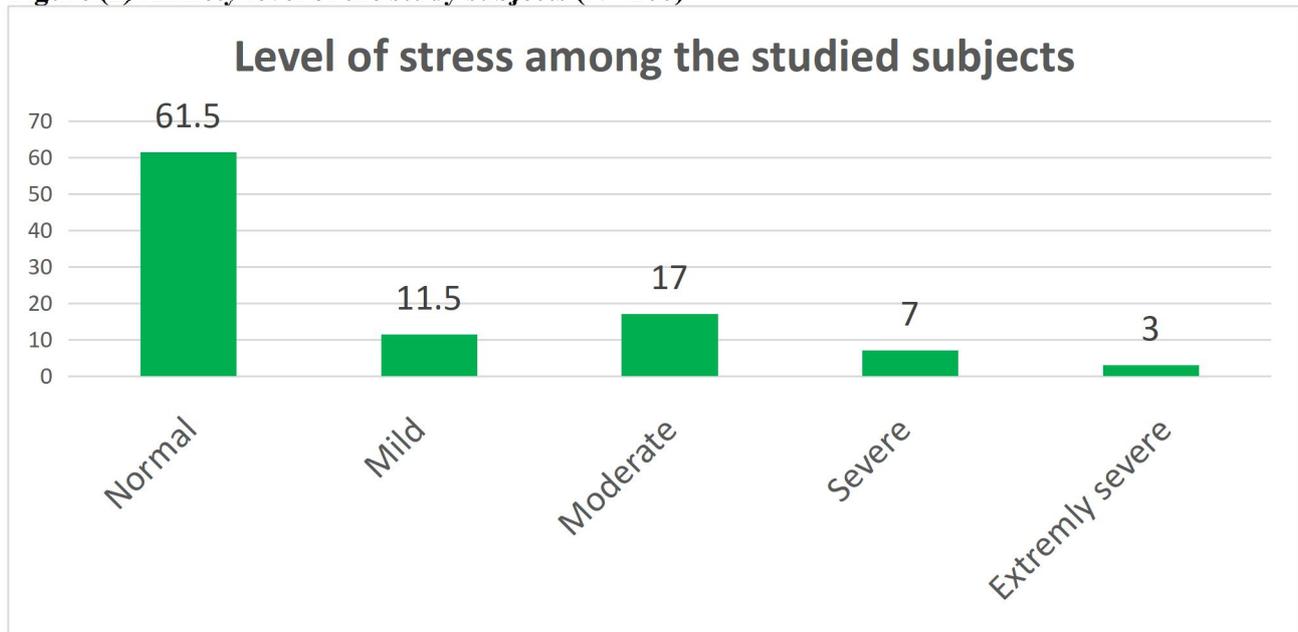
Figure (2) Anxiety level of the study subjects (N= 200)
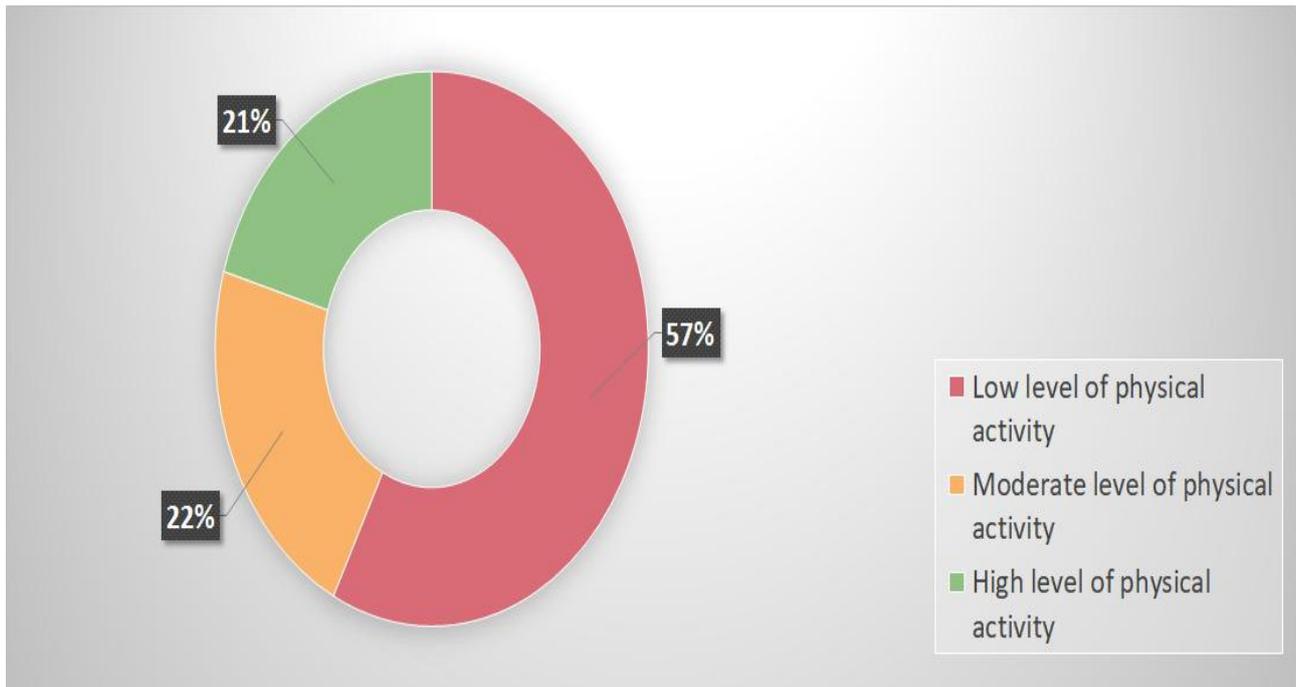

Figure (3) Level of stress among the studied subjects (N= 200)

Figure (4) Level of physical activity among the studied subjects (N= 200)

Table 2. Pearson correlation between depression, anxiety, and stress						
	Depression		Anxiety		Stress	
	r	p	r	p	r	p
Depression	-	-	0.618	<0.001**	0.492	<0.001**
Anxiety	0.618	<0.001**	-	-	0.672	<0.001**
Stress	0.492	<0.001**	0.672	<0.001**	-	-

Not significant at p > 0.05 Highly significant < 0.0001

Table 3. Association between physical activity with depression, anxiety, and stress								
	Low Activity (n=114)		Moderate Activity (n=44)		High Activity (n=42)		Chi-Square	
	n	%	n	%	n	%	X^2	P
Depression								
Normal	33	28.9	33	75.0	34	81.0		
Mild	14	12.3	6	13.6	6	14.3		
Moderate	36	31.6	2	4.5	2	4.7		
Severe	17	14.9	3	6.8	0	0.0		
Extremely severe	14	12.3	0	0.0	0	0.0	59.496	<0.001**
Anxiety								
Normal	47	41.2	23	52.3	35	83.3		
Mild	5	4.4	7	15.9	4	9.5		
Moderate	27	23.7	14	31.8	3	7.1		
Severe	23	20.2	0	0.0	0	0.0		
Extremely severe	12	10.5	0	0.0	0	0.0	48.481	<0.001**
Stress								
Normal	54	47.4	33	75.0	36	85.7		
Mild	11	9.6	6	13.6	6	14.3		
Moderate	29	25.4	5	11.4	0	0.0		
Severe	14	12.3	0	0.0	0	0.0		
Extremely severe	6	5.3	0	0.0	0	0.0	37.633	<0.001**

Not significant at p > 0.05 Highly significant < 0.0001

Table 4. Association between the socio-demographic characteristics and total depression Score

	Normal		Mild		Moderate		Severe		Extremely severe		Chi-Square	
	n	%	n	%	n	%	n	%	n	%	X^2	P
Gender												
Male	47	47.0	13	50.0	27	67.5	7	35.0	6	42.9		
Female	53	53.0	13	50.0	13	32.5	13	65.0	8	57.1	7.346	0.119
Academic Level												
First	13	13.0	2	7.7	6	15.0	2	10.0	1	7.1		
Third	11	11.0	3	11.5	6	15.0	3	15.0	2	14.3		
Fifth	64	64.0	19	73.1	25	62.5	11	55.0	6	42.9		
Seventh	12	12.0	2	7.7	3	7.5	4	20.0	5	35.7	11.089	0.521
Height												
133 – 160	44	44.0	11	42.3	13	32.5	11	55.0	7	50.0		
161 – 180	53	53.0	15	57.7	23	57.5	9	45.0	7	50.0		
> 180	3	3.0	0	0.0	4	10.0	0	0.0	0	0.0	9.393	0.310
Weight												
33 – 60	54	54.0	11	42.3	22	55.0	8	40.0	9	64.3		
61 – 80	34	34.0	12	46.2	14	35.0	5	25.0	2	14.3		
81 – 100	10	10.0	3	11.5	2	5.0	6	30.0	2	14.3		
> 100	2	2.0	0	0.0	2	5.0	1	5.0	1	7.1	15.254	0.228
BMI												
14.1 – 20	30	30.0	8	30.8	9	22.5	6	30.0	5	35.7		
20.3 – 30.4	58	58.0	15	57.7	27	67.5	8	40.0	6	42.9		
31.3 – 44.9	12	12.0	3	11.5	4	10.0	6	30.0	3	21.4	8.233	0.411

Not significant at p > 0.05 Highly significant < 0.0001

Table 5. Association between the socio-demographic characteristics and total anxiety Score

	Normal		Mild		Moderate		Severe		Extremely severe		Chi-Square	
	n	%	n	%	n	%	n	%	n	%	X^2	P
Gender												
Male	62	59.0	3	18.8	18	40.9	16	69.6	1	8.3		
Female	43	41.0	13	81.3	26	59.1	7	30.4	11	91.7	22.998	<0.001**
Academic Level												
First	12	11.4	2	12.5	6	13.6	2	8.7	2	16.7		
Third	16	15.2	4	25.0	1	2.3	1	4.3	3	25.0		
Fifth	69	65.7	8	50.0	30	68.2	17	73.9	1	8.3		
Seventh	8	7.6	2	12.5	7	15.9	3	13.0	6	50.0	31.770	0.002*
Height												
133 – 160	41	39.0	8	50.0	20	45.5	9	39.1	8	66.7		
161 – 180	60	57.1	8	50.0	23	52.3	12	52.2	4	33.3		
> 180	4	3.8	0	0.0	1	2.3	2	8.7	0	0.0	6.470	0.595
Weight												
33 – 60	48	45.7	9	56.3	28	63.6	12	52.2	7	58.3		
61 – 80	47	44.8	4	25.0	6	13.6	7	30.4	3	25.0		
81 – 100	9	8.6	2	12.5	7	15.9	4	17.4	1	8.3		
> 100	1	1.0	1	6.3	3	6.8	0	0.0	1	8.3	20.254	0.062

	Normal		Mild		Moderate		Severe		Extremely severe		Chi-Square	
	n	%	n	%	n	%	n	%	n	%	X²	P
BMI												
14.1 – 20	25	23.8	7	43.8	15	34.1	6	26.1	5	41.7		
20.3 – 30.4	71	67.6	6	37.5	19	43.2	13	56.5	5	41.7		
31.3 – 44.9	9	8.6	3	18.8	10	22.7	4	17.4	2	16.7	13.526	0.095

Not significant at p > 0.05 Highly significant < 0.0001

Table 6. Association between the socio-demographic characteristics and total stress Score.

	Normal		Mild		Moderate		Severe		Extremely severe		Chi-Square	
	n	%	n	%	n	%	n	%	n	%	X²	P
Gender												
Male	66	53.7	4	17.4	25	73.5	5	35.7	0	0.0		
Female	57	46.3	19	82.6	9	26.5	9	64.3	6	100.0	25.113	<0.001**
Academic Level												
First	15	12.2	6	26.1	0	0.0	1	7.1	2	33.3		
Third	13	10.6	5	21.7	6	17.6	0	0.0	1	16.7		
Fifth	84	68.3	8	34.8	26	76.5	5	35.7	2	33.3		
Seventh	11	8.9	4	17.4	2	5.9	8	57.1	1	16.7	46.173	<0.001**
Height												
133 – 160	50	40.7	11	47.8	12	35.3	8	57.1	5	83.3		
161 – 180	69	56.1	12	52.2	19	55.9	6	42.9	1	16.7		
> 180	4	3.3	0	0.0	3	8.8	0	0.0	0	0.0	9.969	0.267
Weight												
33 – 60	63	51.2	14	60.9	16	47.1	7	50.0	4	66.7		
61 – 80	45	36.6	7	30.4	11	32.4	4	28.6	0	0.0		
81 – 100	13	10.6	1	4.3	5	14.7	3	21.4	1	16.7		
> 100	2	1.6	1	4.3	2	5.9	0	0.0	1	16.7	12.089	0.439
BMI												
14.1 – 20	33	26.8	10	43.5	9	26.5	3	21.4	3	50.0		
20.3 – 30.4	76	61.8	11	47.8	18	52.9	8	57.1	1	16.7		
31.3 – 44.9	14	11.4	2	8.7	7	20.6	3	21.4	2	33.3	10.044	0.262

Not significant at p > 0.05 Highly significant < 0.0001

Table 7. Association between the socio-demographic characteristics and total activity score

	Low Activity		Moderate Activity		High Activity		Chi-Square	
	n	%	n	%	n	%	X^2	P
Gender								
Male	55	48.2	18	40.9	27	64.3		
Female	59	51.8	26	59.1	15	35.7	5.023	0.081
Academic Level								
First	13	11.4	8	18.2	3	7.1		
Third	15	13.2	5	11.4	5	11.9		
Fifth	68	59.6	24	54.5	33	78.6		
Seventh	18	15.8	7	15.9	1	2.4	9.299	0.157
Height								
133 – 160	50	43.9	23	52.3	13	31.0		
161 – 180	61	53.5	19	43.2	27	64.3		
> 180	3	2.6	2	4.5	2	4.8	4.680	0.322
Weight								
33 – 60	58	50.9	23	52.3	23	54.8		
61 – 80	40	35.1	13	29.5	14	33.3		
81 – 100	14	12.3	7	15.9	2	4.8		
> 100	2	1.8	1	2.3	3	7.1	5.914	0.433
BMI								
14.1 – 20	33	28.9	13	29.5	12	28.6		
20.3 – 30.4	66	57.9	23	52.3	25	59.5		
31.3 – 44.9	15	13.2	8	18.2	5	11.9	0.982	0.913

Not significant at p > 0.05 Highly significant < 0.0001

Discussion

Governments in several countries established national containment plans at the start of the coronavirus disease 2019 (COVID-19) pandemic to stop the virus's spread and lessen the possibility that national healthcare systems would become seriously overburdened. Physical distancing and self-isolation laws are intended to lessen COVID-19 transfer from one person to another, however, there could be serious public health repercussions from such policies. For instance, a decrease in physical activity (PA) and an increase in sedentary behaviors may have a negative impact on immune function and raise the chance of developing chronic illnesses**. (Sallis et al., 2020)**. Numerous research has demonstrated negative psychological effects, such as post-traumatic stress symptoms, disorientation, rage, emotional disturbance, depression, stress, low mood, irritability, insomnia, anxiety, and irritation **(Brooks et al., 2020)**. Consequently, it is necessary to comprehend the psychological effects of self-isolation during the COVID-19 epidemic. **(Duan & Zhu, 2020)**. Therefore, the

current study aimed to investigate the Relationship between physical activity and psychological status during Covid-19 among nursing students AlBaha university.

According to the current study, one-third of participants engaged in moderate levels of physical activity, while more than half engaged in low levels. This may be explained by the national containment strategies that different countries enacted, such as self-isolation laws and physical distance, to stop the virus's spread. Physical distancing may have the adverse effect of escalating unhealthy lifestyle choices, such as declining physical activity and increasing sedentary behavior. In agreement with these findings by **Puccinelli et al, (2021)**. titled "Reduced level of physical activity during COVID-19 pandemic is associated with depression and anxiety levels: an internet-based survey" reported that physical activity levels were significantly lower during the period of social withdrawal than they had been previously. On the other hand, a study by (**Tison et al., 2020)**. that

included approximately 500,000 individuals showed a 5.5% and a 27.3% drop in mean steps within 10 and 30 days, respectively, following the beginning of the COVID-19 pandemic. Along with the findings of the current study, **(Park et al., 2022)**.   study on "the influence of COVID-19 on physical activity" additionally showed how COVID-19 had a substantial impact on walking and biking, physical activity, mobility, sedentary behavior, and total energy expenditure.

This study showed that mild, moderate, severe, and extremely severe anxiety affected more than half of the study participants, and mild, moderate, severe, and extremely severe stress affected less than half. This might be because it's normal for anyone, and young people in particular, to feel anxious owing to the unheard-of disruption in their routines. Along with home quarantine, it is linked to anxiety and insecurity because of the disruption to students' education, and students are more worried about the postponement of exams, exchange programs, and academic events. According to this finding, a study on " Students' anxiety during the COVID-19 pandemic in Saudi Arabia: An exploratory study " was undertaken (**AL-Shahrani, 2021)**.   According to the results of this study, 46.22% of respondents felt only a little anxiety, followed by mild anxiety (26.79%), moderate anxiety (12.60% of respondents), and severe anxiety (14.29%). Also study conducted by **Puccinelli et al, (2021)**.   titled "Reduced level of physical activity during COVID-19 pandemic is associated with depression and anxiety levels: an internet-based survey". revealed that throughout the social distancing phase, about 23.3% of respondents had moderate to severe anxiety symptoms. Additionally, the study by **Islam et al., (2020)**.   also contributed to this outcome, which showed that 389 students (87.7%) had mild to severe anxiety symptoms.

This study portrayed that half of the study participants had (mild, moderate, severe, and extremely severe depression). This may be due to the Covid-19 pandemic, students may have been bored at home, not fully understanding the subject, were confused with online learning methods, and felt their abilities and grades dropped dramatically. This finding is consistent with **Puccinelli et al, (2021)**, titled "Reduced level of physical activity during COVID-19 pandemic is associated with depression and anxiety levels: an internet-based

survey". indicated that roughly 30% of the respondents had depressive symptoms that were either moderate or severe. Also (**AL-Shahrani AM,2021)**.   researched "Students' anxiety during the COVID-19 pandemic in Saudi Arabia: An exploratory study "in which the results showed that of the respondents, 46.22 % had just minimal anxiety, 26.7 % had mild anxiety, 12.6 %had moderate anxiety, 14.29 % had severe anxiety. On the other hand, **(Islam M.A., et al 2020)**. illustrated that 392 (82.4%) students were found to have mild to severe depressive symptoms.

According to the research done by **Faulkner J. et al., (2021)**, people who experienced a negative change in their exercise habits both before and during the initial COVID-19 restrictions reported having worse mental health and well-being. The current study's findings are in agreement with the above finding, showing that there is a highly statistically significant relationship between physical activity and psychological well-being (stress, anxiety, and depression). Also, the results of the study titled "The link between physical activity and mental health in a sample of the UK public: A cross-sectional study during the implementation of COVID-19 social distancing measures," consistent with our findings, carried out by **(Jacob L et al., 2020)**. indicated that, after accounting for several significant confounders, there was a negative connection between moderate-to-vigorous physical activity per day in hours and poor mental health in the current sample of the UK public social distancing caused by COVID-19.

Moreover, similar research by **(Carriedo et al. 2020)**. demonstrated that older adults who routinely engaged in vigorous (VPA) and moderate-vigorous physical activity (MVPA) during the quarantine reported higher scores in resilience (Locus, Self-efficacy, and Optimism), positive affect, and lower depressive symptoms. On the other hand, a very recent study **by Callow et al., (2020)** that evaluated depression, anxiety, and PA levels in North America during the COVID-19 pandemic under current social distancing guidelines discovered that low physical activity (LPA) and vigorous physical activity (VPA) levels were independent contributors to depression symptoms in older adults. **Puccinelli et al. (2021)**.   also discovered that low levels of physical activity were substantially correlated with depression and anxiety scores. Additionally,

these findings support that of the literature during non-pandemic times (McDowell et al., 2019; Schuch et al., 2018; White et al., 2017). Several plausible mechanisms may explain the observed association between higher levels of physical activity and better-reported mental health during COVID-19.

Conclusion: It was concluded that physical activity compared to pre-COVID-19 restrictions was associated with poorer mental health and well-being.

Recommendations

- In light of current research, the results illustrated that association between physical inactivity and mental diseases, it is clear that people during this social distancing period are becoming much more physically and mentally vulnerable, which affects their ability to combat a possible COVID-19 infection. Therefore, physical activity programs should be encouraged, given that they respect
- The required social distancing to contain the spread of SARS-CoV-2
- A future direction of research is to conduct such studies in a variety of settings for larger groups

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Conflict of Interest

The authors of this study have declared no conflicts of interest.

References

Ai X, Yang J, Lin Z, and Wan X (2021) Mental Health and the Role of Physical Activity During the COVID-19 Pandemic. Front. Psychol. 12:759987. doi: 10.3389/fpsyg.2021.759987.

Alanazi M, (2022). Psychological Status of College Students During COVID-19 Pandemic: A Cross-Sectional Study in Saudi Arabia. Advances in Medical Education and Practice 2022:13 1443–1451.

Alkhamees, A.A.; Alrashed, S.A.; Alzunaydi, A.A.; Almohimeed, A.S.; Aljohani, M.S. The psychological impact of the COVID-19 pandemic on the general population of Saudi Arabia. Compr. Psychiatry 2020, 102, 152192. [CrossRef] [PubMed].

AL-Shahrani AM (2021). Students' anxiety during the COVID-19 pandemic in Saudi Arabia: An exploratory study. J Family Med Prim Care 2021; 10:3192-7.

Awadalla NJ, Abouelyazid A, Khalil S N, Razia Aftab Ahmed R A. (2014). Assessment of physical inactivity and perceived barriers to physical activity among health college students, south-western Saudi Arabia. EMHJ •° Vol. 20 No. 10 •° 2014.

Booth, M. L. (2000). Assessment of Physical Activity.ˡAn International Perspective. Research Quarterly for Exercise and Sport, 71 (2): s 114-20.

Brooks, S. K., Webster, R. K., Smith, L. E., et al. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. The Lancet. HTTPS:// doi.org/10.1016/S0140-6736(20)30460-8.

Callow D D, Arnold-Nedimala NA, Jordan LS, et al: The mental health benefits of physical activity in older adults survive the COVID-19 pandemic. Am J Geriat Psychiat 2020. https://www.ajgponline.org/article/S1064-7481(20)30400-0/fulltext.

Carriedo A, Jose A. Cecchini, Fernandez-Rio J, Mendez-Gimenez A, (2020). COVID-19, Psychological Well-being and Physical Activity Levels in Older Adults During the Nationwide Lockdown in Spain. Am J of Geriatric Psychiatry 28:11 (2020) 1146-1155.

Chew, Q.H.; Wei, K.C.; Vasoo, S.; Chua, H.C.; Sim, K. Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: Practical considerations for the COVID-19 pandemic. Singap. Med. J. 2020, 61, 350–356. [CrossRef]

Cucinotta, D., and Vanelli, M. (2020). WHO declares COVID-19 a pandemic. Acta Bio Med. Atenei Parmensis 91, 157–160.

Duan, L., & Zhu, G. (2020). Psychological interventions for people affected by the COVID-19 epidemic. The Lancet Psychiatry. https://doi.org/10.1016/S2215-0366 (20)30073-0

Faulkner J, O'Brien W J, McGrane B, Wadsworth D, Batten J, Askew CD, Badenhorst C, Byrd E, Coulter M, Draper N, Elliot C, Fryer S, Hamlin MJ, Jakeman J, Mackintosh KA, McNarry MA, Mitchelmore A, Murphy J, Ryan-Stewart H, Saynor Z, Schaumberg M, Stone K, Stoner L,

Stuart B, Lambrick D, (2021). Physical activity, mental health and well-being of adults during initial COVID-19 containment strategies: A multi-country cross-sectional. Journal of Science and Medicine in Sport 24 (2021) 320–326

Guessoum S B, Lachal J, Radjack R, Carretier E, Minassian S, Benoit L, Moro M R. Adolescent psychiatric disorders during the COVID-19 pandemic and lockdown. Psychiatry Research 291 (2020) 113264

Hamed A M, Javaid H A, Abbasi S, et al. (July 05, 2022) The Impact of COVID-19 on Physical Activity Among Adults in Saudi Arabia: A CrossSectional Study. Cureus 14(7): e26586. DOI 10.7759/cureus.26586

Islam M.A, Barna SD, Raihan H, Khan M. NA, Hossain M.T (2020) Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. PLoS ONE 15(8): e0238162. https://doi.org/10.1371/journal.pone.0238162

Jacob L, Tully MA, Barnett Y, Lopez-Sanchez GF, Butler L, Schuch F, Lopez-Bueno R, McDermott D, Firth J, Grabovac I, Yakkundi A, Armstrong N, Young T, Smith L. (2020). The relationship between physical activity and mental health in a sample of the UK public: A cross-sectional study during the implementation of COVID-19 social distancing measures. Mental Health and Physical Activity 19 (2020) 100345. https://doi.org/10.1016/j.mhpa.2020.100345 Received 22 June 2020; Received in revised form 30 June 2020; Accepted 1 July 2020

Jacob L, Tully MA, Barnett Y, Lopez-Sanchez GF, Butler L, Schuch F, Lopez-Bueno R, McDermott D, Firth J, Grabovac I, Yakkundi A, Armstrong N, Young T, Smith L. The relationship between physical activity and mental health in a sample of the UK public: A cross-sectional study during the implementation of COVID-19 social distancing measures. Mental Health and Physical Activity 19 (2020) 100345. https://doi.org/10.1016/j.mhpa.2020.100345 Received 22 June 2020; Received in revised form 30 June 2020; Accepted 1 July 2020

Lee, J., 2020. Mental health effects of school closures during COVID-19. The Lancet. Child & Adolescent Health 4 (6), 421. https://doi.org/10.1016/S2352-4642(20)30109-7.

Lesser, I.A.; Nienhuis, C.P. The impact of COVID-19 on physical activity behavior and well-being of Canadians. Int. J. Environ. Res. Public Health 2020, 17, 3899. [CrossRef] [PubMed]

Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales. (2nd Ed.) Sydney: Psychology Foundation

McDowell, C. P., Dishman, R. K., Gordon, B. R., & Herring, M. P. (2019). Physical activity and anxiety: A systematic review and meta-analysis of prospective cohort studies. American Journal of Preventive Medicine, 57(4), 545–556. https://doi.org/10.1016/j. amepre.2019.05.012

Ministry of Health in Kingdom of Saudi Arabia. Available online: https://www.moh.gov.sa/en/Pages/default.aspx (accessed on 30 June 2020).

Park AH, Zhong S, Yang H, Jeong J, Lee C. Impact of COVID-19 on physical activity: A rapid review. J Glob Health 2022; 12:05003

Parnell, D.; Widdop, P.; Bond, A.; Wilson, R. COVID-19, networks and sport. Manag. Sports Leis. 2020, 1, 1–7. [CrossRef]

Puccinelli J P, Costa1 T S, Seffrin A, de Lira C B, Vancini R T, Nikolaidis PT, Knechtle B, Rosemann T, Hill L and Andrade M S,(2021). Reduced level of physical activity during COVID-19 pandemic is associated with depression and anxiety levels: an internet-based survey. Puccinelli et al. BMC Public Health (2021) 21:425   Page   2   of   11 https://doi.org/10.1186/s12889-021-10470-z

Sallis JF, Adlakha D, Oyeyemi A, et al. International physical activity and public health research agenda to inform coronavirus disease-19 policies and practices. J Sport Health Sci 2020; 9:328–334.

Schuch, F. B., Vancampfort, D., Firth, J., Rosenbaum, S., Ward, P. B., Silva, E. S., Hallgren, M., Ponce De Leon, A., Dunn, A. L., Deslandes, A. C., Fleck, M. P., Carvalho, A. F., & Stubbs, B. (2018). Physical activity and incident depression: A meta-analysis of prospective cohort studies. American Journal of Psychiatry, 175(7), 631–648. https://doi.org/10.1176/appi.ajp.2018.17111194

Tison GH, Avram R, Kuhar P, Marcus GM, Pletcher MJ, Olgin JE. Worldwide.Effect of COVID-19 on Physical Activity: A Descriptive Study. Annals of Internal Medicine 2020. Available from: https://doi.org/10.7326/M20-2665 [Accessed 24th October 2020]

Wang, C.; Pan, R.; Wan, X.; Tan, Y.; Xu, L.; Ho, C.S.; Ho, R.C. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int. J. Environ. Res. Public Health 2020, 17, 1729. [CrossRef]

White, R. L., Babic, M. J., Parker, P. D., Lubans, D. R., Astell-Burt, T., & Lonsdale, C. (2017). Domain-specific physical activity and mental health: A meta-analysis. American Journal of Preventive Medicine, 52(5), 653–666. https://doi.org/10.1016/j. amepre.2016.12.008.

Yezli, S.; Khan, A (2020). COVID-19 social distancing in the Kingdom of Saudi Arabia: Bold measures in the face of political, economic, social and religious challenges. Travel Med. Infect. Dis. 2020, 37, 101692. [CrossRef] [PubMed