

## Determination of Anxiety Level and Psychological Well-being of Undergraduate Nursing Students during COVID-19 Pandemic

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### Abstract

**Background:** The COVID-19 pandemic has brought further attention to the importance of psychological wellness in the human population, as an essential domain in our general well-being.

**Aim:** This study investigates the anxiety levels and psychological well-being of nursing students during the COVID-19 pandemic.

**Methods:** This descriptive study was conducted with 206 undergraduate nursing students. The questionnaire including demographic information, Coronavirus Anxiety Scale, and WHO-5 Well-being Index was applied. Data were collected using the Google Surveys application in May 2021. Mann-Whitney-U, Kruskal-Wallis tests, and Pearson correlation analysis were used in the analysis of the data.

**Results:** The majority of students were female (53.4%) and in the 23-25 years age group (48.1%). The mean coronavirus anxiety score of the students was  $3.21 \pm 3.09$ , while the mean WHO-5 well-being score of the students was  $11.49 \pm 4.51$ . A moderate and negative correlation was found between the anxiety level and the psychological well-being of nursing students.

**Conclusion:** Nursing students had no dysfunctional coronavirus anxiety. Due to the suboptimal psychological well-being of the students, nursing students were at risk for depression. The findings of this study provide information to lecturers and administrators related to nursing students' anxiety and psychological well-being in the pandemic.

**Keywords:** Anxiety, COVID-19, nursing students, pandemics, psychological well-being

### Introduction

Biological ailments are most often given primary attention, while less emphasis is placed on psychological health. Psychological distress can take the form of depression, suicide or suicide ideation, sleeplessness, anxiety, and panic attacks, although these are just a few of the leading examples of adverse mental health conditions that are prevalent in society.<sup>1-3</sup> The COVID-19 pandemic has brought further attention to the importance of psychological wellness in the human population, as an essential domain in our general well-being. This reiterates the World Health Organization's (WHO) definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."<sup>4</sup> The definition of health by the WHO emphasizes that mental health is essential as a predictor of our overall wholeness.

COVID-19, as the disease linked to severe acute respiratory syndrome coronavirus 2, was first identified in the Wuhan province of China in December 2019.<sup>5-7</sup> Identified as an epidemic in China, the disease soon spread to Europe and then to the other continents around the world, and was announced as a global pandemic by the WHO in March 2020.

The rapid spread of COVID-19 from nation to nation led to catastrophic disruptions on a global scale, with effects linked to many psychosocial issues affecting human health.<sup>8-10</sup> Rapid increases in death rates, local and international border closures, travel restrictions, business shutdowns, and school closures were just some of the impacts of the pandemic. In a bid to control and mitigate the spread of this disease, governments around the world put several public health preventive measures in place, such as lockdowns, quarantines, social distancing, and the obligatory wearing of masks.<sup>11-13</sup> These mechanisms undoubtedly limited human physical interactions, social meetups,

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and other external engagements that foster physical contact and togetherness, while the imposed quarantines were linked to confusion, post-traumatic distress, and anger among adults.<sup>14-16</sup> Similarly, shortness of essential supplies, boredom, loneliness, infection anxiety, lack of information, long-term quarantine, and fear of financial security have been linked to negative mental health outcomes.<sup>17</sup>

Over 1 billion students residing in around 129 nations around the world have been reported to have their studies disrupted as a result of the pandemic, according to a United Nations Educational, Scientific, and Cultural Organization (UNESCO) report.<sup>18</sup> In response to the restrictions imposed by different governments, many higher education institutions around the world opted to close their schools and move their classes online, and as a consequence, university campuses, formerly hives of activity and social interactions, fell silent.

Researches suggests nursing students are vulnerable to experiencing psychological distress<sup>19,20</sup> because of specific psychological stressors for them related to meeting the demands of clinical and educational training, shift work and exposure to ill and vulnerable individuals.<sup>21,22</sup> During the COVID-19 outbreak that causes unavoidable stress, fear, and anxiety,<sup>23</sup> it is important to evaluate the anxiety and psychological well-being of student nurses. Therefore, it is thought that the evaluation of the anxiety and psychological well-being of nursing students who are already open to psychological stressors during the COVID-19 pandemic will be a guide in future pandemics. This study assesses the anxiety levels and psychological well-being of undergraduate nursing students during the COVID-19 pandemic.

### Research Questions

1. What is the anxiety level of nursing students during the COVID-19 pandemic?
2. At what level is the psychological well-being of nursing students during the COVID-19 pandemic?
3. Is there any correlation between the sociodemographic characteristics and the anxiety level of nursing students?
4. Is there any correlation between the sociodemographic characteristics and the psychological well-being of nursing students?
5. Is there any correlation between the anxiety level and the psychological well-being of nursing students?

## Methods

### Study Design

This research was a descriptive study.

### Sample of the Study

This study was conducted in May, 2021, with undergraduate students of the Faculty of Nursing of Near East university located in the Turkish Republic of Northern Cyprus. Students enrolled in the English program of the nursing department constituted the universe of the research (n=337). A sampling selection method was utilized to derive the minimum number of respondents required for the study, with the minimum sample size of 183 being determined based on Slovin's Formula.<sup>24</sup> Subsequently, 206 nursing students who were willing to participate in the study made up the study sample. The inclusion criteria for the study were being able to read and write in English. Excluded from the study were those diagnosed with COVID-19 at the time of study.

### Instruments of the Study

Data were collected using the questionnaire including demographic information, the Coronavirus Anxiety Scale (CAS) and the World Health Organization-Five Well-being Index (WHO-5). The questionnaire including demographic information contained 18 questions seeking to obtain sociodemographic data about the participants, such as sex, age, and education level.<sup>19-22</sup>

### Coronavirus Anxiety Scale

The CAS was developed to measure mental health status relative to the COVID-19 pandemic by Lee (2020). It is a five-item scale that seeks to evaluate the unique physiological responses of anxiety engendered by COVID-19. The scale, comprising five structured questions, is widely used today for the assessment of anxiety attributable to the COVID-19 pandemic. The CAS distinguishes those with dysfunctional anxiety and non-anxiety. The original cutoff score of CAS was  $\geq 9$ , although this had to be lowered to  $\geq 5$  for the CAS to have a reasonable sensitivity rate, as the original CAS investigation included only people with coronavirus anxiety.<sup>25</sup> The 5-point Likert scale comprises question items which are to be responded to by the respondents as "Not at all", "Rare, less than a day or two," "Several days," "More than 7 days," and "Nearly every day over the past 2 weeks." The Cronbach's Alpha score was 0.92,<sup>26</sup> while in the present study, the Cronbach Alpha was found to be 0.75.

### WHO-5 Well-being Index

The WHO-5 is one of the popular tools for the assessment of psychological well-being developed by the WHO. It was first published in 1998 and has since been translated into over 30 languages and been used in many studies. The 6-point Likert scale contains question items to be responded to by the respondents, selecting from the options "All the time," "Most of all the time," "More than half of the time," "Less than half of the time," "Some of the time," and "Never." This short instrument consists of five items that are non-invasive in nature but with strong validity, and has been used to assess depression outcomes among other clinical objectives in different studies. The WHO-5 is used as a screening tool for people at risk for depression, providing scores in the 0-25 range, with a higher scores indicating greater well-being. A score of 12 or lower indicates poor well-being, and further testing for depression is advised.<sup>27</sup> The Cronbach's Alpha was 0.82 in the original form<sup>27</sup> and 0.65 in the present study.

### Data Collection

Data were collected using the Google Surveys application. The online questionnaire link was shared with the students using internet/e-based technologies (e.g., online platforms and email). Consent was obtained from the students before completing the questionnaire. The online questionnaire took approximately 10 min to complete. At the time of data collection, the courses at the university were being conducted online.

### Ethical Considerations

Ethical approval for the study was obtained from Near East University Scientific Researches and Ethics Committee (Approval Number: YDU/2021/90-1329, Date: 29.04.2021) and informed consent for participation was obtained from all participants. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. The permission to use the CAS in the research was received

**Table 1.** Descriptive characteristics of nursing students (n=206)

Characteristics	n	%	Characteristics	n	%
Gender			Family History of Psychiatric Treatment		
Male	96	46.6	Yes	7	3.4
Female	110	53.4	No	199	96.6
Marital Status			Previous consultation with a Psychologist/Psychiatrist		
Single	192	93.2	Yes	3	1.5
Married	14	6.8	No	203	98.5
Age group			Chronic illness		
17 and below	6	2.9	Yes	22	10.7
18–21	70	34.0	No	184	89.3
22–25	99	48.1	Stable Source of Income		
26–29	25	12.1	Yes	76	36.9
30 and above	6	2.9	No	130	63.1
Education level			Media Monitoring of COVID-19 News		
1 <sup>st</sup> year	42	20.4	Most of the time	44	21.4
2 <sup>nd</sup> year	65	31.6	Some of the time	152	73.8
3 <sup>rd</sup> year	41	19.9	Seldom	6	2.9
4 <sup>th</sup> year	58	28.2	Never	4	1.9
Nationality			Having Social Interaction		
Nigeria	108	52.4	Yes	87	42.2
Zimbabwe	40	19.4	No	119	57.8
Others*	58	28.2	Physical Activity		
Long-term residence			Yes	80	38.8
Urban	125	126	No	126	61.2
Rural	81	39.3	Academic Performance		
Accommodation			Excellent	17	8.3
Live with parents	19	9.2	Good	92	44.7
Live in flats with friends	135	65.5	Fair	90	43.7
Live in flats alone	43	20.9	Poor	7	3.3
Dormitory	9	4.4	Where mostly lived in the COVID-19 pandemic		
Contracted the COVID-19			My country	24	11.7
Yes	12	5.8	North Cyprus	159	77.2
No	194	94.2	Both	23	11.1
Contracted the COVID-19 (Relatives)			*Ghana, Malawi, Congo, Kenya, Malawi		
Yes	12	5.8			
No	194	94.2			

through e-mail from the author. However, to use the WHO-5 in the research, no permission was received from any author because the WHO-5, which was used also in numerous studies, a public domain

opens to common use. The data collected from the students were kept strictly confidential and the names and student numbers of them were not requested.

**Table 2.** Distribution of scale averages of nursing students (n=206)

Scales	M	SD	Median	Min - Max
Corona anxiety scale	3.21	3.09	2.00	0.00-12.00
WHO-5 well-being	11.49	4.51	10.5	3.00-25.00

### Data Analysis

The statistical analysis was conducted using IBM SPSS Statistics (Version 20.0. Armonk, New York, USA, IBM Corp.). Categorical measurements were presented as numbers and percentages, and descriptive statistics as means, standard deviations, and medians. Pearson correlation analysis was used to determine the relationship between the scores obtained from the CAS and the WHO-5 Well-Being Index. Mann-Whitney-U and Kruskal-Wallis tests were used for the comparison of the sociodemographic characteristics of students and their anxiety and well-being scores. Statistical significance was accepted as 0.05 in all tests.

### Results

The majority of students were female (53.4%), in the 23-25 (48.1%) age group, single (91.7%), 1<sup>st</sup> year students (31.6%), and Nigerian (52.4%). The majority of students indicated that they resided in urban areas (60.7%), that they lived in flats with friends (65.5%) (Table 1), that they had no history of psychological treatment (98.5%), or such a history in their family (96.6%). In addition, 63.1% stated that they had no stable source of income, 89.3% said that they had no chronic illness, 73.8% stated that they kept an eye on the news about the COVID-19 pandemic, and 57.8% stated that they did not have anyone regular to talk to about their worries. The majority of students indicated that they did not do any physical exercise (61.2%) during the COVID-19 pandemic, 44.7% rated their academic performance as "good," the majority indicated that neither them nor any of their relatives (94.2%) had been diagnosed with COVID-19, and that they lived in Northern Cyprus (77.2%) in the pandemic (Table 1).

The mean CAS score of the students was  $3.21 \pm 3.09$ , while the mean WHO-5 Well-being Scale score was  $11.49 \pm 4.51$  (Table 2).

There were significant differences between students' anxiety scores by their gender, age groups, education level, nationality, accommodation, interaction, and where mostly live. There were significant differences between students' psychological well-being scores by accommodation and where mostly live in the COVID-19 pandemic (Table 3).

The result of the correlational analysis reveals an association between the CAS and the WHO-5 Well-being scale that was negative and statistically significant ( $r = -0.321$ ,  $P < 0.05$ ) (Table 4).

### Discussion

The mean coronavirus anxiety score of the students was not high in this study. The CAS distinguishes those with dysfunctional anxiety and non-anxiety. It can be said that the students in the present study had no dysfunctional coronavirus anxiety, which can be attributed to the effect of a nursing education and its contribution to the management of the process. Mekonen et al<sup>23</sup> found that there was a lower prevalence of stress among students when compared with the initial

stages of COVID-19 pandemic. This was attributed to the increased knowledge about the coronavirus, as students had more access to a variety of information regarding the virus than what was obtainable at the onset of the pandemic. Similarly, Arslan et al<sup>28</sup> found that CAS mean score was  $2.51 \pm 3.85$  in their study which conducted with undergraduate students. The reduced prevalence in anxiety levels and psychological stressors could be attributed to the formulation and distribution of vaccines globally, the resumption of academic activities which meant returning to the university and part resumption of social life.

In the present study, the mean WHO-5 Well-being score of the students was low. Due to the suboptimal psychological well-being of the nursing students in the study, it can be said that they are at risk of depression. This result can be explained by the fact that nursing students are vulnerable to experiencing psychological distress due to their unique psychological stressors.<sup>19,20</sup> In a study of nursing students conducted by Chow et al<sup>29</sup> before the pandemic, it was found that students reported a medium level of perceived well-being ( $15.3 \pm 3.9$ ). Hasson et al,<sup>30</sup> on the other hand, reported well-being scores of UK and Chinese nursing students of  $15.43 \pm 4.38$  and  $14.93 \pm 4.00$ , respectively, which were considered moderate.

The present study identified an association between anxiety level and psychological well-being. In addition, a moderate and negative correlation was found between CAS and the WHO-5 well-being scale. It was noted that as anxiety increased, psychological well-being decreased, and so it can be concluded that a rise in coronavirus anxiety decreases the psychological well-being of students. The vulnerability of nursing students to experiencing psychological distress may be further impacted by an increase in coronavirus anxiety. According to Wang et al<sup>31</sup> investigating the psychological responses associated with the early inception of the COVID-19 pandemic, increased anxiety were perpetuating problems consider as stressors to psychological wellbeing in the study. This is conclusion is also similar to the study conducted by Javed et al<sup>32</sup> which linked increase level of psychological distress to COVID-19 pandemic among the children, adults, and healthcare workers. Evans et al<sup>33</sup> on the other hand, found that changes in depression scores correlated strongly with changes in anxiety symptoms and wellbeing.

The male participants of the present study were found to have higher anxiety levels than their female counterparts, while a similar study conducted in Iran, there reported a greater propensity for higher stress levels in the female participants.<sup>34</sup> Similarly, Wang et al<sup>31</sup> reported that the psychological impact of the pandemic was greater among women, who also recorded higher levels of anxiety and depression.

In respect to age, it was found in the present study that the participants in the 18-21 years age group had greater coronavirus anxiety than those in the categories above and below. According to a study of the effects of COVID-19 on students in India, there was greater anxiety among younger students than in the adult population.<sup>34</sup>

In the present study, it was found that 1<sup>st</sup>-year students had lower anxiety than those in their 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> years, among which students in their 2<sup>nd</sup> year recorded the highest anxiety scores, closely followed by those in the 4<sup>th</sup> year. This can be explained by the fact that 1<sup>st</sup>-year students do not have clinical experience and have not yet met with

**Table 3.** Comparison of students' scales scores by sociodemographics (n=206)

Characteristics	n	%	Coronavirus anxiety		Psychological well-being	
			Mean±SD	M(min-max)	Mean±SD	M(min-max)
<b>Gender</b>						
Male	96	46.6	3.67±3.14	3 (0 -12)	11.97±4.91	11 (3 - 25)
Female	110	53.4	2.82±3.01	2 (0-12)	11.06±4.11	10 (3 - 25)
U/p*			4368.00/0.03		4738.5 / 0.202	
<b>Age group</b>						
17 and above	6	2.9	3.08±2.96	2 (0 - 12)	11.43±4.54	10 (3 - 25)
18-21	70	34.0	4.43±4.47	2.5 (0 -11)	12.00±4.76	10 (7 - 25)
22-25	99	48.1	3.71±2.99	3 (0 -11)	10.86±4.28	10 (3 -25)
26-29	25	12.1	3.16±3.18	3 (0 - 10)	11.56±4.13	11 (8 - 25)
30 & above	6	2.9	1.17±2.86	0 (0 - 7)	14.33±5.98)	12.5 (9 - 25)
X <sup>2</sup> / p**			12.377 / 0.015		7.440 / 0.114	
<b>Education level</b>						
1 <sup>st</sup> year	42	20.4	2.31±3.17	1 (0-12)	12.26±5.21	10.5 (7-25)
2 <sup>nd</sup> year	65	31.6	3.88±3.06	4 (0-12)	12.18±4.86	12.18 (3-25)
3 <sup>rd</sup> year	41	19.9	3.00±2.87	3 (0-11)	11.02±3.93	10 (5-21)
4 <sup>th</sup> year	58	28.2	3.28±3.12	2 (0-11)	10.47±3.76	10 (3-25)
X <sup>2</sup> / p**			10.448 / 0.015		4.726 / 0.193	
<b>Nationality</b>						
Nigeria	108	52.4	3.09±3.24	2 (0-12)	11.22±4.61	10 (3-25)
Zimbabwe	40	19.4	4.30±3.12	4 (0-11)	11.10±3.791	11 (3-25)
Others***	58	28.2	2.69±2.63	2 (0-9)	12.24±4.76	11 (6-25)
X <sup>2</sup> / p**			7.756 / 0.021		2.149 / 0.341	
<b>Accommodation</b>						
Live with parents	19	9.2	0.53±0.84	0 (0-2)	10.53±3.29	20 (8-25)
Live in flats with friends	135	65.5	3.56±3.27	3 (0-12)	11.86±4.61	10 (3-21)
Live in flats alone	43	20.9	3.26±2.46	3 (0-10)	10.00±2.24	11 (4-25)
Dormitory	9	4.4	3.56±3.50	5 (0-8)	10.53±3.29	10 (7-13)
X <sup>2</sup> / p**			21.408 / 0.001		21.228 / 0.001	
<b>Having Social Interaction</b>						
Yes	87	42.2	2.89±3.56	1 (0 -12)	11.91±4.79	10 (3 - 25)
No	119	57.8	3.45±2.96	3 (0 - 11)	11.18±4.29	11 (4 - 25)
U/p*			4058.00 / 0.007		4786.50 / 0.354	
<b>Where mostly lived in the COVID-19 pandemic</b>						
My country	24	11.7	0.96±2.24	0 (0 -10)	15.33±6.74	13.5 (7 - 25)
North Cyprus	159	77.2	3.53±2.88	3 (0 -12)	10.74±3.67	10 (3 - 25)
Both	23	11.1	3.39±4.24	2 (0 - 12)	12.61±4.92	12 (3 - 25)
X <sup>2</sup> / p**			23.613/0.001		11.829/0.003	

\*Mann-Whitney-U, \*\*Kruska-Wallis Test.

**Table 4.** Analysis of the relationship between means of nursing students' coronavirus anxiety scale and WHO-5 well-being scale scores (n=206)

	WHO-5 wellbeing scale	
Coronavirus anxiety scale	<i>r</i>	-0.321
	<i>p</i>	.000

patients. Ma et al<sup>35</sup> found the senior year to be significantly associated with anxiety or/and depressive symptoms, and indicated that senior students were more likely to experience symptoms of anxiety.

Among the two leading nationalities in the present study, the Zimbabwean nationals had greater coronavirus anxiety than the Nigerian participants. This could be a result of the cultural difference. The study also concluded that people who live with their parents have the less coronavirus anxiety than those with all other living arrangements considered in the study. This could be a result of the more filial connections in this period of uncertainty that and the associated assurances and reduction in worries associated with living apart from one's loved ones. Similarly, it was found that those who live with their parents have higher levels of psychological well-being than those in other arrangements.

It was deduced in the present study that people with associates with whom they regularly interact or can confide in when troubled have lower levels of anxiety than those without such people. This further supports the importance of social interactions for psychological well-being, especially in periods or situations plagued with worries and crises. Elmer and Stadfeld<sup>15</sup> in their study identified social communications to be one of the most important mechanisms for the negation of psychological distress. Ma et al<sup>35</sup> on the other hand found that people with low perceived social support were more likely than individuals with high perceived social support to experience anxiety and depressive symptoms.

This study found that those who reside in their home countries experience lower coronavirus anxiety and higher psychological well-being than those residing in Northern Cyprus, or who reside in both. This finding could be linked to the fact that people feel safer around their loved ones and worry less than when they are far away from them.

#### Limitations

The study was based on self-reported data, which has been linked to such issues as social desirability and short-term recall problems.

#### Conclusion and Recommendations

The findings of this study provide information to lecturers and administrators related to nursing students' anxiety and psychological well-being in pandemic. Although nursing students do not have dysfunctional coronavirus anxiety, their anxiety levels should be monitored at regular intervals. Due to the suboptimal psychological well-being of students, psychosocial support and mental health services should be provided to those at risk of depression. Concerned authorities should establish online mental health programs that include such multidimensional psychological interventions as psychoeducation and self-monitoring.

Considering that the psychological well-being of nursing students can be affected by their anxiety levels, it may be suggested that students' situations be handled more sensitively in the subsequent pandemics. To broaden the scope of the study, it is suggested that future studies of this issue should involve the departments of other university faculties. The results of this study will provide information to researchers carrying out research on similar topics.

**Ethics Committee Approval:** Ethical approval for the study was obtained from Near East University Scientific Research and Ethics Committee (Approval Number: YDU/2021/90-1329, Date: 29.04.2021).

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