

Assessing Covid-19's Effects on Mental Health in Nursing Students During E-Learning in Pandemic

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KEYWORDS

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ABSTRACT

Introduction: Covid-19 declared by WHO as a pandemic, from the time of experiencing it for the first time until now has caused many deaths all over the world. As a consequence of this pandemic, all public and private institutions tried to adapt life and work. Academic institutions in this period choose to continue with online platforms. This sudden switch from face to face to online learning has caused not only problems during lessons but also in mental and physical health of the students.

Objectives: The study aims to evaluate the level of anxiety among nursing students who study at public nursing faculty in Tirana, Albania.

Methods: A cross-sectional and descriptive study was performed in April- May 2023 at Faculty of Technical Medical Science Tirana, Albania. The study involved nursing students in their third year of Bachelor and first year of Professional Master and Master of Science because only these students have taken online lessons. They were 278 in total.

Results: The students responded (n = 278) to a questionnaire following GAD7 and HAM-A with some other basic information. Our findings showed that the level of moderate, severe and very severe anxiety range 30.53%, 3.38% and 1. 53% respectively. A significant relationship was found between gender, age and psychological impact (p=.057; p=.001). The most dominant symptoms were headache (192, 69.10%) and eye irritation (191, 68.70%). 137,49.30% of the respondents think that the lockdown had moderate impact on study.

Conclusions: By applying different methods of assessing the level of anxiety, we found that our nursing students experienced anxiety caused on by the COVID-19 pandemic and isolation just like other nursing students around the world. Designing and consolidating strategies (mental health services or psychological counseling) by faculty members to face similar pandemic situations in the future, would help reduce anxiety among students because they will be professionals tomorrow, thus it is important to take care for their mental health.

1. Introduction

COVID-19 is an infectious disease experienced for the first time on December 2019. First reports of cases for an unknown viral pneumonia came from China. Since it took the proportions of a pandemic, spreading in many countries of the world, some measures were taken including: use of masks, physical distancing, proper hand wash, even home quarantine[1,2,3,4]. In Albania from the time that WHO declared covid-19 as a pandemic until now (at the time of writing May 2023) there are 333300 confirmed cases and 3596 confirmed deaths by this disease[5]. The first declared case was on 9 March and the lockdown was declared on 15 March 2020. This was the first and the last lockdown for Albania [6].

The rapid spread of this infection and the restrictive measures that were taken put many countries worldwide in crisis [7,8], especially health care system but, also affected all aspects of social life like school education, university, physical and mental health, economy,etc [9,10,11]. In these circumstance facing the lockdown the academic institutions choose to continue with e-learning as the only solution for this situation that the world was passing through.

Albania also found itself in the same conditions and was forced to withdraw from education face to face to on line platforms, and so it happened with the nursing students too. Students faced the discontinued of all clinical practices, exams or even laboratory practices and this situation caused many problems for them. Thus, various problems caused by Covid-19 are reflected in many studies. Mulyadi et al, 2021 [12] in his study shows not only the measures taken to prevent and control the spread of Covid-19, but also the impact of mental health on students and their future career [7]. It is also reported

negatively impact in physical and psychological health [13] on people especially causing stress and anxiety. 68% out of 1036 children and adolescents in China presented depression, anxiety or both. Camila de Figueiredo et al, conducted a study among children and adolescents aged 3-18 years and resulted that they have experienced symptoms like: inattention, worry and irritability during quarantine and online learning [14]. But also health care workers experienced high level of stress during pandemic according to several studies [15,16].

As a result of Covid-19 increased levels of stress and anxiety were also present in nursing students. 42.8% of nursing students experiencing moderate anxiety and 13.1% experienced severe anxiety was reported in the study conducted by Bella Savitsky et.al, 2020 [17]. In Turkey, Hakime Aslan and Hatice Pekince 2020, found that 31.69% out of 662 nursing student had a moderate level of stress during pandemic [18]. But also, other studies found moderate level stress in nursing students during this period [19,20]. By reviewing the various worldwide studies about Covid-19 pandemic and its impact, especially in education, we thought to evaluate the Covid-19 pandemic impact on mental health among our nursing students. Therefore, GAD-7 was used to evaluate the mental health status. It is used in screening the anxiety disorders [21]. Another tool that we used was HAM-A which evaluate both psychic and somatic anxiety.

2. Methodology

A cross-sectional and descriptive study was performed in April- May 2023 at Faculty of Technical Medical Science Tirana, Albania. The study involved nursing students in their third year of Bachelor and first year of Professional Master and Master of Science because only these students have taken online lessons. They were 278 in total. The inclusion criteria in this study were: students who participated in online learning during pandemic and those who wanted to participate by voluntary way in this study.

We used a self-administrated structured questionnaire. It was developed from the review of different literatures and adapted for our country [22,23]. The questionnaire included some sections like: general information (age, place of born, residence, academic year). Few questions about technological program used during online learning in pandemic, the time spent learning in classroom and at home before pandemic versus to pandemic time and how this period affected their daily activity and economy.

The next section had about 10 questions which are related to the activities performed during lockdown in pandemic. If they have done fitness exercises, if they helped the family buying food or other basic products. Or if they had health problems because of staying in technological equipment for a long time. While the last section deals with the assessment of anxiety level. To evaluate this, we used GAD-7 which is widely used. According reports, it is suitable and reliable to use among teenagers, students and adults [24,25]. There are seven questions included where each of them have four options: not at all, several days, more than half the days, nearly every day; scored from 0 to 3[26]. GAD-7 total score range from 0-21. 0-4: minimal anxiety, 5-9: mild anxiety, 10-14: moderate anxiety, 15-21: severe anxiety. And to understand the situation even better it is used HAM-A dating from 1959 which consist in 14 questions for both psychological and somatic symptoms scored from 0 to 4. Total score range from 0-56. > 17 indicate mild anxiety; 25- 30 indicate moderate –severe anxiety [27]. The data was coded by researchers using Microsoft Excel while statistical analysis was carried out in the SPSS 19 program. In the study, the significance level was taken as a P value < 0.05.

3. Results and Discussion

In this study, 278 students of the Faculty of Technical Medical Sciences (Nursing Faculty) were included voluntarily. The study population's demographic characteristics are shown in Table 1 below. The largest percentage in the study was the age group of 21-25 years (68.70%) of the total, as well as the female gender (238, 85.60%). 62.60% of respondents are born in urban area and regarding marital status the obtained results showed that 241 (86.70%) are not married and 221 of them live in an urban area. During online learning most of respondents took lessons in Tirana (81.70%)

Table 1 Study population's Demographic Characteristics

Particulars/Items	Percent of responses	(n)
Age group	SD	
<=20	28.80 (80)	.495
21-25	68.70 (191)	
26-30	2.50 (7)	
>=30	0.00 (0)	
Gender		
Female	85.60 (238)	
Male	14.40 (40)	
Birthplace		
Urban	62.60 (174)	
Rural	37.40 (104)	
Residence		
Urban	79.50 (221)	
Rural	20.50 (57)	
City of on-line study		
Tiranë	81.70 (227)	
Shkodër	5.00 (14)	
Elbasan	9.00 (25)	
Durrës	4.30 (12)	
Marital status		
Married	5.80 (16)	
Unmarried	86.70 (241)	
Relationship	7.60 (21)	

238(85.60%) out of 278 of respondents, study nursing and most of them are undergratuade students. In 83.10% of the students they were studying in the third academic year, while the others were in the first year of the professional master and scientific master (16.90%).

Regarding the use of the platform in the implementation of online learning, 173 (62.20%) had used the Classroom platform and the Zoom platform was less used (32.11.50%) (Table 2).

Table 2 Distribution of students according to study year and speciality

Particulars/Items	Percent of responses (n)
Bachelor	82.00 (228)
Professional Master	16.90 (47))
Scientific Master	1.10 (3)
Year of study	
The third year	83.10 (231)
The fourth year	16.90 (47)
Speciality of study	
Nurse	85.60 (238)
Physiotherapy	9.40 (26)
Laboratory technician	3.60 (10)
Speech therapist	1.40 (4)
You used	
Classroom	62.20 (173)
Zoom	11.50 (32)
Teams	26.30 (73)

Regarding the time spent in the normal period of studies at the faculty, 53.60% of the students have spent 3-5 hours at the faculty, while 62.60% of them studied 2 to 4 hours a day before the pandemic. If we compare the time spent studying at home before and during lockdown in covid-19 pandemic, we find a slight decrease in the average study time. Now we have 154(55.40%) students who read 2 to 4 hours per day even though they are obligated to stay at home all day. While we have a slight increase in study time 5 to 7 hours per day from 13.70% to 16.50%.

From the study we find out that most of the students (134, 48.20%) have had a good experience of online classes. But, also 127 (45.70%) students out of 278 in total were not satisfied with this new experience of learning.

To the question regarding the impact that lockdown had on studies, the respondents answered: 39(14%) lockdown had no impact, 137 (49.30%) had moderate impact, 36 (12.90%) had high impact and 66 (23.70%) thought that it had a severe impact (Table 3).

Table 3 Participants' comments about the education system during the Covid-19 lockdown period

Particulars/Items	Percent of responses (n)
What is your typical home study time, in hours per day?	
In less than two hours	23.00 (64)
two to four hours	62.60 (174)
five to seven hours	13.70 (38)
over eight hours	0.70 (2)
What is your typical study period at faculty on a typical day, in hours?	
In less than three hours	39.60 (110)
three to five hours	53.60 (149)
six to eight hours	6.50 (18)
How long did you study during lockdown?	
In less than two hours	24.80 (69)
two to four hours	55.40 (154)
five to seven hours	16.50 (46)
over eight hours	3.20 (9)
Your online learning experience	
Not different from the class	6.10 (17)
Good	48.20 (134)
Not desired	45.70 (127)
Impact the lockdown on your studies	
No impact	14.00 (39)
Moderate	49.30 (137)
High	12.90 (36)
Severe	23.70 (66)

During the time of staying at home, the students were asked how much they were involved in other activities inside home except online lessons, also if they experienced physical symptoms. As we see, most of the students (250, 77.30%) are involved in household work. While only 115(41.40%) of respondents answered that they spent time on creative work as a relief from the physical and mental load that transmitted staying at home; 101 (36.30%) of them managed time by doing fitness. Approximately 114 (41%) of students think that lockdown had a good effect in slowing down the spread of Covid-19 but there were also students (53, 19.10%) who were sceptical about the measure undertaken.

During the time that students went out to buy basic needs (food and other goods), most of them stated that they used the protective measures recommended. So, 265 (93.50%) of students have used masks when going out; 255 (91.70%) of them have used sanitizer; 220 (79.10%) of students have used washing hand and using sanitizer after coming home.

Another important element that we notice from the answers of the students in this group of questions (Tab.4) are also answers related to some health problems experienced during this time. These questions are divided into two sections. First section is related to symptoms as a result of long exposures in front of the screen and the most dominant symptom was headache (192, 69.10%) followed by eye irritation (191,68.70%). 161 (57.90%) of respondents have had back pain; 144(51.80%) of them have had shoulder pain; 130 (46.80%) have had sleeping disorders and the least dominant symptom was cramps while walking in 65 (23.40%) of students.

Second section is related to symptoms as a result of lockdown. 189 (60%) have experienced headache and less has been experienced mental stress in 126 (45.30%) out of 278 participant students.

Table 4 Participants' comments about other activities, COVID-19 safety measures and opinions about the lockdown

Particulars/Items	Percent of Responses (n)
Did you handle any home duties?	77.30% (215)
Did you practice in any physical activity?	36.30% (101)
Did you experience any health problems from high screen exposure?	
- Headache	69.10% (192)
- Disorder of sleep	46.80% (130)
- Pains during walking	23.40% (65)
- Eye irritation	68.70% (191)
- Back discomfort	57.90% (161)
- Pain in shoulders	51.80% (144)
Did you focus on your hobby during this period?	41.40% (115)
Did you experience any health problems during the Covid-19 lockdown?	
- Insomnia	39.60% (110)
- Disorder of sleep	44.60% (124)
- Headache	68.00% (189)
- Mental distress	45.30% (126)
Personal safety measures for Covid-19, when going outside	
- Wearing mask	93.50% (260)
- Applying sanitizer	91.70% (255)
Personal precautions taken for COVID-19 after entering home	
- Using soap to wash hands	95.30% (265)
- Applying sanitizer	54.00% (150)
- Both safety measures	79.10% (220)
What did you think about lockdown?	
- Not necessary	19.10% (53)
- Satisfactory	19.40% (54)
- Good	41.00% (114)
- Wise	20.50% (57)
Did you assist anyone at all throughout this situation?	52.90% (147)

The psychological effects during the COVID-19 outbreak according to distribution in age group and gender has shown that 12.22% of study population in the age group of 21-25 years have not experienced anxiety and 29.85% of them have suffered from low levels of anxiety (mild anxiety) and 23.37% of them have passed the pandemic period with moderate anxiety (age group 21-25 years).

Table 5 COVID-19's psychological effects on students based on age and gender (percentage of responders)

Anxiety	Age (Mean \pm SD)	Not Present (%)	Mild (%)	Moderate (%)	Severe (%)	Very Severe (%)	P-value
≤ 20 years	2.45 \pm 0.919	3.90 (11)	10.06 (28)	11.86 (33)	2.15 (6)	0.71 (2)	0.057
21-25 years	2.26 \pm 0.865	12.22 (34)	29.85 (83)	23.37 (65)	1.79 (5)	1.43 (4)	
26-30 years	1.43 \pm 0.4	1.07 (3)	0.00 (0)	0.00 (0)	0.00 (0)	0.00 (0)	
≥ 30 years	0.00 \pm 0.0	0.00 (0)	0.00 (0)	0.00 (0)	0.00 (0)	0.00 (0)	
Gender							
Female	2.40 \pm 0.859	10.16 (33)	30.17 (98)	28.02 (91)	3.38 (11)	1.53 (5)	0.001
Male	1.85 \pm 0.893	5.75 (16)	5.75 (16)	2.51 (7)	0.00 (0)	0.35 (1)	

Regarding the psychological impact according to gender, the results showed that in 30.17% of female students the level of anxiety was mild and in 28.02% of them it was moderate.

In 10.16% of respondents (female), the results showed that anxiety was not present

From the obtained results, the correlation between age, gender and psychological impact ($p=0.057$; $p=0.001$) is significant.

Table 6 Significant Correlations

Anxiety	Not Present	Mild	Moderate	Severe	Very Severe	P-value
Less than 2 h	10	21	30	3	5	0.018
2 to 4 h	31	73	44	6	0	
5 to 7 h	8	17	19	1	1	
More than 8 h	0	3	5	1	0	
No impact	5	2	1	10	21	0.006
Moderate	30	56	46	4	1	
High	11	13	12	0	0	
Severe	324	30	5	4	0	
Third year	31	91	94	10	5	0.000
Fourth year	18	23	4	1	1	

Table.6 presents a significant relationship between the level of anxiety and the time spent studying ($p=0.018$), the impact on following studies during the lockdown ($p=0.006$) and the year of study ($p=0.000$).

Discussion

For many, COVID-19 pandemic has been a major cause of stress [28]. Psychological crises vary in intensity amongst people, but they are particularly difficult for those who are at the core of crisis[29].

According to our survey, 35.44% of students (regardless of age group) were worried due to COVID-19 pandemic and its consequences. This was affected by anxiety according to levels average 35.92%, moderate 30.53%, severe 3.38% and very severe with 1.53% respectively. In a cross-sectional study in China during Covid-19 with 342 respondents undergraduated nursing students the prevalence of midle, moderate and sever anxiety was 36.5%, 17.0% and 18.5% respectively[30]. In a research carried out by Wenjun Cao et al., 2020 although the number of participants in the study is many times higher than in our study, we find similar percentages of experiencing anxiety. So in 7143 respondents, 21.3% had experienced midel anxiety, 2.7% moderate anxiety and only 0.9% had experienced sever level of anxiety. Another study, conducted in Greece by Chrysi K. Kaparounaki et al., 2020 shows that the level of anxiety among 1000 participating students was 42.5 % and more than half (66%) reported increased sleeping hours and impaired quality of life versus 44.60% of our respondents reported sleep disorders [31]. So, students may have psychological effects from public health emergencies, primarily in the form of worry, fear and anxiety [32]. While, for nursing students, the pandemic is undoubtedly a major source of stress and fatigue [33] because during lockdown they faced stress due to e-learning, fear of

clinical placement mistakes, and incompetence due to limited knowledge and poor online training quality [34].

According to the age group, the percentage of anxiety experienced among students for <20 years was at moderate level 11.86%, severe level 2.15% and very severe 0.71% (tab.5). Age group 21-25 years have experienced anxiety level between 23.37% moderate anxiety; 1.79% severe anxiety; 1.43% very severe anxiety. Bearing in mind that the student age is very active, the isolation as a consequence of lockdown, lack of interpersonal communication has influenced the experience of anxiety and depression among them [35]. And in the other hand, fear for academic performance and clinical practice influence the anxiety level [36].

Out of 278 students who participated in this survey most of them were female and 30.17% of them have experience anxiety compared male. This finding is not because the number of female students is higher compared the male students in this study but because women are more psychological vulnerable than men to the Covid-19 pandemic [37]. In a meta analysis conducted by Ahmet Metin et al., 2022 shows the reasons why female are more anxious. Because they freely express their concern, hormonal factors and also females are known for their ability to express emotions easily, while males tend to suppress them and appear strong [38].

Additionally, the current investigation has shown that anxiety generated by Covid-19 among students has influenced to the reduction of study time. Change in daily physical activities and the necessary conditions for effective online learning, such as network connection and learning space affect students' emotions [39].

Referring to the pandemic situation (lockdown), 45.70% of students indicated that online learning is unwanted. Video conferences can lead to fatigue due to intense focus and processing of non-verbal signals. Online learning which requires more screen time reduces social contacts and creates cognitive and emotional issues, can induce chronic fatigue in participants [40].

In trying to comprehend how the Covid-19 lockdown affected students' learning, it was noted a slight decrease in study hours, even though the students were obligated to stay at home.

Also, in previous study we have found that the change in lifestyle [41,42,43] and learning as a result of pandemic, has affected the experience of anxiety among nursing students [44].

At any time, but particularly during the COVID-19 pandemic, social support helps students feel less psychologically pressured [45] and changes their attitude to deal with any emergency for the future. Students experienced severe emotional strain as a result of the pandemic related lockdown, which had an impact on their daily lives. Individuals who performed physical activity during Covid-19 pandemic had reduced levels of anxiety, stress and depression, according to an online survey completed by 1154 participants [46].

The present research suggests that strong and efficient social support is essential for the appropriate development of public health studies in the event of an emergency.

4. Conclusion and future scope

Nursing students' mental health conditions may develop or worsen as a consequence of the Covid-19 outbreak.

By applying different methods of assessing the level of anxiety, we found that our nursing students experienced anxiety caused on by the COVID-19 pandemic and isolation just like other nursing students around the world. Student age was an important component of feeling anxiety, students 21-25 years were more concerned. Female students were shown to be more nervous than male students.

Students also need a lot of support because social support including here family and friends reduces students' psychological stress. In order to give students a sense of control and a secure educational framework that can adapt to changing circumstances, faculty members play a crucial role.

As the study highlights mental state problems faced by students during Covid-19 outbreak, it is important to take specific measures to reduce these problems because they are the greatest force in health care.

Designing and consolidating strategies (mental health services or psychological counseling) by faculty members to face similar pandemic situations in the future, would help reduce anxiety among students because they will be professionals tomorrow, thus it is important to take care for their mental health.

Limitation and Strength

This study focused on nursing students who experienced various effects of Covid-19 s pandemic and especially during lockdown when they attended online classes. The authors' findings showed that mental health, Covid-19 pandemic and academic status of nursing are in correlation. So, this study offers valuable information for health workers and faculties members to enhance the mental health of their nursing students.

Our study was cross- sectional and self-report survey. Because the participants were only students who have studied in public faculty our findings may restrict the generalizable for all students in Albania. Therefore, in order to achieve, more general findings of how Covid-19 affects students' mental health, researchers should expand the number of participants from various faculties in Albania in futures studies.

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