

## Original Article

# Physio-Psycho-Social Response of Nursing Students to the Covid-19 Pandemic

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### Abstract

**Objectives:** The aim is to evaluate nursing students' bio-psycho-social responses to the Covid-19 pandemic.

**Methods:** This is a descriptive and correlational research. This study was conducted with the participation of 1,002 students.

**Results:** It was found that nursing students' physio-psycho-social responses were above medium level, and there were statistically significant differences in nursing students' physio-psycho-social responses on the basis of variables of 'gender', 'person(s) with whom the participant student lived during the pandemic', 'participant student's place of residence during the pandemic' and 'having any acquaintance diagnosed with Covid-19'.

**Conclusion:** The socio-demographic characteristics, emotions and stressors experienced during the pandemic affected the level of nursing students' bio-psycho-social response scores.

**Keywords:** Covid-19, Education, Nursing Student, Physio-Psycho-Social

### Introduction

New coronavirus emerged in China towards the end of 2019, and was declared as a pandemic by the World Health Organization (WHO) along with its spread to several countries in a short period of time (Deng & Peng, 2020). The first case in Turkey was reported on March 10, 2020, and the number of people infected with coronavirus reached 17.004.677 in Turkey on February 05, 2023 (WHO, 2023).

This infectious large-scale public health problem exerted a big pressure on governments, healthcare providers and people. Besides being a fatal virus, the pandemic induced people to have negative emotions in connection with uncommon

changes in the normal course of life, flexible work hours, implementation of curfews and the use of distance-learning as a substitute for formal education (Xiao, 2020). The 'stress' will be the first reaction to the pressure which is exerted on people in conjunction with the pandemic. In this situation, spiritual state, physiology, thoughts and behaviors of people will be transformed. It will not be easy for people to cope with or adapt to this stress. Sustained stress can give rise to depression and can even adversely affect individuals' daily lives and relations (Liu et al., 2020).

Together with the pandemic, the formal education which required face-to-face interaction was interrupted and, as in the entire world, the distance-learning model was

applied in Turkey as well. The nursing students who obtained both practical and theoretical education were among students that had a break from the formal education. Being confronted with this process whose duration is unclear and following up online courses and even taking online exams during this period can cause students, who did not yet complete their development, to have physiological, psychological and social adaptation problems. Departing from this point, the aim of this study is to evaluate nursing students' physio-psycho-social responses to the period of Covid-19 pandemic. The research questions of the study are as follows:

1. What are the common physio-psycho-social responses in nursing students?
2. What are the factors affecting the physio-psycho-social response in nursing students?

### **Material and Methods**

This study was conducted as a descriptive and correlational study to evaluate nursing students' physio-psycho-social responses to the Covid-19 pandemic.

**The study population** was comprised of students of the Faculty of Nursing of a state university in eastern Turkey. There were approximately 1400 students in the nursing faculty. The faculty approximately has 1.400 nursing students. The sample size of the study was calculated as 671 by G-Power software program (Copyright 2010-2013 Heinrich-Heine-Universität Düsseldorf) for Windows (Faul et al., 2007). However, for the purpose of further raising the reliability of the research, more students were included in the research and thus the research was conducted with the participation of 1.002 students.

### **Data collection tools**

**The Personal Information Form:** A personal information form was developed by the researchers. It includes 8 questions concerning age, gender, place of residence, whether the family had regular income, person(s) with whom the participant lived during the Covid-19 pandemic, the emotion most deeply felt alongside the Covid-19 pandemic, whether any acquaintance was diagnosed with Covid-19, stressors confronted along with Covid-19 pandemic.

**Physio-Psycho-Social Response Scale:** This scale, developed by Sheu et al., contains 21 items about symptoms relating to the students' physical, psychological and social health. The validation and reliability test for the scale in Turkish was performed in 2015 by Karaca et al., These three factors were labeled as social behavioral symptoms (questions 2,3,4,5,8 and 11), emotional symptoms (questions 1,6,7,9,10,12 and 14), and physical symptoms (questions 13,15,16,17,18,19,20 and 21). Through a 5-point Likert-type scale, its items are scored as '4 – Always, 3 – Often, 2 – Sometimes, 1 – Rarely, 0 – Never'. The total scores ranged from 0 to 84. (Subscale total scores: 24 for social behavior symptoms, 28 for emotional symptoms, 32 for physical symptoms). A higher score indicated the presence of more symptoms and poorer physio-psycho-social status. Cronbach's alpha coefficient of the scale was calculated by Sheu et al. 0.94; Karaca et al. found it as 0.90. In this study, the Cronbach's alpha coefficient of the scale was calculated as 0.88.

**Data collection and analysis:** The collection of data took place from April 1 to June 1 in 2020. The data collection forms prepared with the Google Docs program were sent to students online (via e-mail and WhatsApp) on the dates of the study, and they were asked to fill in the forms and share them with those around them. 1.002 students were reached with this online survey form. When students asked about the questions which they failed to understand, researchers answered them with no comment. The R Stats Package was employed for analyzing the data. Nursing students' descriptive characteristics were expressed as number, percentage, mean and standard deviation. For testing the internal consistency of the Physio-Psycho-Social Response Scale, Cronbach's Alpha coefficient was computed. In order to identify the predictors of the dependent variable, stepwise regression analysis was utilized. In this study, statistical significance was identified if the p-value was lower than 0.05 ( $p < 0.05$ ) at 95% confidence interval.

**Ethical considerations:** Ethical committee approval was obtained from the University of Health Sciences Scientific Research and Publication Ethics Committee (IRB no:

2020/700). Nursing students were informed about the purpose of the study. All procedures performed were in accordance with the ethical standards of the national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## Results

In the research, it was ascertained that 65.2% of nursing students were female; mean age was  $18.62 \pm 3.63$  years; of participant nursing students, 50.9% lived in districts of the city; 36.1% lived with their families during the pandemic; 82.6% had no acquaintance diagnosed with Covid-19. It was discerned that the emotion which was most frequently felt by students was worry (27.3%) and the stressor which had the deepest impact on students was the anxiety about education (44.5%).

As per Table 3, the review of the effect size of independent variables indicated that the effect size of 'anxiety about daily life' was alone

0.61, the effect size of 'anxiety about daily life' and 'place of residence' was 0.65, the effect size of 'anxiety about daily life', 'place of residence' and 'anger' was 0.67, the effect size of 'anxiety about daily life', 'place of residence', 'anger' and 'loneliness' was 0.69, the effect size of 'anxiety about daily life', 'place of residence', 'anger', 'loneliness' and 'fear' was 0.70, the effect size of 'anxiety about daily life', 'place of residence', 'anger', 'loneliness', 'fear' and 'worry' was 0.72, and the effect size of 'anxiety about daily life', 'place of residence', 'anger', 'loneliness', 'fear', 'worry' and "the degree of relationship with acquaintance(s) diagnosed with Covid-19" was 0.73.

Variables of 'age', 'gender', 'income level', 'person(s) with whom the participant lived during Covid-19 pandemic', 'anxiety about economic circumstances', 'anxiety about education' and 'anxiety about social support' were left out of the regression model as of the 7<sup>th</sup> model.

**Table 1. Nursing students' socio-demographic data (N=1002)**

| Characteristics                                                        | Frequency<br>(n) | Percentage<br>(%) |
|------------------------------------------------------------------------|------------------|-------------------|
| Gender                                                                 |                  |                   |
| Female                                                                 | 653              | 65.2              |
| Male                                                                   | 349              | 34.8              |
| Mean Age $\pm$ SD                                                      | 18.62 $\pm$ 3.63 |                   |
| Place of residence                                                     |                  |                   |
| City                                                                   | 191              | 19.1              |
| District                                                               | 501              | 50.0              |
| Village                                                                | 310              | 30.9              |
| Whether the family had regular income                                  |                  |                   |
| Yes                                                                    | 430              | 42.9              |
| No                                                                     | 572              | 57.1              |
| Person(s) with whom the participant lived during the Covid-19 pandemic |                  |                   |
| Alone                                                                  | 147              | 14.7              |
| With family                                                            | 362              | 36.1              |
| With friends                                                           | 317              | 31.6              |
| With relatives                                                         | 176              | 17.6              |
| *The emotion most deeply felt alongside the Covid-19 pandemic          |                  |                   |
| Fear                                                                   | 433              | 25.7              |
| Worry                                                                  | 459              | 27.3              |
| Anger                                                                  | 444              | 26.4              |

|                                                      |     |      |
|------------------------------------------------------|-----|------|
| Loneliness                                           | 347 | 20.6 |
| Whether any acquaintance was diagnosed with Covid-19 |     |      |
| Yes                                                  | 174 | 17.4 |
| No                                                   | 828 | 82.6 |
| *Stressors confronted along with Covid-19 pandemic   |     |      |
| Anxiety about economic circumstances                 | 205 | 10.7 |
| Anxiety about education                              | 853 | 44.5 |
| Anxiety about daily life                             | 556 | 29.0 |
| Anxiety about social support                         | 302 | 15.8 |

\* More than one option was ticked off.

**Table 2. Mean scores obtained by nursing students from the Physio-Psycho-Social Response Scale and its sub-scales**

| Scale/Sub-Scale                     | Mean $\pm$<br>Standard Deviation | Min-Max |
|-------------------------------------|----------------------------------|---------|
| Biyo-Psycho-Social Response Scale   | 47.33 $\pm$ 9.554                | 31-83   |
| Emotional Symptoms Sub-Scale        | 20.23 $\pm$ 4.060                | 13-28   |
| Physical Symptoms Sub-Scale         | 18.06 $\pm$ 3.256                | 11-24   |
| Socio-Behavioral Symptoms Sub-Scale | 20.24 $\pm$ 4.755                | 12-37   |

**Table 3. Predictors of Physio-Psycho-Social Response as per the regression analysis**

| Model                    | Unstandardized coefficients |       | Standardized coefficients |         | Sig  | F        | Sig               | R                 | R-squared<br>Effect Size |
|--------------------------|-----------------------------|-------|---------------------------|---------|------|----------|-------------------|-------------------|--------------------------|
|                          | B                           | SE    | Beta                      | t       |      |          |                   |                   |                          |
| 1 (Constant)             | 69.898                      | .621  |                           | 112.592 | .000 | 1340.479 | .000 <sup>a</sup> | .787 <sup>a</sup> | .619                     |
| Anxiety about daily life | -15.327                     | .419  | -.787                     | -36.613 | .000 |          |                   |                   |                          |
| 2 (Constant)             | 62.006                      | 1.050 |                           | 59.049  | .000 | 778.049  | .000 <sup>b</sup> | .808 <sup>b</sup> | .654                     |
| Anxiety about daily life | -13.839                     | .431  | -.710                     | -32.075 | .000 |          |                   |                   |                          |
| Place of residence       | 2.768                       | .304  | .202                      | 9.101   | .000 |          |                   |                   |                          |
| 3 (Constant)             | 65.528                      | 1.109 |                           | 59.085  | .000 | 577.025  | .000 <sup>c</sup> | .823 <sup>c</sup> | .678                     |
| Anxiety about daily life | -13.148                     | .426  | -.675                     | -30.878 | .000 |          |                   |                   |                          |
| Place of residence       | 2.815                       | .294  | .205                      | 9.585   | .012 |          |                   |                   |                          |
| Anger                    | -3.029                      | .387  | -.159                     | -7.828  | .000 |          |                   |                   |                          |
| 4 (Constant)             | 68.765                      | 1.212 |                           | 56.719  | .000 | 460.235  | .000 <sup>d</sup> | .831 <sup>d</sup> | .691                     |
| Anxiety about daily life | -12.514                     | .430  | -.642                     | -29.095 | .000 |          |                   |                   |                          |
| Place of residence       | 2.940                       | .288  | .214                      | 10.195  | .002 |          |                   |                   |                          |
| Anger                    | -3.246                      | .381  | -.170                     | -8.527  | .000 |          |                   |                   |                          |
| Loneliness               | -2.434                      | .405  | -.120                     | -6.009  | .000 |          |                   |                   |                          |
| 5 (Constant)             | 72.621                      | 1.311 |                           | 55.388  | .000 | 397.364  | .000 <sup>e</sup> | .841 <sup>e</sup> | .707                     |

|   |                                                                         |         |       |       |         |      |         |                   |                   |      |
|---|-------------------------------------------------------------------------|---------|-------|-------|---------|------|---------|-------------------|-------------------|------|
| 6 | Anxiety about daily life                                                | -11.795 | .432  | -.605 | -27.296 | .000 | 356.201 | .000 <sup>f</sup> | .850 <sup>f</sup> | .722 |
|   | Place of residence                                                      | 2.954   | .281  | .215  | 10.518  | .000 |         |                   |                   |      |
|   | Anger                                                                   | -3.556  | .374  | -.186 | -9.518  | .000 |         |                   |                   |      |
|   | Loneliness                                                              | -2.746  | .397  | -.136 | -6.914  | .000 |         |                   |                   |      |
|   | Fear                                                                    | -2.539  | .375  | -.133 | -6.765  | .000 |         |                   |                   |      |
|   | (Constant)                                                              | 76.188  | 1.384 |       | 55.030  | .000 |         |                   |                   |      |
|   | Anxiety about daily life                                                | -11.205 | .430  | -.575 | -26.042 | .001 |         |                   |                   |      |
| 7 | Place of residence                                                      | 2.991   | .274  | .218  | 10.930  | .000 | 316.432 | .000 <sup>g</sup> | .854 <sup>g</sup> | .730 |
|   | Anger                                                                   | -3.877  | .367  | -.203 | -10.559 | .000 |         |                   |                   |      |
|   | Loneliness                                                              | -2.830  | .387  | -.140 | -7.309  | .000 |         |                   |                   |      |
|   | Fear                                                                    | -2.644  | .366  | -.138 | -7.221  | .000 |         |                   |                   |      |
|   | Worry                                                                   | -2.414  | .361  | -.126 | -6.687  | .000 |         |                   |                   |      |
|   | (Constant)                                                              | 80.909  | 1.693 |       | 47.785  | .000 |         |                   |                   |      |
|   | Anxiety about daily life                                                | -10.973 | .428  | -.563 | -25.664 | .000 |         |                   |                   |      |
|   | Place of residence                                                      | 2.921   | .271  | .213  | 10.794  | .000 |         |                   |                   |      |
|   | Anger                                                                   | -4.288  | .373  | -.225 | -11.503 | .000 |         |                   |                   |      |
|   | Loneliness                                                              | -3.263  | .393  | -.161 | -8.300  | .000 |         |                   |                   |      |
|   | Fear                                                                    | -3.025  | .370  | -.158 | -8.167  | .000 |         |                   |                   |      |
|   | Worry                                                                   | -2.829  | .367  | -.148 | -7.707  | .000 |         |                   |                   |      |
|   | The degree of relationship with acquaintance(s) diagnosed with Covid-19 | -.858   | .182  | -.093 | -4.724  | .001 |         |                   |                   |      |

- a. Predictors: (Constant), Anxiety about daily life  
b. Predictors: (Constant), Anxiety about daily life, Place of Residence  
c. Predictors: (Constant), Anxiety about daily life, Place of Residence, Anger  
d. Predictors: (Constant), Anxiety about daily life, Place of Residence, Anger, Loneliness  
e. Predictors: (Constant), Anxiety about daily life, Place of Residence, Anger, Loneliness, Fear  
f. Predictors: (Constant), Anxiety about daily life, Place of Residence, Anger, Loneliness, Fear, Worry  
g. Predictors: (Constant), Anxiety about daily life, Place of Residence, Anger, Loneliness, Fear, Worry, The Degree of Relationship with Acquaintance(s) Diagnosed with Covid-19  
Dependent Variable: Bio-Psycho-Social Response

## Discussion

Effects of Covid-19 pandemic to which the entire world bears witness and with which the entire world fights are deeply felt by the whole society. Besides serious health problems and psychological stress, it is evident that measures such as closing schools, universities, libraries and museums down and calling conferences and scientific meetings off affect students who are directly involved with education and instruction activities.

It was discerned that researches which analyzed the physio-psycho-social response given by nursing students to stress reached

different results. In the research by Ergin and Çevik, it was found that the level of physio-psycho-social response given by nursing students was below average. Also, in research by Durmus and Gercek, an analogous result was obtained. In research performed by Chen and Hung in Taiwan, it was again ascertained that the response given by nursing students to the stress experienced by them in clinical practices was below average (Chen & Hung, 2014). On the other hand, in the research by Labrague, it was discerned that the physio-psycho-social response level was above average (Labrague, 2014). It is thought that physical and psychological stress which was



triggered by the pandemic adversely affected the students. It can be asserted that the circumstances such as the interruption of education of students for a certain period of time and the compulsory changes in their habits had effects on the physio-psycho-social response.

Results of this research indicated that, on the basis of certain demographic variables such as 'gender', 'person(s) with whom the student lived during the pandemic', 'the place of residence during the pandemic' and 'having any acquaintance diagnosed with Covid-19', there were statistically significant differences in physio-psycho-social response given by nursing students. It was found that female nursing students had higher levels of physio-psycho-social stress on average. It can be suggested that the research by Wang reached a similar result which was supportive of this finding of our research (Wang et al., 2020). Upon the review of relevant literature, it was observed that different results were obtained in a variety of researches. There was a statistically significant difference in physio-psycho-social response on the basis of 'gender' variable as per the research by Chen and Hung (Chen & Hung, 2014), however, in contrast to our finding, Abd El All and Abou Shousha found that there was no statistically significant difference in physio-psycho-social response on the basis of 'gender' variable (Abd El All & Abou Shousha, 2015). Losada-Baltar et al. put forward that women reported that they had more intense feelings of loneliness and distress in association with the pandemic (Losada-Baltar et al., 2020). It can be stated that women's feeling of certain negative emotions more intensely toward the pandemic elevated their physio-psycho-social stress levels.

In this research, it was discerned that physio-psycho-social stress levels of nursing students who lived with their families during the pandemic were lower than those of other students. Social support is a crucial social factor. Social support refers to care and support which people feel coming from other people (Brugha et al., 1987). It is argued that the social support helps to lower the anxiety level of health staff as friends or family members provide social and emotional

support and share their empathy (Yang et al., 2018). Research carried out in China identified that individuals who had family support during Covid-19 pandemic had lower rate of having depression. Again, according to the results of the same research, it was discerned that individuals who had a family member diagnosed with Covid-19 and did not have sufficient social support had higher likelihood of being depressive (Kong et al., 2020). As is seen, the social support coming especially from the family has big importance. The family serves as a highly crucial supportive factor so that the individual will not have the feeling of loneliness. Results of our research demonstrated that the loneliness was a significant predictor of the physio-psycho-social response. Therefore, it is considered that individuals who lived with their families were better able to cope with this process.

For the purpose of analyzing the effects of demographic variables on nursing student's physio-psycho-social response scores, stepwise analysis of the linear regression was utilized in this research. As per the results of this research, it was found that, of independent variables, 'anxiety about daily life' had the most significant effect. This variable was consecutively followed by variables of 'anger', 'loneliness', 'fear', 'place of residence' and 'degree of relationship of the acquaintance(s) diagnosed with Covid-19' (Table 3). According to the research by Okruzsek, most of the participants think that the Covid-19 pandemic affected their daily lives (59%) and occupational activities (80%) (Okruzsek et al., 2020). Upon a closer look at these results, it is thought that changes occurring in daily life affected students negatively. Nevertheless, there are also studies asserting the opposite of our findings. In research by Sheu et al., it was asserted that stressors relevant to daily life did not affect students significantly (Sheu et al., 2002). In another research which was conducted this time by Labrague, it was found that demographic variables were not associated with anxiety about daily life (Labrague, 2014). In the research which was performed by Pun et al. with the participation of nurses who had bachelor's degree, it was inferred that the anxiety about daily life was

in general at moderate level although physio-psycho-social response scores were generally at high level (Pun et al., 2018). As per the relevant literature, it is discerned that anxiety about daily life did not affect physio-psycho-social response significantly. It is considered that statistically significant difference in physio-psycho-social response arose from global measures and changes in lifestyles which human beings never experienced before.

This research indicated that a majority of nursing students moved to districts or villages from the city in this period and wanted to live in such places until this period came to an end. Even if cities offer several opportunities for the satisfaction of thematic and basic needs, the city life is not supportive in the period of pandemics. On the other hand, in small rural areas where almost everybody knows each other, the circumstances are different. The support extended by the neighborhood and neighbors became a solution for overcoming challenges associated with pressures exerted by natural forces. An unanticipated epidemiological case provided the opportunity both to observe the fabric of social life of the social reality more clearly and to reconsider human beings' pursuit of security (Mamzer, 2020). People from every part of the USA escape from urban areas which has high infection rates and take refuge in the perceived security and natural beauty of rural areas. While some people who achieve this mobility have a second residence in such rural areas, some other people are prepared to sacrifice 10,000 US Dollars per month for temporary housing depending on the region (Petersen, 2020). People want to go to rural areas together with their families because of both the thought that rural areas are safer and their growing economic concerns (Fisher et al., 2020). It can be asserted that the deterioration of economies along with the pandemic gave rise to increased unemployment across the world. People's economic concerns and the thinking that rural areas are safer for being protected from the pandemic might have encouraged the movement toward rural areas.

In the case of viral epidemics, it was observed that human beings had the fear of being

infected with the disease or fear of death, feelings of desperation and stigmatization (Hall et al., 2008). In the research by Wang et al., it was found that, of all participants, 53.8% rated the psychological effect of Covid-19 pandemic as moderate or acute, 16.5% had moderate and acute depressive symptoms, 28.8% had moderate and acute anxiety symptoms and 8.1% had moderate and acute levels of stress. As per the results of the same research, 75.2% of participants were worried that family members would be infected with Covid-19 (Wang et al., 2020). In research carried out in the UK in 2009-2010, it was ascertained that approximately 10%-30% of the people were highly or quite worried about being infected with the virus during H1N1 pandemic (Rubin et al., 2010). As the schools and businesses are closed down, negative emotions felt by individuals are multiplied and continue to rise exponentially (Van Bortel et al., 2016). For instance, Brooks et al. identified several different psychological reactions of people ranging from anxiety and depression to fear and anger during the period of pandemic (Brooks et al., 2020). Berg-Weger and Morley signify that all human beings at all age groups particularly the elder people experienced social isolation and loneliness more or less in this current process (Berg-Weger & Morley, 2020). As is viewed, pandemics have grave effects on the psychology and emotions of people. Other than that, nurses were positioned in the furthest point in the front line of the fight against this pandemic. It is highly likely that nursing students were psychologically affected by this landscape and had complicated feelings.

Covid-19 pandemic affected the entire world and gave rise to changes which we never experienced in our daily lives before. It can be asserted that nursing students have anxieties and fears about changes in daily life. Moreover, having emotions such as anger, loneliness and worry can exacerbate these anxieties even further.

**Conclusion and Recommendations:** At the end of this research, it was ascertained that nursing students' physio-psycho-social response scores were above average, and there were statistically significant differences

in physio-psycho-social response scores on the basis of variables of 'gender', 'person(s) with whom the participant student lived during the pandemic', 'place of residence during the pandemic' and 'having any acquaintance diagnosed with Covid-19'. Also, it was discerned that the anxiety about daily life had the largest effect on physio-psycho-social response scores, and socio-demographic characteristics and emotions and stressors experienced during the pandemic affected the level of nursing students' physio-psycho-social response scores. In light of these results, it is recommended that nursing students' physio-psycho-social responses to Covid-19 pandemic should be evaluated, online consultancy should be offered to nursing students, assistance should be extended to nursing students for coping with stressors to which they are exposed and further studies should be performed on wider and different groups.

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