

# Fear of COVID-19, Self-Efficacy, and Well-Being of Nursing Students: A Multicenter, Web-Based, Correlational Study

## Hemşirelik Öğrencilerinde COVID-19 Korkusu, Öz-Etkililik ve İyi Hâli: Çok Merkezli, Web Tabanlı, Korelasyonel Bir Çalışma

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**ABSTRACT Objective:** To investigate the relationship between coronavirus disease-2019 (COVID-19) fear, perceived self-efficacy, and well-being among nursing students. **Material and Methods:** A multicenter, web-based, and correlational design was used. The survey contained four sections including student information form, the fear of COVID-19, the general self-efficacy, and the flourishing scales, and was available for nursing students receiving education in nursing faculties/departments in Türkiye from March 16 to May 15, 2021. The data were analyzed using an independent sample t-test, one-way analysis of variance, correlation analysis, and the structural equation model. **Results:** A total of 1,028 nursing students participated. The participants reported a moderate COVID-19 fear, self-efficacy, and well-being. COVID-19 fear, self-efficacy, and well-being were significantly higher in females, those in private universities, and received face-to-face clinical training during the pandemic. In addition, females, older ones, who were in the fourth year, continued private schools, received face-to-face clinical training, and felt professionally competent reported greater well-being. Increased COVID-19 fear was associated with decreased self-efficacy. While the COVID-19 fear explained 0.9% of the variance in self-efficacy, it did not explain the change in variance of well-being. **Conclusion:** As the COVID-19 fear, perceived self-efficacy, and well-being may change based on multiple factors, further studies may focus on these variations, such as sociodemographic characteristics, and educational and clinical/laboratory facilities. Comprehensive support programs for students should be initiated in nursing institutions during the outbreak.

**Keywords:** COVID-19; fear; nursing education; self-efficacy; well-being

**ÖZET Amaç:** Bu araştırma, hemşirelik öğrencilerinde koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] korkusu, algılanan öz-etkililik ve iyilik hâli arasındaki ilişkinin belirlenmesi amacıyla yürütülmüştür. **Gereç ve Yöntemler:** Çok merkezli, web-tabanlı ve korelasyonel araştırma tasarımı kullanılmıştır. Dört bölümden oluşan anket formu, öğrenci bilgi formunu, COVID-19 korkusu, genel öz-etkililik ve iyilik hâli ölçeklerini içermekte olup, Türkiye’de hemşirelik fakülteleri/bölgülerinde eğitim alan öğrencilerin erişimine 16 Mart-15 Mayıs 2021 tarihleri arasında açık tutulmuştur. Araştırma verileri, bağımsız örneklem t-testi, tek yönlü varyans analizi, korelasyon analizi ve yapısal eşitlik modeli kullanılarak analiz edilmiştir. **Bulgular:** Araştırmaya toplam 1.028 öğrenci katılmıştır. Katılımcıların COVID-19 korku, öz-etkililik ve iyilik hâli durumlarının orta düzeyde olduğu belirlenmiştir. Kadınlarda, özel üniversitede öğrenim gören ve pandemi sırasında yüz yüze klinik eğitim alanlarda COVID-19 korku, öz-etkililik ve iyilik hâli ölçek puanları anlamlı düzeyde yüksek bulunmuştur. Ayrıca kadın, yaşı büyük olan, dördüncü sınıfta olan, özel üniversitede eğitime devam eden, yüz yüze klinik eğitim alan ve profesyonel açıdan yetkinliği yüksek olan öğrenciler iyilik hâlinin daha yüksek olduğunu bildirmiştir. COVID-19 korkusu arttıkça öz-etkililik düzeyinin düştüğü belirlenmiştir. COVID-19 korkusunun öz-etkililik ölçüğü toplam puanlarındaki varyansın %0,9’unu açıkladığı, iyilik hâli toplam puanları varyansı üzerine etkili olmadığı belirlenmiştir. **Sonuç:** COVID-19 korkusu, öz-etkililik ve iyilik hâli birçok faktöre bağlı değişim gösterdiğinden ileri araştırmaların sosyodemografik özellikler, eğitim ve klinik/laboratuvar imkânları gibi etkili olabilecek başka faktörleri incelemesi önerilebilir. Hemşirelik eğitimi veren kurumlarda salgın durumlarında öğrenciler için kapsamlı destek programları başlatılmalıdır.

**Anahtar Kelimeler:** COVID-19; korku; hemşirelik eğitimi; öz-etkililik; iyilik hâli

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The coronavirus disease-2019 (COVID-19) pandemic was an unprecedented social and health emergency and had stressed healthcare systems worldwide.<sup>1</sup> The rate of disease spread, increasing deaths, and severe symptoms including fever, fatigue, dyspnea, governmental restrictions, such as social distancing, staying at home, the obligation to wear a mask, shutting down educational institutions, and spending most of the day at home, as well as social media platforms had increased the fear of COVID-19.<sup>1,2</sup>

Nursing students are quite vulnerable to fear and psychological distress.<sup>3</sup> In Türkiye, during the COVID-19 pandemic, a nation-based closure of universities was imposed from the beginning of March 2020, which led to distance learning, even for nursing students.<sup>5</sup> The COVID-19 pandemic poses important threats to the educational system due to rapid adaptation to teaching modalities and regulations. The unprecedented distance teaching abruptly suspended face-to-face contact between the lecturers and students and caused fear and stress.<sup>3</sup> Although core technologies, such as the Zoom platform for online classes, open-access simulations, clinical reasoning scenarios, skills modules, virtual patient encounters, and videos to support online learning were used, hands-on clinical training was still required to gain professional competencies.<sup>3</sup> Besides, nursing schools were not well-prepared for pandemic conditions. They attempted to provide psychosocial support services, including online counselling, comprehensive information about COVID-19, training on coping strategies, crisis support services, peer support and social networks offered to nurse students using the resources available.<sup>3,5</sup> The students were worried about the achievement and clinical learning outcomes through distance education. Moreover, nursing students were concerned about what future problems in their careers would occur due to these changes and interruptions in their education.<sup>6</sup> Suliman et al. emphasized that nursing students had experienced fear, anxiety, burden, and burnout during the pandemic and concerns regarding the competencies and intended learning outcomes.<sup>7</sup>

The psychological burden and lack of self-competence in clinical training during the pandemic may

also have had detrimental effects on self-efficacy.<sup>8</sup> Self-efficacy covers beliefs about capabilities that directly influence what individuals do and how much exertion they exert.<sup>9</sup> Previous reports have highlighted that higher self-efficacy might contribute to resilience, academic performance, productivity, and self-motivation, as well as the well-being and better management of stressful conditions among nursing students.<sup>10,11</sup>

These issues, including fear and the radical regulations in the education system and daily life during the pandemic, might have also influenced the perceived well-being. Well-being is defined as happiness, pleasant emotion, life satisfaction, and the absence of unpleasant moods and emotions.<sup>12-14</sup> Students with higher well-being might use personal protective factors and effective coping styles to overcome educational stress.<sup>14,15</sup> There has been an increasing interest in examining the effect of the COVID-19 pandemic on fear, anxiety, depression, confidence and interaction with patients, mental well-being, and self-efficacy among nursing students.<sup>16,17</sup> Current reports have highlighted that age, gender, years of experience, academic qualifications, anxiety, and depression may be associated with self-efficacy and well-being.<sup>15-19</sup> However, little information exists on which socio-demographic characteristics and provided theoretical and clinical training features for nursing students during the pandemic may influence perceived fear, self-efficacy, and well-being. Therefore, this study aims to fill this literature gap by showing the relationship between these three variables and how fear of COVID-19 impacts self-efficacy and well-being in nursing students. The study focused on the following research questions:

- What are the levels of fear of COVID-19, self-efficacy, and well-being among nursing students?
- Do fear of COVID-19, self-efficacy, and well-being differ by nursing students' characteristics?
- Are there any direct and indirect effects of COVID-19 fear on self-efficacy and well-being of nursing students?

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## MATERIAL AND METHODS

### STUDY DESIGN

This study used a web-based correlational design. The Strengthening the Reporting of Observational Studies in Epidemiology Checklist and Checklist for Reporting Results of Internet E-Surveys (CHERRIES) were utilized to report data.<sup>20</sup>

### PARTICIPANTS

According to the data from the Turkish Republic Student Selection and Placement Center (March 2021), a total of 133 institutions were awarding bachelor's nursing degree. The sample size was calculated based on previous research that power was set at 90%, and the alpha value was determined as 0.05; the analysis revealed that the minimum required sample size was 920.<sup>18</sup> The authors intended to include all nursing schools (92 public and 41 private) to reach a representative sample.<sup>4</sup> However, 55 universities contributed to the study. Those 10 schools were private (n=248), while the remaining ones were public (n=780). Students, who were older than 18 years, those who continued to education in public or private nursing schools, who were in the first, second, third, and fourth class, and who voluntarily contributed were included.

### DATA COLLECTION AND INSTRUMENTS

Following ethical approval and permission from the institutions, researchers contacted targeted nursing schools and requested them to send the anonymous electronic survey to their students. The online survey link was generated using Google Forms, and the invitation link was sent to nursing students through e-mail or/and WhatsApp Messenger Groups by the related administrative department of schools. On clicking the URL link, participants were directed to the cover letter detailing the study aim, the length of the survey, data storing, anonymity, and contact details of the investigators. To obtain the consent, the question "do you agree to participate in this survey" was asked at the bottom of the first page. The survey was available for 8 weeks, from March 16 to May 15, 2021, to allow enough time. Multiple survey entries were prohibited by using unique individual web links.

Survey completion took a minimum of 20 minutes, and a maximum of 30 minutes. The survey data were stored in a database on a password-protected computer as an encrypted file. The participants completed the student information form, as well as scales for fear of COVID-19, self-efficacy, and well-being, which have been explained in detail below:

### STUDENT INFORMATION FORM

This form developed based on the literature composed of three sections with a total of 10 questions.<sup>15-19</sup> The first section included four socio-demographic questions including age, sex, university type, and academic year. The second section contained three questions regarding theoretical and clinical training during the pandemic, the content of the clinical training, and the perceived extent of professional competence. The last section comprised three questions on COVID-19, such as being diagnosed with COVID-19, having a relative diagnosed with COVID-19, and loss of relatives due to COVID-19.<sup>17-19</sup> The form was presented to the opinion of 5 instructors in the nursing education field, and an expert opinion was received. Some modifications were performed considering the comments, and the content validity of the form was found acceptable.

### FEAR OF COVID-19 SCALE

This scale was developed by Ahorsu et al. to evaluate fear associated with the pandemic.<sup>11</sup> The scale consists of seven items under a single dimension. Potential answers for each item are given on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Possible scores range from 7 to 35, with higher scores indicating greater fear of COVID-19. The Cronbach's alpha value was 0.82, and the item-total correlation was between 0.47 and 0.56 on the original scale.<sup>11</sup> Psychometric properties of the scale were tested in Türkiye by Satici et al., and Cronbach's alpha coefficient was reported to be 0.84.<sup>21</sup> The Cronbach's alpha coefficient was calculated as 0.88 for the current study.

### GENERAL SELF-EFFICACY SCALE

This scale was developed by Sherer et al. and is composed of two factors, and 23-items; general self-efficacy (17 items) and social self-efficacy (6 items).<sup>22</sup>

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For each item, participants are asked to answer, “How much does it describe you?” Potential responses to each item are typically made on a five-point Likert scale, ranging from 1 (none) to 5 (very good). The total score ranges from 17 to 85, with a higher score indicating a higher self-efficacy. The Turkish validity and reliability study was conducted by Yildirim and Ilhan and Cronbach’s alpha coefficient was reported to be 0.80.<sup>23</sup> The Cronbach’s alpha coefficient was found as 0.89 for the current study.

### THE FLOURISHING SCALE

The Flourishing Scale (FS), developed by Diener et al., is a practical and eight-item scale to evaluate the general aspects of social and psychological functioning and sense of perceived accomplishment.<sup>24</sup> The term “flourishing” covers both subjective and psychological aspects of individual well-being. Respondents are asked to reply to each item on a seven-point Likert scale. The total score is calculated by summing all items ranging from 8 (lowest possible) to 56 (highest possible). Higher scores imply higher well-being. In Türkiye, the validity and reliability assessment of the scale was performed by Senol-Durak and Durak and Cronbach’s alpha coefficient was reported as 0.83.<sup>25</sup> The Cronbach’s alpha coefficient was 0.88 for this study.

### VALIDITY, RELIABILITY, AND RIGOR

The scales utilized in this study had good validity and reliability in the previous studies. In this study, the Cronbach’s alpha coefficient values for the Fear of COVID-19 Scale (FCV-19S), the General Self-Efficacy Scale, and the FS were 0.88, 0.89, and 0.88, respectively.

### ETHICAL CONSIDERATIONS

The study protocol was thoroughly reviewed and duly approved by the Institutional Review Committee of Hacettepe University (date: March 16, 2021; number: GO-21/374). The purpose, method, and expected benefits of the study were explained. All the participants were informed about withdrawing from this study at any time without explaining a reason, and participation was free of cost. The study was conducted in agreement with the Declaration of Helsinki.

### DATA ANALYSIS

Electronic survey data from 1,036 participants were downloaded into SPSS (SPSS version 26; IBM, Armonk, New York). Participants ( $n=8$ ) who did not complete the survey were deleted from the database, and 1,028 responses were included in the final analysis. The normality assumptions were checked with the Shapiro-Wilk test ( $p>0.05$ ) and the skewness and kurtosis coefficients (in the range of  $\pm 1.5$ ). Accordingly, parametric statistical methods were used in the study. Descriptive statistics including percentage, frequency, mean, and standard deviation (SD) were used to define the sample characteristics. The differences between the two independent groups were examined with the independent sample t-test. Differences between more than two independent groups were analyzed using the one-way analysis of variance. When a group difference was found, Tukey multiple comparison test was used to detect which group caused the difference. Relationships between the fear of COVID-19, self-efficacy, and well-being were analyzed with the Pearson correlation analysis. Structural Equation Modelling (SEM) is a multivariate statistical method that allows a hypothesis-testing approach for analyzing theoretically linked relationships between constructs within a certain phenomenon.<sup>26</sup> SEM was used to determine the direct and indirect effects of COVID-19 fear on self-efficacy and well-being. This analysis was conducted using the Analysis of Moment Structures software, version 21. The independent variable was fear of COVID-19, whereas the dependent variables were self-efficacy and well-being in the hypothesized model. The statistical level significance was accepted as  $p<0.05$ .

## RESULTS

### STUDENTS’ CHARACTERISTICS

The mean age of the students was 20.72 (SD=1.71) years. Most of the participants were female (84.9%). More than one-third of those (35.1%) were in the first academic year. Most students (83.2%) reported not receiving face-to-face clinical training during the pandemic. The most used clinical training method was preparing a nursing care plan (65.0%). 13.2% of the students reported to have been diagnosed with

COVID-19, and 19% of those lost their relatives due to COVID-19 (Table 1).

### THE FEAR OF COVID-19 BY STUDENTS' CHARACTERISTICS

The mean FCV-19S score was 17.33 (SD=6.38). The score was higher in female students ( $t=5.405$ ,  $p<0.001$ ) and those who had participated in face-to-

face clinical training ( $t=-3.594$ ,  $p<0.001$ ), and continued private universities ( $t=-2.042$ ,  $p=0.042$ ). The mean FCV-19S score was not significantly different regarding age, academic year, history of being diagnosed with COVID-19, having a relative diagnosed with COVID-19, loss of relatives due to COVID-19, and feeling professionally competent ( $p>0.05$ ). The results are summarized in Table 2.

### SELF-EFFICACY BY STUDENTS' CHARACTERISTICS

The mean self-efficacy score was 61.70 (SD=10.55). While the corresponding score was higher in female students ( $t=2.113$ ,  $p=0.035$ ), those enrolled at private universities ( $t=-2.473$ ,  $p=0.014$ ), and participated in face-to-face clinical training ( $t=2.844$ ,  $p=0.005$ ). The same scores were lower in students who reported to have less professional competence (Table 2) ( $t=22.215$ ;  $p<0.001$ ).

### WELL-BEING BY STUDENTS' CHARACTERISTICS

The mean well-being score was 40.39 (SD=8.80). Well-being scores were higher in females ( $t=-2.527$ ,  $p=0.012$ ), the fourth-year students ( $t=5.397$ ,  $p=0.001$ ), those who aged between 21-29 years ( $t=-1.979$ ,  $p=0.048$ ), enrolled at private universities ( $t=-2.662$ ,  $p=0.008$ ), and received face-to-face clinical training ( $t=5.749$ ,  $p=0.001$ ). Additionally, well-being scores were lower in participants who reported to have less professional competence (Table 2) ( $t=26.641$ ;  $p<0.001$ ).

### CORRELATION BETWEEN THE FCV-19S, SELF-EFFICACY, AND FSS SCORES

The FCV-19S scores were negatively and weakly correlated with the self-efficacy scores ( $r=-0.095$ ,  $p=0.002$ ). The well-being scores were positively and moderately correlated with the self-efficacy scores ( $r=0.553$ ,  $p<0.001$ ). Further details are provided in Table 3.

### THE IMPACT OF FEAR OF COVID-19 ON SELF-EFFICACY AND WELL-BEING

SEM showed the influences of fear of COVID-19 on self-efficacy and well-being. As portrayed in the path analysis model, all paths between variables were significant (Figure 1) ( $p<0.05$ ). The analysis supported the proposed relationships in the model (Table 4).

**TABLE 1:** Students' characteristics (n=1,028).

	n	%
Age (year) ( $\bar{X}=20.72$ , $SD=1.71$ )		
17-20 year	514	50.0
21-29 year	514	50.0
Sex		
Male	155	15.1
Female	873	84.9
University type		
Public	780	75.9
Private	248	24.1
Academic year		
First	361	35.1
Second	235	22.9
Third	268	26.1
Fourth	164	16.0
Face-to-face clinical training during the pandemic		
Yes	173	16.8
No	855	83.2
Feeling professionally competent		
High	100	9.7
Low	623	60.6
Moderate	305	29.7
The methods used for clinical training during the pandemic <sup>1</sup>		
Preparing a nursing care plan	668	65.0
Case discussion	635	61.8
Video-based practice	619	60.2
Standardized patient	156	15.2
Simulation	87	8.5
Virtual hospital experience	29	2.8
Others <sup>2</sup>	21	2.0
History of being diagnosed with COVID-19		
Yes	136	13.2
No	892	86.8
Having a relative diagnosed with COVID-19		
Yes	758	73.7
No	270	26.3
Loss of relatives due to COVID-19		
Yes	195	19.0
No	833	81.0

<sup>1</sup>More than one answer; <sup>2</sup>Clinical Training. Practice on Model. Movie Analysis. Role-play. Generating practice file. Patient Education; SD: Standard deviation.

**TABLE 2:** Comparison of fear of COVID-19, self-efficacy, and well-being by nursing students' characteristics (n=1,028).

Characteristic	FCV-19S X±SD	Self-Efficacy Scale X±SD	Flourishing Scale X±SD
Age (year) (X=20.72, SD=1.71)			
17-20 year	16.96±5.74	61.19±10.96	39.85±8.84
21-29 year	17.71±6.96	62.22±10.11	40.94±8.75
t; p	-1.872; 0.061	-1.565; 0.118	-1.979; <b>0.048*</b>
Sex			
Male	14.57±7.02	63.35±11.18	38.61±9.71
Female	17.82±6.14	61.41±10.41	40.71±8.60
t; p	-5.405; <b>&lt;0.001*</b>	2.113; <b>0.035*</b>	-2.527; <b>0.012*</b>
University type			
Public	17.09±6.19	61.24±10.41	39.98±8.81
Private	18.10±6.93	63.14±10.87	41.69±8.69
t; p	-2.042; <b>0.042*</b>	-2.473; <b>0.014*</b>	-2.662; <b>0.008*</b>
Academic year			
First	17.21±5.98	61.09±10.82	39.53±8.97
Second	17.08±6.16	61.87±11.06	39.77±9.12
Third	17.94±6.95	61.64±10.05	40.69±8.73
Fourth	16.98±6.60	62.89±9.97	42.68±7.68
F; p	1.157; 0.325	1.117; 0.341	5.397; <b>0.001*</b>
			<b>Difference: 4-1,2</b>
History of being diagnosed with COVID-19			
Yes	17.71±7.06	60.06±11.83	39.68±9.24
No	17.28±6.28	61.95±10.33	40.50±8.74
t; p	0.744; 0.457	-1.952; 0.051	-1.008; 0.314
Having a relative diagnosed with COVID-19			
Yes	17.27±6.13	61.48±10.51	40.14±8.79
No	17.50±7.08	62.33±10.67	41.09±8.82
t; p	-0.476; 0.611	-1.146; 0.252	-1.521; 0.128
Loss of relatives due to COVID-19			
Yes	17.62±6.62	62.29±10.56	41.02±9.14
No	17.27±6.33	61.56±10.55	40.25±8.72
t; p	0.684; 0.494	0.869; 0.385	1.106; 0.269
Yes	19.14±7.45	63.77±10.24	43.85±8.10
No	16.97±6.09	61.28±10.57	39.69±8.78
t; p	3.594; <b>&lt;0.001*</b>	2.844; <b>0.005*</b>	5.749; <b>&lt;0.001*</b>
Feeling professionally competent			
1-Low	17.25±6.36	59.98±10.56	38.89±9.08
2-Moderate	17.49±6.31	64.11±9.78	42.18±7.48
3-High	17.40±6.81	65.06±10.59	44.32±8.66
F; p	0.158; 0.854	22.215; <b>&lt;0.001*</b>	26.641; <b>&lt;0.001*</b>
		<b>Difference: 1-2,3</b>	<b>Difference: 1-2,3</b>

SD: Standard deviation

\*p&lt;0.05; t: Independent sample t test; F: One-way analysis of variance Difference: Tukey; FCV-19S: Fear of COVID-19 Scale; SD: Standard deviation.

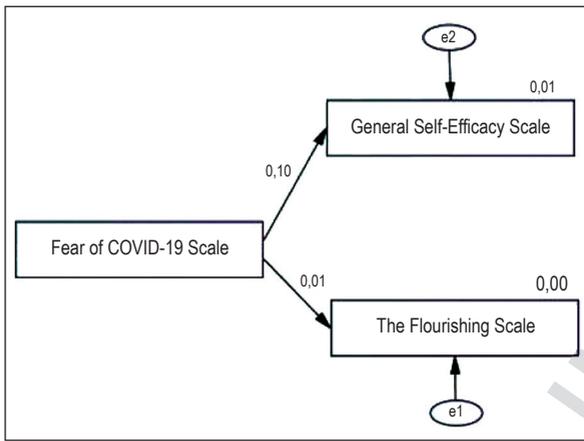
The findings showed that fear of COVID-19 had a negative direct effect on self-efficacy [St  $\beta$ =-0.095; 95% confidence interval (CI), -0.258-0.057], and explained 0.9% of the variance in self-efficacy

( $R^2=0.009$ ,  $p=0.002$ ). A unit of increase in the COVID-19 fear score was associated with a decrease in self-efficacy by 0.157 points ( $\beta=-0.157$ ). The fear of COVID-19 did not predict the well-being

**TABLE 3:** Correlation between FCV-19S, self-efficacy, and well-being (n=1,028).

		FCV-19S	Self-Efficacy Scale	Flourishing Scale
FCV-19S	r value	1.000	-0.095*	0.015
	p value	-	0.002	0.631
Self-Efficacy Scale	r value		1.000	0.553**
	p value		-	<0.001
Flourishing Scale	r value			1.000
	p value			-

\*p<0.05; R: Pearson correlation test; FCV-19S: Fear of COVID-19 Scale.



**FIGURE 1:** Path analysis of COVID-19 fear, self-efficacy and well-being.

( $\beta=0.021$ ; 95% CI, -0.064-0.105;  $R^2=0.000$ ,  $p=0.631$ ).

## DISCUSSION

The COVID-19 pandemic had a significant impact on nursing students' experiences, ranging from ambiguity about disease transmission to rigorous disease control standards, organizational changes, anxiety about their competencies, and even fundamental concerns about continuing education.<sup>27</sup> These circumstances appear to have caused profound negative

emotions, including fear, anxiety, and lower self-efficacy and well-being among nursing students. This multicenter study revealed the association between fear of COVID-19, self-efficacy, and well-being by contributing to the nursing science knowledge.

This study showed that the fear of COVID-19 was not much higher in nursing students. A current study conducted in the Philippines also confirmed our findings that nursing students perceived moderate fear during the rapid rise of COVID-19.<sup>28</sup> Our study indicated that female nursing students, who received face-to-face clinical training and enrolled in private universities, felt higher fear of COVID-19. Similarly, Huang et al., suggested that female nursing students reported higher anxiety and fear than males because they attached greater importance to their inner experiences and self-perception; they were more fragile, sensitive, and vulnerable to fear, anxiety, and other negative emotions.<sup>5</sup> During the pandemic, private nursing schools in Türkiye generally kept their existing educational strategies due to having fewer students compared with public schools. Therefore, students enrolled in private schools continued their clinical training in real-life settings. The uncertainty of the COVID-19 and its' transmission, as well as the

**TABLE 4:** Standardized direct, indirect, and total effects between fear of COVID-19, self-efficacy, and well-being (n=1,028).

	$\beta$	St $\beta$	$R^2$	SE	t value	p value	95% CI
Fear of COVID-19 → Self-efficacy	-0.157	-0.095	0.009	0.051	-3.068	0.002*	-0.258 to -0.057
Fear of COVID-19 → Well-being	0.021	0.015	0.000	0.430	0.480	0.631	-0.064 to 0.105

\*p<0.05; B: Regression coefficient; St  $\beta$ : Standardized regression coefficient; SE: Standard error; CI: Confidence interval.

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increasing deaths, which had a significant effect on health professionals providing direct patient care, exacerbated the fear even in nursing students.<sup>13,29</sup> This may explain why nursing students in private schools and those who received clinical training in person felt higher fear of COVID-19 in the current study.

We found that COVID-19 fear did not differ based on age which has been also documented by De Los Santos et al.<sup>28</sup> A possible explanation for this finding could be that nursing students in our study are in close age groups, and the COVID-19 fear is a universal phenomenon. Another remarkable finding of this study is that the fear of COVID-19 did not change by the academic year. Contradictory findings have been recently reported from Spain and the Philippines. De Los Santos et al., emphasized that first-year nursing students felt more fear of COVID-19, this finding contrasts with the report of Collado-Boira et al., who mentioned higher fear in the last year students.<sup>28,30</sup> The differences between these studies may depend on personal and cultural characteristics, individual coping strategies, perceived social support, COVID-19 control strategies, the content of nursing education provided, and unpreparedness for professional life during the pandemic.

Based on our findings, nursing students reported moderate to high self-efficacy which was also confirmed in previous reports.<sup>8,9,31</sup> Moreover, we found that the perceived self-efficacy was better in females, those who had enrolled in private schools, those who received face-to-face clinical training, and those who felt professionally competent. Due to the lack of studies focusing on associations between the self-efficacy and socio-demographics, and educational features of nursing students during the pandemic, we are unable to draw strong inferences. However, numerous interventional and descriptive studies have investigated self-efficacy in nursing students in the context of simulation and clinical experience, and psychomotor skills.<sup>30-32</sup> The present findings disagree with the study of Albagawi et al., who found no association between gender, and self-efficacy in the fourth-year nursing students in Saudi Arabia.<sup>33</sup> This variation may arise from that our study sample included all academic year students and was conducted under pandemic conditions.

The comprehensive training provided by the nursing program is one of the most important components for professional development and self-efficacy in nursing students.<sup>30,34</sup> Improved self-efficacy provides benefits for nursing students' performance in clinical practice and a sense of professional competency.<sup>31,32</sup> Moreover, the self-efficacy of nursing students may impact preparedness and willingness to care for patients during the COVID-19. In fact, private nursing schools in Türkiye allowed students to receive clinical training in person and have more experience in real-world environments during the pandemic. This situation may have contributed to an increase in self-efficacy and professional competence among nursing students. Previous studies have also well supported that nursing students who have sufficient knowledge, skills, and a sense of competence may perceive higher self-efficacy.<sup>32-34</sup>

This study indicated that our sample had moderate to high well-being. Females, older ones, who were in the fourth year, those who continued private schools, those who received face-to-face clinical training, and those who felt professionally competent reported greater well-being. Research in the last two years has more focused on the psychological and spiritual well-being of nursing students.<sup>12-14</sup> However, no study has been found that evaluating general well-being and its' associated factors in nursing students during the pandemic. Reverté-Villarroya et al., examining the psychological well-being, confirmed our findings that well-being was higher in the fourth-year students.<sup>34</sup> Students in the fourth year might have developed better coping strategies for COVID-19 and may have perceived themselves as professionally competent in clinical training.<sup>34</sup> Moreover, receiving face-to-face clinical training during the pandemic may contribute to having more experience in person, and thus this opportunity may increase the well-being of nursing students.

The present study revealed that self-efficacy was positively associated with well-being in nursing students. This finding coincides with earlier studies that highlight better self-efficacy may improve well-being in nursing students.<sup>32-34</sup> This correlation between self-efficacy and well-being in the current study may be attributed to better stress management, higher self-

confidence, and a higher capacity to adapt to difficult situations among nursing students during the pandemic.<sup>30</sup>

One of the starting points of this study is the question of how COVID-19 fear predicts self-efficacy and well-being in nursing students. Although the advanced analysis did not well explain the predictive effect of COVID-19 fear on self-efficacy, an increase in fear of COVID-19 was found to be associated with a slight decrease in self-efficacy. Likewise, Wang et al., emphasized that higher acute stress had a negative effect on self-efficacy in nursing students.<sup>31</sup> This finding may arise because individuals who are under the pressure of higher fear, anxiety, and stress generally tended to hold negative beliefs about their capabilities to face challenges.<sup>29-31</sup> Gradual quarantine measures, emotional burden, the risk of contracting the coronavirus, closures of schools, limited face-to-face clinical training may contribute to pandemic-related consequences in nursing students, especially the fear of COVID-19, and these factors may be a possible explanation for a negative influence of COVID-19 fear on perceived self-efficacy.<sup>28</sup> However, the fear of COVID-19 explained only a small change in perceived self-efficacy in the present study. From looking at this point, future studies should consider including different variables that may have an impact on perceived self-efficacy in nursing students during the COVID-19 outbreak, and in the following years.

## STRENGTHS AND LIMITATIONS

The CHERRIES checklist which enhances the rigor was used to report this study. However, our study had several limitations. Volunteer nursing students may be internet-connected, or more motivated to respond to the survey, and these may cause selection bias. Besides, this study had a cross-sectional design which restricts the determination of the temporal effects of COVID-19 fear on self-efficacy and well-being of nursing students.

## CONCLUSION

This study concluded that the fear of COVID-19 is not excessive. Students' characteristics and educational features appeared to be associated with COVID-19 fear, self-efficacy, and well-being. Even though COVID-19 fear is an existing reality worldwide, it is evident that self-efficacy is shaped based on multiple individual, social and cultural factors. Therefore, longitudinal studies should include multiple variables to better explain the change in self-efficacy and well-being. Qualitative studies may deeply investigate the lived experiences of nursing students regarding COVID-19 fear. Nursing schools should prioritize providing multi-component support programs during the outbreak, or similar circumstances.

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### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

**Idea/Concept:** Zehra Gök Metin, Nur İzgü; **Design:** Zehra Gök Metin, Nur İzgü, Merve Gülbahar Eren; **Control/Supervision:** Zehra Gök Metin, Nur İzgü; **Data Collection and/or Processing:** Nur İzgü, Merve Gülbahar Eren, Beyza Erdemsoy Karahan; **Analysis and/or Interpretation:** Zehra Gök Metin, Nur İzgü, Merve Gülbahar Eren, Beyza Erdemsoy Karahan; **Literature Review:** Merve Gülbahar Eren, Beyza Erdemsoy Karahan; **Writing the Article:** Zehra Gök Metin, Nur İzgü, Merve Gülbahar Eren, Beyza Erdemsoy Karahan; **Critical Review:** Zehra Gök Metin, Nur İzgü.

## REFERENCES

- Asmundson GJG, Taylor S. Coronaphobia: Fear and the 2019-nCoV outbreak. *Journal of Anxiety Disorders*. 2020;70:102196. <https://www.sciencedirect.com/science/article/pii/S0887618520300104?via%3Dihub>
- Marston C, Renedo A, Miles S. Community participation is crucial in a pandemic. *The Lancet*. 2020;395(10238):1676-8. <https://www.sciencedirect.com/science/article/pii/S0140673620310540?via%3Dihub>
- Dewart G, Corcoran L, Thirsk L, Petrovic K. Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse Education Today*. 2020;92:104471. <https://www.sciencedirect.com/science/article/pii/S0260691720305104?via%3Dihub>
- Yükseköğretim Kurulu [İnternet]. ©2018 Yükseköğretim Kurulu Başkanlığı [Erişim tarihi: 25 Mayıs 2021]. Koronavirüs (Covid-19) Bilgilendirme Notu: 1. Erişim linki: [https://www.yok.gov.tr/Sayfalar/Haberler/2020/coronavirus\\_bilgilendirme\\_1.aspx](https://www.yok.gov.tr/Sayfalar/Haberler/2020/coronavirus_bilgilendirme_1.aspx)
- Huang L, Lei W, Xu F, Liu H, Yu L. Emotional responses and coping strategies in nurses and nursing students during Covid-19 outbreak: A comparative study. *PLoS One*. 2020;15(8):e0237303. PMID: 32764825; PMCID: PMC7413410.
- Tekir Ö. The relationship between fear of COVID-19, psychological well-being and life satisfaction in nursing students: A cross-sectional study. *Plos One*. 2021;17(3):e0264970. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0264970>
- Suliman WA, Abu-Moghli FA, Khalaf I, Zumot AF, Nabolsi M. Experiences of nursing students under the unprecedented abrupt online learning format forced by the national curfew due to COVID-19: A qualitative research study. *Nurse Educ Today*. 2021;100:104829. PMID: 33740705; PMCID: PMC8613844.
- Gulley T, Hall T, Newsome A, Sidle MW, Simpson MR. Perceived self-efficacy among nursing students during a pandemic: A pilot study. *Teaching and Learning in Nursing*. 2021;16(3):215-9. <https://doi.org/10.1016/j.teln.2021.03.001>
- Yildirim M, Guler A. COVID-19 severity, self-efficacy, knowledge, preventive behaviors, and mental health in Turkey. *Death Studies*. 2022;46(3):979-86. <https://www.tandfonline.com/doi/full/10.1080/07481187.2020.1793434>
- Acıksoz S, Uzun S, Arslan F. Hemşirelik öğrencilerinde öz yeterlilik algısı ile klinik uygulamaya ilişkin kaygı ve stres durumu arasındaki ilişkinin incelenmesi [Assessment of relationship between nursing students' self-efficacy and levels of their anxiety and stress about clinical practice]. *Gulhane Tıp Dergisi*. 2016;58(2):129-35. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.galenos.com.tr/Uploads/Article\\_32518/GMJ-58-129-En.pdf](https://www.galenos.com.tr/Uploads/Article_32518/GMJ-58-129-En.pdf)
- Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The Fear of COVID-19 Scale: Development and Initial Validation. *Int J Ment Health Addict*. 2022;20(3):1537-45. PMID: 32226353; PMCID: PMC7100496.
- Harper CA, Satchell LP, Fido D, Latzman RD. Functional fear predicts public health compliance in the Covid-19 pandemic. *Int J Ment Health Addict*. 2021;19(5):1875-88. PMID: 32346359; PMCID: PMC7185265.
- Cilar L, Barr O, Štiglic G, Pajnikhar M. Mental well-being among nursing students in Slovenia and Northern Ireland: A survey. *Nurse Educ Pract*. 2019;39:130-5. PMID: 31476545.
- Omell F, Schuch JB, Sordi AO, Kessler FHP. "Pandemic fear" and COVID-19: mental health burden and strategies. *Braz J Psychiatry*. 2020;42(3):232-5. Erratum in: *Braz J Psychiatry*. 2020;42(3):333. PMID: 32267343; PMCID: PMC7236170.
- Grande RAN, Berdida DJE, Villagrancia HN, Comejo LTO, Villacorte LM, Borja MVF. Association Between Perceived Resilience and Mental Well-Being of Saudi Nursing Students During COVID-19 Pandemic: A Cross-Sectional Study. *J Holist Nurs*. 2021;39(4):314-24. PMID: 33876982.
- Melo HED, Severian PFG, Eid LP, Souza MRD, Sequeira CAD, Souza MDGG, et al. Impact of anxiety and depression symptoms on perceived self-efficacy in nursing students. *Acta Paulista de Enfermagem*. 2021;34:eAPE01113. <https://acta-ape.org/en/article/impact-of-anxiety-and-depression-symptoms-on-perceived-self-efficacy-in-nursing-students/>
- Simonetti V, Durante A, Ambrosca R, Arcadi P, Graziano G, Pucciarelli G, et al. Anxiety, sleep disorders and self-efficacy among nurses during COVID-19 pandemic: A large cross-sectional study. *J Clin Nurs*. 2021;30(9-10):1360-71. PMID: 33534934; PMCID: PMC8012992.
- Wang J, Wang L, Zhang Y, Tian X, Luo L. The effect of acute stress response on professional identity and self-efficacy of nursing students in China during COVID-19 outbreak: A cross-sectional study. *Revista Argentina de Clínica Psicológica*. 2020;29(4):402. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://revistaclinica-psicologica.com/data-cms/articles/20200921032131pmSSCI-132.pdf](https://revistaclinica-psicologica.com/data-cms/articles/20200921032131pmSSCI-132.pdf)
- Özmen S, Özkan O, Özer Ö, Yanardağ MZ. Investigation of COVID-19 Fear, Well-Being and Life Satisfaction in Turkish Society. *Soc Work Public Health*. 2021;36(2):164-77. PMID: 33461428.
- Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Annals of Internal Medicine*. 2007;147(8):573-7. <https://www.acpjournals.org/doi/10.7326/0003-4819-147-8-200710160-00010>
- Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. *Int J Ment Health Addict*. 2021;19(6):1980-8. PMID: 32395095; PMCID: PMC7207987.
- Sherer M, Maddux JE, Mercandante B, Prentice-Dunn S, Jacobs B, Rogers RW. The self-efficacy scale: Construction and validation. *Psychological Reports*. 1982;51(2):663-71. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.researchgate.net/profile/Mark-Sherer/publication/259982132\\_The\\_Self-Efficacy\\_Scale\\_Construction\\_and\\_Validation/links/02bfe50fda7607fa2e000000/The-Self-Efficacy-Scale-Construction-and-Validation.pdf](https://www.researchgate.net/profile/Mark-Sherer/publication/259982132_The_Self-Efficacy_Scale_Construction_and_Validation/links/02bfe50fda7607fa2e000000/The-Self-Efficacy-Scale-Construction-and-Validation.pdf)
- Yildirim F, İlhan IO. Genel Özyeterlilik Ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması [The validity and reliability of the General Self-Efficacy Scale-Turkish Form]. *Türk Psikiyatri Dergisi*. 2010;21(4):301-8. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.turkpsikiyatri.com/PDF/C21S4/301-308.pdf](https://www.turkpsikiyatri.com/PDF/C21S4/301-308.pdf)
- Diener E, Wirtz D, Tov W, Kim-Prieto C, Choi DW, Oishi S, et al. New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*. 2010;97(2):143-56. [https://www.researchgate.net/publication/225615700\\_New\\_Well-Being\\_Measures\\_Short\\_Scales\\_to\\_Assess\\_Flourishing\\_and\\_Positive\\_and\\_Negative\\_Feelings](https://www.researchgate.net/publication/225615700_New_Well-Being_Measures_Short_Scales_to_Assess_Flourishing_and_Positive_and_Negative_Feelings)
- Senol-Durak E, Durak M. Psychometric properties of the Turkish version of the Flourishing Scale and the Scale of Positive and Negative Experience. *Mental Health, Religion & Culture*. 2019;22(10):1021-32. <https://doi.org/10.1080/13674676.2019.1689548>
- Byrne BM. Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing*. 2001;1(1):55-86. [https://www.tandfonline.com/doi/abs/10.1207/S15327574IJT0101\\_4](https://www.tandfonline.com/doi/abs/10.1207/S15327574IJT0101_4)
- Ulenaers D, Grosemans J, Schrooten W, Bergs J. Clinical placement experience of nursing students during the COVID-19 pandemic: A cross-sectional study. *Nurse Educ Today*. 2021;99:104746. PMID: 33545565; PMCID: PMC7803623.
- De Los Santos JAA, Labrague LJ, Falguera CC. Fear of COVID-19, poor quality of sleep, irritability, and intention to quit school among nursing students: A cross-sectional study. *Perspect Psychiatr Care*. 2022;58(1):71-8. PMID: 33792054; PMCID: PMC8251196.

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29. Alsolais A, Alquwez N, Alotaibi KA, Alqarni AS, Almalki M, Alsolami F, et al. Risk perceptions, fear, depression, anxiety, stress and coping among Saudi nursing students during the COVID-19 pandemic. *J Ment Health*. 2021;30(2):194-201. PMID: 33978543.
30. Collado-Boira EJ, Ruiz-Palomino E, Salas-Media P, Folch-Ayora A, Muriach M, Balaño P. "The COVID-19 outbreak"-An empirical phenomenological study on perceptions and psychosocial considerations surrounding the immediate incorporation of final-year Spanish nursing and medical students into the health system. *Nurse Educ Today*. 2020;92:104504. PMID: 32563039; PMCID: PMC7289744.
31. Wang J, Wang L, Zhang Y, Tian X, Luo L. The effect of acute stress response on professional identity and self-efficacy of nursing students in China during COVID-19 outbreak: a cross-sectional study. *Revista Argentina de Clínica Psicológica*. 2020;29(4):402. [chrome-extension://efaidnbmnnnibpca-jpcglclefindmkaj/https://revistaclinicapsicologica.com/data-cms/articles/20200921032131pmSSCI-132.pdf](https://doi.org/10.1016/j.rap.2020.04.002)
32. Kimhi E, Reistein JL, Cohen M, Friger M, Hurvitz N, Avraham R. Impact of Simulation and Clinical Experience on Self-efficacy in Nursing Students: Intervention Study. *Nurse Educ*. 2016;41(1):E1-4. PMID: 26218009.
33. Albagawi B, Hussein FM, Alotaibi JS, Albougami AS, Amer MF, Alsharari A, et al. Self-efficacy and clinical competence of fourth-year nursing students: A self-reported study. *International Journal of Advanced and Applied Sciences*. 2019;6(8):65-70. <https://www.sciencegate.com/IJAAS/2019/V6I8/1021833ijaas201908009.html>
34. Reverté-Villarroya S, Ortega L, Raigal-Aran L, Sauras-Colón E, Ricomà-Muntané R, Ballester-Ferrando D, et al. Psychological Well-Being in Nursing Students: A Multicentric, Cross-Sectional Study. *Int J Environ Res Public Health*. 2021;18(6):3020. PMID: 33804156; PMCID: PMC7999566.

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