

Effects of the Fear of COVID-19 on Professional Perception among Nursing Students: A Cross-sectional Study

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ABSTRACT

Objective: The impact of a pandemic on psychological health is an essential factor in determining professional perception. This study aims to evaluate the fear of COVID-19 and the perception of the nursing profession and examine the relationship between them.

Material and Methods: This study was conducted as a cross-sectional design using self-report questionnaires distributed to 976 nursing students in Turkey.

Results: The findings showed that students' COVID-19 fear levels in the present study were moderate, and their perceptions of the nursing profession were positive. There was a weak and positive correlation between the students' COVID-19 fear and the total score averages of the Nursing Profession Perception Scale.

Conclusion: There was a two-way relationship between professional perception and fear of COVID-19. The education programs need to be ready to prepare future nurses to deal with future novel pandemics and increase the perception of the profession.

Keywords: Fear, COVID-19, perception of the nursing profession, pandemic, nursing students

INTRODUCTION

Throughout history, epidemics have been a cause of fear at both individual and social levels due to their structures that change daily life practices, increase the need for medical help, cause high rates of morbidity and mortality, and create uncertainty (1). Similarly, the novel coronavirus infection (COVID-19), which led to a worldwide pandemic for the last three years, has been described as a public health emergency that deeply affects the social and economic order, threatens the lives of individuals, damages the sense of trust, questions values, creates a perception of threat by causing an environment of uncertainty, and raises fear and anxiety at the international level (2-4). Globally, there were 340.543.962 confirmed cases of COVID-19, including 5.570.163 deaths, reported to WHO as of 21 January 2022. In Turkey, as of the same date, there were 10.735.324 confirmed cases of COVID-19, with 85.419 deaths reported (5).

The fear of COVID-19, one of the important psychological aspects of the COVID-19 pandemic, is a significant factor in stress, anxiety, substance use (6), risk of uncertainty (7), suicide attempts (8), panic (9), stigma and exclusion (10), irrational and ambiguous thoughts (2).

Although nursing students are not frontline health workers, the role of nurses in the COVID-19 pandemic is critical due to several factors: newly graduated nurses starting to work in clinics where patients with a diagnosis of COVID-19 are being treated to meet the need for nurses quickly, caring for COVID-19 positive patients, the risk of contamination, loss nurses' lives, social isolation. Hence, nursing students worry about their health and have concerns about the nursing profession they will perform in the future (11-13). A study reported that the health anxiety levels of nursing students are high due to COVID-19 (14). Medina-Fernandez et al. (2021) stated that nursing students and recent graduates have high levels of stress and fear, besides a low level of knowledge (15). Martínez-Lorca et al. (2020) found that students enrolled in health science education display more fear of the COVID-19 pandemic than other students from other degree programs (16). According to Dost et al. (2021), on the other hand, the findings showed that during the COVID-19 pandemic, senior nursing students' perceptions of their professional image were at a good level, but their anxiety and fear levels were high (17).

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Caliskan et al. (2021) found that positive attitudes toward the nursing profession in nursing students decreased as the fear of COVID-19 increased (18). On the other hand, the importance of the nursing profession and nursing care has come to the fore again due to the prominence of the concept of "care" in parallel with the increase in the number of patients in intensive care with the pandemic. In addition, the year 2020 was declared the "year of nurses and midwives" by the World Health Organization due to the following reasons: the increase in the visibility of nurses in the media during the pandemic period, the appreciation of health workers by society by being declared heroes, and the respect of the whole world for nurses who do their profession with great devotion and self-sacrifice.

This factor has an impact on students' professional feelings and thoughts. Perceptual awareness and sensitivity are as significant as scientific competence for excellence in nursing practice and education. Professional perception will develop positively in the education process (19). In this respect, it is crucial to know the level of students being affected by the fear of COVID-19 and how the pandemic affects their professional perceptions to prevent them from forming negative attitudes in the future.

This research aims to evaluate the fear of COVID-19 and the nursing students' perception toward the nursing profession during the COVID-19 pandemic and examine the relationship between these two situations.

MATERIAL and METHODS

Research design

This was a cross-sectional study employing self-report questionnaires.

Setting and data collection

This study took place between March and May 2021 with 976 nursing students at a nursing faculty in Aydın, Turkey. An online survey link (Google doc) was forwarded to the students.

Participants

In the present study, 976 (N=1192) nursing students from different year levels participated; the response rate was 81.8%. The students above 18 years old who consented to participate were in the present study.

Instrumentations

Data for the current study were collected utilizing the Student Information Form, The Fear of COVID-19 Scale, and The Nursing Profession Perception Scale. It took approximately 15 minutes for students to fill out the questionnaires.

Student Information Form: The researchers developed this form in line with the literature to determine demographic characteristics (20-24). It contained 28 questions. The questions were on the following subjects: the socio-demographic characteristics of the students (e.g., age, sex, graduated high school, year level, and place of residence), the

status of having COVID-19 infection (e.g., being infected, losing a relative due to COVID-19) and their thoughts on the profession (e.g., liking the profession and willingness to work in the profession).

The Fear of COVID-19 Scale: Ahorsu et al. (2020) developed this scale to measure the COVID-19 fear levels of individuals (2). The Turkish adaptation of the scale was by Ladikli et al. (25). The applicable age range of the scale is wide and appropriate for university students and adults. The scale has seven items and uses a five-point Likert scale, where participants scored from 1 strongly disagree to 5 strongly agree. Possible scores range from 7 to 35. A high score on the scale indicates a high level of fear. Cronbach alpha internal consistency coefficient of the scale was 0.82 (25), and in the present study, the total scale item internal consistency coefficient was calculated as 0.87.

Nursing Profession Perception Scale (NPPS): NPPS was from Eser et al. (26). The scale has 22 items and uses a five-point Likert scale, where participants scored from 1 strongly disagree to 5 strongly agree. The scale has two sub-dimensions: Professional qualifications (17 items) and Professional status (5 items). The total score obtained from the scale varies from 22 to 110. The increase in the total score obtained from the scale indicates that the perception of the profession is positive. Cronbach's alpha coefficient of the scale was 0.83, and Cronbach's alpha coefficients of the subscales were 0.85 for Professional Qualifications and 0.79 for Vocational Status, respectively (26). In this study, Cronbach's alpha coefficient of the scale was 0.93, and Cronbach's alpha coefficients for the sub-dimensions were 0.94 for Professional Qualifications and 0.80 for Vocational Status.

Data analysis

To perform the statistical analysis for the present study, the authors utilized the Statistical Package for Social Science (SPSS 22.0) software program. The descriptive statistics were provided in a number and percentage format, and the Skewness, Kurtosis values were used for examining a normal distribution of variables. Between -2 and +2 values were accepted as a normal distribution (27). The comparison between the nursing students' profiles and key variables of the present study was analyzed using the Mann-Whitney U test for binary groups and the Kruskal-Wallis test for triple groups. The correlation between fear of COVID-19 and the nursing profession was analyzed by Spearman's rho coefficients. The statistical significance threshold was $p < 0.05$.

Ethical consideration

The ethical review boards approved this study of a university (Approval Number: 2021-223). The necessary permissions were obtained from the school authorities before conducting this study. The necessary permission to utilize the scales discussed previously in this study was received from the authors. All students were accepted voluntarily to participate in the present study, and they were informed about the purpose of this study.

RESULTS

The average age of the student participants was 20.38 ± 1.62 , more than half of the students were female, and 38.1% had a nurse in their family. Most of them were graduates of regular vocational high schools and were chosen with their own request for the nursing profession. Approximately half of them reported that they chose the nursing profession because of the job guarantee and wanted to become a clinical nurse after graduation (Table 1).

In this study, 14.8% of the students and 36.5% of their family members had COVID-19 infection, and 9.4% lost a relative due to COVID-19. 37.2% of the students stated that the COVID-19 pandemic negatively affected their thoughts about the nursing profession, while 77.8% of the students thought that the infection had a positive effect on the perception of the nursing image in society. About half of the students stated that they would like to choose the nursing profession again if they had the chance to take the university exam again after the COVID-19 pandemic, and the vast majority of them did not plan to drop out of school due to COVID-19 (Table 2). The mean score of the students participating in this study on the Fear of COVID-19 Scale was 15.79 ± 5.99 (Table 3). While the total mean scores of the COVID-19 Fear Scale were significantly higher for female students, it was significantly lower for students living in urban areas than those living in rural areas ($p < 0.05$) (Table 1). The level of fear was significantly higher in students who stated that the COVID-19 pandemic negatively affected their thoughts about the nursing profession and considered dropping out of school ($p < 0.05$, Table 2).

The total mean score of the Nursing Profession Perception Scale of the students was 88.56 ± 15.57 , and the mean score of the sub-dimension of NPPS was 67.96 ± 12.40 for the "professional qualifications" sub-dimension and 20.60 ± 3.76 for the "professional status" sub-dimension (Table 3).

The total mean score of the students' Nursing Profession Perception Scale was significantly higher in women, a vocational school of health graduates, and students who stated that they chose the nursing department willingly ($p < 0.05$). In addition, the Professional Perception mean scores of the senior students were significantly higher than the first-year students ($p < 0.05$). Professional Perception mean scores of students who stated that they chose the nursing profession because of job guarantee were significantly higher than students who chose the nursing department because they liked nursing or because their families wanted it ($p < 0.05$). On the other hand, the professional perception point averages of the students who stated that they would not be a nurse after graduation were significantly lower ($p < 0.05$), (Table 1). In addition, the professional perception levels of the students who did not have a history of COVID-19 infection in their family members and the students who stated that they did not want to leave school were significantly higher ($p < 0.05$). Also, the professional perception levels of the students who stated that they would like to choose the nursing profession again if they had the chance to take the university exam again after the COVID-19 pandemic were significantly higher ($p < 0.05$). The professional perception levels of the students who thought that the pandemic had a positive effect on the nursing profession and the image of the profession in society were significantly higher ($p < 0.05$, Table 2).

Given that the students themselves had a COVID-19 infection, had a nurse relative in their family, and lost a relative due to COVID-19 did not have a statistically significant effect on the level of professional perception and fear ($p > 0.05$).

There was a weak and positive correlation between the students' fear of COVID-19 and the total mean score of the Nursing Profession Perception Scale ($r = 0.084$, $p = 0.019$) (Table 4).

Table 1. Comparison of Nursing Students' Fear of COVID-19 Scale with NPPS and Sub-dimension Scores according to Descriptive Features

Descriptive Features (n=976)			Fear of COVID-19 Scale	NPPS	NPPS Sub-dimensions	
	n	%	Total Score Mean±SD	Total Score Mean±SD	Professional Status Mean±SD	Professional Qualifications Mean±SD
Sex^a						
Female	667	68.3	16.69±5.68	91.18±12.41	21.14±3.06	70.03±9.97
Male	309	31.7	13.83±6.18	82.91±19.68	19.42±4.72	63.48±15.56
Z			-7.792	-6.537	-5.215	-6.408
p			0.000	0.000	0.000	0.000
Lives in^b						
City	429	44.0	15.00±5.72	88.75±14.60	20.62±3.62	68.13±11.53
Town	384	39.4	16.32±6.05	88.62±16.19	20.54±3.84	68.08±12.89
Village	163	16.6	16.57±6.28	87.89±16.56	20.66±3.91	67.23±13.40
X ²			11.853	0.888	0.574	0.984
p			0.003	0.642	0.750	0.611
Graduated high school^a						
Regular high school/Anatolian High School	894	91.6	15.91±5.94	87.97±15.97	20.47±3.87	67.50±12.67
Vocational School of Health	82	8.4	15.57±5.85	91.69±14.68	21.51±3.17	70.18±12.11
Z			-0.295	-2.555	-2.751	-2.302
p			0.768	0.011	0.006	0.021
Class year^b						
1	280	28.7	15.57±5.54	84.27±15.74	20.00±4.20	64.27±12.19
2	262	26.8	16.27±6.15	88.57±16.08	20.50±3.72	68.07±12.85
3	232	23.8	15.35±6.42	88.91±16.79	20.61±3.93	68.30±13.47
4	202	20.7	15.93±5.83	94.06±10.71	21.52±2.59	72.54±8.72
X ²			3.961	66.575	16.802	76.590
p			0.266	0.000	0.001	0.000
Whether to choose the profession voluntarily or not^a						
Yes	709	72.6	15.67±5.94	89.90±15.09	20.75±3.61	69.14±12.05
No	267	27.4	16.07±6.08	84.99±16.25	20.17±4.07	64.82±12.77
Z			-0.888	-5.498	-1.988	-5.996
p			0.375	0.000	0.047	0.000
Reason for choosing the profession						
Because it has a job guarantee	313	49.3	15.87±6.40	92.26±14.95	21.12±3.51	71.14±12.08
Because he/she loves nursing	481	32.1	15.95±5.83	86.73±15.38	20.35±3.82	66.38±12.12
Because her/his score is enough for the nursing	101	10.3	15.51±5.12	89.54±13.14	20.88±3.35	68.66±10.44
Because his/her family wants	68	7.0	15.22±6.29	84.44±18.04	19.57±4.31	64.86±14.19
Because it pays well	13	1.3	12.53±5.41	80.76±22.07	20.07±5.20	60.69±17.25
X ²			6.049	54.737	17.095	62.411
p			0.196	0.000	0.002	0.000
Post-graduation career plan^{b,#}						
Becoming a clinical nurse	487	49.9	15.66±5.85	87.94±15.98	20.51±3.81	67.42±12.78
Becoming an academician	300	30.7	15.92±5.75	90.67±12.70	20.97±3.18	69.70±10.19
Becoming an executive nurse	117	12.0	16.00±6.51	90.40±13.84	20.99±3.29	69.41±11.12
Not to do nursing	32	3.3	14.87±8.22	76.56±20.38	18.12±5.12	58.43±15.69
Becoming a training nurse	28	2.9	16.42±4.83	80.21±26.44	18.71±6.32	61.50±20.45
Being a teacher in a vocational school of health	12	1.2	16.08±7.85	94.33±8.68	21.58±3.26	72.75±5.83
X ²			3.427	21.878	13.458	22.580
p			0.489	0.000	0.009	0.000
Presence of a Nurse Relative in the Family						
Yes	372	38.1	15.45±5.65	89.85±13.58	20.83±3.39	69.02±10.85
No	674	61.9	15.99±6.18	87.76±16.62	20.45±3.95	67.30±13.22
Z			-0.785	-0.981	-0.851	-1.022
p			0.432	0.326	0.395	0.307

Mean Age: 20.38±1.62 years

a Mann-Whitney U, b Kruskal-Wallis

#More than one option was marked.

Table 2. Students' Views and Experiences on COVID-19 Infection (n=976)

Student Experiences on COVID-19			Fear of COVID-19 Scale	NPPS	Professional Status	Professional Qualifications
	n	%	Total Score Mean±SD	Total Score Mean±SD	Mean±SD	Mean±SD
Infected with COVID-19^a						
Yes	144	14.8	16.09±6.06	87.72±15.47	20.37±3.67	67.34±12.20
No	832	85.2	15.73±5.97	88.70±15.58	20.63±3.77	68.06±12.43
Z			-0.735	-1.043	-1.205	-1.025
p			0.462	0.297	0.228	0.305
Family member(s) with infected COVID-19^a						
Yes	620	63.5	15.86±5.82	87.05±16.83	20.31±4.10	66.73±13.20
No	356	36.5	15.74±6.08	89.42±14.73	20.75±3.53	68.66±11.86
Z			-0.421	-2.481	-1.368	-2.641
p			0.674	0.013	0.171	0.008
Loss of a relative due to COVID-19 infection^a						
Yes	92	9.4	16.32±6.41	90.55±14.18	21.02±3.19	69.53±11.66
No	884	90.6	15.73±5.94	88.35±15.69	20.55±3.80	67.80±12.46
Z			-0.684	-1.361	-0.980	-1.345
p			0.494	0.174	0.327	0.179
Student Views on COVID-19						
Impact of the COVID-19 pandemic on the nursing profession^b						
Negatively affected	363	37.2	16.69±5.60	87.30±17.19	20.55±4.16	66.74±13.53
Positively affected	308	31.6	15.77±6.31	91.00±14.64	20.96±3.50	70.03±11.76
Not affected	305	31.3	14.71±5.91	87.59±14.12	20.27±3.46	67.31±11.33
X ²			21.991	17.780	12.566	18.118
p			0.000	0.000	0.002	0.000
The effects of the COVID-19 pandemic on the image of nursing in society^b						
Negatively affected	124	12.7	16.61±6.93	80.11±20.52	19.03±5.06	61.08±16.12
Positively affected	759	77.8	15.75±5.82	90.18±14.24	20.90±3.43	69.28±11.39
Not affected	93	9.5	14.92±5.82	86.53±14.52	20.17±3.69	66.36±11.44
X ²			3.560	37.003	15.516	38.619
p			0.169	0.000	0.000	0.000
Willingness to choose the nursing profession after the COVID-19 pandemic^b						
Yes	415	42.5	15.72±6.07	90.43±16.25	20.76±3.89	69.66±12.87
No	242	24.8	16.05±6.29	84.11±15.75	20.07±3.84	64.04±12.63
Undecided	319	32.7	15.65±5.63	89.49±13.80	20.77±3.47	68.71±10.88
X ²			0.550	49.183	10.462	53.939
p			0.760	0.000	0.005	0.000
Intention to leave nursing education due to COVID-19^a						
Yes	86	8.8	17.84±6.64	82.26±19.35	19.32±5.02	62.94±14.75
No	890	91.2	15.58±5.88	89.16±15.02	20.72±3.58	68.44±12.04
Z			-3.226	-3.600	-2.045	-3.938
p			0.001	0.000	0.041	0.000

a Mann-Whitney U, b Kruskal-Wallis

Table 3. Descriptive Statistics and Indicators Related to Scales

	Fear of COVID-19 Scale	NPPS Sub-dimensions		
		NPPS	Professional Status	Professional Qualifications
n	976	976	976	976
Number of scale items	7	22	5	17
Minimum-maximum	7-35	22-110	5-25	17-85
Mean±SD	15.78±5.98	88.56±15.56	20.59±3.75	67.96±12.39
Cronbach's alpha coefficient	0.87	0.93	0.80	0.94
Skewness±SD	0.559±0.07	-2.007±0.07	-1.879±0.07	-1.824±0.07
Kurtosis±SD	0.209±0.15	5.556±0.15	4.888±0.15	4.722±0.15

Table 4. Compatibility of the Fear of COVID-19 Scale and Nursing Profession Perception Scales

Fear of COVID-19 Scale	NPPS Sub-dimensions					
	Professional Qualifications		Professional Status		NPPS Total Score	
	r	p	r	p	r	p
	0.077	0.016	0.075	0.020	0.084	0.019

DISCUSSION

In this study, which was conducted during the pandemic, the COVID-19 fear levels of nursing students were moderate, and their perceptions of the nursing profession were positive (Table 3). The level of fear of COVID-19 in nursing students differs according to the country. In studies conducted in Mexico (15), the Philippines (28), Malawi (29), Norway (30), Spain (31), and Saudi Arabia (32), nursing students' fear levels of COVID-19 were high. The findings in the studies conducted in Turkey (18,33) are consistent with this study, students' COVID-19 fear level was at a medium level. Concerning the studies that have examined attitudes across different groups of students, the findings suggest that nursing students expressed greater fear (34,35). In the study of Lovric et al. (2020), students stated that they became aware of their responsibilities to society, and the importance and risks of the nursing profession during the COVID-19 pandemic (36). In a study in Spain that compared health workers and nursing students, 52.8% of healthcare workers said they would be willing to work longer hours in the event of an influenza pandemic than 69.1% of nursing students (37). In the studies conducted with nursing students during the pandemic period in Turkey, the professional perception is positive (24,38). While the literature supports that the pandemic is effective on professional perception, to our knowledge, no study examining the relationship between professional perception and fear of COVID-19 was present. According to this study, there is a positive but very weak relationship between fear of COVID-19 and professional perception. The weak correlation between the two scales suggests that different factors related to the fear of COVID-19, such as depression, anxiety, and stress, impact occupational perception, too. In addition, the COVID-19 fear levels of the students participating in the present study are at a moderate level. The feeling of fear is a strong emotion that affects perception, and as the level of fear increases, there are perceptual changes. Caliskan et al. (2021) emphasized that as the fear of COVID-19 increased, the positive attitude toward the nursing profession decreased (18). Dost et al. (2021) found that the level of professional image perception of intern nurses who stated that they felt fear and anxiety was lower than the others (17). Since professional image perception is the whole of nurses' perceptions, views, and attitudes toward their profession, Dost et al. (2021) support our study results.

In our study, the sex factor affected both fears of COVID-19 and professional perception. This study shows that the fear of COVID-19 and the level of professional perception were high in female nursing students. Similarly, in studies conducted in Saudi Arabia and Turkey, the fear level of female nursing students for COVID-19 was higher (18,32,33). In addition, our study shows that students living in urban areas have lower COVID-19 fear levels than those living in rural areas. In other words, social and personal measures are more strictly controlled due to the population density in cities, and access to health services is easier. Moreover, the elderly population is at higher risk and mostly lives in rural areas.

For nursing students, perception of the profession defines how students feel, think about themselves, their environment, the appropriateness of nursing and nursing actions, and consider nursing education. It is crucial to have a positive perception and attitude towards that profession in adapting to

the profession and maintaining a productive working life (39). In our study, the professional perceptions of senior students and students who graduated from the vocational school of health and chose the profession voluntarily were positive, but there was no significant change in their fear of COVID-19 (Table 1). This result suggests a two-way interaction between fear of COVID-19 and professional perception and that professional perception can also affect the level of fear. In the literature, being in the upper class and choosing the profession willingly improves professional perception (20,24). Students who like nursing inevitably will have more positive professional perceptions since they will more easily acquire the values and skills that include professional qualifications than those who do not. However, to our knowledge, no study examined the relationship between fear of COVID-19, class, and liking the profession.

In our study, the professional perceptions of students who did not have a family history of COVID-19 infection increased positively. However, according to the findings, having COVID-19 does not affect their professional perceptions ($p>0.05$). This suggests that students are more concerned about their family members rather than themselves. In addition, the reason why the infection has not been seen in the family members of the students might be because of the knowledge they had acquired during their nursing education, such as hand hygiene, protection from infectious diseases, and also being responsible.

Study Limitations: Since this current study was at only one nursing school, these findings cannot be generalized. In this study, the relationship was examined only between the level of fear of COVID-19 and the perception of the nursing profession. The effects of other factors, such as depression, anxiety, and stress related to COVID-19 on the nursing perception, have not been evaluated.

CONCLUSION

The findings obtained in our study show that fear of COVID-19 affects professional perception in nursing students weakly; however, there is a two-way relationship between professional perception and fear of COVID-19. In this respect, teaching methods of coping with fear during nursing education may affect professional perception positively. Additionally, a training curriculum that will improve professional perception may mitigate the fear during similar pandemic periods.

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Ethical approval: All procedures performed in studies involving human participants were in accordance with the institutional and/or national research committee's ethical standards and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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