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Research Article

Determination of patients' family members' needs and related factors in the intensive care unit with visiting restrictions during the COVID-19 pandemic

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ABSTRACT

Objectives: To determine the needs of family members of patients and related factors in the intensive care unit during the COVID-19 pandemic.
Research methodology: This descriptive, cross-sectional, and correlational type study was conducted with a total of 301 family members. Data were collected by using two validated inquiry forms, the "Introductory Information Form" and the "Critical Care Family Needs Inventory" through an online survey. Descriptive statistical methods, as well as the Mann-Whitney *U* test, Kruskal-Wallis test, Dunn-Bonferroni test, and Backward Linear Regression Analysis, were used for the analysis of data.
Results: The average scores of information, assurance, proximity, support, and comfort needs of family members were 3.54 ± 0.61 (Min = 1.11-Max = 4), 3.72 ± 0.60 (Min = 1-Max = 4), 3.50 ± 0.62 (Min = 1-Max = 4), 3.27 ± 0.77 (Min = 1.07-Max = 4), and 3.32 ± 0.73 (Min = 1-Max = 4), respectively. A very weak positive correlation was found between the ages of family members and information, assurance, and proximity needs ($p < 0.05$). Some variables such as sex, income level, and degree of affinity had significant effects on the needs of family members ($p < 0.05$).
Conclusion: Family members of critically ill patients had needs at most in the assurance sub-dimension during the COVID-19 pandemic. As the length of time of family members spent in the hospital increased, their support and comfort sub-dimension needs also increased. Institutional policies should be developed to assure family members in intensive care units.

Implications for clinical practice

- Relatives of patients should be given realistic information about their relatives in ICUs where visits are restricted.
- Family members should be reassured that their relatives are given the best possible care and treatment.
- At least once a day and in case of any change in the patient's condition, family members should be informed by phone.
- Institutional arrangements should be made to meet the support and comfort needs of family members who do not have a place to stay and have to spend a long time in the hospital.

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Introduction

Coronavirus disease 2019 (COVID-19) was considered a pandemic by the World Health Organisation on March 11th, 2020 (Worldometers, 2021). According to the official statistics published on the Worldometer website until October 3rd, 2021, a total of 7,210,916 confirmed cases of COVID-19 and a total of 64,467 deaths have been reported in Turkey (Worldometers, 2021).

According to the official statistics of the Ministry of Health in Turkey, the intensive care unit (ICU) bed occupancy rate was 68.7% per day during the pandemic period, whereas this rate was 20% in the normal period (Republic of Turkey Ministry of Health, 2021).

Many patients admitted to the ICU due to critical conditions after coronavirus infection receive mechanical ventilation support and renal replacement therapy, as well as extracorporeal membrane oxygenation (ECMO) treatment. During the pandemic, due to reasons such as the complex care and treatments performed in ICUs, as well as the chaotic and stressful setting and higher risk of transmission, family members' visits are forbidden in these units (Hu et al., 2021; Kiraner and Terzi, 2020).

Family support is important during a health crisis. The personal emotional support of family members is an integral part of professional holistic care. As part of the intensive care team, family members are provided with opportunities to participate in team rounds, participate in direct care, frequent communication, joint decision making, and be present during resuscitation. Family-centred care improves the quality of critical care and the experience for patients and families (Hart & Taylor, 2021).

The presence of family members is critical to optimising end-of-life and grief experiences for patients, families, and healthcare professionals in ICUs. In the ICUs, family members usually want to be with their relatives and help meet their every need together with the health personnel (Feder et al., 2021). In normal times, family members are allowed to see their relatives at least twice a day in the ICUs. However, visiting a relative in the ICU was restricted during the pandemic. Communication between critically ill patients, families, and healthcare teams is critical during restricted visitation times (Feder et al., 2021). It is reported that restricted visiting rules related to COVID-19 ICUs cause fracture of the relationship between the family and patient. It is also stated that this situation increases the perception of losing loved ones in the family members (Hart et al., 2020; Kentish-Barnes et al., 2021). And, poor quality communication causes deep distress that can affect the quality of death and grief (Feder et al., 2021).

Family members who deeply feel the responsibility of caregiving may have to seek care themselves after a while when they cannot effectively cope with their psychosocial problems or cannot receive adequate psychosocial support (Azoulay et al., 2021). Family members of critically ill patients may often experience symptoms of extreme stress, anxiety, feelings of helplessness, depression, and traumatic stress themselves (Hart & Taylor, 2021; Khatri Chhetri & Thulung, 2018). It is stated that the fear of death of loved ones, uncertainty about prognosis, financial concerns, changes in family roles, and limited access to the intensive care environment, can trigger feelings of shock, anger, denial, and hopelessness within 72 h of being admitted to the ICU (Buyukcoban et al., 2021).

Therefore, providing psychosocial support also for family members near-patient experiencing the pandemic period is particularly important (Azoulay et al., 2021).

Nurses have professional and conscientious responsibilities in the provision of the psychosocial well-being of the family. Nurses' understanding of providing holistic care requires intervening by evaluating family members physically and psychologically and by determining risky conditions. Accordingly, the determination of the needs of family members of patients with COVID-19 in the ICU and variables that can be associated with these needs is important. Nonetheless, studies investigating the needs of family members in the ICU in which visiting restrictions have been implemented during the COVID-19 pandemic were not encountered. Considering that this study could be a criterion for providing psychosocial support for family members and provide significant contributions to the maintenance of family-centred care during the pandemic period, answers to the following study questions were sought:

- What are the needs of family members of patients treated in the ICU where visiting restrictions have been implemented during the COVID-19 pandemic?
- What are the factors affecting the needs of family members of patients treated in the ICU where visiting restrictions have been implemented during the COVID-19 pandemic?
- What are the variables that can be associated with the needs of family members of patients treated in the ICU where visiting restrictions have been implemented during the COVID-19 pandemic?

Materials and methods

Design and aim of the study

This descriptive, cross-sectional and correlational type study was conducted to determine the needs of family members of patients and related factors in the ICUs where visiting restrictions have been implemented during the COVID-19 pandemic.

Population and sampling of the study

The research was conducted in two hospitals in total, a pandemic hospital and a medical faculty hospital in Istanbul, in western Turkey. In the hospitals where the study was conducted, family members are informed about their relatives by their allocated nurse in the ICU twice per day at 10:00 AM and 18:00 PM or by physicians only once per day at 12:00 PM. The population of the study consisted of the family members of a total of 391 patients hospitalised in the COVID-19 ICUs of the pandemic hospital and medical faculty hospital. It was aimed to reach the relatives of all patients without sampling. The study was completed with a total of 301 family members (77% of the population). The inclusion criteria were: (1) First-degree relatives of the patient (mother, father, sibling, spouse, child); (2) If the patient's relative was not a first-degree relative, they were a second-degree relative (aunt, uncle); (3) Completion of the first 24 hours of the patient's hospitalisation in the ICU; (4) Family members with no hearing and comprehension problems, and (5) Those who are at least literate and whose mother tongue was Turkish.

Data collection tools

Study data were collected using the "Introductory Information Form" and the "Critical Care Family Needs Inventory".

The Introductory Information Form: The form, prepared by the investigators according to the literature (Abdel-Aziz et al., 2017; Alsharari, 2019; Buyukcoban et al., 2021; Kumaravadivel Dharmalingam et al., 2016; Padilla-Fortunatti et al., 2018), was composed of 28 items interrogating sociodemographic characteristics of the family member such as age, sex, marital status, educational status, social health insurance, occupation, degree of affinity, and their needs during the stay of the patient in the ICU (e.g. housing place, food & beverage place), information regarding the intensive care process, and COVID-19.

The Critical Care Family Needs Inventory (CCFNI): Several Turkish validity and reliability studies (Buyukcoban et al., 2015; Unver, 2003) of the inventory developed by Molter (1979) to determine the needs of family members of patients admitted to the ICU have been performed, and the Turkish version of the inventory performed by Buyukcoban et al. (2015) was used in this study. The Turkish version of the inventory has a 4-point Likert type scale ("1 = Not important; 2 = Slightly important; 3

= Important; 4 = Very important") composed of five sub-dimensions of need as "Assurance (five items)," "Information (nine items)," "Proximity (seven items)," "Support (13 items)," and "Comfort (six items)," and a total of 40 items.

The lowest and the highest scores of the inventory were 40–160 and each sub-dimension was scored separately. Lower average scores indicated that the needs decreased and higher average scores indicated that the needs increased. The Cronbach's alpha coefficient was calculated as

Table 1
The distribution of answers of family members to the items in "Critical Care Family Needs Inventory".

Items	Not important		Least important		Important		Most Important		
	n	%	n	%	n	%	n	%	Mean ± SD
Assurance									
To be able to talk to the doctor of my patient every day	11	3.65	4	1.32	51	16.94	235	78.07	**3.69 ± 0.68**
To be able to get information through phone calls when I cannot come to visit my patient	10	3.32	6	1.99	35	11.62	250	83.05	**3.74 ± 0.66**
To be able to know which staff members (physician-nurse-secretary) could give what information	15	4.98	24	7.97	59	19.60	203	67.44	3.50 ± 0.84
To know the reason of the interventions performed in my patient	9	2.99	17	5.64	62	20.59	213	70.76	3.59 ± 0.73
To know which staff member provides my patient with health service	9	2.99	22	7.30	64	21.26	206	68.43	3.55 ± 0.76
Information									
To know what kind of a treatment is administered to my patient	11	3.65	9	2.99	64	21.26	217	72.09	3.62 ± 0.72
To know exactly what is being done for my patient	10	3.32	8	2.65	59	19.60	224	74.4	3.65 ± 0.69
To be informed about where I can perform my religious practices	28	9.30	35	11.62	83	27.57	155	51.49	3.21 ± 0.98
To be allowed to help with my patient's physical care	23	7.64	33	10.96	76	25.24	169	56.14	3.30 ± 0.94
To have questions answered realistically	9	2.99	6	1.99	36	11.96	250	83.05	**3.75 ± 0.64**
To feel there is hope for my patient	12	3.98	6	1.99	51	16.94	232	77.07	3.67 ± 0.71
To be assured the best possible care is being given to my patient	8	2.65	9	2.99	35	11.62	249	82.72	**3.74 ± 0.64**
To be assured that hospital personnel care about my patient	10	3.32	4	1.32	41	13.62	246	81.72	**3.74 ± 0.65**
To know improvements related to my patient's condition	9	2.99	9	2.99	41	13.62	242	80.39	**3.71 ± 0.67**
Proximity									
To be able to visit my patient whenever I wish	21	6.97	43	14.28	67	22.25	170	56.47	3.28 ± 0.95
To be able to communicate with the same nurse every day	17	5.64	37	12.29	81	26.91	166	55.14	3.32 ± 0.90
To have visiting hours started in time	16	5.31	32	10.63	75	24.91	178	59.13	3.38 ± 0.88
To get my opinion about transfer plans about my patient	7	2.32	9	2.99	58	19.26	227	75.41	**3.68 ± 0.65**
To be called at home due to changes in the status of my patient	8	2.65	6	1.99	46	15.28	241	80.06	**3.73 ± 0.63**
To get information about my patient at least once a day	9	2.99	6	1.99	54	17.94	232	77.07	**3.69 ± 0.66**
To be able to see my patient frequently	18	5.98	28	9.30	71	23.58	184	61.12	3.40 ± 0.89
Support									
To be informed about the intensive care unit setting that I will encounter before the first visit of my patient	12	3.98	19	6.31	64	21.26	206	68.43	3.54 ± 0.78
To be able to speak with someone about my feelings related to the condition I experienced	12	3.98	34	11.29	74	24.58	181	60.13	3.41 ± 0.84
To have a list indicating what should be done during the visit of my patient	13	4.31	33	10.96	64	21.26	191	63.45	3.44 ± 0.85
To have my friends or relatives nearby for support	18	5.98	38	12.62	86	28.57	159	52.82	3.28 ± 0.90
To have a place in which I can be alone while in the hospital	29	9.63	59	19.60	69	22.92	144	47.84	***3.09 ± 1.03***
To be able to access to a chaplain in the hospital	31	10.29	47	15.61	72	23.92	151	50.16	***3.14 ± 1.03***
To be able to talk about the probability of death of my patient	13	4.31	25	8.30	73	24.25	190	63.12	3.46 ± 0.82
To have also other relatives with me during the visit of my patient in the intensive care	20	6.64	54	17.94	69	22.92	158	52.49	***3.21 ± 0.96***
To have also someone nearby who will look after me	26	8.63	51	16.94	80	26.57	144	47.84	***3.14 ± 0.99***
To feel that I can cry without hesitation when I wish	30	9.96	43	14.28	67	22.25	161	53.48	***3.19 ± 1.02***
To be recommended about someone to help me to solve my problems	15	4.98	28	9.30	62	20.59	196	65.11	3.46 ± 0.86
To be able to be alone when I wish	29	9.63	57	18.93	66	21.92	149	49.50	***3.11 ± 1.03***
To be put in touch with someone who could help me to solve my family problems	26	8.63	60	19.93	68	22.59	147	48.83	***3.12 ± 1.01***
Comfort									
To have a place that I can have good food available while in the hospital	26	8.63	61	20.26	61	20.26	153	50.83	***3.13 ± 1.02***
To have comfortable furniture in the waiting room	27	8.97	54	17.94	70	23.25	150	49.83	***3.14 ± 1.01***
To be appreciated by hospital personnel	10	3.32	21	6.97	71	23.58	199	66.11	3.53 ± 0.77
To have a telephone that I can use near the waiting room	33	10.96	43	14.28	75	24.91	150	49.83	***3.14 ± 1.03***
To have left something undone when I leave the hospital for a while	8	2.65	10	3.32	48	15.94	235	78.07	**3.69 ± 0.66**
To have a bathroom for family members near the waiting room	18	5.98	39	12.95	82	27.24	162	53.82	3.29 ± 0.91

0.93 for the internal consistency of the entire Turkish inventory. The Cronbach's alpha coefficient was calculated as between 0.83 and 0.92 for the sub-dimension of the Turkish inventory (Buyukcoban et al., 2015). In this study, the Cronbach's alpha coefficient was determined as $\alpha = 0.920$, $\alpha = 0.950$, $\alpha = 0.886$, $\alpha = 0.958$, and $\alpha = 0.890$ for the Information, Assurance, Proximity, Support, and Comfort sub-dimensions, respectively. Thus, it can be said that the inventory was highly reliable.

Statistical analysis of the data

The NCSS (Number Cruncher Statistical System) statistical software was used for the statistical analysis. During the evaluation of the study data, descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, and maximum) were used. Conformity of the quantitative data to normal distribution was tested using the Shapiro-Wilk test and graphical assessments (Polit & Beck, 2010). The Mann-Whitney *U* test was used for the comparisons of quantitative variables without normal distribution between two groups (Polit & Beck, 2010). The Kruskal-Wallis test and Dunn-Bonferroni test were used for the comparison of quantitative variables without normal distribution between more than two groups (Polit & Beck, 2010). Backward linear regression analysis was used to determine the factors affecting the average scores of sub-dimensions of the scale. A p-value of < 0.05 was accepted as statistical significance (Polit & Beck, 2010).

Data collection

The family members of patients admitted to ICUs in Turkey with a diagnosis of COVID-19 during the first and second wave of the pandemic were called by the researchers after obtaining their mobile phone numbers from the files of the patients. The link of data collection tools as "Google Survey" forms was sent as WhatsApp or MMS messages online to the mobile phones of family members of patients who agreed to participate in the study. The family members who clicked on the link were able to complete the relevant forms through the delivered message instantly. During the study period, the survey link was sent to the family members twice per week again and they were reminded to respond to the survey. Since the purpose of the study was to determine the needs of family members, only family members participated in the study.

Ethical aspects of the study

The study abided by the Universal Declaration on Human Rights and adhered to the principles of voluntariness and willingness of the family members. Written consent of the family members who volunteered to participate in the study was received through clicking on the statement, "I agree to complete the online survey form," which greeted them after they opened the message on their mobile phones. To perform the study, written permissions for the research were obtained from the local ethics committees of a university (permission date: May 29th, 2020, decision number: 12) and the Scientific Research Platform of the Turkish Ministry of Health.

Results

The study was conducted between June 2020 and April 2021. Only 301 of the family members of 391 patients who were treated in the ICUs during the pandemic were reached and completed the online survey. The results of the study are discussed under four titles: 1) Characteristic features of family members, 2) The needs of family members (Table 1) and the factors affecting these needs, 3) The Critical Care Family Needs Inventory scores according to descriptive variables, 4) Regression analyses of variables affecting the needs of family members.

Characteristic features of family members.

The mean age of the family members was 38.01 ± 12.61 (Min = 15-Max = 83) years, 58.5% (n = 176) were females, 63.5% (n = 191) were married, 42.9% (n = 129) were high-school graduates, and 31.2% (n = 94) were public employees. Furthermore, 91% (n = 274) of the family members had social health insurance, 74.1% (n = 223) were living in the city center, and the income of 57.5% (n = 173) met their expenses. It was established that 75.4% (n = 227) were first-degree family members of patients admitted to the ICU with the diagnosis of COVID-19 and 25.2% (n = 76) were the children of the patients. It was determined that 69.8% (n = 251) of the family members stayed in their own homes, and 91.4% (n = 275) met their food and beverage needs at home.

When the features regarding elements of the ICU stay of the family members were investigated, it was found that the length of time that the family members' relatives spent in the ICU was a mean 13.17 ± 8.82 (Min = 0-Max = 77) days, 93.4% (n = 281) of them got information about their relatives on the first day from ICU workers and 84.7% (n = 255) received this information from a physician.

It was determined that 61.1% of the family members (n = 184) had one or more dependents they were liable for looking after, and 82.1% (n = 247) felt they were decision-makers for their relatives as patient relatives.

It was determined that 98.3% of the family members (n = 296) knew about COVID-19, 85% (n = 256) obtained information about COVID-19 during the admission of the family members' relatives to the ICU, and 63.8% of the family members (n = 192) learned this information from the physician.

The needs of family members and the factors affecting these needs.

The distributions of the responses of family members to CCFNI items are shown in Table 1. The statements related to the needs considered to be very important by family members were as follows: "To have questions answered realistically," "To be able to get information through phone calls when I cannot come to visit my relative," "To be assured the best possible care is being given to my relative," "To be assured that hospital personnel care about my relative," and "To be called at home due to changes in the status of my relative." The need considered as having the least importance was "To have a place to be alone while in the hospital" (Table 1).

The average scores of the Information, Assurance, Proximity, Support, and Comfort sub-dimensions of the family members' CCFNI were found as 3.54 ± 0.61 (Min = 1.11-Max = 4), 3.72 ± 0.60 (Min = 1-Max = 4), 3.50 ± 0.62 (Min = 1-Max = 4), 3.27 ± 0.77 (Min = 1.07-Max = 4), and 3.32 ± 0.73 (Min = 1-Max = 4), respectively.

The comparison of average scores of sub-dimensions of the CCFNI according to characteristic features is explained in detail in Table 2. A very weak positive correlation was found between the ages of family members and CCFNI Information, Assurance, and Proximity sub-dimensions ($r = 0.148$, $p = 0.010$; $r = 0.182$, $p = 0.002$; and $r = 0.144$, $p = 0.012$, respectively). The scores of the women in CCFNI Information, Assurance, Proximity, Support, and Comfort sub-dimensions were found to be statistically significantly lower than those of men ($p = 0.001$, $p = 0.001$, $p = 0.002$, $p = 0.010$, $p = 0.021$, $p < 0.05$, respectively) (Table 2).

The Critical Care Family Needs Inventory scores according to descriptive variables.

The average scores of sub-dimensions of the CCFNI according to some descriptive variables are detailed in Table 3. Accordingly, the very weak positive correlation between the time the family members spent in the hospital and the average scores of the Support and Comfort sub-dimensions of the CCFNI were found to be statistically significant ($p < 0.05$) (Table 3).

4 Regression analyses of variables affecting the needs of family members.

According to the results of regression analysis, the effect of age, sex, marital status, educational status, occupation, income status, and "the existence of family members who can support" on the average score of the Information sub-dimension of the CCFNI was tested using Backward regression analysis, and the model was determined to be significant (F =

Table 2
Evaluation of Critical Care Family Needs Inventory scores according to characteristic features.

Characteristics			Sub-dimension of Critical Care Family Needs Inventory				
			Information	Assurance	Proximity	Support	Comfort
Age		‡r	0.148	0.182	0.144	0.112	0.066
		p	***0.010****	***0.002****	***0.012****	***0.052***	***0.253***
Sex	**Female**	*Mean ± SD*	3.45 ± 0.68	3.62 ± 0.71	3.42 ± 0.68	3.21 ± 0.78	3.25 ± 0.76
		Median (Min-Max)	3.67 (1.11–4)	4 (1–4)	3.57 (1–4)	3.54 (1.08–4)	3.5 (1–4)
	Male	*Mean ± SD*	3.66 ± 0.48	3.66 ± 0.48	3.87 ± 0.37	3.61 ± 0.51	3.37 ± 0.73
		Median (Min-Max)	3.88 (1.33–4.00)	3.89 (1.33–4)	4 (1.2–4)	3.86 (1.43–4)	3.77 (1.31–4)
		Test value	Z = -3.725	Z= − 4.613	Z = -3.163	Z = -2.565	Z = -2.299
		p	[a]***0.001****	[a]***0.001****	[a]***0.002****	[a]***0.010****	[a]***0.021****
Marital Status	**Married**	*Mean ± SD*	3.57 ± 0.60	3.77 ± 0.57	3.53 ± 0.58	3.29 ± 0.77	3.31 ± 0.76
		Median (Min-Max)	3.78 (1.11–4)	4.00 (1–4)	3.71 (1–4)	3.54 (1.08–4)	3.50 (1–4)
	Single	*Mean ± SD*	3.48 ± 0.65	3.64 ± 0.66	3.43 ± 0.68	3.25 ± 0.77	3.34 ± 0.70
		Median (Min-Max)	3.67 (1.11–4)	4 (1–4)	3.71 (1.14–4)	3.46 (1.31–4)	3.50 (1.33–4)
		Test Value	Z = -1.605	Z = -2.713	Z = -0.966	Z = -0.830	Z = -0.138
		p	[a]***0.108***	[a]***0.007****	[a]***0.334***	[a]***0.407***	[a]***0.890***
Social Health Insurance	**Present**	*Mean ± SD*	3.54 ± 0.61	3.73 ± 0.59	3.5 ± 0.61	3.28 ± 0.77	3.33 ± 0.72
		Median (Min-Max)	3.67 (1.11–4)	4 (1–4)	3.71 (1–4)	3.54 (1.08–4)	3.5 (1–4)
	Absent	*Mean ± SD*	3.56 ± 0.69	3.66 ± 0.74	3.46 ± 0.7	3.28 ± 0.78	3.22 ± 0.84
		Median (Min-Max)	3.78 (1.33–4)	4 (1–4)	3.71 (1.29–4)	3.54 (1.23–4)	3.33 (1.17–4)
		Test Value	Z = -0.810	Z = -0.162	Z = -0.064	Z = -0.166	Z = 0.496
		p	[a]***0.418***	[a]***0.871***	[a]***0.949***	[a]***0.868***	[a]***0.620***
Educational Status	**Literate**	*Mean ± SD*	3.18 ± 0.82	3.62 ± 0.77	3.09 ± 0.74	2.87 ± 0.88	2.9 ± 0.83
		Median (Min-Max)	3.56 (1.33–4)	4 (1–4)	3.29 (1.29–4)	2.85 (1.31–4)	2.92 (1.17–4)
	Elementary School	*Mean ± SD*	3.67 ± 0.39	3.85 ± 0.26	3.64 ± 0.42	3.36 ± 0.73	3.39 ± 0.65
		Median (Min-Max)	3.78 (2.44–4)	4 (2.8–4)	3.86 (2.57–4)	3.69 (1.38–4)	3.5 (1.83–4)
	High School	*Mean ± SD*	3.61 ± 0.62	3.74 ± 0.61	3.58 ± 0.62	3.43 ± 0.77	3.46 ± 0.75
		Median (Min-Max)	3.89 (1.11–4)	4 (1–4)	3.86 (1–4)	3.69 (1.08–4)	3.83 (1–4)
	Graduate School	*Mean ± SD*	3.48 ± 0.6	3.66 ± 0.67	3.41 ± 0.63	3.14 ± 0.68	3.21 ± 0.67
		Median (Min-Max)	3.67 (1.11–4)	4 (1–4)	3.57 (1.14–4)	3.12 (1.31–4)	3.33 (1.33–4)
		Test Value	x^2 = 16.157	x^2 = 1.130	x^2 = 19.179	x^2 = 19.979	x^2 = 19.066
		p	[b]***0.001****	[b]***0.770***	[b]***0.001****	[b]***0.001****	[b]***0.001****
Occupation	**Self-Employed**	*Mean ± SD*	3.56 ± 0.52	3.83 ± 0.45	3.53 ± 0.51	3.21 ± 0.72	3.26 ± 0.69
		Median (Min-Max)	3.67 (1.33–4)	4 (1–4)	3.57 (1.57–4)	3.31 (1.31–4)	3.33 (1.17–4)
	Public Employee	*Mean ± SD*	3.56 ± 0.64	3.63 ± 0.71	3.51 ± 0.64	3.41 ± 0.71	3.44 ± 0.71
		Median (Min-Max)	3.78 (1.11–4)	4 (1–4)	3.71 (1.14–4)	3.69 (1.08–4)	3.75 (1.17–4)
	Housewife	*Mean ± SD*	3.41 ± 0.7	3.68 ± 0.63	3.38 ± 0.67	3.1 ± 0.84	3.12 ± 0.8
		Median (Min-Max)	3.67 (1.33–4)	4 (1–4)	3.57 (1.14–4)	3.46 (1.23–4)	3.33 (1.17–4)
	Retired	*Mean ± SD*	3.85 ± 0.32	3.99 ± 0.04	3.8 ± 0.36	3.60 ± 0.64	3.6 ± 0.61
		Median (Min-Max)	4 (2.78–4)	4 (3.8–4)	4 (2.71–4)	4 (2.15–4)	4 (2.17–4)
	Student	*Mean ± SD*	3.48 ± 0.64	3.64 ± 0.64	3.44 ± 0.69	3.31 ± 0.67	3.39 ± 0.67
		Median (Min-Max)	3.67 (1.33–4)	4 (1.2–4)	3.86 (1.43–4)	3.38 (1.54–4)	3.5 (1.5–4)
	Unemployed	*Mean ± SD*	3.43 ± 0.68	3.7 ± 0.66	3.31 ± 0.73	2.92 ± 0.91	3.09 ± 0.82
		Median (Min-Max)	3.56 (1.11–4)	4 (1–4)	3.43 (1–4)	3 (1.15–4)	3.17 (1–4)
		Test Value	x^2 = 19.566	x^2 = 23.127	x^2 = 16.533	x^2 = 20.816	x^2 = 18.237
		p	[b]***0.002****	[b]***0.001****	[b]***0.001****	[b]***0.001****	[b]***0.003****
Income	**Income higher than expenditure**	*Mean ± SD*	3.65 ± 0.44	3.80 ± 0.39	3.60 ± 0.49	3.34 ± 0.63	3.45 ± 0.59
		Median (Min-Max)	3.78 (2.44–4)	4 (2.40–4)	3.71 (2–4)	3.54 (1.92–4)	3.58 (2.33–4)
	Income equal to expenditure	*Mean ± SD*	3.58 ± 0.64	3.65 ± 0.68	3.55 ± 0.64	3.41 ± 0.72	3.41 ± 0.71
		Median (Min-Max)	3.41 ± 0.62	3.83 ± 0.49	3.34 ± 0.61	2.98 ± 0.83	3.07 ± 0.77
	Income less than expenditure	*Mean ± SD*	3.41 ± 0.62	3.83 ± 0.49	3.35 ± 0.61	2.98 ± 0.83	3.07 ± 0.77
		Median (Min-Max)	3.56 (1.11–4)	4 (1–4)	3.50 (1–4)	3 (1.15–4)	3.08 (1–4)
		Test Value	x^2 = 11.330	x^2 = 11.197	x^2 = 11.112	x^2 = 16.868	x^2 = 15.053
		P	[b]***0.003****	[b]***0.004****	[b]***0.004****	[b]***0.001****	[b]***0.001****

[a] *Mann-Whitney U Test, [K]ruskal-Wallis, ‡r: Spearman's Correlation Coefficient*p < 0.05, **p < 0.01.*

7.009; $p < 0.01$) and $R^2 = 0.045$. The rate of effect of age, sex, marital status, educational status, occupation, income status, and "the existence of family members who can support" on the Information sub-dimension score was found as 4.5% (Table 4).

The effect of age, sex, marital status, educational status, occupation, income status, and the condition of presence of other dependent or dependents on the average score of the Assurance sub-dimension of the CCFNI was tested using Backward regression analysis, and the model was determined to be significant ($F = 8.566$; $p < 0.01$) and $R^2 = 0.054$. The rate of effect of age, sex, marital status, occupation, income status, and the condition of the presence of other dependents or dependents on the Assurance sub-dimension score was found as 5.4% (Table 4).

The effect of age, sex, educational status, occupation, income status, and "the existence of family members who can support" on the Proximity sub-dimension score of the CCFNI was tested using Backward regression analysis. The model was determined to be significant ($F = 6.633$; $p < 0.01$) and $R^2 = 0.063$. The rate of effect of age, sex, marital status, occupation, income status, and "the existence of family members who can support" on the Proximity sub-dimension score was found as 6.3% (Table 4).

The effect of age, sex, educational status, occupation, income status, degree of affinity, and "the existence of family members who can support" on the average score of the "Support" sub-dimension of the CCFNI was tested using Backward regression analysis, and the model was determined to be significant ($F = 7.511$; $p < 0.01$) and $R^2 = 0.092$. The rate of effect of age, sex, marital status, occupation, income status, degree of affinity, and "the existence of family members who can support" on the Support sub-dimension score was found as 9.2% (Table 4).

Table 3
Evaluation of Critical Care Family Needs Inventory scores according to descriptive variables.

			Critical Care Family Needs Inventory Scale in Intensive Care Units				
			Information	Assurance	Proximity	Support	Comfort
Degree of Affinity	**First-degree**	*Mean ± SD*	3.53 ± 0.64	3.73 ± 0.63	3.49 ± 0.65	3.22 ± 0.8	3.28 ± 0.75
		Median (Min-Max)	3.78 (1.11–4)	4 (1–4)	3.71 (1–4)	3.54 (1.08–4)	3.5 (1–4)
	Second-degree	*Mean ± SD*	3.58 ± 0.53	3.71 ± 0.52	3.53 ± 0.53	3.44 ± 0.62	3.45 ± 0.66
		Median (Min-Max)	3.67 (1.33–4)	4 (1–4)	3.71 (1.29–4)	3.62 (1.23–4)	3.67 (1.17–4)
		Test Value	Z = -0.194	Z = 1.165	Z = 0.177	Z = -1.908	Z = -1.856
		p	[a]***0.846***	[a]***0.244***	[a]***0.859***	[a]***0.056***	[a]***0.063***
Do you have any other relative who can support you?	**Present**	*Mean ± SD*	3.56 ± 0.61	3.73 ± 0.58	3.53 ± 0.61	3.34 ± 0.76	3.37 ± 0.73
		Median (Min-Max)	3.78 (1.11–4)	4 (1–4)	3.71 (1.14–4)	3.62 (1.08–4)	3.67 (1.17–4)
	Absent	*Mean ± SD*	3.41 ± 0.61	3.66 ± 0.74	3.25 ± 0.64	2.84 ± 0.69	2.94 ± 0.66
		Median (Min-Max)	3.56 (1.11–4)	4 (1–4)	3.43 (1–4)	2.96 (1.15–4)	3 (1–4)
		Test Value	Z = 2.401	Z = -0.397	Z = 3.373	Z = 4.214	Z = 4.041
		p	[a]***0.016****	[a]***0.691***	[a]***0.001****	[a]***0.001****	[a]***0.001****
Do you have any other one or more dependents you are liable to look after?	**Present**	*Mean ± SD*	3.57 ± 0.56	3.80 ± 0.49	3.52 ± 0.56	3.27 ± 0.76	3.31 ± 0.73
		Median (Min-Max)	3.78 (1.33–4)	4 (1–4)	3.71 (1.14–4)	3.62 (1.23–4)	3.50 (1.17–3.50)
	Absent	*Mean ± SD*	3.49 ± 0.69	3.60 ± 0.73	3.45 ± 0.71	3.29 ± 0.78	3.33 ± 0.74
		Median (Min-Max)	3.6 (1.11–4)	3.80 (1–4)	3.71 (1–4)	3.62 (1.08–4)	3.50 (1–4)
		Test Value	Z = 1.146	Z = 4.044	Z = 0.456	Z = 0.518	Z = 0.218
		p	[a]***0.252***	[a]***0.001****	[a]***0.649***	[a]***0.604***	[a]***0.827***
The length of time of patient spent in intensive care unit (days)		[‡]**r**	0.065	−0.068	0.040	0.059	0.082
		p	***0.264***	***0.240***	***0.486***	***0.310***	***0.154***
The length of time of family member spent in hospital (hours)		[‡]**r**	0.102	−0.021	0.064	0.114	0.117
		p	***0.076***	***0.711***	***0.266***	***0.048****	***0.043****

[a] *Mann-Whitney U Test,* [b]*Kruskall-Wallis,* [‡]*r:Spearman's Correlation Coefficient, *p < 0.05, **p < 0.01.*

Table 4
Regression analyses of variables affecting the needs of family members.

Dependent Variables	Model		Unstandardized Coefficients	p	95% Confidence Interval for B	
			B		Lower Bound	Upper Bound
Information Score	6	**Sex**	0.204	***0.004****	0.065	0.343
		Income level	−0.121	***0.028****	−0.228	−0.013
		(Constant)	3.510	***0.001****	3.192	3.829
Assurance Score	5	**Sex**	0.207	***0.004****	0.067	0.347
		Existence of Any Other One or More Dependents	−0.151	***0.037****	−0.293	−0.009
		(Constant)	3.640	***0.001****	3.320	3.961
Proximity Score	4	**Sex**	0.204	***0.005****	0.064	0.344
		Income level	−0.104	***0.065***	−0.214	0.006
		Existence of Any Other Relative Who Can Support You	−0.274	***0.012****	−0.486	−0.061
Support Score	4	**Sex**	0.180	***0.039****	0.009	0.351
		Income level	−0.162	***0.019****	−0.297	−0.026
		Degree of Affinity	0.188	***0.058***	−0.007	0.383
		Existence of Any Other Relative Who Can Support You	−0.444	***0.001****	−0.703	−0.185
		(Constant)	3.634	***0.001****	3.109	4.159
Comfort Score	4	**Sex**	0.181	***0.031****	0.017	0.345
		Income level	−0.174	***0.009****	−0.303	−0.044
		Existence of Any Other Relative Who Can Support You	−0.394	***0.002****	−0.643	−0.145
		(Constant)	3.881	***0.001****	3.461	4.301

The effect of sex, educational status, occupation, income status, degree of affinity, and "the existence of family members who can support" on the average score of the "Comfort" sub-dimension of the CCFNI was tested using Backward regression analysis. The model was determined to be significant ($F = 8.446$; $p < 0.01$) and $R^2 = 0.079$. The rate of effect of sex, marital status, occupation, income status, degree of affinity, and "the existence of family members who can support" on the Comfort score was found as 7.9% (Table 4).

Discussion

In our study, it was found that the Assurance sub-dimension needs of the family members of patients with COVID-19 in the ICU were very important. Following this, it was determined that there were needs of family members in the Information, Proximity, and Support sub-dimensions, according to the order of importance. This means that the healthcare personnel should first meet the information needs of family members. The environment of the ICU, the purpose of the care and

treatment interventions, the prognosis of the patient, the available opportunities for the patient's relatives, the precautions to be taken in infection control, visiting hours, how to communicate with family members, who will provide the information, etc. informations should be explained by health professionals in a clear and understandable way. Considering the situation in the family, this information should be repeated at frequent intervals.

In another study, the most and least important needs stated by the family members of patients treated in the ICU were *"To know the chance of cure of the patient"* and *"To have someone who can encourage me to cry"* (Karahan et al., 2020). In another study, the most important among the sub-dimensions of Assurance need were *"having responses delivered sincerely"* and *"knowing the prognosis."* (Padilla, p.310, 2014). The least important needs associated with the spiritual support of the family members were reported as "*being notified of religious services available*" and "*being visited by a pastor*" (Padilla, p.310, 2014). There are also some other studies with similar results to our study (Abdel-Aziz et al., 2017; Alsharari, 2019; Buyukcoban et al., 2021; Coskun and Kol, 2021; Kumaravadivel Dharmalingam et al., 2016; Olçüm et al., 2018; Oztürk and Cerit, 2021).

Even if the real condition of patients clashed with their need for hope, it has been reported that family members wished to obtain truthful and consistent information about their loved one's condition (Kynoch et al., 2016). In the qualitative research performed by Beer and Brysiewicz (2016) that investigated the needs of family members of patients in the ICU, because it was an important part of making what happened intelligible and manageable, the majority of family members stated that the most essential need was information. One family member (husband) stated, "I needed information … and to know what was happening to be able to emphasise what was going on could have helped me to manage the situation better" (Beer and Brysiewicz, 2016). This shows that to eliminate the emotional, mental and social confusion experienced by family members, timely and adequate information should be given by intensive care staff about the clinical prognosis and conditions of the patient. The sense of assurance is emphasised as the most important need because it reduces uncertainty and stress (Elay et al., 2020). Therefore, meeting the needs of family members is also important. In addition to this, information delivered understandably should be shared with family members of patients in ICUs.

While visiting restrictions are implemented in ICUs during the COVID-19 pandemic in Turkey, family members of patients are kept informed daily through a phone call by the chief physicians of the units. When family members called the ICU during night shifts in the pandemic hospital where the research was conducted, the questions were answered by the supervisor, two nurses, and a physician. An effort was made to address the concerns of family members while giving Information over the phone. However, the information given by the nurses, unfortunately, did not go beyond the basic care practices that family members gave to their patients. In addition, at the beginning of the pandemic, especially the nurses at the frontline may have had difficulties in informing their family members due to the unknown and uncertainties about COVID-19. This might have caused family members to experience a lack of assurance. During the pandemic, fair and acceptable visiting policies should be developed with an interdisciplinary approach for ICUs. General visitation rules and entry and screening procedures for family members may be created. Robust alternatives to in-person visitation may be supported, such as novel communication techniques and videoconferencing, particularly when restricting visiting in other pandemics or infections.

In our study, the needs of family members differed according to age, sex, marital status, educational status, occupation, and income levels. According to our findings, it was found that as the age increased in family members, information, assurance, and proximity needs also increased. Information, assurance, proximity, support, and comfort needs of females were lower than in males, and assurance needs of married family members were higher than in single family members. Similar to our study results, it is reported that as the age increases in family members, their information needs increase (Abdel-Aziz et al., 2017). Contrary to our study results, Ghabeesh et al. (2014) found that the comfort needs of female family members were higher. This conflicting result may have two explanations. The first is that men in Turkey are more dominant than women and do not act as altruistically as women. In addition, women who would have been at the bedside as the patient's relative in the 'normal' setting, unfortunately, could not be with their partners during the pandemic. The second is the remaining male family members at the forefront due to their fighting spirit during the COVID-19 pandemic.

In our study, the needs of family members who have other family members supporting them and dependents differed from the others. Moreover, as the length of time family members spent in the hospital increased, their support and comfort need also increased. There is no special area reserved for family members to wait or house in ICUs in Turkey. Therefore, family members usually spend time and sleep in the hospital gardens at night to be near their loved ones (Coskun and Kol, 2021).

During the COVID-19 pandemic, free spaces in all ICUs were transformed into locker rooms for personal protective equipment of healthcare personnel or storage areas for maintenance materials. It was very difficult for even the members of the health care team to meet their basic needs such as resting and eating. For this, they could not allocate enough time from their workload, and they did not have a suitable environment where they could fulfill these needs. Therefore, it is a natural result that the needs of family members in support and comfort sub-dimensions cannot be met in ICUs that have turned into chaotic environments due to the COVID-19 pandemic. On the other hand, the needs determination inventory used in this inventory focused on only physical environment needs for comfort. However, comfort is a multi-dimensional structure within the context of four experiences as physical, environmental, psychospiritual, and socio-cultural, which is defined as a condition meeting basic human needs for relief, ease, and transcendence (Terzi and Kaya, 2017). Therefore, the comfort needs of family members of patients with COVID-19 in ICUs should be evaluated with multi-dimensional measurement tools and qualitatively.

In our study, variables such as sex, income status, the presence of dependents, and the existence of family members from whom support could be received were found to be important determinants of the needs of family members of patients in the ICU. Contrary to our study result, in the study performed by Coskun and Kol (2021), sex, the presence of dependents, and the existence of family members from whom support could be received did not influence the needs of family members.

Management of care of each patient efficiently, compatible with human dignity, and fairly is important even during the pandemic era. Family involvement in the ICU, namely family-centred care, is present at the step of "F: Family Engagement and Empowerment" in the approach of "The ABCDEF Bundle," which is one of the evidence-based care bundles recommended in international intensive care guidelines (Ely, 2017; Pun et al., 2019). It is reported that the presence of family members may be considerably helpful for the reduction of delirium in patients with COVID-19, who are known to develop delirium at a higher rate than the other patients in ICUs (Kotfis et al., 2020), particularly at the end of deep sedation and during long-term non-invasive mechanical ventilation (Pun et al., 2019). Therefore, the presence of family members, as well as determining and meeting their needs, are important for achieving improved outcomes at the desired level in patients in the ICU.

There are no information systems in the ICUs where this study was conducted for family members about the functioning of the unit, patient's status, and scheduled care applications during the pandemic. Thus, the higher levels of needs of family members in different subdimensions in our study may be associated with this fact. Systematic institutional policies should be adopted in ICUs to meet the needs of family members experiencing uncertainty and fear in every aspect during the pandemic. These policies should include giving information

about important subjects such as care and treatment methods applied against COVID-19, patients' prognoses, and societal struggle with COVID-19, and creating social areas for family members in which they can feel secure. For example, during care hours, family members can participate in care by tele-conference, in this way, they can participate in the care of their relatives and can also observe that their relatives are being taken care.

As a result of the study, the family members of the patients hospitalised in ICUs who are prohibited from visiting their relatives want to receive realistic and reliable information. Not being able to see their relatives causes feelings of anxiety and curiosity in family members. For this reason, family members want to be informed when there is a sudden change in the condition of their relatives. They also expect their relatives to receive the best care and treatment and that healthcare team members will take care of them. As family members age, their needs for knowledge, trust, and closeness increase. Family members want more support and comfort during their hospital stay.

With the five dimensions structure, the Turkish version of the CCFNI tool, like the main version of the scale, seems to have a high validity in identifying the needs of relatives of individuals admitted in the ICU. However, further studies are needed to evaluate the construct validity and reliability of the Turkish version of the CCFNI tool.

Limitations

The COVID-19 pandemic constituted the major limitation. Due to the pandemic, family members were difficult to reach. There was no opportunity for face-to-face communication. Therefore, data were collected through an online survey. We tried to reach many more family members, but difficulties were experienced in reaching family members through phone calls alone. Qualitative data could also be collected from family members in ICUs, where visits were restricted during the pandemic period. However, the research was conducted early in the pandemic, and there was great uncertainty about the course of the pandemic during this period. Therefore, a suitable environment could not be created to collect qualitative data from family members.

Another limitation was that most of the family members were not Turkish, and some family members had difficulty in answering the online questionnaire received on their phones, which limits the generalisability to the Turkish population. Therefore, family members sought help from other members of the family to answer the survey questions. This led to the slow progress of the research.

In addition, the fact that most of the family members within the scope of the research are first-degree relatives of intensive care patients and that most of them stay at their own homes can be considered as other limitations.

Conclusion

At the end of the study, it was found that family members in the ICU had the greatest needs in the assurance sub-dimension and the least in the support sub-dimension during the COVID-19 pandemic. It was detected that as the length of stay of family members increased in the hospital, their support and comfort need also increased. It was determined that variables such as sex, income status, the presence of dependents, and the existence of family members from whom support could be received were effective on the needs of family members. Despite the difficulty in managing the COVID-19 pandemic for healthcare professionals, a sense of assurance should be established in the family members of critically ill patients. Information needed by family members about their patients should be provided. Establishing the trust of family members forms the basis of family-centred care in the ICU. Curative effects might be created in critical care outcomes with the involvement of family members in the care process. Qualitative studies should be performed to determine the needs of family members of critically ill patients during the COVID-19 pandemic.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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