

The relationship of nurses' best practice examples with organizational resilience in combating the COVID-19 pandemic: The case of a state hospital

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Abstract

The purpose of this research, it is to determine the relationship between nurses' best practice examples and organizational resilience in the COVID-19 process. This is a mixed methodology research (qualitative and quantitative). The sample of the study consists of 193 nurses. 3 themes, 6 categories and 27 codes representing best practice examples were identified in the qualitative phase of the research. In the quantitative phase of the research; while the nurses' strategic awareness score is 3925, adaptability score is 5361 and integrity score is 4397, the total score is 13683. The research identified 27 examples of best practice. It was found that the level of organizational resilience of nurses was high and there was a significant relationship between the level of education of nurses and the level of strategic awareness and between time in the profession and the level of strategic awareness, adaptability and integrity. A similar relationship was found between nurses' best practice examples and organizational resilience levels during the COVID-19 pandemic.

Keywords: Resilience, COVID-19, nursing, best practices

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Introduction

Recent global events such as pandemics, crises, and emergencies can hinder a system's ability to deliver its products or services effectively [1]. COVID-19 pandemic is not limited to a single hospital or country; it is testing the resilience of health systems worldwide [2].

In an uncertain environment, a resilient organization can achieve more than mere restoration [3]. In addition to learning from mistakes and using them for preventive purposes, it is possible to predict with a proactive perspective, to be prepared for the future, and to make daily work valuable by making use of established collaborations [4]. By providing organizational learning, it makes it possible to establish an infrastructure and adapt easily to possible sudden situations, and even manage possible conflicts and problems and make it possible to take advantage of these situations by turning them into opportunities [5].

Organizational resilience in healthcare institutions

Resilience in health systems is multisectoral (health, social sciences, economics, etc.); multi-level (micro/individual, medium/organizational, macro/political and national); and more than one population (individuals, communities, decision makers, professionals, scientists, etc.) [6].

When health organizations are considered as a system, its durability is also affected by different factors. Organizational resilience in health institutions occurs at three basic levels: individual, team and organizational level [7].

Considering that health systems are a complex system, it is thought that the best way is to integrate the bottom-up system by developing resilience in caregivers instead of trying to control the health system in order to ensure resilience in health organizations [8]. The relationship between organizational resilience and individual resilience reflects the typical interaction between system and subsystem [9]. Instead of blindly complying with all the rules given to individuals from top to bottom; training should be given to develop their own capacities and how to adapt themselves to the system in

situations of unpredictability and uncertainty in the complexity of the system, and individuals should be empowered to be resilient [10]. In addition, resilience should be contributed through organizational learning by sharing excellent practices instead of bad results [11].

The following best practices regarding organizational resilience in healthcare institutions can be given as examples.

By accepting the Pediatric Intensive Care (PICU) unit of Birmingham Children's Hospital as a pilot project, an initiative called Learning from Excellence (LfE) has been developed, which aims to provide a tool to identify and capture learning from peer-reported excellence or positive deviation [12]. With this initiative, staffs in the unit were asked to voluntarily report their excellent practices, thus creating an excellent practice pool. As a result of this initiative, it has been seen that LfE (<http://www.learningfromexcellence.com>) learning by sharing excellent practices is as valuable as reflecting on individual mistakes and has the potential to have a positive impact on workplace culture and morale. New ideas have been reached [12]. This application has been used as a tool to increase resilience by sharing excellent practices during the COVID-19 pandemic (<https://learningfromexcellence.com/covid19/>).

Nursing and organizational resilience

Nurses and nursing services are considered as an important element in the formation of resilient organizations in the health system in the fight against the COVID-19 pandemic. Nurses are recognized as one of the key elements in the management of hospitals and the health system around the world [13]. Nurses are healthcare professionals who are at the center of COVID-19 prevention and response efforts and provide front-line care for complex COVID-19 cases requiring hospitalization [14]. Nurses are the largest component of the healthcare workforce, with more than 20 million worldwide. Nurses have experienced many changes in the fields of education, management, research and practice from past to present. They had to deal effectively with the changes and difficulties they encountered in every field. Thanks to these

experiences, they learned the importance of adaptability. They have adapted and developed to the needs of the future with what they have learned from experiences, successes and mistakes [15].

For this reason, it is clear that the health sector, and especially nurses, is largely responsible for the implementation of measures to prevent the transmission of COVID-19. Nurses, one of the most trusted healthcare professional groups, also play a strategic role in providing community education on disease prevention and reducing the spread of misinformation about the pandemic [14].

The purpose of this research; It is to determine the relationship between nurses' best practice examples and organizational resilience in the COVID-19 process.

Research questions

The answers to the following questions were sought for the purpose of the research;

1. What are best practice examples of nurses during the COVID-19 pandemic? (Qualitative research question)
2. What is the organizational resilience of nurses during the COVID-19 pandemic? (Quantitative research question)
3. Is there a relationship between nurses' best practice examples and organizational resilience during the COVID-19 pandemic? (Mixed methods research question)

In the first part of this research, the concept of organizational resilience is explained and its importance in the management of the COVID-19 pandemic and its relationship with the nursing profession is explained. In the second part, information about the data collection tools, analysis and software used for the design of the research is given. In the third part, the results of the analysis and the analysis results of the two different methods used are combined and interpreted. In the fourth part, the current findings and the studies in the field are evaluated. In the fifth part, suggestions are given within the framework of the results obtained for the decision makers.

Materials and Methods

Ethical Approval

The ethical and scientific aspects of the study were approved by the Non-Interventional Clinical Research Ethics Committee of Istanbul Medipol University with the letter numbered 10840098-772.02-E.63216 dated 30/11/2020. In order to carry out the study in terms of its subject, the study permit was obtained from the Ministry of Health of the Republic of Türkiye COVID-19 Scientific Research Evaluation Commission and Tekirdağ Provincial Health Directorate with the letter dated 29/12/2020 and numbered 12641312-044. All participants were informed about the research and were given a duly signed Informed Consent Form (ICF) after agreeing to participate in the research. The confidentiality and anonymity of the participants was guaranteed through the use of the codename "Interviewee" followed by a number indicating the sequence in which the interviews were conducted.

Study Design

This research is a mixed method research using a multi-stage mixed method design. Mixed method research is a research method in which inferences are made by using qualitative and quantitative methods together [16-17]. In this study, mixed method was preferred because a single data source was insufficient to explain the research question. In this way, in the qualitative phase of the research, manager nurses' knowledge of best practice examples during the COVID-19 pandemic was examined in depth, and then in the quantitative phase, the answers given by many nurses for organizational resilience were evaluated.

As a matter of fact, in accordance with the research design, the researchers collected and analyzed the quantitative and qualitative data simultaneously. The findings obtained from these two stages were associated in the interpretation stage of the research. The rationale for this approach is to correlate the results obtained from the qualitative method, in which the participants' views are investigated in depth, and the quantitative method, which provides a general understanding of the research questions [16-20].

Population, Location and Selection Criteria

The research was carried out between 01/12/2020 and 01/12/2021 at the Ministry of Health of the Republic of Türkiye, Tekirdağ Provincial Health Directorate Çorlu State Hospital. The population of the research consists of 415 nurses working in Çorlu State Hospital within the specified date range.

Maximum variation sampling, which is one of the purposive sampling methods, was used to determine the qualitative phase sample of the research. For this reason, a total of 10 people, including 8 responsible nurses (middle level managers), 1 assistant head nurse (senior manager) and 1 head nurse (senior manager) working in the relevant services during the COVID-19 pandemic period, were included in the group. It is stated that it is an appropriate size for 6-8 people to participate in the focus group discussions, chosen among those with common experience on the subject [20]. The qualitative phase of the research was completed after it was decided that the data collected in the focus group interview with ten nurse managers had reached sufficient saturation for the research.

Simple random sampling method, one of the probability sampling methods, was used in the quantitative phase of the research. Quantitative stage sampling using the Power Analysis and Sample Size (PASS) program; $\alpha=0.05$, 5% sampling error condition was determined as 200 nurses. Data was collected from 10 nurses in the qualitative phase and from 196 nurses in the quantitative phase of the research. After the missing, erroneous, etc. incomplete data were eliminated from the data collected in the quantitative phase, 183 nurses were included in the study.

Data Collection

In the qualitative phase of the research, data were collected through the focus group interview technique, one of the qualitative research methods, in order to discover the best practice examples of nurses during the COVID-19 pandemic. Focus group interview refers to a group interview technique that focuses on a specific subject among qualitative research methods. The main purpose of this data collection

technique, which prioritizes the subjectivity and discourse of the interviewees, is to obtain high-quality data from a social content in which the participants freely express their own views, taking into account the opinions of others [20-21]. The interview was conducted using a semi-structured questionnaire. The semi-structured questionnaire was created with the literature on the research question and the opinions of experts in the field of health management. The interview was held in the meeting room of the hospital, which the participants knew beforehand. The meeting room was made ready before the meeting in order to increase the quality of the meeting and recording. The interview was recorded on a voice recorder via a desk microphone, with the consent of the participants. The interview was conducted by a researcher and two observers. Participants, who were informed about the research topic and method, were asked to introduce themselves with their socio-demographic characteristics. During the interview, each participant was given sufficient time to express himself, the interview was continued until there was no new information, and it was concluded with additional contributions. After the interview, the audio recordings were arranged and backed up by reviewing the researcher/observer notes.

In the quantitative phase of the study, data were collected using a two-part questionnaire in order to determine the organizational resilience levels of nurses during the COVID-19 pandemic. The questionnaire consists of the Personal Information Form (9 questions) and the Organizational Resilience Scale (22 questions) to obtain the socio-demographic information of the research group developed by the researchers. Organizational Resilience Scale was developed in 2013 by Lee et al. and adapted into Turkish in 2018 by Öztürk as consisting of 22 questions specific to the health sector. Organizational Resilience Scale is Likert type; it consists of three sub-dimensions: strategic awareness, adaptation capacity and integrity [22]. Sub-dimension total score and scale total score are used in calculating scale scores. The maximum total score of the scale (22 Items), which consists of 5-point Likert items, is 110. Strategic Awareness (7 Items) total score is maximum 35, Adaptation Capacity (9

Items) total score is maximum 45, Integrity (6 Items) total score is maximum 30. The fact that the sub-dimension scores and the total score of the scale are as high as possible indicates that the organizational resilience is that high [11]. The questionnaires were collected by the researchers using face-to-face interview technique with the nurses who voluntarily accepted to participate in the study and gave verbal and written consent.

Data Analysis

The data obtained by the focus group interview method, which was carried out in the qualitative phase of the research, were analyzed with the directed content analysis method, which allows summarizing and interpreting according to the previously determined themes [20]. All of the raw data collected with the help of a voice recorder in the focus group interview were listened to by the researchers and then transferred to the Microsoft Word program and converted into text. In order to prevent possible data loss and to reduce errors, the texts were monitored simultaneously with the voice recordings and the accuracy of the process was checked and controlled. Strategic awareness, adaptation capacity and integrity, which are the concepts that form the basis of the research, were determined as the themes. After this stage, the coding process was started by the researcher. The reliability of the coding was ensured by re-coding independently from the first coding by three researchers. The MAXQDA 2020 Analytics Pro Program, qualitative data analysis software, was used in order to organize the data and collect it in one place, to analyze it, to create notes and summaries, and to standardize the processes. The researchers decided that the codes obtained in line with the themes determined in the analysis of the focus group interview conducted with 10 people had reached sufficient saturation for the research [20].

In the quantitative phase of the research, the data obtained by the questionnaire technique were analyzed using the SPSS 21.0 package program. Descriptive statistical methods were used in the analysis of the data. T test or Mann Whitney U test was used for comparisons of two groups by determining whether the data showed normal distribution, and Analysis of Variance (ANOVA)

or *Kruskall Wallis* test was used for comparisons of three groups. Scheffe or Tamhane T2 test was used for subgroup comparisons. Interpretation of the obtained results was evaluated at 95% confidence interval and $p < 0.05$ significance level.

In the last stage; the findings obtained as a result of qualitative data analysis and the findings obtained as a result of quantitative data analysis were integrated with mixed method data analysis [16-17,19]. In the research, best practice examples obtained as a result of qualitative data analysis were evaluated in terms of socio-demographic variables and organizational resilience sub-dimensions obtained as a result of the analysis of quantitative data.

Limitations of the Research

Research; 10 nurses working in the units related to the COVID-19 pandemic as middle and senior managers and 193 nurses working in Çorlu State Hospital. The findings obtained in terms of the field practices related to COVID-19 and organizational resilience field knowledge; It is limited to the data that the participants can share and want to share, and the knowledge, skills and equipment of the researchers.

Results

In this part of the research, the findings obtained by qualitative and quantitative research methods, respectively and the findings related to the combination of the two stages are given.

Results regarding the qualitative stage

In the Focus Group Meeting, the participants were visited beforehand and their consent was obtained by informing them about the research topic. The availability of each participant was learned for the day and time of the interview, and the most ideal day and time was determined for researchers and participants. The interview was held around a round table in the hospital meeting room, as the participants felt comfortable and provided the appropriate conditions. The interview lasted 88.40 minutes with a total of 10 participants, 2 of whom were senior managers and 8 were middle managers.

Table 1 includes the themes, categories and codes obtained from the data of the focus group interview method. The obtained data were coded and analyzed and the codes were collected under certain categories and themes by inductive method. In this context, 3 themes, 6 categories

and 27 codes representing best practice examples were determined. According to **Table 1**, the highest number of codes are in the theme of adaptation capacity (n:17), the theme of integrity (n:6) and the theme of strategic awareness (n:4).

Table 1. Code list of the focus group discussion.

Themes	Categories	Codes
Integrity	Effectiveness of Organizational Networks	My Intensive Care Application Applications of Providing Psychological Support to the Patient Patient-Family Communication Practices Interprofessional Cooperation
	Employee Participation	Selfless work Motivation Applications for Nurses
Strategic Awareness	Organizational Analytical Capability	Awareness Meetings Governance Practices Case Studies Suggestions for Inferences
	Innovation Culture	How to Use the Sphygmomanometer Using Stretch Wrapped Phones Protective Equipment Production New Methods in Patient Care and Treatment Nasal Parts Production for Ventilator Telephone Application to Patient Rooms Glass Partition Application for Nurses Patient Washing Stretcher Construction Mirror Application for Nurses Washing Machine Application Adaptation to Learning and Innovation Emergency Trolley Use Arrangement of Patient Room and Room Visits
Adaptation Capacity	Organizational Health	Dirty, Semi-Clean, Clean Area Application Regulation of Nurse Working System Contagion in Nurses
	Role and Responsibility	In-Service Trainings



Figure 1. Word cloud of codes representing examples of best practice.

Figure 1 shows the word cloud shaped according to the frequency of occurrence of best practice examples in the codes. The most frequently repeated example of best practice is the word "Governance Practices" (n:27). Apart from Governance Practices, the words "Case Studies" (n:25) and "Awareness Meetings" (n:22) stand out as the most frequently used words. The least repeated best practice examples are "Patient Washing Stretcher Construction" (n:4), "Nasal Parts Production for Ventilator" (n:3), "Glass Partition Application for Nurses" (n:3).

Results Regarding the Quantitative Stage

The skewness and kurtosis coefficients were examined in order to understand whether the research data conformed to the normal distribution. It has been observed that the research data are in accordance with the normal distribution (Skewness: -0,314; Kurtosis: 0,163). The fact that the skewness and kurtosis coefficients are between +1,96 and -1,96 in the assumption of normality indicates that the data are normally distributed [23]. In this study, in which 183 people participated, the scale total score is maximum 20130, Strategic Awareness total score is maximum 6405, Adaptation Capacity total score is maximum 8235, and

Integrity total score is maximum 5490.

Table 2 contains statistics on the organizational resilience scale. According to **Table 2**, the strategic awareness score is 3925, the adaptation capacity score is 5361, the integrity score is 4397, and the total score is 13683. According to the relevant results, the highest scores are respectively integrity (0,80), adaptation capacity (0,65), and strategic awareness (0,61).

As a result of the analysis made with the socio-demographic characteristics of the participants, a significant difference was found in the Level of Education and Time in the Profession groups, while no significant difference was found in the other groups.

According to the results of the *Kruskal Wallis H* test, which was conducted to determine whether the participants' level of participation in the scales differs according to the education level groups; The difference between the strategic awareness levels of the participants according to the education level groups was found to be statistically significant at the 95% confidence level ($\chi^2=8,876$; $df=3$; $p=0,031$; $p<0,05$). Mann Whitney U test was used to determine which group caused the significant difference. According

Table 2. Analysis results of the organizational resilience scale.

	min	max	\bar{x}	df	Total	Proportion**
Strategic Awareness (7 Items)	9,00	35,00	21,4481	5,12656	3925,00	0,61
Adaptation Capacity (9 Items)	12,00	45,00	29,2951	7,47893	5361,00	0,65
Integrity (6 Items)	10,00	30,00	24,0273	6,25593	4397,00	0,80
TOTAL (22 items)	38,00	110,00	74,7705	16,95799	13683,00	

*N = 183

** For standardized comparison between sub-dimensions this calculation (Total value of sub-dimension of scale/ Maximum value of sub-dimension of scale) was performed.

Table 3. Analysis results of the differences of the participants by education level groups.

Scales	Education level	n	Mean Rank	χ^2	df	p	U-test
Strategic Awareness	High School (1)	10	90,25	8,876	3	0,031*	2-3
	Associate Degree (2)	24	65,94				
	Bachelor (3)	131	98,60				
	Master (4)	18	79,67				

* $p<0.05$

to the results of the U test; It was determined that there was a significant difference between the 2nd Group (Associate Degree) and the 3rd Group (Bachelor) of education levels. The strategic awareness level of the participants with undergraduate education (Mean Rank=98,60) is higher than those with associate degree education (Mean Rank=65,94).

According to the results of the Kruskal Wallis H test, which was conducted to determine whether the participation levels of the participants in the scales differ according to the duration groups in the profession; Strategic Awareness ($\chi^2=9,584$; $df=3$; $p=0,022$; $p<0,05$), Adaptation Capacity ($\chi^2=7,929$; $df=3$; $p=0,047$; $p<0,05$) and Integrity of the participants ($\chi^2=10,387$; $df=3$; $p=0,047$; $p<0,05$) levels were found to be statistically significant at the 95% confidence level. Mann Whitney U test was used to determine which group caused the significant difference. According to the results of the U test; duration in the profession

in the levels of Strategic Awareness, Adaptation Capacity and Integrity of the participants The 1st Group (less than 10 years), 2nd Group (11-20 years) and 3rd Group (21-30 years) and 4th Group (31-40 years) was determined to be a significant difference. The strategic awareness level of the participants who have less than 10 years (Mean Rank=86,72), 11-20 years (Mean Rank=94,61) and 21-30 years (Mean Rank=94,93) is lower than those in the profession for 31-40 years (Mean Rank=154,25). The adaptation capacity level of the participants whose professional life is less than 10 years (Mean Rank=87,76), 11-20 years (Mean Rank=94,46) and 21-30 years (Mean Rank=92,13) is lower than those professional life is 31-40 years (Mean Rank=149,75). The holistic level of the participants whose professional duration is less than 10 years (Mean Rank=88,41), 11-20 years (Mean Rank=93,29) and 21-30 years (Mean Rank=89,32) is lower than those professional life is 31-40 years (Mean Rank=159, 58).

Table 4. Analysis results of participants' differences in occupation by duration.

Scales	Time in Profession	n	Mean Rank	χ^2	df	p	U-test
Strategic Awareness	less than 10 years ⁽¹⁾	10	86,72	9,584	3	0,022*	1-4
	11-20 years ⁽²⁾	42	94,61				2-4
	21-30 years ⁽³⁾	28	94,93				3-4
	31-40 years ⁽⁴⁾	6	154,25				
Adaptation Capacity	less than 10 years ⁽¹⁾	10	87,76	7,929	3	0,047*	1-4
	11-20 years ⁽²⁾	42	94,46				2-4
	21-30 years ⁽³⁾	28	92,13				3-4
	31-40 years ⁽⁴⁾	6	149,75				
Integrity	less than 10 years ⁽¹⁾	10	88,41	10,387	3	0,016*	1-4
	11-20 years ⁽²⁾	42	93,29				2-4
	21-30 years ⁽³⁾	28	89,32				3-4
	31-40 years ⁽⁴⁾	6	159,58				

Table 5. Table on education level and strategic awareness themes- governance practices code.

Themes	Categories	Codes	Interviewee	Interviewer's Statement
Strategic Awareness	Organizational Analytical Capability	Governance Practices	Interviewee 4	<i>(...) It affects graduation... undergraduate graduates can say they know everything... individuality is at the forefront... High school and associate degree graduates... are more open to communication and suggestions (...)</i>
			Interviewee 7	<i>(...) It also stems from the professional level of education, but of course, administrative (...)</i>

Combining the Two Stages

This part of the research was formed as a result of combining the findings related to the qualitative phase with the findings related to the quantitative phase.

In the qualitative phase of the research, the coding in which the best practice examples are included, respectively Adaptation Capacity

(n:17), Integrity (n:6) and Strategic Awareness (n:4). According to the results obtained in the quantitative phase of the research, the highest scores are respectively integrity (0,80), adaptation capacity (0,65), and strategic awareness (0,61).

In the quantitative phase of the research; the difference between the strategic awareness levels of the participants according to the education

Table 6. Table on regarding duration in the profession and the integrity themes-motivational practices for nurses' code.

Themes	Categories	Codes	Interviewee	Interviewer's Statement
Integrity	Employee Participation	Motivational Practices for Nurses	Interviewee 5	<i>(...) as if we have never worked before, as if we started working with Covid (...)</i>
			Interviewee 3	<i>(...) a professional position is a loss of a year, I mean the loss of a degree, we get the same money, or for example, you enter taxes at the end of the year (...)</i>
			Interviewee 6	<i>(...) new friends say that I stay below the minimum wage, and on the contrary, it causes psychological destruction (...)</i>

Table 7. Table on regarding duration in the profession and the integrity themes- interprofessional collaboration code.

Themes	Categories	Codes	Interviewee	Interviewer's Statement
Integrity	Effectiveness of Organizational Networks	Interprofessional Collaboration	Interviewee 2	<i>(...) most branches started to work in covid wards, so an ENT specialist has to think about a patient in general now while only looking at the ear (...)</i>
			Interviewee 7	<i>(...) my communication between the first physicians I knew and the physicians I know now is not the same (...)</i>

Table 8. Table on regarding duration in the profession and the strategic awareness themes- governance practices code.

Themes	Categories	Codes	Interviewee	Interviewer's Statement
Strategic Awareness	Organizational Analytical Capability	Governance Practices	Interviewee 4	<i>(...) I've been working for 18 years, sometimes even though she was a matron, she went to the intensive care unit and cared for the patient (...)</i>

Table 9. Table on regarding duration in the profession and the adaptation capacity themes- in-service trainings code.

Themes	Categories	Codes	Interviewee	Interviewer's Statement
Adaptation Capacity	Role and Responsibility	In-Service Trainings	Interviewee 2	<i>(...) most branches started to work in covid wards, so an ENT specialist has to think about a patient in general now while only looking at the ear (...)</i>
			Interviewee 8	<i>(...) my communication between the first physicians I knew and the physicians I know now is not the same (...)</i>

level groups was statistically significant at the 95% confidence level; It was determined that the participants with undergraduate education level were lower than those with associate degree.

In the qualitative phase of the research, this issue is associated with “arrogance” and “administrator” in the Strategic Awareness Themes- Governance Practices code. Interviewee statements in **Table 5** show this.

Also, the qualitative phase results show that, the level of education and the administrator are also important in creating strategic awareness.

In the quantitative phase, the difference in the levels of Strategic Awareness, Adaptation Capacity and Integrity of the participants according to the duration in the profession was statistically significant at the 95% confidence level; It has been determined that the participants with less than 10 years, 11-20 years and 21-30 years in the profession are lower than those who have 31-40 years in the profession. In the qualitative phase, this topic is associated with “applause campaign” and “income” in the Integrity Themes - Motivational Practices for Nurses code. Interviewee statements in **Table 6** show this.

The qualitative phase results show that, the time in the profession increases many admirable works are done and these contribute to integrity by motivating nurses. But inconsistencies between time in the profession and income negatively affect integrity by breaking motivation.

Additionally, this topic is associated with “physicians” in the Integrity Themes- Interprofessional Collaboration code. Interviewee statements in **Table 7** show this.

According to the results of the qualitative research, the time spent in the profession is important in a period when the responsibilities of physicians increase, as the time spent in the profession increases, co-operation is ensured and integrity increases; however, the change in the co-operative approach of physicians by adopting a self-protective attitude affects integrity.

Also, this topic is associated with “matron” in the Strategic Awareness Themes- Governance Practices code. Interviewee statements in **Table 8** show this.

Here, witnessing the best management practices of managers throughout their time in the profession increases strategic awareness.

Finally, this topic is associated with “matron” in the Adaptation Capacity Themes- In-Service Trainings code. Interviewee statements in **Table 9** show this.

The in-service training received during the career increases the adaptation capacity.

In this part of the study, nurses’ Level of Education and strategic awareness levels, and Time in the Profession and strategic awareness, adaptation capacity and integrity levels were associated.

Discussion

This mixed method research was conducted with a total of 193 nurses, 10 nurses in the qualitative phase and 183 nurses in the quantitative phase. The purpose of this research, it is to determine the relationship between nurses’ best practice examples and organizational resilience in the COVID-19 process. 3 themes, 6 categories and 27 codes representing best practice examples were identified in the qualitative phase of the research. In the qualitative phase of the research, the coding in which the best practice examples are included, respectively Adaptation Capacity (n:17), Integrity (n:6) and Strategic Awareness (n:4). According to the results obtained in the quantitative phase of the research, the highest scores are respectively integrity (0,80), adaptation capacity (0,65), and strategic awareness (0,61). It was a significant relationship between the level of education of nurses and the level of strategic awareness and between time in the profession and the level of strategic awareness, adaptability and integrity.

In the study conducted with health personnel during the COVID-19 pandemic, it is stated that health personnel find the organization they work in durable, supporting the results of this research [24]. Concepts that have similar meanings with the dimensions obtained in this study as integrity, strategic awareness and adaptation capacity, the characteristics of durable health care in the content analysis study; foresight, interpretation, exchanges and adaptations [25].

As a result of this research, the existing studies in the literature support the relationship between best practice examples and organizational resilience. It is stated that there is a positive relationship between the adoption of digital applications (H4.0 application) and resilience of health institutions facing devastating events such as the COVID-19 pandemic [2]. In the study in which the concept of organizational resilience is associated with the concept of innovation, it is stated that the creation of an innovation culture in organizations will increase organizational resilience [26].

In the study, called Learning from Excellence (LfE), conducted in the Pediatric Intensive Care (PICU) unit of Birmingham Children's Hospital; It is stated that learning by sharing excellent practices is as valuable as reflecting by reporting individual mistakes, has the potential to have a positive impact on workplace culture and morale, and provides access to new ideas for quality improvement [16]. This application demonstrates that it is used as a tool to increase resilience by sharing excellent practices during the COVID-19 pandemic.

Similar to this study, in the study investigating the relationship between national culture and organizational resilience, it is stated that a more durable health service delivery can be achieved with the improvement in country and organizational culture [6].

In the study in which the effect of reducing the impact of COVID-19 in health institutions with Six Sigma method on organizational resilience was investigated; it was stated that not only the employees but also the organizational structure should be considered as a whole [27]. It is stated that collective activity in the group context increases resilience [6]. It is emphasized that resilience in health services is not only a feature of individuals but also of teams and the organization in general [28].

As a result of the study carried out in educational institutions, different from this research universe, and examining the relationship between organizational resilience and organizational health in educational institutions during the COVID-19 pandemic, it was stated

that organizational resilience would support organizational health [29].

Especially during the COVID-19 pandemic, resilience research in the field of health turned into practice, and in this context, centers were established in some countries and universities Centre for Resilience in Healthcare (SHARE) in Norway, Centre for Applied Resilience In Healthcare (CARE) in England means Centre for Healthcare Resilience and Implementation Science (CHRIS) in Australia) [30].

Conclusion

In the qualitative phase of the research, 3 themes, 6 categories under these themes and 27 codes under these categories were determined. With the codes determined, 27 best practice examples of nurses were discovered during the COVID-19 process. The coding with the best examples of best practice is Adaptation Capacity (n:17), Integrity (n:6) and Strategic Awareness (n:4). As a result of the quantitative phase of the research, the highest scores are respectively integrity (0,80), adaptation capacity (0,65), and strategic awareness (0,61). As a result of this research, it has been determined that the organizational resilience levels of nurses are high during the COVID-19 process.

In the study, a relationship was determined between nurses' Level of Education and Strategic Awareness levels, and between Time in the Profession and Strategic Awareness, Adaptation Capacity and Integrity levels. According to the results of this mixed method research, a similar relationship was found between nurses' best practice examples and organizational resilience levels during the COVID-19 pandemic. Within the scope of research results, practitioners and researchers;

- *Inclusion of practices for the discovery and follow-up of best practice examples in health institutions, increasing the awareness of employees on this issue and ensuring that these practices are spread in the organizational culture,*
- *Organizing special training programs such as crisis management, health communication, interprofessional collaboration for employees in health institutions, improving the working conditions of*

employees and increasing their motivation, increasing organizational resilience and creating a resilience culture,

- Adoption and implementation of collaboration and teamwork approach between senior managers and employees in health institutions.

It is recommended that future studies be carried out with different professional groups, with different patterns and methods, apart from the COVID-19 pandemic process.

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Conflict of interest

The authors declared no conflict of interest in this study.

Data availability statement

The entire dataset supporting the results of this study is available upon request to the corresponding author. (Reason for restriction: It is limited by institutional and the ethical committee permission)

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