# ORIGINAL ARTICLE

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# Front-line nurses' responses to organisational changes during the COVID-19 in Spain: A qualitative rapid appraisal

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### Abstract

**Aims:** To identify the organisational changes faced by front-line nurses working with COVID-19 patients during the first wave and describe how they responded to these changes.

**Background:** The COVID-19 pandemic has altered the provision of care and the management of health care around the world. Evolving information about SARS-CoV-2 meant that health care facilities had to be reorganised continually, causing stress and anxiety for nurses.

**Methods:** Qualitative study based on Rapid Research Evaluation and Appraisal (RREAL). The research took place in hospital and community health settings of the Spanish national health system with a purposive sampling of 23 front-line nurses. Semi-structured interviews were conducted between May and June 2020. The duration was 30–45 min per interview. We used the Dedoose® data analysis software to perform a thematic analysis.

**Results:** Nurses responded to organisational changes using the following strategies: improvisation, adaptation and learning.

**Conclusion:** Our rapid approach allowed us to record how nurses responded to changing organisation, information that is easily lost in a disaster such as the COVID-19. Implications for nursing management: Knowing about their strategies can help planning for future health disasters, including subsequent waves of the COVID-19.

### KEYWORDS

COVID-19 (coronavirus disease 2019), health care facilities, nursing, organisation and administration, qualitative research

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# 1 | INTRODUCTION

In the face of COVID-19 pandemic, all aspects of the provision and management of health care were affected. Spain implemented measures to prevent the spread of COVID-19: quarantine, isolation, social distancing and a stay-at-home order, which were insufficient. Spain was among the countries to suffer the highest mortality in the first wave in Europe and around the world (Sánchez-Villena & de La Fuente-Fig uerola, 2020).

Health systems should have well-defined plans to maintain control of the situation and to ensure the ability to provide care. If the health system cannot guarantee this, nurses feel abandoned and unsafe (O'Boyle et al., 2006). Health managers should consider these concerns because they can affect pandemic response (McMullan et al., 2016). During the first wave of the pandemic, health systems were disorganised and often lacked organisational support to help nurses cope with the situation.

## 2 | BACKGROUND

The increased demand for health care and prioritization of COVID-19 patients resulted in a work overload for health care professionals. The complexity of care due to the lack of knowledge about the virus and its transmission pathways, the scarcity of personal protection equipment (PPE) and the lack of specific treatments for COVID-19 resulted in a marked increase in stress among health care workers (Mo et al., 2020). The need to adapt the provision of services as information on SARS-CoV-2 emerged required rapid changes in care procedures and protocols, which increased nurses' stress and anxiety (Lázaro-Pérez et al., 2020). Nurses had difficulty maintaining a work environment that was ethical and safe—both physically and psychologically—and facing the challenges of the pandemic (Ulrich et al., 2020).

In previous pandemics, nurses have shown professional responsibility and ensured patient care despite limited resources (McMullan et al., 2016). Nurses acted in these health disasters despite suffering alarming psychological symptoms, sacrificed their own needs and acted selflessly (Aliakbari et al., 2015). Despite feeling unprepared to respond to a given health disaster, nurses developed higher-than-expected emergency response skills and a high sense of ethical and professional commitment (Jeong & Lee, 2020).

Personal resilience and social and institutional support are protective factors against adversity and stress during health disasters (Labrague et al., 2018). In the COVID-19 pandemic, personal resilience and social support have helped nurses handle stress and have been key to nurses' mental health (Cooper et al., 2020). High levels of institutional support are protective against the stress and anxiety caused by health disasters such as emerging infectious diseases. Effective leadership among nursing managers helps institutions meet organisational challenges (Labrague et al., 2020). However, this support was often lacking at the beginning of the pandemic, as health systems were overwhelmed by the flow of patients. There is little information about how front-line nurses respond to changing

### What is already known about the topic?

 The increased demand for health care and prioritization of COVID-19 patients resulted in a work overload for health care professionals. Effective leadership among nursing managers helps institutions meet organisational challenges. However, this support was often lacking at the beginning of the pandemic, as health systems were overwhelmed by the flow of patients.

### What this paper adds?

- Understanding the organisational changes that took place during the COVID-19 pandemia and how nurses responded to them can inform planning for future health disasters.
- Front-line nurses reported developing self-management strategies to find solutions to the organisational changes they faced during the first wave: problem-solving, adaptation and learning.

circumstances, both in health disasters in general and in the case of COVID-19 in particular.

Given this scarcity, we investigated nurses' ability to develop and respond to changes in their work environment and the provision of care during the first wave of the pandemic. Our findings can be useful in planning for future pandemics or other health disasters, especially because our rapid approach allowed us to collect data while the crisis was still underway. Understanding the organisational changes that took place and how nurses responded to them can inform planning for future health disasters. The aim of this study was to identify the organisational changes faced by front-line nurses working with COVID-19 patients during the first wave and describe how they responded to these changes.

# 3 | METHODS

### 3.1 | Design

A qualitative study was carried out using Rapid Research Evaluation and Appraisal (RREAL) (Vindrola-Padros et al., 2020). The RREAL model is particularly suited to studying health emergencies because it makes possible to obtain qualitative results in a short period of time (Green & Thorogood, 2013).

### 3.2 | Participants and data collection

Participants were selected based on purposive sampling (Morse & Field, 1995). We used the snowball technique (Naderifar et al., 2017)

to recruit nurses from hospital and community health settings who provided care during the first wave of the pandemic in Spain, which took place from March to May 2020. The inclusion criterion was being a registered nurse caring for COVID-19 patients during the first wave in Spain. The exclusion criterion was being on leave from work during this period.

We sent email messages to nurses known to the research team explaining the study objectives, inviting them to contact us by email if they were interested in participating and asking them to forward the message to other nurses. We sent further information and the informed consent document to the potential participants who responded. After they returned the signed consent document, we scheduled an interview via Skype or Zoom. We conducted continuous analysis of the data until reaching saturation at 23 participants. At this point, we considered data collection to be complete. The socio-demographic characteristics of participating nurses are summarized in Table 1.

Three team researchers (1, 2 and 3) conducted semi-structured interviews with 23 nurses from different health care sectors from May to June 2020. We asked participants the following questions:

- In your opinion, how has the organisation of the health system changed since the start of the pandemic?
- In your experience, how have these organisational changes affected your tasks and roles and how nursing care is delivered?

The duration of the interviews was 30–45 min, and all interviews were recorded.

# 3.3 | Data analysis

We used Braun and Clarke's (2014) thematic analysis to identify the most frequent topics from the interviews that were relevant to the study objectives. Using the Dedoose® software package, we identified meaning units and grouped them into subthemes and themes. We identified patterns in the data and organised the themes

TABLE 1 Socio-demographic characteristics of participants

Distribution by sex				
Male	5	22%		
Female	18	78%		
Total	23	100%		
Distribution by age				
23-29 years	8	35%		
30-49 years	10	43%		
50-62 years	5	22%		
Distribution by type of health centre				
Hospital	15	65%		
Primary care	6	26%		
Intermediate care	2	9%		

systematically to meet our research objectives, following the steps proposed by Braun and Clarke as detailed in Table 2 (Colorafi & Evans, 2016) (see Table 2).

### 3.4 | Rigour

This study meets the criteria of credibility, transferability, dependability and confirmability, which ensure trustworthiness in qualitative research (Polit & Beck, 2017). We took a reflexive stance, considering that three of the researchers (1, 4 and 5) are nurses involved in providing care during the COVID-19 pandemic. (However, they had had no prior contact with the participants). The interviewers took notes on their own impressions and reactions when they interacted with participants in order to take their own positionality into account during analysis. COREQ was used as reporting guidelines in line with EQUATOR (Tong et al., 2007).

### 3.5 | Ethical considerations

The study was approved by the institutional review board of the host university (IRB) (File 5184) and followed the principles of the Helsinki Declaration. The participants received oral and written information explaining that their participation was voluntary and that they could withdraw from the project at any time. We anonymized the interviews by substituting names with an alphanumeric code.

### 4 | RESULTS

We identified three themes in participants' reports of their responses to organisational changes and the provision of care during the first wave of the pandemic: problem-solving, adaptation and learning. Each theme contains two or three subthemes (see Table 3).

### 4.1 | Improvisation

Nurses had to find innovative solutions to solve problems arising from the care needs of people infected or potentially infected with COVID-19. The abrupt start of the pandemic required nurses to improvise in order to protect themselves from contagion and to work in new spaces that had been devised for caring for COVID-19 patients.

# 4.1.1 | Improvisation in the use of protective material

The participants reported using improvisation to protect themselves, given the lack of certified protective gear. This included both making do with whatever certified equipment was available and making their own equipment out of uncertified materials.

### TABLE 2 Phases of thematic analysis, following Braun and Clarke (2014)

Phases	Description	Collaborators
1	Become familiar with the data by listening to recordings, transcribing them and reading and rereading the transcripts	GTN, BA, PGE, MSM, EVS
2	Identified meaning units within transcripts and generate codes. Identify relationships among codes	GTN, BA, PGE, MSM, EVS
3	Identified relationships between subthemes	GTN, BA, PGE
4	Created groups of codes into seven subthemes. Define each subtheme	GTN, BA, PGE, MRL
5	Identify three themes comprised of seven subthemes. Name the themes. Devise a glossary of themes	GTN, BA, PGE, DM, MRL
6	Wrote the final report	GTN, BA, PGE, DM, MRL

Themes	Subthemes	TABLE 3	Themes and subthemes
1. Improvisation	a. Improvisation in the use of protective equipment b. Improvisation of spaces to care for people with COVID-19		
2. Adaptation	a. Workplace mobility b. Minimizing risk while caring for people with COVID-19 c. COVID-19 care protocols		
3. Learning	a. Seeking knowledge b. Sharing knowledge		

We handled organization on the fly, with the material we had at the time. So we were really improvising a bit, to tell you the truth.

(P5 nurse)

We went to buy plastic to make masks because we didn't know if we were going to have any; the surgical ones didn't work. We didn't know at first how things were going to go.

(P1 nurse)

Well, how can there not be gowns available? I need it to be waterproof, because I have to be next to him. And the gentleman has no mask, and I have to wash and feed him. That's when we started with garbage bags, like in many places. We made our own... we felt protected.

(P25 nurse)

# 4.1.2 | Improvisation of spaces to care for people with COVID-19

Some participants reported that they improvised the internal organisation of care services to face the problem of a lack of directives from management.

> We organized the floor ourselves without help, since they didn't give us any guidelines on how to act, etc. (P12 nurse)

In the ICU they had covered the door with plastic sheeting and set up a table with the necessary material, although for PPEs you had to go to the supervisor and ask her for them.

(P16 nurse)

Nursing care was improvised in various facilities, some of them new, reorganised according to the characteristics of the virus and the paths of contagion. These organisational changes caused a sense of chaos and disorganisation.

> We've had to learn where everything was, the layout of the space. We were lost because it wasn't only a new facility that we didn't know but also the facility was upside down, since the space had to be organized differently to treat the virus. It was really hard for me to find equipment and things, and that made the work more difficult and caused frustration.

> > (P27 nurse)

As these examples show, participants used improvisation to address the organisational challenges presented by the pandemic.

# 4.2 | Adaptation

Because this health emergency created unprecedented pressure on health services, participants had to adapt their work practices in unexpected ways. Participants reported having to adapt quickly to new departments, risks and care protocols.

# 4.2.1 | Workplace mobility

Numerous nurses around Spain were forced to move between hospital departments, between primary care centres and between regular hospitals and field hospitals. This mobility caused uncertainty among participants, because the changes were unpredictable.

> Every day at 7 pm they told us what work we'd do the next day. We didn't know if we'd being doing respiratory care, wound care, house calls... Each day was different. We've been like this for 3 months.

> > (P29 nurse)

The constant movement of nurses to different facilities and to departments that served COVID-19 patients exclusively meant that they had to adapt quickly.

> We have been adapting very quickly to a way of doing things and to equipment that weren't our standard ones. I think we're doing a good job.

> > (P19 nurse)

# 4.2.2 | Minimizing risk while caring for people sick with or potentially sick with COVID-19

The characteristics of COVID-19 conditioned planning care to minimize the risk of contagion. Nurses had to adapt to the shortage of PPEs. Contact with patients who were infected or potentially infected with COVID-19 had to be minimized to reduce the risk of infection. They had to adapt the frequency with which they conducted interventions and organised themselves so as to carry out as many as possible in a single visit to the patient.

> Maybe you had to be there [with the patient] for two hours because if it was a new admission maybe it took you two hours. And then later, only on a few occasions, when we had to bathe the patient, we made it coincide, for example, with the medication or the change of position or with everything we had to do with that patient. But of course if there's an emergency, of course you have to go back in. You have to get dressed again and go in.

> > (P1 nurse)

Another of the adaptive changes explained by nurses refers to the support provided to relatives of people sick with COVID-19.

Above all, we weren't able to provide support to family members until after a month or so. From when the pandemic started, a month and a half almost or something like that. Because there wasn't protection equipment. Each person that you took in to see a family member, you have to give them a gown, a suit that they have to put on, masks.

(P5 nurse)

### 4.2.3 | COVID-19 care protocols

New information continually emerged about the transmission and treatment of SARS-CoV-2. Participants reported difficulty in adapting so frequently to new protocols.

We've had about 12 protocol changes, and I understand it, since we have to adapt. But of course before we could adapt to one, it was already changed to another one. (P16 nurse)

The existence of different protocols at different facilities caused a complex adaptation process as a consequence of the confusion, insecurity and lack of trust related to their reliability and applicability.

Sometimes the indications are even contradictory: there are areas where it's very defined, and others not at all... That creates confusion, since in the end you don't know what you have to do. For example, the versions of my home facility and the facility where I've been working until now are contradictory. I think we need a little more organization to come to an agreement among all of us. (P29 nurse)

As seen in the above examples, changing circumstances meant that nurses had to be ready to adapt their ways of working.

# 4.3 | Learning

Faced with a lack of knowledge about clinical practice, diagnostic procedures, care pathways, the use of PPE and measures to reduce the risk of contagion, participants reported that they acted proactively to find answers to their questions. They acquired this professional knowledge outside of conventional training, which was generally not available due to the crisis.

### 4.3.1 | Seeking knowledge

Although some health centres attempted to train professionals, several participants reported that they had to learn on their own.

> When they take me out of my department overnight and tell me, 'Starting tomorrow your department is closed; you're going to the COVID floor," they don't tell me what will happen, what won't happen, how I should work, how I should protect myself. I start on

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my own to look at how it's transmitted, where I have to be more careful. Whether it's by medium-sized droplets, by contact... But [I did this] on my own.

(P3 nurse)

Participants agreed that the lack of time for formal, institutional training led them quickly to seek knowledge on their own, an activity that had not been typical.

I think training is difficult because it's something that no one knows. COVID is very new. At the beginning of February it was a normal flu that all of us had to get. And in the end, it turns out that it's much stronger. So, I think that everyone is lacking training and we have to learn on the fly and learn from our mistakes.

(P24 nurse)

### 4.3.2 | Sharing knowledge

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Participants shared new knowledge about COVID-19 with their colleagues through professional groups.

> I downloaded a lot of things, and the articles I read them as they were published. I would go on the internet, contact some anesthetists and say, "All the documentation you have, send it to me... so that I can read and know a little about the course of the disease," because it's also a pathology that you do not know about.

> > (P3 nurse)

They often shared this knowledge through social media.

At first in a group we sent each other protocols that we found, actions that must be taken when the case becomes complicated. Even the basic things that no one explained: how to put a patient in prone position, instead of the venti- a basic mask, wearing a Monaghan [type of PPE] because it reduces the risk that you will infect others.

(P10 nurse)

As we have shown, learning was a key way that participants responded to organisational changes during the pandemic.

# 5 | DISCUSSION

We identified three themes in participants' descriptions of how they responded to organisational changes during the first wave of the COVID-19 pandemic in Spain: (a) improvisation, (b) adaptation and (c) learning. Our analysis contributes to our understanding of the capacity of front-line nurses to develop professionally during health crises (Xue et al., 2020) and especially during the first wave of COVID-19, with implications for nursing management.

### 5.1 | Improvisation

During the first wave of COVID-19, one of the main problems nurses faced was the lack of PPEs. Participants had to maximize the available equipment and, as a result, had to limit their contact with patients, resulting in the feeling that they were offering poorer quality care, as also seen in Rushton and Grady (2020). Other studies have shown that working without the proper protection causes nurses to feel fear (Liu et al., 2020), stress (Mo et al., 2020) and a lack of safety (Yin & Zeng, 2020). To compensate for the lack of PPEs, participants used improvised equipment to protect themselves. In the face of risk, participants found solutions on their own—without institutional support—so that they could keep working.

The urgent need for new spaces to care for people sick with COVID-19, the lack of clear guidelines from management and the lack of ICU and critical care beds meant that participants had to solve organisational problems through innovative strategies and improvisation. Labrague and De los Santos (2020) have shown that when these changes are accompanied by good institutional support, they cause less anxiety in nurses. Other researchers have shown that effective communication can prevent conflicts caused by discrepant protocols (Karam et al., 2018). Our analysis indicates that in the absence of clear guidelines and institutional support, nurses solved problems quickly to provide care for people infected with or potentially infected with COVID-19, making do with the resources that were available.

### 5.2 | Adaptation

Emergency care nurses in China at the onset of the pandemic reported that attitudes such as motivation and enthusiasm helped them adapt to being moved across departments, facilities and even regions to care for people with COVID-19 (Hou, Zhang, et al., 2020; Hou, Zhou, et al., 2020; Lam et al., 2019). Our participants reported being able to adapt quickly to new work environments, overcoming the uncertainty caused by being in a different department or facility or with different colleagues or on a different schedule.

The scarcity of PPEs at the beginning of the pandemic was generalized around the world and health facilities established priorities according to the risk of exposure (Hou, Zhang, et al., 2020; Hou, Zhou, et al., 2020). This lack of PPEs and its effect on patient care has been identified in previous epidemics (Lam et al., 2019). Our participants had to adapt to new protocols for using PPEs. Scarcity caused them to plan their interventions with patients according to the availability of PPEs. This had an impact on nursing interventions, because contact with patients who were infected or potentially infected with COVID-19 had to be minimized to reduce the risk of infection. Participants reported that this necessity gave them the sense that the quality of care was lower. Previous research shows the high degree of commitment and responsibility of nurses during natural disasters (Aliakbari et al., 2015) and in epidemics such as influenza (Lam & Hung, 2013) and Ebola (Pincha Baduge et al., 2017). Participants' ability to adapt to organisational changes, despite risk to their own health and lack of adequate institutional support, points to their commitment to providing patient care.

In previous epidemics, emergency room nurses positively evaluated the protocols and clinical guidelines that were updated as information about the pathogen became available. The confusion caused by the lack of knowledge about the pathogen was also identified as an adverse factor at the beginning of a pandemic (Lam et al., 2019). According to Xue et al. (2020) in natural disasters, the lack of clear protocols and clinical guidelines for the everyday work of professionals affects their capacity to make decisions and prioritize care. Our results show that this finding also applies to the COVID-19 pandemic.

### 5.3 | Learning

When health centres could not provide training to nurses, participants learned about the virus on their own. Reinforcing strategies for individual learning is key, but systemic training could be more useful in these situations (Kackin et al., 2020; Yin & Zeng, 2020). Research shows that in previous epidemics such as Ebola, emergency service professionals reported that they had sufficient preparation to offer care to infected people (Pincha Baduge et al., 2017). In Spain, during the first wave of COVID-19, there were insufficient data about SARS-CoV-2 and its transmission pathways. The pace of formal training could not keep up with changing information about the virus. As a result, our participants shared with other professionals the information they acquired. This support and cooperation among co-workers have also emerged in other studies of COVID-19 (Hou, Zhang, et al., 2020; Hou, Zhou, et al., 2020; Sun et al., 2020). Our results reveal the capacity of nursing teams to learn on their own, given the unavailability of formal training. We have shown that social networking is an additional way that nurses share information with colleagues both within and outside of nursing and locally and internationally. Our analysis reveals nurses' ability to develop professionally during health disasters.

# 6 | LIMITATIONS AND FUTURE DIRECTIONS

Our qualitative design means that our results cannot be generalized beyond the study population. To achieve generalizable results, a next step would be to design a mixed-method study that would allow us to examine the statistical significance of our findings. A comparative angle is also necessary to determine whether nurses outside Spain had similar experiences. We should also note that the stress and trauma experienced by some participants could have influenced their responses.

# 7 | CONCLUSIONS

Our rapid approach made it possible to capture fleeting information about how facilities were organised and how nurses worked during the first wave of the COVID-19 pandemic. Understanding nurses' ability to respond to organisational changes during the first wave of the COVID-19 pandemic can be useful for redesigning work sites and organisations and implementing the changes needed to ultimately improve staff health and patient outcomes. Participants reported developing self-management strategies to find solutions to the organisational changes they faced during the first wave: problemsolving, adaptation and learning. These results fill a gap in the literature about how nurses deal in their daily practice with organisational changes during a health disaster.

# 8 | IMPLICATIONS FOR NURSING MANAGEMENT

Nursing supervisors and administrators can use these findings to improve organisational management policies in health disasters, including subsequent waves of the COVID-19 pandemic. Understanding nurses' ability to respond to organisational changes during the first wave of the COVID-19 pandemic can be useful for motivating and encouraging nursing teams. Obviously, the most important thing health centres can do is plan adequately based on the experience of nurses during this health disaster to ensure that protective gear, spaces, communication and training are adequate.

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#### CONFLICT OF INTEREST

We have no conflict of interest.

#### AUTHOR CONTRIBUTIONS

All the authors have participated in the conception and design of the work. GTN, BA, PGE, MSM, EVS, DM and MRL have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. GTN, BA, PGE and MRL been involved in drafting the manuscript. GTN, BA, PGE, MSM, EVS, DM and MRL revising it critically for important intellectual content.

### ETHICAL APPROVAL

The study was approved by the Institutional Review Board of the Universitat Autónoma de Barcelona (File 5184).

#### DATA AVAILABILITY STATEMENT

Author elects to not share data.

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