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Spanish nursing and medical students' knowledge, confidence and willingness about COVID-19: A cross-sectional study

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ABSTRACT

Background: COVID-19 challenges world governments. In Spain, measures to contain the pandemic are novel, and include the possibility of contracting Nursing and Medical students who might not be ready or willing to treat infected cases.

Objectives: To study Spanish Nursing and Medical students' knowledge about COVID-19 community transmission prevention measures, treating infected patients, and their confidence and willingness to treat cases. To learn their views about the first public health policy measures adopted by the Spain government to contain the pandemic.

Design: Cross-sectional study.

Settings and participants: 237 Spanish Nursing and Medical students.

Methods: An online questionnaire was designed on the knowledge, confidence and willingness to treat, and the suitability of the public health policy measures adopted in Spain. The data were collected through social networks. The results were compared according to their university degree.

Results: Knowledge about community prevention was suitable, unlike knowledge about treating infected patients. Students had little confidence in treating cases, but their willingness and moral responsibility were high. Very few significant differences were found in their university degrees. Medical students evaluated the measures taken in Spain more favorably.

Conclusions: Students' knowledge about COVID-19 community prevention measures was adequate, but not about preventive measures when treating patients with COVID-19. They felt little confidence despite being willing to treat infected patients. The sample agreed with the public health measures adopted in Spain.

1. Introduction

The new SARS-CoV-2 coronavirus has rapidly spread worldwide since Chinese Authorities informed the World Health Organization (WHO) about several cases of pneumonia of unknown aetiology in Wuhan on 31 December 2019. On 28 January 2020, the first imported cases to Europe were declared, one in Germany and two in Italy, followed 2 days later by the first imported case in Spain. The WHO declared a world SARS-CoV-2 pandemic on 11 March 2020 with 118,000 cases in 114 countries (World Health Organization, 2020).

The world's governments are adopting novel measures, such as confining citizens or closing frontiers, to stop the virus spreading, and policies to minimise its socio-economic repercussions. Health systems have had an unprecedented demand owing to the virus' transmission

capacity, with numerous cases in a very short time. This requires Health Authorities having to make unparalleled efforts to ensure that necessary material and human resources are made available.

Currently, Spain is one of the countries with the most confirmed cases of COVID-19, and also of deaths, in the world (World Health Organization, 2020). On 10 March, the first measures were taken to stop the virus spreading. A few days later on 14 March, a state of alarm was announced with new measures, including citizen confinement, among others, and the possibility of contracting last-year Nursing and Medical students to cover unavailable health system professionals (Legido-Quigley et al., 2020). However, as Spain has not had to face serious epidemics in the past, no studies are available that have studied the level of knowledge about prevention with of epidemics, and the confidence and willingness of Spanish Nursing and Medical students to treat

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infected cases, or to know this students' views of public health policy measures made to contain the COVID-19 pandemic.

2. Background

Outbreaks of emerging or re-emerging infectious diseases have increased since 1980 and the world's health systems have continuously faced them (Jones et al., 2008). Some recent examples of such outbreaks are Severe Acute Respiratory Syndrome (SARS-CoV-1) in 2003, avian influenza A in 2008, influenza A in 2009, Middle East Respiratory Syndrome (MERS-CoV) in 2012, ebola in 2014 or Zika fever in 2015. The last time a similar pandemic to today's COVID-19 took place was in 1918, which was caused by Spanish influenza and killed some 40 million people worldwide (Barro et al., 2020). These outbreaks affected large areas of the world, and governments are expected to learn from previous experiences, be prepared to contain outbreaks of epidemics, and guarantee that basic services and health care are covered by ensuring the necessary human and material resources.

The new SARS-CoV-2 coronavirus, which is transmitted more and is less lethal than other coronaviruses, causes a disease known as COVID-19 that starts with fever, dry cough, tiredness and fatigue between 2 and 14 days after exposure, and can lead to serious disease and even death (Huang et al., 2020).

Globally, the measures taken during the COVID-19 pandemic have varied from one country to another, and Europe is no exception (Johnson et al., 2020). Some have been the classic measures taken in previous epidemic outbreaks, like isolating cases and quarantining contacts. Nevertheless, new measures involve declaring states of health alarm, closing frontiers or limiting citizens' movements (Wilder-Smith and Freedman, 2020). The population's confidence in these measures and fulfilling them have been studied in the United States of America (USA) (van Rooij et al., 2021), France (Brouard et al., 2020) or Italy (Briscese et al., 2020), but no specific studies conducted with healthcare professionals or Health Sciences students can be found.

Today's pandemic involves growing needs for material and human resources, the latter mainly being doctors and nurses (Jackson et al., 2020). Some countries like Spain (Legido-Quigley et al., 2020) or the United Kingdom (UK) (Swift et al., 2020) allow health services to contract retired professionals or last-year Nursing and Medical students to perform specific tasks supervised by professionals. While considering new ways to increase the nursing workforce, it is necessary to contemplate the risks and benefits of these proposals to not jeopardise the safety of both patients and professionals (Jackson et al., 2020). Perhaps some students see the present-day situation as a chance to enter the labour market and to make their first significant healthcare contribution but, at the same time, they might not have confidence in themselves and may not be willing to treat COVID-19 patients (Swift et al., 2020).

The people in charge of educational institutions are expected to see former epidemics as chances to improve future health professionals' educational syllabi by including the necessary public health or epidemiology competences, or infection processes, to a greater extent to improve their knowledge of, attitudes to and trust in epidemic outbreaks, and to heighten their socio-political responsibility. However, very few studies have analysed Nursing and Medical students' knowledge about prevention, confidence and willingness to treat infected cases in former outbreaks of infectious diseases.

Yonge et al. (2010) studied knowledge and perception of the risk and confidence of being volunteers during a possible influenza pandemic with 484 Canadian nursing students. In South Korea, Kang et al. (2012) concluded that the main concerns of nursing students when faced with influenza A were being infected, infecting their family relations and being stigmatised. During a MERS-CoV outbreak in Saudi Arabia, Nursing students had very little knowledge about prevention, and their main sources of information were social networks and TV (Stirling and Harmston, 2015). Another work found that Medicine, Odontology, Nursing and Pharmacy students were willing to work with infected

patients, but only if working conditions were suitable (Elrggal et al., 2018). In the USA, Chilton et al. (2016) observed that Nursing students with more knowledge felt more confident about treating Ebola patients, and concluded that student training was necessary to boost their confidence, which coincided with the results reported by other authors in different epidemic outbreaks (Aung et al., 2015) (Thulukkanam, 2018).

However, most of these studies were conducted in the USA or in Asian countries, and no similar studies were found from Spain or other European countries. This could be because neither the magnitude nor the impact of previous epidemics was considerable in Europe. At the time of this study, we did not find any articles that have explored students' views about the policies governments make to contain epidemics, studies dealing with competences in public health from a wider curricular perspective both nationally and internationally, or aspects related to epidemic outbreaks of infectious diseases (Clark et al., 2016).

In a previous article published in the *Contemporary* issue section of this journal, we present partial results of our study, including an initial sample of 100 participants, with descriptive analysis of some variables. In the present article we present the results of the complete sample, with a more detailed analysis and interpretation of the data. Furthermore, the implications for the education of medical and nursing students are addressed in greater depth (Cervera-Gasch et al., 2020). Therefore, the objective of this study was to study Spanish Nursing and Medical students' knowledge about community transmission measures to prevent COVID-19, their willingness to treat COVID-19 patients, and their confidence to treat infected cases. Their views of the first public health policy measures taken in Spain to contain the epidemic were also studied.

3. Methods

A cross-sectional study was conducted using an online questionnaire to learn Spanish Nursing and Medical students' knowledge about measures to prevent COVID-19 transmission, their confidence and willingness to treat infected cases, and their opinions about the suitability of the first public health policy measures taken in Spain.

The study population was made up of Spanish Nursing and Medical students registered with a Spanish university and participants were included through a non-probabilistic sampling.

The online questionnaire was made up of 30 items and was devised using Google Docs. The items about COVID-19 knowledge were taken from the first recommendations made by the Spanish Ministry of Health, Consumer Affairs and Social Well-being for preventing and treating COVID-19 (Spanish Ministry of Health, Consumer Affairs and Social Well-being). Six items were about transmission routes, incubation period, mortality, diagnosis methods and typical cases. Response options were yes, no or do not know. Three multiple-response items were included about signs and symptoms, specific measures to prevent community and hospital transmissions and treating infected cases. All item descriptions were positively worded. Participants were also asked if they thought that universities and healthcare services should have better prepared them before the COVID-19 pandemic began (1: Totally disagree; 5 Totally agree).

Eight items were about the confidence they felt and their willingness to treat infected cases, which were responded on a 5-point Likert scale (1: Totally disagree; 5 Totally agree) and based on previous studies (Elrggal et al., 2018) (Patel et al., 2017). Finally, 12 items were used by participants to evaluate the suitability of the first public health policy measures taken in Spain as a result of the pandemic (Legido-Quigley et al., 2020). They were answered on a 5-point Likert scale (1: Totally disagree; 5 Totally agree).

Socio-demographic variables were also included, such as age, gender (Female; Male; Other), marital status (Single or no stable partner; Married or stable partner), children or dependent close relatives (Yes; No), degree studied (Medicine; Nursing) and name of university. Students were also asked if they had been on clinical placements or were

about to go on them during this semester (Yes; No), if they or their classmates had come into contact with confirmed or suspected cases of COVID-19, and if they had received specific COVID-19 training (No; Organised by my university; Organised by health services). Finally, one question was about the main sources of information they used to keep up-to-date with the pandemic (Posters and leaflets; TV and radio; Classmates; Social networks and official/unofficial websites; Press or specialised/unspecialised journals).

Data were collected between 12 March and 1 April 2020. The fourth author was Secretary of the State Nursing Students Association and was in charge of diffusing the online questionnaire to groups of Nursing/Medical students all over Spain via social networks like Facebook, Twitter, Instagram or Whatsapp. The recommendations of Pedersen and Kurz (2016) for using social networks for data collection purposes were followed.

A descriptive analysis of the herein included variables was carried out according to their nature. The comparison made between Nursing and Medical students was done with the Mann-Whitney *U* test after confirming that the groups did not follow normal distribution. The results are expressed as median (M) and interquartile range (IQR). The chi-squared test (X^2) was used for the qualitative variables. The statistical analysis was performed with the SPSS V21 software and the significance level was set at $p < 0.05$.

This study was voluntary and anonymous. Participants' complete confidentiality was guaranteed. The first page of the questionnaire included information about the methodology, the study objective, and a box which students ticked to confirm that they had voluntarily and anonymously participated. Their personal data were not collected to not compromise their identity. This study was designed in accordance with Spanish Organic Law 03/2018 on Personal Data Protection and Guaranteeing Digital Rights. Declaration of Helsinki Principles (clarity, non-maleficence, autonomy and justice) were respected.

4. Results

4.1. Description of the sample

Two hundred and fifty-seven responses were obtained, and 20 people were excluded because they were not Nursing/Medical students. The mean age of the final sample ($n = 237$) was 21.95 years (95%CI: 21.32–22.57). The study sample was as follows: 86.9% ($n = 206$) were females; 64.4% ($n = 153$) were single or had no stable partner; 91.6% ($n = 217$) had no children or anyone depending on them; 71.7% ($n = 170$) were Nursing students; the rest were Medical students; they came from 21 different Spanish universities.

Moreover, 45.6% ($n = 108$) had already started or were about to go on clinical placements during this semester. Of these, 76.8% ($n = 83$) stated that they or some classmates had been in contact with confirmed or suspected COVID-19 cases. Of the whole sample, 83% ($n = 218$) stated they had received no specific training (classes, seminar, laboratory or workshop) in COVID-19 by their university or health services. Table 1 summarises the socio-demographic variables.

The main source of information that the sample indicated was: the social networks and websites of the Ministry of Health and other official organisations (88.2%; $n = 209$); TV and radio (76.4%; $n = 181$). To a lesser extent, the sample used unofficial websites and social networks (42.2%; $n = 100$), classmates (40.5%; $n = 96$) specialised press (38.8%; $n = 92$). The least used information resources were informative leaflets (27.8%, $n = 66$) and unspecialised press (17.7%; $n = 42$).

4.2. Knowledge about preventing COVID-19 transmission

Most of the sample confirmed, with no significant differences according to university degrees, that COVID-19 is transmitted by air and direct contact (90.7%; $n = 215$) ($p = 0.265$), it can be transmitted by asymptomatic people (94.4%; $n = 226$) ($p = 0.989$), its mortality range

Table 1
Socio-demographic variables.

Variable	% (n)
Gender	
Males	13.1 (31)
Females	86.9 (206)
Marital status	
Stable partner	35.4 (84)
No stable partner	64.6 (153)
Children or dependent family relations	
Yes	8.4 (20)
No	91.6 (217)
Degree	
Medicine	28.3 (67)
Nursing	71.7 (170)
Clinical placement	
Yes	45.6 (108)
No	54.4 (129)
Contact with COVID-19 patients ($n = 108$)	
No	23.2 (25)
Yes	76.8 (83)
Specific COVID training	
No	83 (218)
Yes, at my university	3.7 (9)
Yes, at a health centre	9.3 (22)

is about (2–3% 76.4%; $n = 181$) ($p = 0.334$), and they do not have sufficient information to establish a typical case (50.2%; $n = 119$) ($p = 0.81$). Nonetheless, 68.4% ($n = 162$) of the sample stated that a reliable method existed to diagnose the disease, and significantly more Medical students gave this answer ($p < 0.001$). Only 30.8% ($n = 73$) stated that the incubation of this virus was 5–6 days, of whom a significantly larger number corresponded to Medical students ($p = 0.011$).

The whole sample stated that fever was one of the symptoms to appear in serious COVID-19 cases, followed by dry cough (95.8%; $n = 227$), dyspnoea (89.9%; $n = 213$), myalgia (51%; $n = 51$), weakness (20.7%; $n = 49$) and anorexia (3.8%; $n = 9$), with no significant differences between their university degrees ($p > 0.05$). Most of the sample identified risk groups as people older than 65 years (94.8%; $n = 227$), immunosuppressed patients (94.9%; $n = 225$) and healthcare professionals (70.5%; $n = 167$), but not being younger than 15 years (6.8%; $n = 16$) and pregnant women (41.4%; $n = 98$). Once again, there were no significant differences between university degrees ($p > 0.05$). Table 2 provides an analysis of the measures to prevent COVID-19 community transmission.

Table 3 presents the results about measures to take in order to prevent transmission while treating COVID-19 patients. In general, a higher percentage of nursing students correctly answered the questions about prevention measures while treating COVID-19 patients, although there were only significant differences with medical students on questions about scheduling and organizing activities with this patients ($p = 0.048$) and the use of surgical masks during their mobilization ($p = 0.003$).

Table 2
Measures to prevent COVID-19 community transmission according to university degree.

Community prevention measures	% (n=)	p
Avoid crowded places		0.633
Nursing	98.8 (168)	
Medicine	98.5 (66)	
Wear masks in crowded places		0.156
Nursing	25.3 (43)	
Medicine	32.8 (22)	
Good hand hygiene		0.717
Nursing	99.4 (169)	
Medicine	100 (67)	
2-metre social distancing		0.155
Nursing	89.4 (152)	
Medicine	83.6 (56)	

Table 3
Measures to prevent transmission while treating COVID-19 patients according to university degree.

Prevention measures at hospital	% (n=)	p
Scheduling and organizing activities with COVID-19 patients		0.048
Nursing	74.7 (127)	
Medicine	62.7 (42)	
Strict hand hygiene		0.21
Nursing	96.5 (164)	
Medicine	94 (63)	
Professionals wear surgical masks while moving COVID-19 patients		0.003
Nursing	56.5 (96)	
Medicine	35.8 (24)	
COVID-19 patients wear surgical masks while being moved		0.272
Nursing	66.5 (113)	
Medicine	71.6 (48)	
Eye protection when treating COVID-19 patients		0.363
Nursing	42.4 (72)	
Medicine	38.8 (26)	
Wearing FFP2 or FFP3 masks while treating COVID-19 patients		0.275
Nursing	73.5 (125)	
Medicine	68.7 (46)	
Wearing long-sleeved impermeable coats when treating COVID patients		0.328
Nursing	62.4 (106)	
Medicine	58.2 (39)	
Protection gear must be single-use		0.134
Nursing	69.8 (132)	
Medicine	85.1 (57)	

Of the whole sample, 49.8% ($n = 118$) and 43.4% ($n = 103$) agreed or totally agreed that universities ($p = 0.088$) and health services ($p = 0.366$) should have better prepared them for today's pandemic. There were no statistically significant differences between their university degrees.

4.3. Confidence and willingness to treat COVID-19 patients

The whole sample obtained a mean score of 2.83 (95%CI: 2.65–3.01) for item “I feel prepared to treat patients with COVID-19”. However, the scores for moral responsibility ($m = 4.09$; 95%CI: 3.96–4.23) and willingness to treat these patients ($m = 4.28$; 95%CI: 4.16–4.41) were high, as was their willingness to go on placements in centres with COVID-19 patients ($m = 3.94$; 95%CI: 3.79–4.09).

Students indicated that they would not refuse to attend these patients ($m = 2.80$; 95%CI: 2.63–2.98) and were not afraid of the possibility of coming into contact with a COVID-19 patient ($m = 2.95$; 95%CI: 2.77–3.12). However, the mean score increased for fear of being infected ($m = 3.24$; 95%CI: 2.77–3.12) or infecting their family relations ($m = 4.59$; 95%CI: 4.49–4.68) by coming into contact with these patients (Table 4).

4.4. Opinions of the first public health policy measures

Of our whole sample, 86.9% ($n = 206$) totally agreed that today COVID-19 is a serious public health problem ($p = 0.924$) and only 26.6% ($n = 63$) agreed or totally agreed that the previous SARS or MERS pandemics were more serious ($p = 0.4$). No significant differences were found between university degrees. However, the Medical students significantly better evaluated the first public health policy measures taken in Spain (Table 5).

Finally, 80.2% ($n = 190$) of our sample agreed or totally agreed that

Table 4
Confidence and willingness to treat COVID-19 patients according to university degree.

Confidence and willingness to treat COVID-19 patients	M (IQR)	p
I feel prepared to treat patients with COVID-19		0.027
Nursing	3 (2)	
Medicine	2 (3)	
I have the moral responsibility to attend to COVID-19 patients		0.278
Nursing	4 (1)	
Medicine	4 (2)	
I am willing to treat COVID-19 patients		0.747
Nursing	5 (1)	
Medicine	5 (1)	
I am willing to go on clinical placements in a centre with COVID-19 patients		0.83
Nursing	4 (2)	
Medicine	4 (1)	
If I could, I would choose to not attend to COVID-19 patients		0.216
Nursing	3 (2)	
Medicine	3 (3)	
I feel afraid when I think about treating a COVID-19 patient		0.478
Nursing	3 (2)	
Medicine	3 (3)	
I am afraid of being infected by COVID-19		0.082
Nursing	4 (2)	
Medicine	3 (2)	
I am afraid of infecting my family relations with COVID-19		0.658
Nursing	5 (1)	
Medicine	5 (0)	

Table 5
Opinions of the level of suitability of the first public health policy measures in Spain.

Public health policy measures	M (IQR)	p
Cancelling all flights from Italy		0.039
Nursing	5 (2)	
Medicine	5 (1)	
Cancelling State-financed travelling for pensioners		0.088
Nursing	5 (2)	
Medicine	5 (1)	
Main sport events held without spectators		0.019
Nursing	4 (2)	
Medicine	5 (1)	
Cancelling events with more than 1000 people		0.015
Nursing	5 (2)	
Medicine	5 (1)	
Cancelling popular festivals		0.003
Nursing	5 (2)	
Medicine	5 (1)	
Infected people, or those in preventive isolation, are considered to be on sick leave from work		0.033
Nursing	4 (2)	
Medicine	5 (1)	
Centralised supply of material resources for the pandemic		0.012
Nursing	4 (2)	
Medicine	5 (1)	

the taken measures were timely ($p = 0.254$), but thought that more resources should have been made available to educate the population about the measures taken to prevent COVID-19 community transmission (84.1%; $n = 197$; $p = 0.17$), and that hospitals did not have the necessary protection gear to face the situation (82.2%; $n = 195$; $p = 0.342$). No significant differences were observed between both university degrees.

5. Discussion

The Spanish Ministry of Health, Consumer Affairs and Social Well-being and regional health services are carrying out a major campaign with information about transmission routes, the main signs and symptoms, and community measures to prevent COVID-19 infection on TV,

radio and social networks. The obtained results can be taken as a sign of the good effect this campaign is having if we consider that the main sources of information herein indicated were the social networks and websites of the Spanish Ministry and other official sites, and TV/radio. These findings coincide with those reported in other studies (Stirling and Harmston, 2015).

A suitable level of general knowledge about transmission routes, signs/symptoms, risk groups and COVID-19 mortality was observed. Likewise, the level of knowledge about the measures taken to prevent COVID-19 community transmission can be considered adequate. These results were better than the results initially published (Cervera-Gasch et al., 2020), although it is necessary to highlight the moderate percentage of correct answers in most of the questions. It is striking that medical and nursing students from other countries with previous experience in pandemics have better results regarding the knowledge about measures to take in order to prevent transmission while treating COVID-19 patients (AL-Rawajfah et al., 2021). In fact, a significant percentage of our sample stated that both universities and health services should have prepared them better, coinciding with other studies carried out in Spain (Casafont et al., 2021) (Hernández-Martínez et al., 2021).

The results about Nursing/Medical students' level of knowledge on previous pandemics were contradictory. For instance, Elrkkal et al. (2018) obtained percentages of right answers that came close to 90% for measures to prevent MERS-CoV transmission. However, the results reported by Stirling and Harmston (2015) indicated that the level of knowledge was limited. Both these studies were carried out in Saudi Arabia and their differences were probably due to the different times when they were conducted. One aspect highlighted in our study was that participants did not believe it convenient to wear masks in crowded public places, coinciding with studies carried out in other countries during the COVID-19 pandemic (Fakhri et al., 2021). This was possibly due to the uncertainty raised in Spain and other countries about using masks and types of masks to be worn (Leung et al., 2020a). Currently, the use of masks in open public spaces and venues, premises or businesses is mandatory in Spain.

The percentages of affirmative responses lowered for the measures taken to prevent transmission when treating patients with COVID-19 and the percentages of some recommendations were below 40%, with statistically significant differences between Nursing and Medical students. Moreover, the percentage of correct answers was higher for nursing students in almost all the questions while Medical students showed a higher level of knowledge about methods existing to diagnose COVID-19. Elrkkal et al. (2018) found that Medical students scored significantly higher for their knowledge about MERS. Although educational interventions are presently difficult, some studies have been published with good results about rapid interventions for training students (Ng and Peggy, 2020) (Rasmussen et al., 2020) and professionals (Ros and Neuwirth, 2020) while the COVID-19 pandemic has been underway. These differences between Nursing and Medical students were probably related to the specific competences of each degree, but future studies should confirm it.

Patel et al. (2017) and Goni-Fuste et al. (2021) state that level of knowledge and training impact Health Sciences students' confidence and willingness to treat infected cases during pandemic outbreaks. Our participants did not feel very confident about attending to these patients, which is possibly related to their lack of specific training (Hernández-Martínez et al., 2021). Nevertheless, they were quite willing to treat infected cases, and their main fear was infecting their family relations by coming into contact with COVID-19 patients, which agrees with the results reported by Kang et al. (2012) and Goni-Fuste et al. (2021).

Most of our study sample considered that COVID-19 was a grave health problem and positively evaluated the public health policy measures taken in Spain to contain the pandemic, although the Medical students better evaluated these measures than their Nursing peers. These results differ with the results presented by us initially, in which these

measures were rated worse and out of time (Cervera-Gasch et al., 2020). Anyway, no studies were found on Health Sciences students' views of measures to contain epidemic outbreaks, although general population studies conclude that it is much simpler to comply with isolation measures if the exact duration of the isolation period is known (Briscese et al., 2020) and is controlled by the authorities (van Rooij et al., 2021). Increasing the population's awareness and social responsibility to comply with the taken measures would appear necessary. Most of our study samples agreed that more resources should be used to educate the population about measures to prevent COVID-19 community transmission.

University and healthcare services should bear in mind that many Nursing and Medical students are about to finish their studies and will soon enter the labour world, or even before in countries like the UK (Swift et al., 2020) or Spain (Legido-Quigley et al., 2020). Spain has been experiencing a shortage of nursing and medical workforce and healthcare services had to rearrange its structure. Senior Nursing and Medical students have been employed in hospitals and other healthcare facilities to respond to staff shortage (Casafont et al., 2021). It is important that new professionals are not only well-prepared, but also feel confident and willing to treat infected patients (Jackson et al., 2020) now and also with new possible outbreaks (Leung et al., 2020b) for their safety, and for the safety of other healthcare professionals and, above all, patients.

Social distancing increases the complexity of this challenge and a transformation in nursing education is necessary. Information and communication technologies and blended and online teaching-learning methodologies should become more relevant. Tantillo and Christopher (2020) offer a compendium of tools that can help educators and academics cope with this change successfully. However, the real challenge for the near future of education in nursing and medicine is the organization of clinical clerkship in the face of a new outbreak of COVID-19 (Dewart et al., 2020). It is necessary to consider the legal and ethical implications of continuing to train students in these situations, as well as considering aspects such as early vaccination of students, contact with infected patients, the availability of protective equipment, increasing the hours in simulation laboratories. (Goni-Fuste et al., 2021), biological accidents in students (Tantillo and Christopher, 2021) or the tutor-student ratio in organizational models of clinical practices. Furthermore, it seems appropriate to explore new methodologies. For example, Fogg et al. (2020) describe how they carried out the migration process towards a virtual clinical experience that could replace traditional practices, due to the restrictions caused by the COVID-19 pandemic. The students valued this initiative favorably, although they detected difficulties related to internet access, lack of motivation and the lack of experience of the teachers (Fogg et al., 2020). It is very likely that this type of learning cannot replace direct contact with patients and other professionals, but it could perhaps complement learning in challenging situations, so it is worth exploring its impact on the competences acquisition of future health professionals.

Finally, our study results must be taken cautiously. On the one hand, COVID-19 is a new disease and discoveries are updated on a daily basis. Thus, some of the initial recommendations included in the questionnaire could have been updated since this study began. On the other hand, the adopted public health policy measures to stop the virus spreading constantly change over short time periods. This study examines only the first public health policy measures taken in Spain. Moreover, the sample size was limited and not stratified according to university degrees (Nursing or Medicine). Despite these limitations, our results are still interesting and should lead to future more complex works to improve our understanding of this group and their role as workforce.

6. Conclusion

Nursing and Medical students understand that today's COVID-19 pandemic is a serious public health problem. Their level of confidence

in treating infected patients is low, although their moral responsibility and willingness to treat them are high. Their knowledge about general aspects of the COVID-19 disease and their views of the measures adopted to prevent its community transmission are suitable, but are worse for measures to prevent transmission when treating infected patients. Finally, our participants positively value the first measures taken in Spain to contain the COVID-19 virus.

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- Desirée Mena-Tudela: Writing original draft preparation; visualization.
- Víctor M González-Chordá: Conceptualization, methodology, formal analysis, writing original draft preparation
- Laura Andreu-Pejo: Writing- Reviewing and Editing,
- Víctor M Mouzo-Bellés: Investigation
- Águeda Cervera-Gasch: Writing- Reviewing and Editing

Declaration of competing interest

None.

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