

# COVID-19 and Moroccan nursing students: A multicenter cross-sectional survey on their related knowledge, attitudes and practices

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## Introduction

The World Health Organization (WHO) declared the COVID-19 pandemic as a public health emergency of international concern on 30 January 2020 (WHO, 2020). Like many countries, the battle against the coronavirus is continuing in Morocco. Since the start of the pandemic, Morocco has adopted many public health measures for stopping and controlling this disease (Ait Addi et al., 2020), including isolation of confirmed and suspected cases, suspension of flights to and from Morocco, travel restrictions, confinement, closure of public spaces and all schools, and wearing of the mask. Gradual deconfinement was being implemented as of 11 June 2020, and a few weeks later, the number of cases and deaths increased.

## Abstract

**Aim:** To assess knowledge, attitudes and practices of Moroccan nursing students towards COVID-19.

**Design:** Cross-sectional study.

**Method:** Data were collected using an online questionnaire consisted of demographic characteristics and 24 items about COVID-19-related knowledge, attitudes and practices.

**Results:** A total of 1,216 nursing students participated in this study. About 82% of the participants reported that the COVID-19 virus spreads via respiratory droplets of infected individuals. The most clinical symptoms of COVID-19 correctly identified by participants were fever (97.6%), dry cough (92.4%), dyspnoea (82%) and fatigue (74.9%). More than 56.6% of the participants were afraid of being affected by COVID-19. Almost all participants reported that they avoid crowded places frequently. About 93.4% of the participants declared frequently wearing face mask when leaving home, and 85.5% maintained social distancing frequently. However, only 47.4% reported that they frequently washed their hands. About 51% stated that coronavirus outbreak has considerably changed their daily routines.

## Objectives

The purpose of our study was to assess the knowledge, attitudes and practices of nursing students during the COVID-19 pandemic. The main findings of the study showed that most of the participants had a good knowledge and attitudes towards COVID-19, and an acceptable level of practices towards COVID-19.



## Methods

**2.1 Design:** This was a descriptive cross-sectional study conducted during the COVID-19 pandemic period, between 20 April 2020–30 April 2020.

**2.2 Participants:** The study was conducted in seven nursing schools in Morocco. The participants were nursing students who met the inclusion criteria of this study. The inclusion criteria consist of students regularly matriculated into these schools at the time of the survey, regardless of their year of study.

**2.3 Data collection:** Data were collected using an online questionnaire created in google forms. The link of the questionnaire was sent to participants through WhatsApp groups and other social media (Facebook). To reach as many respondents as possible, a snowball sampling technique was used. The development of the questionnaire was based on a review of literature and questionnaires used in other similar studies and WHO guidelines (Abdelhafiz et al., 2020; Chen et al., 2020; Gaffar et al., 2019). The questionnaire started with a short paragraph describing the purpose of the study and indicating participants that all data are collected anonymously. The questionnaire was divided into four main sections.

**2.4 Data analysis:** Data analysis was performed using SPSS software, version 20. The results were presented as frequencies and percentages.

**2.5 Ethical considerations:** The study protocol was approved by the Research Ethics Committee. Participation in this study was voluntary and was not compensated. Electronic informed consent was obtained from all participants.

## Results

A total of 1,216 nursing students completed the questionnaire. Table 1 presents demographic and general information of the participants. The majority of the participants (95.6%) were in the 18- to 23-year age group, and 77.4% of them were female. The first source of information about COVID-19 was social networks for 67.9% of the participants, followed by television for 12.3%, health workers for 7.9% and family for 5.1%. Almost 60% of the participants had received specific training on COVID-19.

TABLE 1

Demographic and general information of the participants	
Characteristics / information (n = 1,216)	Distribution n (%)
<b>Gender</b>	
Male	275 (22.6)
Female	941 (77.4)
<b>Age (years)</b>	
18–23	1,162 (95.6)
24–27	46 (3.8)
>27	8 (0.7)
<b>Where did you first learn about COVID-19?</b>	
Social networks	826 (67.9)
Television	150 (12.3)
Family	62 (5.1)
Friends or neighbours	52 (4.3)
Health workers in the health facility	96 (7.9)
Radio	6 (0.5)
Others	24 (2.0)
<b>Did you receive any specific training on COVID-19?</b>	
Yes	727 (59.7)
No	490 (40.3)

## Results

Table 2 presents the details of knowledge about COVID-19 among our participants.

TABLE 2

Knowledge of participants about COVID-19	
Knowledge about COVID-19 (n = 1,216)	Distribution n (%)
<b>COVID-19 spreads by?</b>	
Droplets from the nose or mouth of infected person	1,001 (82.3)
Touching infected surfaces	841 (69.2)
Touching infected objects	829 (68.2)
<b>Incubation period for the COVID-19 last?</b>	
less than 4 days	30 (2.5)
less than 7 days	33 (2.7)
up to 14 days	1,153 (94.8)
<b>Cause of the COVID-19 is a</b>	
Virus	1,208 (99.5)
Bacterium	3 (0.2)
Parasite	2 (0.0)
<i>Open in a separate window</i>	
<b>Main clinical symptoms of the COVID-19 include</b>	
Fever	1,187 (97.6)
Dry cough	1,025 (84.3)
Dyspnoea	998 (82.0)
Sore throat	654 (53.7)
Muscle aches	531 (43.6)
Shortness of breath	484 (39.8)
Headache	426 (35.0)
Fatigue	911 (74.9)
Vomiting	365 (30.0)
Pharyngitis	177 (14.5)
Rhinorrhoea	120 (9.9)
Chest pain	583 (47.9)
Diarrhoea	561 (45.5)
Nausea	190 (15.6)
<b>Groups with higher risk of developing a severe COVID-19</b>	
Elderly people	1,012 (83.2)
People with chronic disease (e.g. chronic obstructive pulmonary disease)	1,094 (90.0)
Obese people	249 (20.5)
<b>Is there a vaccine, drug or treatment for COVID-19?</b>	
Vaccine	77 (6.3)
Specific treatment	160 (12.3)
Supportive care	628 (51.6)
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Table 3 shows the answers provided by participants about attitudes towards COVID-19.

TABLE 3

Attitudes of participants towards COVID-19		
Attitudes towards COVID-19 (n = 1,216)	Distribution n (%)	
	Yes	No
Are you afraid of getting infected by COVID-19?	688 (56.6)	528 (43.4)
Do you agree that COVID-19 will successfully be controlled?	1,031 (84.8)	185 (15.2)
Do you agree that Morocco would be able to win the battle against the COVID-19?	1,098 (90.2)	118 (9.7)
Social distancing is essential for preventing the spread of COVID-19?	1,170 (96.2)	46 (3.8)
If you have symptoms of COVID-19, do you agree to be on quarantine / isolate yourself?	1,128 (92.7)	88 (7.2)
Do you like to do physical activities outside home during this confinement period?	491 (40.3)	725 (59.7)
Do you agree to participate in caring for patients with COVID-19, if the situation required it? (n = 1,209)	989 (81.8)	220 (18.2)
<i>Open in a separate window</i>		
<b>If you have symptoms of COVID-19, what will you do? n (%)</b>		
Talking with your doctor first	808 (66.4)	
Talking with a family member or friend first	109 (9.0)	
Looking first for the information by yourself	465 (38.3)	
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## Results

Table 4 presents practices towards COVID-19 among the participants of this study. Almost all participants (98.4%) reported that they avoid crowded places such as market and grocery store frequently, and 93.8% of them avoid visiting their family and their neighbors in this pandemic period. Only, forty-seven (47.4%) of the participants reported that they frequently wash their hands. Less than half of the participants (47.9%) stated that they frequently use alcohol-based sanitizer during this coronavirus pandemic. About 93.4% of participants declared frequently wearing face mask when leaving home. The majority of the participants (85.5%) maintained social distance of at least one meter from other people frequently, and approximately 90% avoided shaking hands and kissing when giving greetings. Of the participants, 72% avoided touching their eyes, noses and mouths with unwashed hands frequently. About nine in ten participants (90.2%) used their bent elbow when coughing or sneezing frequently. Nearly half of the participants (51.1%) stated that coronavirus outbreak has considerably changed their daily routines.

TABLE 4

Practices of participants towards COVID-19		
Practices towards COVID-19 (n = 1,216)	Distribution n (%)	
	Sometimes	Frequently
Do you avoid going to crowded places (e.g. markets, grocery stores)? (n = 1,186)	20 (1.7)	1,166 (98.4)
Do you avoid visiting your family and neighbours? (n = 1,191)	74 (6.2)	1,117 (93.8)
Do you practice proper hand hygiene by washing your hands frequently?	640 (52.8)	576 (47.4)
Do you use alcohol-based sanitizer frequently?	633 (52.2)	583 (47.9)
Do you wear a face mask when leaving your home?	80 (6.6)	1,130 (93.4)
Do you maintain a social distance (at least one metre) from other people?	177 (14.6)	1,039 (85.5)
Do you avoid shaking hands and kissing when giving greetings?	115 (9.5)	1,101 (90.5)
Do you avoid touching your eye, nose and mouth with unwashed hands?	340 (28.0)	876 (72.0)
Do you use your bent elbow when coughing or sneezing?	118 (9.7)	1,098 (90.2)
<i>Open in a separate window</i>		
How much has COVID-19 changed your daily routine? n (%)		
Considerably	621 (51.1)	
Moderately	409 (33.6)	
Slightly	150 (12.3)	
Not at all	36 (3.0)	
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## Conclusion

The results of this study showed that most of the nursing students participated in this study had a good level of knowledge, very positive attitudes and an acceptable level of practices towards COVID-19. Sensitization and education campaigns are needed to improve their preventative practices, such as hand hygiene and wearing face mask. In addition, it may be of importance to incorporate competences into curricula to improve knowledge, attitudes and practices of future health professionals and to prepare them for emergencies and outbreaks.

## Acknowledgement

We are very grateful to all nursing students who participated in this study.