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KNOWLEDGE OF TRANSMISSION PATHWAYS, PREVENTION MEASURES, AND ATTITUDES ABOUT COVID-19 IN MEDICAL STUDENTS AT THE UNIVERSIDAD NACIONAL DEL NORDESTE

CONOCIMIENTOS DE VÍAS DE TRANSMISIÓN, MEDIDAS DE PREVENCIÓN Y ACTITUDES SOBRE COVID-19 EN ESTUDIANTES DE MEDICINA DE LA UNIVERSIDAD NACIONAL DEL NORDESTE

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ABSTRACT

Introduction: In 2020, the COVID-19 pandemic emerged, caused by SARS-CoV-2, associated with higher morbidity and mortality, impacting the lives of the world population. **Objective:** To determine transmission routes, prevention measures, and attitudes about COVID-19 in 5th and 6th-year students of the Faculty of Medicine of the Universidad Nacional del Nordeste from May to June 2020. **Methods:** A descriptive, cross-sectional study was carried out with the last years of medical students. The instrument was validated by expert judgment. A pre-designed ad hoc questionnaire was used through the Google Forms platform. Data were analyzed using Epi Info version 7 software. **Results:** A total of 153 surveys were analyzed (N = 153). The mean age was 24.8 years. 42% of the students surveyed refer to talks with doctors, 15% through social networks, television channels, and blogs, and the remaining 13% do so through friends and/or family. 95.4% of the population studied had changes in attitude and increased cleaning or disinfecting surfaces and environments. 70% responded that through the air (Flügge Drops), while talking, coughing, or sneezing as the most frequent infection route. 84.4% mention being calm, 13% are nervous and worried, and 2.6% are tired. **Conclusion:** Adequate knowledge and positive attitudes are found in the studied population.

Key words: COVID-19; Students; Medical; Knowledge; Attitude (source: MeSH NLM).

RESUMEN

Introducción: En 2020, surgió la pandemia del COVID-19, causada por el SARS-CoV-2, asociada a mayor morbimortalidad impactando las vidas de la población mundial. **Objetivo:** Determinar conocimientos de vías de transmisión, medidas de prevención y actitudes sobre COVID-19 en estudiantes de 5° y 6° año de la Facultad de Medicina de la Universidad Nacional del Nordeste en los meses de mayo a junio del 2020. **Métodos:** Se realizó un estudio descriptivo, transversal con los estudiantes de los últimos años de la Carrera de Medicina. El instrumento fue validado por juicio de expertos. Se utilizó un cuestionario prediseñado ad hoc a través de la plataforma Google Forms. Los datos fueron analizados mediante el software Epi Info versión 7. **Resultados:** Fueron analizadas un total de 153 encuestas (N=153). La edad media fue 24,8 años. El 42% de los estudiantes encuestados refiere informarse de charlas con médicos, el 15% mediante redes sociales, canales de televisión y blogs y un 13% restante lo hace a través de amigos y/o familiares. El 95,4% de la población estudiada tuvo cambios de actitud aumentó la forma de limpiar/desinfectar las superficies y ambientes. El 70% respondió que es a través del aire (Gotas de Flügge), mientras hablan, tosen o estornuda como la vía de contagio más frecuente. El 84,4% menciona encontrarse tranquilo, el 13% está nervioso y preocupado y el 2,6% cansado. **Conclusión:** Se encuentran conocimientos adecuados y actitudes positivas en la población estudiada.

Palabras clave: Infecciones por coronavirus; Estudiantes de medicina; Conocimientos; Actitudes (fuente: DeCS BIREME).

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INTRODUCTION

Coronavirus disease (COVID-19) is a global public health problem that affects more than 5 million people and represents a significant burden on health systems worldwide. On March 11, 2020, it was declared by the World Health Organization (WHO) as a pandemic[1,2]. OnMarch 3, 2020, the first positive case was identified in Argentina, initiating social, preventive, and mandatory isolation to contain and prevent the disease's spread[3–5].

This isolation brings about changes in daily life that include work and studies, among others. Medical students do not escape this, adopting new study habits and personal care to avoid contagion[6–9]. Medical students, as front-line healthcare workers, are more susceptible to being infected by the virus[10–13]. Diverse groups of medical students were trained on the proper steps to be followed in handwashing, for example, as one of the simplest and most effective measures for preventing contagion[14–17]. Given that there is the possibility of a crisis of care personnel during the COVID-19 pandemic, the care system could incorporate advanced medical students to strengthen the number of health personnel.

Therefore, it is important to establish the level of perception of medical students, to avoid COVID-19[10,18-21], so the objective of this study was to determine knowledge of transmission routes, prevention measures, and attitudes about COVID-19 in 5th and 6th-year students of the Faculty of Medicine of the Universidad Nacional del Nordeste in May to June 2020.

METHODS

Design and study area

A descriptive, cross-sectional study was carried out with students in the last two years (fifth and sixth year) of the Medicine career of the Faculty of Medicine of the Universidad Nacional del Nordeste in the city of Corrientes, Argentina.

Population and Sample

The population was made up of young people from 22 to 38 years old. This age group was selected for convenience, because it is easier to access and has many students.

The total population was 389 students, which corresponded to 242 5th year students and 147 6th year students. A convenience sample of approximately 153 (39.3%) students was selected, calculating with the Epidat version 4.2 program and using an expected 20% proportion.

Sample sizes. Proportion:

Data:

Population size: 389

Expected Ratio: 20.000%

Confidence level: 95.0%

Design effect: 1.0

Results:

Accuracy (%)	Sample size
5.000	153

Medical students from the Universidad Nacional del Nordeste School of Medicine were included, belonging to the 5th and 6th years of the Medicine career and who agree to be surveyed. Students who have not taken any medicine course during 2020 (free students) and who present risk factors for contracting the disease were excluded.

Variables and instruments

The variables were

Once the questionnaire was completed, it was considered by a group of experts, teachers of the institution (an infectologist and two clinicians) who suggested the incorporation of one question and the modification of two others. After this reform, it was validated through a pilot test carried out on 15 students belonging to the sample. The 5 axes studied were: sources of information, attitudes, knowledge, prevention measures and emotions.

The data obtained were transferred to a Microsoft Excel version 2007 sheet for subsequent statistical analysis using the Epi Info version 7 software, software that allows the construction of databases for statistical analysis.

Procedures

Aa pre-designed ad hoc questionnaire was used as a data collection tool through the Google Forms platform, which the students completed online and anonymously during June 2020. The questionnaire

consigned 2 open questions, and 10 closed multiple choice.

Statistical analysis

The qualitative variables were represented according to their absolute and relative frequencies, while central tendency and dispersion measures represented the quantitative variables.

Ethical aspects

Informed consent was available at the beginning of the survey detailing this research's purposes, the axes incorporated, and the possibility of withdrawing from the study at any time without prior notice and any monetary cost. Also, a confidentiality agreement was signed that highlighted anonymity at all times and the non-disclosure of data that could individualize the participants.

RESULTS

A total of 153 surveys (N = 153) were analyzed. The mean age was 24.8 years with a standard deviation ± 2.2 years, with the minimum age being 22 and the maximum age of 38 years old. The survey was answered mostly by 24-year-old students.

50.3% (77) of the surveyed students belonged to the 6th year of the Career, and the remaining 49.4% (76) was to the 5th year.

Approximately half of those surveyed refer to being informed mainly about COVID-19 and aspects related to it, through comments from health workers (doctors), as shown in table 1.

Regarding knowledge about the transmission routes and prevention measures, most of the students answered that it is transmitted through the air, using the Flügge droplets expelled when speaking, coughing, or sneezing, to people, as can be seen in table 2. On the other hand, 63, 4% (97) consider that the decision made on the implementation of social, preventive, and mandatory isolation as protection and reduction of the spread of the virus, reduction of the contagion curve, to avoid collapse was an effective, efficient and safe measure of the public and private health system and to achieve the reduction of morbidity and mortality caused by this disease. However, 34% (52) believe that the personal situations of the people involved in the quarantine must be considered, and the remaining 2.6% (4) think that it was not a correctly taken measure. Likewise, 80% (122) refers that the people who make up the risk groups for this disease are those older than 60 years and with previous pathologies, while 14.8% (23) mention pregnant women, recently babies born and children as risk groups, and the remaining 5.2% (8) indicate healthy people at the time of infection as a risk group. When consulting on which prevention measures they consider most useful, for the most part, they indicated that they are facial masks, the use of chinstraps, correct hand washing, and surface disinfection, as shown in table 3.

Regarding attitudes, since COVID-19 emerged, 95.4% (146) of those surveyed had changes in attitude and prevention, referring to having increased the frequency, intensity and way of cleaning and disinfecting the surfaces and environments where it was found, being more careful and trying to prevent situations where you can infect yourself or others. 56.2% (86) consider it correct and necessary to disclose names, addresses, or other types of identifying measures of people who are or have been carriers of the disease or are preventively isolated to maintain greater care. Concerning emotions, a high percentage mention being calm, as can be seen in table 4.

Table 1. Sources of information on COVID-19 in students of the Faculty of Medicine - UNNE.

	Number	Percentage
Health workers	64	42%
Scientific articles and official sites	46	30%
Social networks	23	15%
Friends or relatives	20	13%
Total	153	100%

Source: Own elaboration.

Table 2. Knowledge about the main transmission routes of COVID- 19 in students of the Faculty of Medicine - UNNE.

	Number	Percentage
Through Flügge droplets	107	70%
Touching contaminated surfaces	30	20%
Contact with skin and kisses	8	5%
Contaminated food and via fecal gold	8	5%
Total	153	100%

Source: Own elaboration.

Table 3. Prevention measures in students from the Faculty of Medicine - UNNE.

	Number	Percentage
Face masks, use of masks, correct hand washing, and disinfection of surfaces	92	60%
Isolation and social distancing	30	20%
Avoid the use of public transport, meetings, crowds of people and not shaking hands when greeting	26	17%
Avoid contact with people who they consider could be carrying the disease	5	3%
Total	153	100%

Source: Own elaboration.

Table 4. Emotions during the pandemic in students of the Faculty of Medicine - UNNE. in 2020. N = 153.

	Number	Percentage
Calm	129	84.4%
Pending the situation and complying with the recommended prevention measures	20	13%
Nervous and worried	4	2.6%
Total	153	100%

Source: Own elaboration

1. Age.
2. Current year.
   - 5th year.
   - 6th year.
3. Gender.
   - Female.
   - Male.
   - I prefer not to say.
4. You are informed about the virus that causes the disease known as COVID-19 and aspects related to it through:
   - Health workers.
   - Scientific articles and official sites.
   - Social networks.
   - Friends and / or relatives.
5. Since COVID-19 emerged, I:
   - Increase the frequency, intensity, and way of cleaning and disinfecting. I am more careful and try to prevent situations where I can infect myself or others.
   - Don't change my attitudes or ways of relating.
6. It considers that the names, addresses or other types of identification measures of people who are or have been carriers of the disease or who are preventively isolated be disclosed.
   - It does not seem right.
   - If it seems correct to me.
7. Indicate which are the main routes of transmission of the disease:
   - Through the Flügge droplets.
   - Touching contaminated surfaces.
   - Contact with the skin and kisses.
   - Contaminated food and via fecal gold.

8. Do you consider that preventive social isolation and social distancing is an effective, efficient, and safe way to reduce the virus's spread, reduce the contagion curve, avoid the collapse of the public and private health system, and reduce morbidity mortality?
   - Yes
   - No
   - I have to consider the personal situations of the people involved.
9. Which of the following options do you consider to be the highest risk group for the disease caused by this virus?
   - Older than 60 years and with previous pathologies.
   - Pregnant women, newborn babies, and children.
   - Healthy people.
10. What are the precautionary measures that you take to avoid being infected or infecting third parties?
   - Face masks, use of chinstraps, correct hand washing, and surface disinfection.
   - Isolation and social distancing.
   - Avoid using public transport, meetings, crowds of people, and do not shake hands when greeting.
   - Avoid contact with people who they think could be carrying the disease.
11. How do you feel emotionally about the current situation of the pandemic?
   - Quiet.
   - Nervous or worried.
   - Attentive to the situation and comply with prevention measures.
12. Do you want to add any comments? We recall that this survey is entirely anonymous, and its only objective is to know some aspects of the current world situation.

Figure 1. Survey on knowledge of transmission routes, prevention measures and attitudes about COVID-19 in 5th and 6th-year students of the Faculty of Medicine of the Universidad Nacional del Nordeste in May-June 2020.

DISCUSSION

With the advancement of technology, access to information is becoming faster and easier. You can find digitized books, documents, articles, and magazines, among others; Access to these resources can be done through digital libraries, electronic journals, databases, encyclopedias, blogs, and wikis. Due to the availability and greater accessibility, digital information sources have gained more popularity in recent times, without discarding traditional sources. In this sense, it was observed that, according to Khasawneh et al.[5], 87% of its surveyed students use. Immunocompromised online search engines and social networks as a source of information, figures similar to those found by Olaimat et al.[11] with 93%; Das et al.[14] with 88.7%; Olum et al.[11] 79%. While in our study, only 45% of the students search for information on networks or search engines, reflecting a lower figure than those mentioned by the previous authors and evidencing the use of scientific articles, official sites, and medical comments as sources of information consulted with more frequency.

Although this infection's transmission routes are not fully known, it is recognized that as it is just another respiratory virus, the main roumission route is the droplets emanating from talking, screaming, coughing, and the hands[20]. In this regard, the students in the sample indicated in 70% of them that the main route of infection is Flügge droplets followed by contact with contaminated surfaces, skin, and kisses in 20%, and only 5% of the students believes that it can be transmitted through contaminated food and also through the fecal-oral route. It is coinciding with Pranay et al.[10]. They mention in their study that 62% of the students responded as the main mode of transmission of the virus through respiratory droplets

and also by the findings of Olaimat[19] that mention that 81.4% of the respondents admit a route of the salivary transmission/nasal drip, 30.1% coughing/sneezing, 94.7% kissing/shaking hands and 94.2% by touching contaminated surfaces. However, these data contrast with what was found by Gao et al.[9], who found that 75% of the students consider that the fecal-oral route can transmit the disease and admit it as the main route of infection.

When asked about risk groups in our study, 80% answered that it refers to people with previous chronic pathologies and over 60 years of age, followed by 14.8% considered them as pregnant women, newborn babies and children, and the remaining 5.2% any healthy person. According to the study by Khasawneh et al.[5], 95% of students believed that people with chronic diseases are highly susceptible to COVID-19, similar to what was seen by Gallè et al.[6] in 90.2% of those studied. It is also related to what was found by Olaimat et al.[8] 94.6% answered that the elderly were more vulnerable to developing complications, 81.0% people with comorbidities such as diabetes, cancer, or other chronic diseases, and immunocompromised people have a higher risk of developing severe COVID-19.

Among the prevention measures promulgated by health organizations and national and local authorities, there are social distancing of more than 2 meters, the correct and repeated washing of hands, cleaning of surfaces, the use of the chinstrap, the ventilation of the spaces, among others. According to Khasawneh et al.[5], the new strategies they found in their study and adopted by more than 80% of their population were to wash their hands regularly, pay more attention to personal hygiene, and stay home, while 70% of the students in our case They have avoided social kissing, attending public gatherings, and using public transportation to travel. Also, 65% of the students in the study by Khasawneh et al., Avoided eating in restaurants. The social handshake, in our case, a higher figure, 95.4% had changes in attitudes and prevention related to the form, intensity, and frequency of personal and home cleaning, as well as avoiding situations conducive to contagion.

Regarding emotions, compared to what was found by Khasawneh et al.[5] where 58.5% are concerned and 3.1% say they do not care, in our study, 84.4% of the population is calm, aware of the situation, and complying with the recommended prevention measures, the 13% report being nervous and worried and the remaining 2.6% are tired of the current confinement situation and await a new phase change.

The study limitation may be due to the sample's low representativeness, affected by the sampling bias, since a non-probabilistic sampling was carried out. Only the last 2 years of the degree were included.

CONCLUSION

The data obtained from this study with medical students reflect adequate knowledge of transmission routes, prevention measures, and positive attitudes about COVID-19. It was put into play in this special stage of confinement, similar to studies carried out in other contexts, recreating similarities in terms of assertions that must be taken into account for the student's integrity and as a member of a future health team.

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