Original Research

Knowledge, perception and attitudes in Regard to COVID-19 Pandemic in Peruvian Population

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Highlights

- Knowledge can be a critical modifier related to positive attitudes toward COVID-19 preventive practices
- Fearful attitudes related to the coronavirus are associated with a distorted perception and misconception of the virus.
- Well-educated people have a better understanding of control measures and preventive strategies related to COVID-19
- The paucity of educational strategies to prepare and instruct people might potentially have an impact on the mental health of the population.

ABSTRACT

BACKGROUND: Latin American countries have been profoundly affected by COVID-19. Due to the alarming incidence of identified cases, we intended to explore which psycho-social elements may be influencing the poor adherence toward the mandatory control measures among the population.

OBJECTIVE: We aimed to assess the knowledge, attitudes and vulnerability perception of Peruvians during the coronavirus outbreak.

METHOD: Using a web-based cross-sectional survey, we collected data from 225 self-selected participants, evaluating demographic information. The overall respondents were between 18 and 29 years old (56.8%), being female (n = 134), belonging to educated groups, and graduated professionals (69.3%), the majority of them.

RESULTS: Logistic regression showed that knowledge is highly correlated with education (p=0.031), occupation (p=0.002), and age (p= 0.016). Our study identified that, although people reported adequate knowledge by identifying expected symptoms and virus transmission ways in COVID-19 disease. There is a significant perceived susceptibility to contract the mentioning virus, displaying stigmatized behavior (59.1%) and fear of contracting the virus from others (70.2%). Additionally, it is reported to lack people's confidence to health national authorities on the sanitary responses (62.7%), preparedness for the disease (76.9%) and the lack of adequate measures to deal with it (51.1%).

CONCLUSION: We suggest that public policies consider guidelines on knowledge translation and risk communication strategies for both containing psychological responses in a timely manner and ensuring compliance with public control measures by the population.

KEYWORDS: Attitudes, COVID-19, health communication, knowledge, perception, public health, primary prevention.

INTRODUCTION

In December 2019, a new viral infection type appears in Wuhan, China (1); it has been called novel coronavirus disease (abbreviated COVID-19) by the World Health Organization (2). The unknown nature of the virus has caused an outburst of health systems generating alarming death rates in many countries worldwide (2,3). From reports of previous epidemics, studies reveal that the dispersal capacity of COVID-19 virus is much wider than SARS or MERS(4). This indicates the possibility of greater risk, the current coronavirus may be exceeding the ratios of infected persons and deaths previously reported (2,4). Now, as WHO reports, the number of people infected is around 1.7 million around the world (5).

The Coronavirus disease has overcome geographical barriers achieving a remarkable proliferation. Because of that, different countries started public health protocols to control the spread of the virus, much of them related to social distancing, hand wash, and lockdown the cities. This critical condition has raised a variety of reactions among the population, causing anguish, and massive fear (6). In addition, it should be noted that the concern is mainly present in the unaffected population (7).

In fact, in Latin-America we have not experienced similar viruses such as SARS or MERS diseases until now. Besides that, the public healthcare systems are not prepared to this epidemic in many Latin American countries. In the Peruvian territory, the magnitude and rapid proliferation of the Coronavirus through slightly symptomatic or asymptomatic infected people, shows the need to identify the behavioral responses of the population.

In this regard, there are limited studies on knowledge and attitudes during epidemics in South America. Some earlier studies carried out in Latin America suggest that the population tends to be reluctant to adopt control measures (8,9). For instance, during the recent outbreaks of chukunguya, zika and dengue (9), low levels of participation and commitment to the imposed control measures were reported. It should be noted that the inoperability of government measures is probably due to the fact that, these epidemics only affected certain geographical areas, given the climatic conditions that favor those above-mentioned air vectors (9–11).

Regarding COVID-19, countries have imposed strict control measures to deal with this unparalleled situation to prevent the mortality rate from skyrocketing. Global action plans have been put in place. Similarly, Peru, after confirming its first case of Covid-19 in 6th march 2020. The government response has become more forceful as the days go by. In particular, strategies were implemented such as: social distancing, continuous hygiene, use of face shields, limiting public vehicle traffic, locking down public places that do not dispense essential products, and reducing traffic hours to certain daily hours. Similarly, gender-based limitations on pedestrians were imposed to reduce the number of people on the streets. Additionally, given the sudden increase in diagnosed cases, the government decided to extend the period of mandatory social isolation (12).

It is noteworthy mentioning that, despite the mandatory nature of public protective measures, the adherence to each of them is moderately poor among the population. The non-compliance and, to some extent the disinterest of certain human groups in relation to these regulations is alarming. Given the efforts of government entities towards both, the reinforcement of strategies to mitigate the worsening of symptomatic cases, as well as the close monitoring of the population in this stage of social isolation. In this regard, cross-sectional studies identify this phenomenon as an attitudinal problem attributable to the population (6,11,13,14).

One of the first and recent studies analyzing attitudes and knowledge, about Coronavirus carried out in Hubei, conclude that attitudes towards government measures to contain the epidemic are highly associated with the level of knowledge about Covid-19 (13). The authors detail that the higher the level of information, and education, the more the individuals would maintain a positive attitude towards Covid-19 preventive practices (6,13). A key factor is therefore the perception of risk that would contribute to the commitment to symptom prevention during outbreaks of global epidemics (6,11,15–17).

The perception of risk of being infected by the Coronavirus would be mediated by the type of information that the individual hold. Disinformation or lack of information would be an additional barrier, increasing this the probability of infection (15). What is interesting to consider is that, people make judgments based on their own perception of risk, but not on the real risk (17). In fact, in an examination during the spread of the SARS epidemic, it is noted that

psychological responses potentially generate massive distress. The author even describes these as "disproportionate" reactions (18), the same ones that any citizen might be susceptible to experience.

In this context, exhaustive analyses under the H1N1 influenza epidemic carried out by specialists in Australia, it is recognized that the mass panic in the population would be significantly influenced by a poor policy of public communication (19). This governmental factor would entail risks not only in the population itself, but also in the noncompliance with the rules for containment of the epidemic (19). Factors related to the attitude of the individual would be influencing the effectiveness of the containment measures (6,19). Interestingly, the attitude of the population towards public policies implemented to reduce the number of infected people continues to be passive, affecting their own health status and that of their close relatives.

The lack of knowledge about the COVID-19 disease would be a mediating element in the increase of cases infected by the virus. In a similar case, it was found that during the isolation stage to prevent contagion by the Ebola virus, the poor understanding of the disease and its airborne infection process contributed to the increase in case rates (7). Knowledge of the infection process and its precautions may be linked to the determination of citizens to follow government guidelines regarding quarantine measures. This same perspective is supported by numerous analyses, where it is reported that the level of knowledge directly affects the perception of susceptibility to disease (7,15,17)

As noted in systematic reviews, it is critical to educate affected populations to broaden their understanding of the disease cycle; and thus facilitate the adoption of measures to prevent the spread of the disease (11). Contrary to this last analysis, in developed countries like Singapore it is described that the citizens require little information to obey the measures imposed by the government, being this last one a demonstration of high trustworthiness placed in their governors (20). It is important to comment that there could be a bias in this last study, given that this developed country-based study mainly assesses people with a high level of education during the epidemic.

Under these circumstances, the question is quite expected: ¿Why does the Peruvian population show little support toward containment measures in the light of the current COVID-19

epidemic? Considering the lack of previous studies related to epidemics, knowledge or risk perception in our country, we developed a survey to asses this question. The aim of this study was to measure the level of knowledge regarding several characteristics of COVID-19, such as the most frequent symptoms, means of transmission and severity. Likewise, to evaluate the perception of risk or severity of the Peruvian population, as well as the behaviors generated in the face of this disease.

MATERIALS AND METHOD

Participants

This is a descriptive, cross-sectional study through survey (21), conducted between March 15th and April 3rd. An initial sample of 225 Peruvian individuals was recruited. The mean age was 31.20 ± 10.97, ranged from 15 to 77 years old, and 59.6% were females. The survey questions were adapted and modified from previously published literature regarding viral epidemics (14,16,20,22–27) most of them related to SARS or MERS disease. The test respondents commented that the questions were easily understood, and the average completion time was 10 min. Informed consent was obtained before starting the survey. Respondents were assured that their responses would be confidential and reminded that their participation in the survey was voluntary. Their knowledge was evaluated against facts published by WHO (28).

Instrument: Knowledge, perception and response questionnaire against COVID-19

Subjects responded 6 sections of the questionnaire: knowledge about coronavirus (COVID-19) infection, transmission, and perception of disease severity, perceived susceptibility, prevention attitudes, and behavioral response to COVID-19 infection. The sequence in which tests were administered identical for all subjects.

In the knowledge assessment section of the questionnaire, a score of 1 was given for each correctly identified symptom of COVID-19. The subsequent knowledge questions (14 items) were posed in which the answers were either Yes, No, or don't know. In the transmission section (10 items), a similar scoring was given for each correctly identified transmission mode of COVID-19. A score of 1 was assigned to a correct answer and a value of 0 to an incorrect answer or do not know responses. In the section about the perception of disease severity,

participants indicated the severity of COVID-19 in their community context and in relation to other viral infections such as influenza. A three-point Likert type scale (agree, not sure/maybe, and disagree) was used.

Questions on perception were divided into five parts. The first part explored perceived susceptibility towards COVID-19 (six items), in which participants indicated their level of susceptibility by either Yes, No, or don't know. A score of 1 was assigned to a correct answer and a value of 0 to an incorrect answer or do not know responses. The second part examined COVID-19 related fear (four items), with answers that were similar to the previous one.

The third and fourth parts, the susceptibility of getting contagious and contagious places, have 10 and 5 items, respectively. Participants select one of 3 possible answers (very likely, probable, and unlikely). The last part has 4 items (high, middle, low), and measure the probability of different things related to COVID-19. In the section about the prevention attitude (21 items), participants indicated which behavior is more likely to prevent COVID-19. A three-point Likert type scale (agree, not sure/maybe, and disagree) was used. Finally, behavioral response to COVID-19 infection, explore the attitudes and perception about quarantine (3 and 6 items, respectively), in which the answers were either Yes, No, or do not know. Each section has a total score. In the case of knowledge sections, a higher score indicates better knowledge. In the perception and behavior score, a higher score indicates increase vulnerability perception.

Ethical Statement

All participants were informed about the aims of this study and gave written informed consent. This study follows ethics guidelines and were approved by the local ethics committee. All data was collected in an anonymous database.

Data Analysis

Socio-demographic characteristics of the participants included in the study sample were compared with chi2 tests. The percentages of answers were compared by chi2 test. The effect of age, gender, marital status, occupation and education was assessed with a linear regression analysis using the total punctuation of the 6 previous sections. Statistical analysis was

performed through the SPSS software, version 24 (SPSS, Inc., USA). Results were significant with *p < 0.05, and **p<0.01.

RESULTS

Background characteristics (Table 1).

The study sample included 225 subjects. The majority of the study sample was female (n = 134) and, it is found a statistically significant difference between age groups by gender (p< 0.001**). More than half respondents were between 18 to 29 years old (56.8%). The 69.3% of the sample are graduates, single (70.2%) and professional with similar percent distribution between males and females.

Knowledge about symptoms and transmission ways in COVID-19 disease (Table 2)

The sample does not discriminate between the most frequent symptoms of the disease and includes other manifestations of the disease. Thus, more than half of the study sample correctly identified the most frequent symptoms like fever (94.7%), fatigue (62.2%), and dry cough (88.9%) along with others as just as sore throat (81.8 %), joint and muscle pain (56.9%). A certain consensus is also observed among the subjects in recognizing as a manifestation of the disease the shortness of breath/shortness of breath (92%), however, this has not been confirmed as part of the diagnosis (29). Diarrhea (64.9%), runny nose (60.9%), and nasal congestion (66.2%) were not recognized as part of the disease, despite being more frequent than other symptoms such as shortness of breath/shortness of breath. The majority of the population (86.2%) knew the incubation period.

In the same way, the situations considered means of transmission/ spread of COVID-19, include in order of importance: Touching objects or surfaces that have been in contact with someone who has the virus (92%), go to areas/countries affected by COVID-19 (88.4%), shake hands with someone who has an active case of coronavirus (84.4%) like the most important. Also, subjects identified situations unrelated to contagion: participate in blood transfusions (59.1%) and by relating to people who were in a hospital or emergency room (53.8%).

Severity of COVID-19 and prevention measures (Table 3)

Regarding the severity of the disease, 91.6% consider COVID-19 as highly contagious, with symptoms similar to flu and influenza (84.4%). On the other hand, when evaluating the mortality ratio, they do not assess that it is worse than influenza or tuberculosis (76.4%) or that it causes permanent physical damage to patients (75.1%). However, when comparing the impact of COVID-19 with influenza or the common cold, more than half of the interviewees indicated that the coronavirus would cause a greater impact (76%). The results also revealed insufficient confidence in the national or local authorities (62.7%), preparedness for the disease (76.9%) and the lack of adequate measures to deal with it (51.1%).

The results evidence inappropriate understanding of the precautionary measures. While hand washing has been recognized as the most efficient form of prevention among respondents (98.2%) followed by personal hygiene (97.3%). Conversely, other important measures were not totally consider, such as daily temperature control (57.8%) and the use of a mask (59.1%) despite the fact that the WHO recommends its use in healthy subjects in combination with frequent hand cleaning (30). Furthermore, antibiotics are not recognized as the first line of action against the disease (75.1%), a sign of the population's knowledge of the treatment.

Perceived susceptibility to COVID-19 (Table 4)

On the other hand, around 59.1% consider that there is a stigma about COVID-19; 72.4% respond to preventive measures to avoid the disease and 45.8% value that the problems derived from the pandemic will not pass quickly compared to the 35.6% who do not know about it.

One of the greatest fear among the evaluated population is being in contact with people who have returned from abroad (70.2%), followed by eating out (64%), visiting hospitals (63.1%) and having contact with people with flu symptoms (59.6%). Concern for the family is evident (71.6%), considering that one of the groups most susceptible to contagion is the people over 60 years of age (70.2%) in addition to health services personnel (74.7%). Children are considered in the last place of the possible infected subjects (56.4%).

Health institutions (45.8%) and the domestic settings (68.4%) are considered places of infectiousness; in addition, the effectiveness of treatments (57.3%) and the effectiveness of

available medication or remedies against the disease (75.6%) pose a high-risk vulnerability. Finally, the multi-line analysis shows that knowledge has a slight but significant correlation with education ($p<0.031$*), occupation ($p<0.002$*) and age ($p<0.016$*), and explains less than 10% of the variance. In the case of perception, occupation ($p<0.034$*) has a slightly significant relationship but explains less than 5.2% of the variance. The rest of the variables do not have significant results.

DISCUSSION

Considering the spread out of COVID-19 in Latin American countries, and the higher incidence of people infected in Peru, the aim of this study was to measure the level of knowledge, perceived vulnerability and attitude of the Peruvian population against COVID-19. Although different public health policies were implemented in the last months, and the mandatory nature of these protective measures. The adherence of Peruvians to each of them was limited. Previous reports of psychological adherence to protective measures display that level of information and education are related to a positive attitude toward COVID-19 preventive practices (13).

COVID-19 has a higher rate of contagious properties than previous coronaviruses and affects multiple organs. The absence of awareness in hospital infection control and international air travel facilitated rapid global dissemination (31). In addition, psychological elements such as fear-induced behavior, misinformation, and economic -related concern would be exerting significant pressure on the population limiting compliance with these government measures (32).

At the time this paper was sent for publication, the Peruvian Ministry of Health has reported more than 9.7 thousand cases by COVID-19 infected patients since the first case was reported on the 6th of March, and the total deaths are the second higher in Latin America with 216 (33). Nonetheless, the behavioral response of Peruvians was not sufficient. Behavioral responses, such as fear of being infected is one of the most marked indicators in the evaluated sampling. The findings identify that as long as there is knowledge about how to deal with the epidemic, the degree of susceptibility to infection is lower. As described, in a study led in Pakistan where the failure to follow precautionary measures against pathogens is explained by insufficient knowledge (15).

Given the impact of such magnitude in Latin American contexts, further analysis is suggested in order to establish better response and epidemic control strategies from the standpoint of the population. Understanding the people's perception of risk is critical to ensure efficient health protection practices during virus outbreaks (11).

Regarding knowledge, perhaps some symptoms are recognized as COVID-19 related (fever, sore throat, shortness of breath), our participants do not discriminate correctly other important symptoms usually more frequent in initial states as nasal congestion, runny nose, dry cough, or diarrhea. The incubation period is well recognized in 86% of the population.

Routes of transmission of COVID-19 are well recognized (viral droplets in a sneeze, or touching infected objects, shake hands with people infected, etc.). Nevertheless, other medical circumstances were identified, relating increase perception vulnerability to a specific context and medical conditions (for example, 35% believe that COVID-19 spread is related to people who were in a hospital or emergency room). This affirmation can promote stigma to sanitary personal. 5 - 25% of participants are not sure or recognized transmission routes. Additionally, more than 20% do not recognize that being in touch with people identified by doctors are a potential vector of transmission.

Perception of COVID-19 severity in the community showed that 76.9% believe that the authorities are not prepared to face the disease, and 62.7% think that the response of the authorities is not effective. This may be related to less participation in dictated measures by the government such as social isolation, and gender segregation. Different preventive measures are well recognized by participants, such as personal hygiene, washing hands, or a clean environment. Notwithstanding, other effective measures such as the use of a mask (40.9%) or monitoring temperature (42.4%) are not taken into consideration.

About perceived susceptibility, 72.4% believe that "Nothing I do can stop the risk of catching me". This defenselessness state, maybe related to poor participation in ineffective measures to avoid contagious, like social distancing or use of mask faces. On the other hand, 74.2% believe that "If I contracted the coronavirus (COVID-19), it will have serious consequences for me or my relatives". In spite of different epidemiological studies point out that mortality is low than 5% (34, 35) even in Peru, current data indicates a mortality rate of over 10%, and recovery is one

of the highest in Latin-America (33). Participants evidence an elevated fear of being in contact with others (59 – 70%), in correspondence of personal susceptibility of getting the infection (over 60%) and a high likelihood of having a major outbreak of coronavirus (COVID-19) from person to person in my community (71.6%).

Finally, we concluded that insufficient understanding of COVID-19 disease seems to mediate unsafe behaviors, affecting not only effective prevention measures, but also the failure to reduce the rate of people infected. Moreover the perception of vulnerability is high towards certain risky behaviors regardless of other possible routes of transmission.

Limitations

This study has some constraints. First, since the methodology is derived from a cross-sectional design. Hence, causal inferences may not be established.

Second, it is related to the sample. Due to the fact that the study was only focused on the outbreak of COVID-19, we used a web-based survey method to avoid possible transmission, causing the sampling of our study to be voluntary and conducted by an online system. Given this circumstance, the possibility of selection bias must be considered.

Additionally, much of the sample have access to the internet connection in their computers or cellphones. Because of this, participants may have higher income or better educational access (more than 85% have graduate and postgraduate studies). Also, the absence of people with low income, less education is needed to know their responses to the COVID-19 pandemic. Sample size is another limitation, as well as the current wave of misinformation in social media would affect poorer responses (17). Third, due to the sudden occurrence of the disaster, we were unable to assess other socio-psychological conditions of the participants before the outbreak.

Recommendations

Due to fearful attitudes and significant impact on population mental health towards the pandemic and new demands for surveillance and control of current Covid-19 outbreaks. Some previous studies identified appropriate suggestions to facilitate compliance with control measures by the population (15,16,26,36–38). Some of these are described below: First,

educational intervention should be tailored to vulnerable communities, including teaching preventive measures and practical identification of risks in non-technical language (39). The population needs to be educated to choose wisely when it comes to reliable news, such as facts and evidence-based data (40). Second, consideration should be given to providing guidance to the population on how to protect their mental health by limiting the time they are exposed to information related to Covid-19 during the day (41,42).

Third, It is crucial to encourage people to return to their usual work and rest schedule as much as possible to mitigate anguish and fear and to ensure quality of sleep before going to sleep (18,39).

Author Contributions

JZV and RAG make substantial contributions to conception and design. JZV and BNC work together in the survey. BNC and JZV work in the analysis and interpretation of data. All authors contribute writing, editing and reviewing the final manuscript.

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Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Table 1. Sociodemographic characteristics

	Gender			
Sociodemographic Characteristics	Male (n= 91)	Female (n= 134)		All (n=225)
Age group	% of males	% of females	P value	%
<18 years	---	4.5		2.7
18-24 years	22.0	32.8		28.4
25-29 years	24.2	31.3		28.4
30-34 years	22.0	9.0		14.2
35-39 years	12.1	2.2		6.2
40-60 years	16.5	17.2		16.9
>60years	3.3	3.0	**0.001****	3.1
Educational level				
High school	4.4	6.0		5.3
technician	12.1	6.7		8.9
graduate	65.9	71.6		69.3
postgraduate	17.6	15.7	0.496	16.4
Marital Status				
Single	68.1	71.6		70.2
Married	18.7	15.7		16.9
cohavitating	11.0	9.7		10.2
Widower	---	0.7		0.4
Diverced	2.2	2.2	0.886	2.2
Occupation				
Student	24.2	32.8		29.3
Professional	56	47.0		50.7
Independent	19.8	20.1	0.323	20.0

a: Chi-square (X^2) test

Table 2. Knowledge about COVID-19 symptoms and transmission ways

What are the most frequent symptoms of coronavirus (COVID-19)?	**Yes**	**No**	**I don´t know**
1.- Fever	**94.7** [a]	4.9	0.4
2.- Runny nose	27.6	**60.9** [a]	11.6
3.- Sore throat	**81.8** [a]	11.1	7.1
4.- Joint and muscle pain	**56.9** [a]	31.6	11.6
5.- Shaking chills	32.9	**48** [a]	19.1
6.- Shortness of breath / shortness of breath	**92** [a]	4.9	3.1
7.- Diarrhea	23.1	**64.9** [a]	12
8.- Fatigue	**62.2** [a]	26.2	11.6
9.- Dry cough	**88.9** [a]	7.1	4
10.- Nasal congestion	21.3	**66.2** [a]	12.4
11.- Weightloss	9.8	**71.6** [a]	18.7
12.- Stomach discomfort	11.1	**72.4** [a]	16.4
13.- Difficulty to sleep	16.4	**62.7** [a]	20.9
14.- Incubation period is 5–14 days	**86.2** [a]	6.2	7.6
Which of the following situations are means of transmission / spread of coronavirus (COVID-19)?			
1.- Coughing or sneezing near people infected with the coronavirus (COVID-19)	**73.8** [a]	23.6	2.7
2.- Go to areas / countries affected by coronavirus (COVID-19)	**88.4** [a]	9.3	2.2
3.- Touching objects or surfaces that have been in contact with someone who has the virus	**92** [a]	4.9	3.1
4.- Shake hands with someone who has an active case of coronavirus (COVID-19)	**84.4** [a]	9.8	5.8
5.- Being on the same plane with someone with coronavirus (COVID-19)	**73.3** [a]	21.3	5.3
6.- Eating food prepared by someone infected or exposed to the coronavirus (COVID-19)	**64.9** [a]	23.1	12
7.- Participate in blood transfusions	16.9	**59.1** [a]	24
8.- By relating to people who were in a hospital or emergency	35.6	**53.8** [a]	10.7

room			
9.- Relating to cases identified by doctors	**78.2** [a]	15.1	6.7
10.- For relating to cases identified during evaluations at entry points to my country	**70.2** [a]	17.8	12

a: Statistically significant difference (*P<0.001***), X^2 square test.

Table 3. Severity of COVID-19 and prevention measures

Severity of the coronavirus (COVID-19). The coronavirus:	Agree	Not sure / Maybe	Disagree
1.- It can be cured	**61.8** [a]	-----	38.2
2.- It is highly contagious	**91.6** [a]	-----	8.4
3.- Coronavirus mortality rate is worse than influenza or tuberculosis	23.6	-----	**76.4** [a]
4.- COVID-19 causes permanent physical damage to patients	24.9	-----	**75.1** [a]
5.- You have symptoms similar to common flu and influenza	**84.4** [a]	-----	15.6
6.- My community / country does not have a coronavirus vaccine	**73.8** [a]	-----	26.2
7.- My community / country does not have adequate medicine or treatment for the disease	48.9	-----	51.1
8.- Hospitals in my community / country have not taken adequate infection control measures	38.7	-----	**61.3** [a]
9.- Coronavirus impact is worse compared to influenza or common flu	**76** [a]	-----	24
10.- The authorities of my country are prepared to face the disease	23.1	-----	**76.9** [a]
11.- The response of the health authorities of my country / community is effective	37.3	-----	**62.7** [a]
Knowledge about contagion prevention / precaution measures			
1.- Washing hands vigorously (soap / water) for 20 seconds helps prevent / transmit disease	**98.2** [a]	-----	1.8
2.- Special care should be taken if a person has symptoms of coronavirus (COVID-19) in my community.	**96.9** [a]	-----	3.1
3.- Personal hygiene	**97.3** [a]	-----	2.7
4.- Healthy life style	**86.7** [a]	-----	13.3
5.- Daily temperature monitoring	**57.8** [a]	-----	42.2
6.- Avoid traveling abroad.	**90.2** [a]	-----	9.8
7.- Use of mask	**59.1** [a]	-----	40.9
8.- Clean environment	**90.7** [a]	-----	9.3
9.- Stay home if it's not okay	**88.4** [a]	-----	11.6
10.- Seek medical attention if not okay	**91.1** [a]	-----	8.9
11.- Avoid crowded places	**98.7** [a]	-----	1.3
12.- Separation / isolation of patients with coronavirus (COVID-19)	**97.3** [a]	-----	2.7
13.- Sending passengers with coronavirus symptoms (COVID-19) to a hospital or referral center for examination	**77.3** [a]	-----	22.7

14.- You used a disinfectant at home or at work.	**89.8** [a]	-----	10.2
15.- Check symptoms on websites	50.2	-----	49.8
16.- Wore something to clean objects that may have come in contact with someone with coronavirus (COVID-19)	**80.9** [a]	-----	19.1
17.- Avoid Asian restaurants or shops	52.4	-----	47.6
18.- Cancel appointments in hospitals or doctor's offices	52.4	-----	47.6
19.- Avoid public transportation	**87.6** [a]	-----	12.4
20.- Antibiotics are the first-line treatment for the management of coronavirus (COVID-19)	24.9	-----	**75.1** [a]
21.- Preparation of raw meats and other foods with different knives	23.1	-----	**76.9** [a]

a: Statistically significant difference (*P<0.001***), X^2 square test.

Table 4. Perceived susceptibility to COVID-19

Perception and perceived susceptibility or response	Yes	No	I don´t know

1.- Do you think there is a stigma related to the coronavirus (COVID-19)	**59.1** [a]	24	16.9
2.- Thinking that I could become infected with coravirus (COVID-19) makes me nervous / anxious	**52** [a]	42.7	5.3
3.- Nothing I do can stop the risk of catching me	12.9	**72.4** [a]	14.7
4.- If I contracted the coronavirus (COVID-19), it will have serious consequences for me or my relatives	**74.2** [a]	17.3	8.4
5.- I get upset when I think about the coronavirus (COVID-19)	17.8	**76** [a]	6.2
6.- Coronavirus (COVID-19) problems will pass quickly	18.7	**45.8** [a]	35.6
Are you afraid of:			
1.- Fear of being in contact with people with flu symptoms (eg cough, runny nose, sneezing, fever)	**59.6** [a]	32	8.4
2.- Fear of eating out (for example, street vendor centers, food courts)	**64** [a]	32	4
3.- Fear of being in contact with people who have just returned from abroad	**70.2** [a]	22.7	7.1
4.- Fear of visiting hospitals	**63.1** [a]	32.4	4.4
Perceived susceptibility to coronavirus infection (COVID-19), Evaluate the possibility of contracting the disease:	**Very likely**	**Probable**	**Unlikely**
1.- Oneself	12.4	**60.9** [a]	26.7
2.- My relatives	18.7	**68.9** [a]	12.4
3.- People over 60 years	**70.2** [a]	25.8	4
4.- Adults	33.3	**61.8** [a]	4.9
5.- Children	23.6	**56.4** [a]	20
6.- Medical services personnel	**74.7** [a]	22.2	3.1
7.- Food vendors	48.4	47.6	4
8.- Food handlers	44.9	**49.8** [a]	5.3
9.- General public	37.3	**59.6** [a]	3.1
10.- Taxi drivers	54.7	41.3	4
Where are people likely to get coronavirus (COVID-19)?			
1.- Home	16.9	**68.4** [a]	14.7
2.- Health institutions	**45.8** [a]	40.9	13.3
3.- Public transport	42.2	**43.6** [a]	14.2
4.- Markets or shops	19.1	**53.8** [a]	27.1

5.- Countries affected by the coronavirus (COVID-19)	4	39.6	**56.4** [a]

What do you think the percentage of:	**High**	**Middle**	**Low**
1.- Efficacy of treatments for coronavirus (COVID-19)	**57.3** [a]	36	6.7
2.- Likelihood of having a major outbreak of coronavirus (COVID-19) from person to person in my community	**71.6** [a]	21.8	6.7
3.- Concern that you or your family members will get the virus	**59.1** [a]	36.4	4.4
4.- Having effective medications or remedies available	**75.6** [a]	15.6	8.9

a: Statistically significant difference (*P<0.001***), X^2 square test.

Tabla 5. Multi-linear regression of summari puntuaction by sub-group of questions to verify the model

	Statistics R2	SEE	F	P Value
Knowledge	0.098	1.904	4.734	**0.000****
Transmission	0.031	1.542	1.418	0.219
Severity	0.037	1.325	1.693	0.137
Perception	0.051	4.605	2.344	**0.042***
Prevention	0.039	2.161	1774	0.119
Attitude	0.015	1.721	0.658	0.656

Tabla 6. Results from Multi-linear regression analysis obtained to verify associations with age, education, occupation and gender

Variables		Education	Occupation	Age	Gender	Marital Status
Knowledge	Coefficient β	0.419	-0.627	0.032	-0.225	-0.038
	P value	**0.031***	**0.002***	**0.016***	0.394	0.817
Transmission	Coefficient β	0.241	-0.169	0.008	-0.124	-0.14
	P value	0.125	0.296	0.47	0.561	0.29
Severity	Coefficient β	0.23	0.168	**1.00E-03**	-0.134	-0.212
	P value	0.089	0.225	0.888	0.466	0.063
Perception	Coefficient β	-0.14	1.023	**1.10E-02**	0.471	0.554
	P value	0.764	0.034	0.741	0.46	0.161
Prevention	Coefficient β	0.273	0.062	**2.10E-02**	0.37	-0.363
	P value	0.215	0.782	0.155	0.216	0.051
Attitude	Coefficient β	-0.153	0.219	**-3.06E-05**	-0.133	0.012
	P value	0.381	0.224	0.998	0.575	0.934