ORIGINAL ARTICLE

DESIGN AND VALIDATION OF A QUESTIONNAIRE TO ASSESS THE PERCEIVED RISK OF CONTRACTING COVID-19 IN THE COLOMBIAN POPULATION

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ABSTRACT

Objective. To design and validate an instrument to assess the perceived risk of contracting COVID-19 in the Colombian population. **Materials and methods.** Cross-sectional observational study of psychometric type with a sample of 2350 people between 16 and 65 years of age. The dimensions and items were proposed based the review of previous studies on the evaluation of risk perception of disease and disasters, by integrating the guidelines issued by the World Health Organization regarding self-protection measures and biosecurity protocols to avoid COVID-19 transmission. The validation process was carried out in two stages; the first stage included a review by expert judges who evaluated the clarity, sufficiency, and relevance of each item in relation to the variable and its dimension; in the second stage we carried out a confirmatory factor analysis and estimated internal consistency with the Cronbach's Alpha (α) and McDonald's omega (ω) indexes. **Results.** The designed instrument had adequate psychometric properties to evaluate the risk perception of contracting COVID-19 (α=0.924), with four dimensions: cognitive vulnerability (α=0.873), emotional vulnerability (α=0.882), severity (α=0.893) and risk-protective behaviors (α=0.941). **Conclusions.** These findings show that the instrument to evaluate the risk perception of contracting COVID-19 (PCR-CV19) is a valid and reliable tool to assess contagion risk perception and can be adapted to different population groups and contexts.

Keywords: COVID-19; Perception; behaviors; risk of contagion; validity; reliability. (Source: MeSH NLM).

INTRODUCTION

The COVID-19 pandemic, caused by the SARS COV-2 coronavirus, is described as a global public health emergency [1] with diverse psychosocial and mental health consequences [2,3]. The quick spread in the population and its capacity to reach at-risk groups made it impossible for health services to respond properly [4]. This is why the World Health Organization (WHO) indicated that the best way to stop and prevent COVID-19 is to be well informed about how the virus spreads in order to take protective measures [5].

Experiences in outbreak control of communicable diseases such as Middle East respiratory syndrome and swine flu showed that the strategies and the results obtained required, to a large extent, people's risk perception [6-8]. In this sense, risk perception is a concept used in public health because of its association with preventive behavior in the face of events and diseases [9], and is of great interest for its application during the COVID-19 pandemic [7,10,11].

Risk perception can be understood as the knowledge of the effects, damages and degree of susceptibility and consequences [12]; it refers to the individual's feeling and understanding of

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risks in the outside world, a subjective judgment that people create [13]. Regarding the assessment of risk perception, there are two models, the disease model [14] and the disaster model [7,15]. The disease perception model focuses on the representations or perceptions that the individual has about the experience with a disease, the origin, consequences, treatment, causes, duration and cure; it is conditioned by experience, social and cultural context that influence preventive behavior [14]. The disaster model follows three theories, psychometric, cultural and social reinforcement. According to the psychometric model, the key factors in people's risk perception are fear and risk of the unknown [11]. The cultural theory focuses on social organizations and activities, and the social reinforcement framework theory communicates psychological, social, institutional, and cultural risk [7].

Worldwide, there are studies that evaluate the risk perception of COVID-19 infection based on the disease or disaster model. In Asia, particularly in China, risk perception was evaluated based on the disaster model, with the psychometric paradigm, and the risk characteristics were described with the dimensions: unknown and fearful [15]. In Iran, a study was carried out with the dimensions: cognitive, political, social and cultural [7]. In some European countries, such as Spain, researchers have validated the illness perception questionnaire (IPQ) for COVID-19 (perception of the threat of illness); other studies have evaluated health protection factors and psychological measures [5], information content, false news and ideologies based on the Morton and Duck scale [16] as well as the perceived threat [17]. In Italy, researchers have evaluated the perceived risk and the severity of anxiety (concern about being infected and concern about infecting their family members) [18].

In Latin America, a Mexican descriptive study used the CPR-COVID19, a questionnaire on preventive and risk behavior, which evaluates knowledge of the disease, health history, risk behavior and preventive behavior during quarantine [19]. In addition, another Mexican study on the perception of risk and media consumption of the coronavirus at the beginning of the pandemic was based on the Morton and Duck scale [20]. Meanwhile, a Colombian study aimed to determine the levels of risk perception regarding COVID-19 in university students, with three factors: susceptibility to illness, perceived severity in case of illness and protective behaviors [21]. Thus, there is no consensus on which dimensions of risk perception should be assessed.

The aim of this study was to design and validate an instrument to assess the perceived risk of COVID-19 infection in the Colombian population.

KEY MESSAGES

Motivation for the study: Colombia is the ninth country in the world and the third in Latin America with the highest number of COVID-19 infections.

Main findings: Four dimensions were established for the perception of risk of COVID-19 infection, associated with cognitive vulnerability, emotional vulnerability, severity and risk-protective behaviors.

Implications: We designed a valid and reliable instrument to assess the perception of risk of COVID-19 infection that can be adapted to different populations and contexts.

MATERIALS AND METHODS

Design and study population

This is an observational, cross-sectional psychometric study. The participants were selected by means of a stratified, proportional and random sampling, seeking representativeness of the departments of Colombia (Casanare, Cauca, Cesar, Córdoba, Cundinamarca, Huila, Boyacá, Guajira, Antioquia, Meta, Nariño, Norte de Santander, Putumayo, Quindío, Risaralda, Santander, Sucre, Arauca, Tolima, Valle del Cauca, Atlántico and Bolívar); with a sample size of 2350 persons between 16 and 65 years of age, which corresponds to the Namakforoosh formula (2000), considering a confidence level of 95%, estimation error of 5% and is valid for the three types of test, i.e. reliability, factor analysis and metric proposal.

Instrument and procedure

We proposed the dimensions and items included in the questionnaire of the perceived risk of COVID-19 infection (PCR- CV19) based on a theoretical review of this construct and the disease and disaster assessment models, which include WHO guidelines on how to assess the knowledge, perceptions and behavior of citizens related to COVID-19 with regard to the adoption of preventive measures to avoid infection, risk perceptions regarding the disease, probability-susceptibility and severity [22-23].

The validation process took place in two moments. Before the application of the PCR-CV19 there was a first moment of independent review by five judges, experts in medical and health psychology, who evaluated on a scale of 1 to 5 points the clarity, sufficiency and relevance of each

of the 40 items of the instrument with regard to the total variable (min=120 max=600 x =480) and the vulnerability dimensions (min=40 max=200 $\bar{x}$=164), risk-protective behaviors (min=40 max=200 $\bar{x}$=158) and severity (min=40 max=200 $\bar{x}$=160). Initially an overall approval of 80% was obtained and after adjustments, 100% (total instrument=600 and per dimension=200). In a second moment, factor analysis was carried out to determine whether the data yielded evidence in favor of the dimensions. The survey was distributed as a Google form during the months of October 2020 to March 2021.

Variables and operationalization

The perception index of the questionnaire is quantitative, with a compact interval range [0,1], which allows interpretation in percentages, and facilitates understanding and modeling. The items are measured using an ordinal scale and the levels are identified as "Very Low", "Low", "Equal", "High" and "Very High"; for the purposes of calibration and definition of the index, they were labeled with numbers from 1 to 5, maintaining the same sequence.

Data analysis

To evaluate the construct validity of the instrument we used the Gamma index (Γ), defined by González *et al.* [25], which is determined according to the ratios between the self-values or values of the variance-covariance matrix and the concept of one-dimensionality, as well as the factor analysis, contrasting the exploratory with the confirmatory and estimated on the total sample, considering the percentage of variance based on the Bartlett's factor scores method and its significance. The application of the factor analysis is supported by the evidence provided by the sample adequacy tests (KMO); the rotation was Oblimin in all cases.

As for the reliability of the instrument, we used Cronbach's alpha and McDonald's Omega statistics [26] as estimators of internal consistency, the former being contrasted with the Alpha Game coefficient to determine whether there was negative covariance [27]. The instrument is considered reliable if it reaches a coefficient equal to or greater than 0.7.

On the other hand, to define the PCR-CV19 index, we carried out a descriptive analysis in coherence with the metric status of each of the dimensions. Subsequently, we performed inferential tests on possible values for the centrality parameter of the index, using the p-value statistic and a significance level of 5% as decision criteria. Finally, a distributional model for the index was proposed, using the AIC and BIC criteria for model selection. The statistical analyses were performed with the R 3.6.1 software (R Development Core Team, 2019) and Jamovi 1.2.27.

Proposed metric for the risk perception index

The definition of the index is established by standardizing the total score of the instrument. The arithmetic means or averages were calculated for each of the factors, because they do not necessarily have the same number of items, and then we calculated the mean of these. The score obtained was divided by 5, according to the number of response alternatives that characterized each item. Formally, the PCR-CV19 index can be represented by:

$$I_{PCR\text{-}CV19)} = \frac{\overline{PP}_{D1} + \ldots + \overline{PP}_{Dn}}{5n}$$

In which $\overline{PP}_{Di}$ represents the average score of the i-th dimension of the instrument, that is, if the second dimension is the one being studied, then $\overline{PP}_{D2}$ represents the average score of the second dimension.

According to the definition, the index had a compact interval, which was $I_{PCR} \in [0;1]$; this allowed interpretations to be made in percentage terms and also to be categorized. The analysis procedure was initially carried out by determining, from the observed sample, the PCR-CV19 index, the calculation of the lambda and kappa parameters, the determination of the Expectation and Variance as a function of the estimates and, according to the graphical representation of the best model as a function of the estimates, the determination of probabilities and comparisons in form and the elaboration of conclusions.

Ethical considerations

The Google form included the informed consent document that allowed the confidentiality and anonymity of the participants to be preserved. This study was evaluated and endorsed by the Ethics Committee of the Universidad Nacional Abierta y a Distancia UNAD.

RESULTS

The main component of the instrument we designed is the perception of risk (susceptibility-vulnerability), defined as the probability of contracting a given disease in two dimensions, personal (probability of being affected by a hazard-threat) and comparative (in comparison to other people of the same sex and age) [24], as shown in Table 1.

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In this sense, we obtained the following dimensions of the PCR- CV19: cognitive vulnerability, emotional vulnerability, risk-protection behaviors and severity. Vulnerability was defined as the probability of contracting a given disease in two dimensions, personal and comparative, and was based on the disease model. The risk-protection behaviors dimension was associated with the disaster model due to the social, cultural and political perception of risk in following self-protection measures and biosafety protocols. The severity dimension was based on the disease model due to the conception of health damage (complications) and on the disaster model due to the socioeconomic impact and deaths caused by COVID-19.

Psychometric properties of the PCR- CV19 questionnaire. Reliability and validity

The validity estimate, in the Gamma statistic, was 0.798, which means that the data support evidence in favor of the one-dimensionality of the instrument. The construct validity by factor analysis (KMO statistic (≥ 0.8)) shows a percentage of explained variance based on Bartlett's factor scores method above 50%, being significant at $p<0.01$ (Table 2). In the confirmatory factor analysis, the dimensions proposed from the theoretical models of risk perception assessment were maintained, as shown in Tables 3, 4 and 5; therefore, the PCR-CV19 questionnaire was made up of four factors ($p<0.001$): cognitive vulnerability (factor 1), emotional vulnerability (factor 2), risk-protective behaviors (factor 3), and severity (factor 4).

The reliability estimate of the total instrument is high, Cronbach's Alpha (0.924), McDonald's Omega (0.929), and in a confirmatory manner the Alpha Game coefficient (0.924), establishing that there are no negative covariances (Table 5); the estimates of the reliability of the dimensions are also high, as can be seen in Table 2. Therefore, the PCR-CV19 is considered a valid and reliable instrument, in terms of internal consistency and for the three estimates above 0.7 of reference.

PCR-CV19 index and distributional adjustment

The process of model adjustment of the index is rigorous for selecting the best model, which summarizes the data dynamics more accurately by using criteria such as BIC, AIC and logL, among others. The Weibull distribution was used as a model for the PCR-CV19 index, because it has the lowest scores for BIC (-627.85) and AIC (-635.56), and the highest for LogL (319.78), thus justifying its use (KS=0.05). In this case the estimated values for the parameters are lambda (0.815) and kappa (9.19). Finally, based on the values of the PCR-CV19 index, were propose five categories, these being very low (0;0.2), low (0.2;0.4), moderate (0.4;0.6), high (0.6;0.8) and very high (0.8;1), established in a classical manner, that is, generating partitions of equal amplitude.

In the case of the calibration sample, a "High" category is obtained for the PCR-CV19 index with an orientation toward the Risk-Protection Behavior dimension. Likewise, it is possible to estimate transition probabilities, i.e., to move from one category to another; for example, if two groups of students are being compared, conditional probabilities can be established, whereby, in the case of being in the "Low" category, what is the probability of moving to the "Moderate" category, which can then be used as a prioritization and/or comparison tool.

In line with the above, in terms of centrality and based on the mean, it can be established that the PCR-CV19 index identifies a sample in the "High" category, and we obtained 13% variability using the variation coefficient, characterizing a homogeneous sample. Regarding the analysis of extreme values, we observed that the PCR-CV19 index has a minimum value of 0.32, being identified as "Low", and the maximum 1.0 as "Very High". On the other hand, we observed negative asymmetry, evidencing a tendency to large values, similar for the case of kurtosis where we observed a leptokurtic behavior.

Based on the summary, we can state that the predominant orientation of the sample was found to be with the factor "Risk-Protection Behaviors". As for the conditional probabilities, given that the observed sample is in the "High" category, the probability that it will change to the "Very High" status is 0.0234; for example, if the observed sample were categorized as "Low", the probability that it would move up to the "Moderate" category would be 0.0278.

Thus, we defined the orientation of the PCR-CV19 index, since it can be supported mainly by one of the factors; this means that two sample units can have the same score in the PCR-CV19 index, but be supported by different factors. For example, a PCR-CV19 index based on cognitive vulnerability is not the same as one based on severity, therefore, the report that allows this proposed metric structure is two-dimensional; on the one hand there is the index report, which allows categorization and, on the other hand, the main support for obtaining that category is evidenced. Formally, the orientation of the PCR index is given by the factor with the maximum mean or average.

DISCUSSION

This study has designed the PCR-CV19 questionnaire and the results show it to be a valid and reliable instrument for assessing the perception of risk of COVID-19 infection

Table 1. Operationalization of the PCR-CV19 dimensions according to the model for evaluating the perception of risk of infection.

Dimension/Model	Indicator	Item
Cognitive vulnerability (factor 1) / Disease	When compared to an average person of the same age and gender, thoughts and beliefs of: - Personal risk (from exposure, not wearing a mask) - Risk of infecting others (family, friends, schoolmates, co-workers, strangers). - Probability of re-infection - Risk of job loss. - Risk of a new quarantine	(1) My risk of becoming infected with COVID-19 is (2) My concern about becoming infected with COVID-19 is (3) My risk of becoming infected by approaching people who do not wear masks is (4) My risk of becoming infected with COVID-19 is (7) My probability of infecting other people with COVID-19 is (8) My probability of reinfection with COVID-19 is (re-infection) (9) My likelihood of losing my job due to COVID-19 is (10) My concern for a new quarantine is (12) My chance of losing loved ones to COVID-19 is (16) My worry about infecting my family with COVID-19 is (17) My concern about infecting friends and colleagues from COVID-19 is (18) My concern about infecting strangers from COVID-19 is
Emotional Vulnerability (factor 2)/ Sickness	When compared to an average person of the same age and sex, perceived emotions and feelings of: - Fear - Stress - Uncertainty - Hopelessness - Loss of affection - Sadness	(4) My fear of becoming infected with COVID-19 is (5) I feel that my risk of becoming infected with COVID-19 is (6) My stress about becoming infected with COVID-19 is (11) My uncertainty about the COVID-19 pandemic is (13) My hopelessness about the COVID-19 pandemic is (14) My risk of loss or diminution of interpersonal relationships due to COVID-19 is (15) My sadness in the face of the pandemic due to COVID-19 is
Risk-protective behaviors (factor 3) / Disasters	As behavioral indicators, we established self-reporting of following the norms or instructions given by the WHO and different governmental health entities regarding self-protective behaviors and biosecurity protocols to prevent the risk of becoming infected or infecting others with COVID-19. Behaviors performed when leaving home and returning home are indicated such as: -Use of a face mask -Disinfection and/or hand washing -Social distancing -Following biosafety protocols in closed and open places (places where there may be a large number of people) -Disinfection of surfaces and objects - Disinfection of shoes and clothing.	(19) I wear a face mask properly (20) I wash or disinfect my hands before touching my nose or mouth. (21) I maintain social distance of two meters. (22) I follow biosafety protocols in places of commerce. (23) I follow biosafety protocols in study or workplaces (24) I follow biosafety protocols at family gatherings (25) I follow biosafety protocols for public transportation. (26) I follow biosafety protocols in places where food is consumed. (27) I wear a face mask covering mouth and nose. (28) I follow biosafety protocols for indoor sports activities (e.g. gyms). (29) I follow the biosafety protocols for outdoor sports activities. (30) I follow biosafety protocols for social gatherings. (31) I disinfect all surfaces and implements of daily use (keys, glasses, pens, cell phones, electronic devices, etc.). (32) I disinfect my shoes and deposit the clothes I have worn in the laundry room. (33) I wash my hands and wrists properly with soap and water. (34) I bathe my entire body (35) I disinfect the products and/or groceries I buy for the household.
Severity (factor 4) / Disease and disasters	To identify the perceived severity of COVID-19, the following are presented as indicators: -Death -Complications - Economic loss -Physical illness -Mental illness	(36) Death(s) (37) Complications (hospitalization, intensive care unit or sequelae) (38) Economic loss (unemployment or decreased income) (39) Physical illness (development of a new illness or increase of a previous illness) (40) Mental illness (development of a new illness or increase of a previous illness)

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Table 2. Reliability indexes of the PCR-CV19 dimensions.

	Cronbach's α	McDonald's ω
Cognitive vulnerability	0.873	0.878
Emotional vulnerability	0.882	0.883
Risk-protective behaviors	0.941	0.950
Severity	0.893	0.896

through 40 items distributed in four dimensions: cognitive vulnerability, emotional vulnerability, risk-protective behaviors and severity. Therefore, it is a questionnaire that could be adapted to other realities or countries, since these dimensions make it possible to identify, understand and analyze the conditions of risk, as well as the process that leads to its occurrence [10]. All these dimensions interact with each other contributing to the adoption of preventive measures [28], as well as in the mental health of the general population [2,15,29].

The PCR-CV19 questionnaire (Annex 1) assesses dimensions of risk perception in accordance with studies based on the disease model [5,19,21] and the disaster model [16-17]. However, in comparison with these studies, the PCR-

Table 3. Confirmatory factor analysis of PCR-CV19

Factor	Indicator	Estimation	SE	Z	p- value
Cognitive vulnerability	P1	0.462	0.0545	8.47	<0.001
	P2	0.720	0.0553	13.03	<0.001
	P3	0.577	0.0575	10.03	<0.001
	P7	0.725	0.0645	11.23	<0.001
	P8	0.596	0.0663	9.00	<0.001
	P9	0.649	0.0745	8.71	<0.001
	P10	0.626	0.0653	9.59	<0.001
	P12	0.745	0.0537	13.87	<0.001
	P16	0.908	0.0573	15.83	<0.001
	P17	0.896	0.0575	15.57	<0.001
	P18	0.860	0.0593	14.51	<0.001
Emotional vulnerability	P4	0.782	0.0526	14.87	<0.001
	P5	0.730	0.0506	14.43	<0.001
	P6	0.756	0.0576	13.12	<0.001
	P11	0.748	0.0541	13.82	<0.001
	P13	0.756	0.0556	13.59	<0.001
	P14	0.692	0.0585	11.83	<0.001
	P15	0.749	0.0558	13.42	<0.001
Risk-protective behaviors	P19	0.503	0.0282	17.85	<0.001
	P20	0.540	0.0357	15.13	<0.001
	P21	0.528	0.0331	15.97	<0.001
	P22	0.528	0.0293	18.04	<0.001
	P23	0.500	0.0274	18.25	<0.001
	P24	0.615	0.0479	12.82	<0.001
	P25	0.526	0.0348	15.10	<0.001
	P26	0.603	0.0405	14.89	<0.001
	P27	0.478	0.0275	17.38	<0.001
	P28	0.624	0.0400	15.61	<0.001
	P29	0.605	0.0410	14.75	<0.001
	P30	0.587	0.0391	15.02	<0.001
	P31	0.592	0.0478	12.39	<0.001
	P32	0.608	0.0499	12.19	<0.001
	P33	0.518	0.0371	13.96	<0.001
	P34	0.464	0.0678	6.84	<0.001
	P35	0.591	0.0468	12.64	<0.001
Severity	P40	0.734	0.0436	16.85	<0.001
	P39	0.795	0.0358	22.17	<0.001
	P38	0.625	0.0405	15.45	<0.001
	P37	0.564	0.0379	14.87	<0.001
	P36	0.570	0.0403	14.13	<0.001

Table 4. Covariance factors

		Estimation	SE	Z	p-value
Cognitive vulnerability	Cognitive vulnerability	1.000[a]			
	Risk behaviors and	0.187	0.0575	3.26	0.01
	severity	0.336	0.0537	6.26	< 0.001
	Emotional vulnerability	0.743	0.0323	22.97	<0.001
Risk behaviors	Risk behaviors and	1.000[a]			
	severity	0.509	0.0457	11.15	<0.001
	Emotional vulnerability	0.178	0.0600	2.97	0.003
Severity	Severity	1.000[a]			
	Emotional vulnerability	0.345	0.0556	6.20	<0.001
Emotional vulnerability	Emotional vulnerability	1.000[a]			

[a] fixed parameter

CV19 is an instrument that, in addition to integrating the risk perception assessment models, presents greater sensitivity and can be adapted to different population groups and contexts (e.g., educational, occupational, health), as well as presenting its scoring and interpretation rules.

Regarding the PCR-CV19 dimensions, this instrument distinguishes between cognitive vulnerability and emotional vulnerability in contrast with others [5,19,21,16,17], in terms of the probability of being affected by COVID-19. People with an invulnerability bias perceive that they are unlikely to be infected and worry less about the infection, so risk behaviors may increase, increasing the probability of contagion and infecting others [30]. Cognitive vulnerability assesses the risk of contagion, infecting others, as well as the risk of reinfection, while emotional vulnerability assesses fear, uncertainty, stress and feelings of sadness in the face of contagion and the pandemic.

The risk-protective behaviors dimension in the PCR-CV19 suggests that a high-risk perception would be related to an increase in protective behaviors against COVID-19 infection, which could have an important influence on the coronavirus transmission and could play a fundamental role in public health efforts [31]. In addition, the items in this dimension allow the evaluation of adherence to WHO guidelines to mitigate the spread of COVID-19 [22], where greater self-care and adherence to these guidelines could lead to a decrease in the rate of infection [15, 28, 30, 32].

The severity dimension in the PCR-CV19 is understood as the worst credible consequence resulting from COVID-19 infection and resulting in a loss [10]. Therefore, the PCR-CV19 evaluates the perceived severity of death from COVID-19, complications of the disease [9,21] and economic loss; while in other studies, such as the one by Germani *et al.* [29], severity is evaluated in relation to anxiety or perceived severity in the event of becoming ill [21].

It should be noted that knowledge regarding the prevention of infection has been updated as knowledge of the virus has increased. Therefore, when the PCR-CV19 questionnaire is replicated, it is recommended that items should be modified in line with current scientific information, as reflected in the WHO guidelines.

The study has limitations in that the study population is older, not being able to account for the perception of risk in children or adolescents, and the lack of a statistical package to determine the PCR-CV19 index automatically.

The strength of the study is that, by defining the index in the compact interval, it can be characterized as a random variable and it will be the data, by means of statistical adjustments, that will provide evidence in favor of the best model, thus making it possible to find an adequate way of summarizing the data and the availability of inferential tools for the process of analysis and quantification of impacts or group comparisons.

Table 5. Variance percentages

Factor	SS	Variance %	Cumulative %
Cognitive vulnerability	9.01	22.53	22.5
Emotional vulnerability	7.31	18.29	40.8
Risk protective behaviors	3.60	9.00	49.8
Severity	1.83	4.57	54.4

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One of the limitations of our study was that the study population was older, thus we were not able to evaluate the perception of risk in children or teenagers. Another limitation was the lack of a statistical package to determine the PCR-CV19 index automatically.

The strength of our study is that, by defining the index in the compact interval, it can be characterized as a random variable; and the data, by means of statistical adjustments, will provide evidence in favor of the best model, thus making it possible to find an adequate way of summarizing the data and the availability of inferential tools for the process of analysis and quantification of impacts or group comparisons.

In conclusion, the PCR-CV19 is considered as a valid and reliable instrument to assess the perceived risk of COVID-19 infection in the Colombian population, and could be adapted to different groups and contexts, through its four dimensions (cognitive vulnerability, emotional vulnerability, risk-protective behaviors and severity) that show theoretical and methodological coherence.

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