



The Risk Perception COVID-19 Scale (RP-COVID19-S): Initial Validation and Its Relationship with Gender and Age in a Cuban Population Sample

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Abstract

Background Risk perception about COVID-19 constitutes an important variable contributing to promotion of personal protection practices. The aims of this study were to exploring the factorial structure of the risk perception COVID-19 scale (RP-COVID19-S) in a sample of Cuban adults and to identify its relationship with variables such as gender and age.

Methods A cross-sectional web-based survey design was conducted. The sample comprised 394 Cuban participants. Categorical Principal Component Analysis (CATPCA) was used to explore internal factorial structure of the scale. Logistic regression was modeling to identify variables independently associated with RP about COVID-19.

Results CATPCA allowed identifying a three-dimensional factorial structure into the scale: knowledge and beliefs, emotional reactions and behavioral dissonance, and motivations for change. The odds of a woman with middle RP compared to low RP was 2.17 times more than for a man. Also, the odds of a woman with high knowledge and beliefs compared to low knowledge and beliefs were 1.96 times more than for a man. The odds of a person in older group, with middle risk perception compared with low level, was 5.0 (global risk perception), 3.33 (knowledge and beliefs), and 3.13 (emotional reactions and behavioral dissonance) times more than for a person in younger group, respectively.

Conclusion The Risk Perception to COVID-19 Scale (RP-COVID-19-S) showed satisfactory psychometric properties to evaluated risk perception related to COVID-19 in Cuban population sample. Middle level of global risk perception was found in the sample. High level of risk perception about COVID-19 was found on participants older than 42 years old and in woman.

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Background

The COVID-19 is a growing threat around the world. The pandemic has become a challenge not only to health systems but also to society at large. Since its first appearance in China on March this year and to date (12–7-2020), more than 12 million people has been confirmed with COVID-19 worldwide. In Cuba, 2426 patients have been confirmed with the disease, of which 87 have died and 2258 have recovered (Ministry of Public Health, 2020). Although the Cuban scenario is favorable, there is an impact on mental health that must be considered.

People's risk perception of pandemic is one of the factors contributing to an increase in public participation in promotion of personal protection practices (Khosravi, 2020). Risk perception (RP) refers to how people evaluated the probability and consequences of an adverse outcome (Sjöberg, 2000). From this point of view, RP is related to self-regulation mechanisms that avoid or reduce risky behaviors and promote healthy behavior (Cori et al., 2020; Dryhurst et al., 2020).

Some studies has included a list of items to evaluated risk perception related to the COVID-19 (Bruine de Bruin, 2021; Duan et al., 2020). In other cases, a risk perception scales has been developed. For example, Murat and Abdurrahim (2020) adapted the COVID-19 Perceived Risk Scale (CPRS) reporting a two factor structure, including cognitive and emotional dimensions and founded adequate psychometric proprieties. In a study conducted by Dryhurst et al. (2020), with a sample of 10 different countries around the world, RP was measured as an index, covering affective, cognitive, and temporal-spatial dimensions to provide a holistic measure of RP. During the COVID-19 outbreak, the relation between RP with knowledge, attitudes, and practices to precautionary behavior has been described (Honarvar et al., 2020; Iorfa et al., 2020). Other research found PR relation with higher level of anxiety, especially in those who live with people in risk, or live in areas with elevate number of positive cases of COVID-19 (Liu et al., 2020). Also, RP and variables such as conscientiousness, neuroticism and personal hygiene practices predicted social distancing (Abdelrahman, 2020).

Studies on this topic highlight the mediating role that sociodemographic variables, such as gender and age, can have in the configuration of risk perception about COVID-19. It has been found that women have higher levels of knowledge and greater rigor in the implementation of health hygiene measures during COVID-19 outbreak (Abdelrahman, 2020; Iorfa et al., 2020). Similarly, indicators of a better adequacy of risk perception in older adults have been found, in comparison to younger participants (Ballew et al., 2020). Actually, the risk perception studies do not only contribute to the understanding of individual human behavior related to COVID-19 pandemic, but also it has been defined as an important mediator between government interventions and the population behavior (Duan et al., 2020).

In Cuba, different actions have been implemented to reduce the pandemic impact and its negative effects through the coordinated work of different disciplines of science and society sectors (Díaz-Canel & Núñez, 2020; Lorenzo et al., 2020). For example, recently fear of COVID-19 was explored in Cuban population (Broche-Pérez et al., 2020). According to authors, the gender of Cuban participants significantly predicted the level of fear of COVID-19. Being female was a predictor of medium and high levels of fear of COVID-19.

However, to date, no research has been published that explore risk perception in Cuba population related to COVID-19 outbreak. Therefore, this study is oriented in the first instance to exploring the factorial structure of the risk perception COVID-19 scale (RP-COVID19-S) in a sample of Cuban adults. A second objective is to explore the relationship between RP with variables such as gender and age.

Methods

Study Design and Participants

A cross-sectional web-based survey design was adopted. Participants were 394 persons (67% females and 32.3% males) with a mean age of 36.4 years old (SD 13.0); who responded to the survey instrument via Google Forms®, between 14th April and July 1st 2020. All Cuban citizens over the age of 18 were eligible to participate in the study. Non-probability samples were used. Snowball sampling was conducted to recruit participants. The survey was disseminated through WhatsApp groups, Facebook, email lists, and the website of the Well-being Center of the Universidad Central “Marta Abreu” de Las Villas. Online consent was obtained from the participants.

Measures

Demographic Information

The demographic variables explored included the gender and age. Additionally, it was explored if “Have you or a member of your family become ill with COVID-19?” (Yes/No).

The Risk Perception About COVID-19 Scale (RP-COVID-19-S)

The Risk Perception about COVID-19 Scale (RP-COVID-19-S) was developed by the authors of this study. The scale is made up of 23 items, grouped into a tree factors structure. It is structured on a Likert scale from 1 to 5 (strongly disagree, disagree, neither agree nor disagree, agree and strongly agree”). The minimum score possible for each question is 1, and the maximum is 5. A total score is calculated by adding up each item score (ranging from 23 to 115). The higher the score indicates adequate risk perception with respect to COVID-19 (Appendix Table 8).

Data Analysis

The study was approved by the ethics committee of the Department of Psychology of the Universidad Central “Marta Abreu” de Las Villas. Informed consent was obtained for all patients for being included in the study.

The data were processed using SPSS v21.0. Descriptive statistics was used to explore participants’ characteristics. Categorical Principal Component Analysis (CATPCA) were used to reducing the dimensionality of the data (SPSS Inc., 2007). A model of main effects for multinomial logistic regression was modeling to identify variables independently associated with risk perception about coronavirus.

Results

Respondent Characteristics

The characteristics of the respondents are shown in Table 1. A higher proportion of respondents were women (67%). The mean age was 36.4 years ($SD \pm 13.0$) and most were aged in the 29–41-year age group (34.3%).

Psychometric Properties of Risk Perception of Coronavirus-19 Scale

The CATPCA were carried out to explore factorial structure of the RP-COVID-19-S. Analyses were conducted with 394 cases (98.5%). According to previous research (Fernández-Castillo & Molerio-Pérez, 2018; Fernández-Castillo et al., 2016), statistical processing were tested with two and three dimensions. The best results were obtained with three dimensions. Table 2 shown correlations between variables from three dimensions, including a third-dimension increase value in 1.67 to accumulated 7.75. Additionally, one of the 25 items was removed to show low loading values under minimal established value (0.22/min. of 0.3) (item 6: *I need to stick at my everyday activities even though I recognize the harmful consequences that he can have for me and for my family not to follow the measures hygienic physicians extender to avoid catching the COVID-19*). Item loadings are shown in Table 3.

The three-dimensional structure shows up as optimal solution. Globally, three dimensions show a Cronbach's alpha of 0.91 (Table 4). First dimension (*knowledge and beliefs about risk perception related to COVID-19*) is specially correlated with items 1, 3, 5, 7, 9, 10, 12–14, 16, 18, 19, 23, and 24. Second one (*emotional reactions and behavioral dissonance related to risk perception towards COVID-19*) is specially correlated with items 2, 4, 11, and 15. Finally, third dimension (*motivations for change on risk perception related to COVID-19*) is specially correlated with items 8, 17, 20–22. Final version of the *Risk Perception of Coronavirus-19 Scale* is shown in Appendix Table 8.

Results from RP-COVID-19-S are shown in Table 5. Global risk perception of COVID-19 showed a mean of 104.6 ($SD \pm 6.63$). According to the different levels of risk perception, the middle level shown highest frequencies for the first ($M = 64.3$, $SD \pm 4.78$, 41.9%) and third dimension ($M = 21.1$, $SD \pm 2.8$, 37.1%), as well as for the global score (41.6%).

Table 1 Demographic characteristic of the sample

	fr(%)	M(SD)	Min	Max
Gender*				
Males	127(32.3)			
Females	264(67.0)			
Age groups**				
Until 28	127(32.3)	36.4(13.0)	18	73
29–41	135(34.3)			
More than 42	128(32.5)			

M mean, *SD* standard deviation, *fr* frequency

* 3 people did not answer

** 4 people did not answer

Table 2 Correlations between variables from three dimensions

Items	1	2	3	4	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	–																							
2	.367	–																						
3	.184	.029	–																					
4	.040	.029	.336	–																				
5	.164	.092	.168	.139	–																			
7	.025	.076	.186	.128	.246	–																		
8	–.039	–.116	–.184	–.156	–.071	–.075	–																	
9	.088	.223	.109	.120	.237	.362	–.082	–																
10	–.105	–.170	–.034	–.093	–.179	–.164	.242	–.298	–															
11	–.171	–.089	.007	–.014	–.169	–.123	.039	–.111	.190	–														
12	.259	.103	.236	.454	.159	.219	–.253	.239	–.239	–.194	–													
13	.110	.065	.226	.304	.209	.252	–.195	.178	–.197	–.158	.446	–												
14	.142	.145	.305	.300	.240	.186	–.252	.260	–.235	–.030	.456	.355	–											
15	.066	.033	–.178	–.178	–.090	–.096	.138	–.083	.008	.043	–.203	–.182	–.333	–										
16	.089	.145	.124	.068	.268	.315	–.111	.300	–.183	–.164	.174	.251	.128	.051	–									
17	–.109	–.099	–.046	.064	–.001	.037	.109	–.040	.069	.180	.031	.042	.006	–.057	.011	–								
18	–.072	–.169	–.062	–.028	–.103	–.124	.250	–.181	.254	.164	–.153	–.191	–.154	.042	–.376	.121	–							
19	.181	.160	.089	.126	.170	.125	–.076	.177	–.215	–.067	.203	.220	.088	–.087	.153	–.043	–.083	–						
20	.092	.026	.027	.150	.227	.135	.005	.160	–.169	–.108	.220	.265	.203	.013	.113	.126	–.034	.266	–					
21	.068	–.012	.091	.135	.251	.181	–.052	.193	–.152	–.169	.203	.247	.201	–.026	.186	.105	–.121	.218	.405	–				
22	.040	.050	–.041	–.036	.004	.028	.129	.008	–.025	–.019	–.023	–.014	–.019	.102	.061	.218	.046	–.008	.063	.146	–			
23	.082	.116	.212	.127	.260	.195	–.106	.146	–.171	–.098	.166	.194	.202	–.109	.224	.082	–.191	.163	.295	.238	.056	–		
24	.180	.107	.193	.193	.182	.064	–.053	.034	–.175	–.143	.234	.191	.167	–.049	.072	–.001	–.066	.233	.105	.117	.014	.160	–	
Dim	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
val-	4.330	1.749	1.667	1.379	1.150	1.068	1.017	.998	.932	.892	.836	.769	.731	.701	.664	.636	.623	.546	.534	.505	.486	.431	.355	

Table 3 Items loadings of the three dimensions

Items	Dimensions		
	1	2	3
1	.327	–.230	–.225
2	.295	–.358	–.323
3	.420	.389	–.127
4	.457	.504	.030
5	.500	–.141	.149
7	.469	–.100	.114
8	–.356	–.173	.430
9	.502	–.235	–.032
10	–.480	.258	.152
11	–.313	.323	.123
12	.655	.293	–.076
13	.616	.195	.060
14	.604	.354	–.088
15	–.264	–.512	.089
16	.482	–.368	–.005
17	–.011	.193	.613
18	–.390	.293	.318
19	.425	–.142	.085
20	.437	–.098	.501
21	.463	–.130	.468
22	.017	–.219	.454
23	.474	–.077	.226
24	.379	.053	–.007

Table 4 Cronbach's alpha of dimensions and global scale

Dimensions	Cronbach's alpha
1	.81
2	.45
3	.42
Global scale	.91

The high level of risk perception, in “emotional reactions and behavioral dissonance” dimension, prevailed with 50.8% ($M = 18.9$, $SD \pm 1.4$).

In case of risk perception according to sex and age, results are shown in Table 6. Low levels of global risk perception and knowledge and beliefs, such as middle level of motivations for change and high level of emotional reactions and behavioral dissonance were more frequent in case of males. In case of females, high level was more frequent in second and third dimensions, while global score and first dimension showed middle levels. According to age, middle level was most frequent except for the second dimension, where high level predominated for emotional reactions and behavioral dissonance.

Table 5 Results from risk perception of coronavirus-19, levels and global score

	Mean	Median	SD	Min	Max	Levels fr(%)		
						Low	Middle	High
Risk perception dimensions								
Knowledge and beliefs	64.3	65.0	4.8	47	70	113(28.7)	165(41.9)	115(29.2)
Emotional reactions and behavioral dissonance	18.9	20.0	1.4	14	20	70(17.8)	124(31.5)	200(50.8)
Motivations for change	21.1	21.0	2.8	13	25	104(26.4)	146(37.1)	144(36.5)
Global risk perception	104.6	106.0	6.6	81	115	110(27.9)	164(41.6)	119(30.2)

SD standard deviation, *fr* frequency

Table 6 Risk perception frequencies according to gender and age groups

Dimensions	Levels	Gender		Age groups		
		Males	Females	Until 28	29–41	More than 42
Knowledge and beliefs	Low	36.5*	24.6	39.4	28.4	18.8
	Middle	34.1	46.2	40.9	43.3	41.4
	High	29.4	29.2	19.7	28.4	39.8
Emotional reactions and behavioral dissonance	Low	22.8	15.2	27.6	13.3	11.7
	Middle	31.5	31.8	29.1	37.0	28.9
	High	45.7	53.0	43.3	49.6	59.4
Motivations for change	Low	29.9	24.2	27.6	23.7	27.3
	Middle	35.4	37.9	42.5	38.5	31.3
	High	34.6	37.9	29.9	37.8	41.4
Global score	Low	36.5	23.5	36.2	26.9	20.3
	Middle	33.3	45.8	48.8	40.3	36.7
	High	30.2	30.7	15.0	32.8	43.0

*All values are expressed in percent

Demographic and social factors independently associated with levels of risk perception were investigated using multinomial logistic regression. Preliminary analyses were performed to ensure no violation of the assumptions of linearity, independence of errors, and multi-collinearity (Field, 2009, 2013). Final analysis was conducted with a total of 386 valid cases.

As shown in Table 7, the gender significantly predicted whether they had middle or low global risk perception of COVID-19, $b = -0.77$, Wald $\chi^2(1) = 8.37$, $p < 0.01$. According to the effect of male compared with female, the odds ratio indicates that as sex changes from male to female the change in the odds of having middle risk perception compared to low risk perception is 0.46. In other words, the odds of a woman with middle risk perception compared to low risk perception are $1/0.46 = 2.17$ times more than for a man. The gender also significantly predicted whether people had middle or low knowledge and beliefs about risk perception related to COVID-19, $b = -0.68$, Wald $\chi^2(1) = 6.59$, $p < 0.05$. The odds of a woman with high knowledge and beliefs compared to low knowledge and beliefs are $1/0.51 = 1.96$ times more than for a man.

Table 7 Demographic factors independently associated with risk perception to COVID-19

	Global score						First dimension						Second dimension						Third dimension							
	95% CI for odds ratio		B(SE)		Upper		95% CI for odds ratio		B(SE)		Upper		95% CI for odds ratio		B(SE)		Upper		95% CI for odds ratio		B(SE)		Upper			
	Lower	OR	OR	Upper	Lower	OR	OR	Upper	Lower	OR	OR	Upper	Lower	OR	OR	Upper	Lower	OR	OR	Upper	Lower	OR	OR	Upper		
Middle vs. low risk perception^a																										
Intercept	.84(.26) **		1.01(.26) ***																							
Gender																										
Male	.27	.46	.78	.78	.30	.51	.85	.85	.36	.67	.67	.36	.67	.67	.22(.25)	.22(.25)	.44	.76	.76	.44	.76	.76	.44	.76	.76	
Female																										
Age groups																										
Until 28	.41	.76	1.42	1.42	.26	.49	.91	.91	.21	.44	.44	.21	.44	.44	.32(.32)	.32(.32)	.74	1.38	1.38	.74	1.38	1.38	.74	1.38	1.38	
29–41	.45	.86	1.64	1.64	.38	.71	1.35	1.35	.50	1.13	1.13	.50	1.13	1.13	.39(.33)	.39(.33)	.78	1.48	1.48	.78	1.48	1.48	.78	1.48	1.48	
More than 42																										
High vs. low risk perception^a																										
Intercept	.91(.26) ***		.89(.27) **																							
Gender																										
Males	.36	.64	1.12	1.12	.39	.69	1.20	1.20	.31	.56	.56	.31	.56	.56	.52(.24) *	.52(.24) *	.41	.72	.72	.41	.72	.72	.41	.72	.72	
Females																										
Age groups																										
Until 28	.10	.20	.41	.41	.12	.23	.46	.46	.16	.32	.32	.16	.32	.32	.29(.32)	.29(.32)	.40	.75	.75	.40	.75	.75	.40	.75	.75	
29–41	.31	.60	1.14	1.14	.25	.48	.94	.94	.34	.73	.73	.34	.73	.73	.09(.31)	.09(.31)	.59	1.09	1.09	.59	1.09	1.09	.59	1.09	1.09	
More than 42																										

CI confidence intervals

^aReference category

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

In the case of age, less than 28 years predicted middle or low level of “knowledge and beliefs” [$b = -0.72$, Wald $\chi^2(1) = 5.13$, $p < 0.05$] and “emotional reactions and behavioral dissonance” [$b = -0.81$, Wald $\chi^2(1) = 4.39$, $p < 0.05$] related to risk perception towards COVID-19. In both cases, according to the effect of have less than 28 years old compared with more than 42 years old, the odds ratio indicates that as the variable changes, the change in the odds of having middle or high level of risk perception compared to low level is 0.49 and 0.44, respectively. The odds of a person in older group, with middle risk perception compared with low level, are 2.04 (1/0.49) and 2.27 (1/0.44) times more than for a person in younger group, respectively.

The variable age also significantly predicts they had high or low level of risk perception, globally [$b = -1.60$, Wald $\chi^2(1) = 19.35$, $p < 0.001$] and in first [$b = -1.46$, Wald $\chi^2(1) = 19.25$, $p < 0.001$] and second [$b = -1.15$, Wald $\chi^2(1) = 10.31$, $p < 0.01$] dimensions. In all cases, according to the effect of have less than 28 years old compared with more than 42 years old, the odds ratio indicates that as the variable changes, the change in the odds of having middle or high level of “global risk perception”, “knowledge and beliefs”, and “emotional reactions and behavioral dissonance” compared to low level is 0.20, 0.23, and 0.32, respectively. The odds of a person in older group, with middle risk perception compared with low level, are 5.0 (1/0.20), 3.33 (1/0.23), and 3.13 (1/0.32) times more than for a person in younger group, respectively.

Discussion

The aims of this study were, first, to design an instrument that allows the evaluation of risk perception about to COVID-19 in Cuban population. The second objective was to identify the relationship of risk perception with variables such as gender and age.

The CATPCA analysis was used to identify a three-dimensional factorial structure into the scale. First dimension, *knowledge and beliefs*, is related to the awareness about the risks associated with some behaviors and its immediate and mediate negative consequences. It is assumed that this knowledge is mediated by information, social representations, and judgments that the person has formed throughout life span. Some elements related with information quality plays a fundamental role during this process. For example, its content, credibility, the relational link with the sources, the means and resources through which the information is received, the opinions of significant people (Fernández-Castillo & Molerio-Pérez, 2018; Jahangiry et al., 2020).

The second dimension, *emotional reactions and behavioral dissonance*, expressed the posture of acceptance or rejection in relation to certain risk behavior. It also facilitates the search for new elements that allow him/her to define his/her intention in relation to it. Finally, last dimension *motivations for change* express the behavioral component of previous dimensions. According to third dimension, the person regulates his/her behavior by adopting (or avoiding) the risk behavior. As a consequence, the person can planning his future intentions in relation to personal risk perception configuration.

This factorial structure allows a comprehensive exploration of the perception of risk related to COVID-19. Other studies have found similar results regarding the importance of the factors found in the present study (Jahangiry et al., 2020; Murat & Abdurrahim, 2020). It has been noted that when the COVID-19 is perceived as a threat, people are motivated to act to protect themselves. In addition, there is a need to encourage personal self-efficacy in dealing with the

situation as well as a real perception of the costs involved in practicing protective behavior.

According to different levels of risk perception, first and third dimensions and global score show highest frequencies for the middle level. Nevertheless, high level of risk perception, in “emotional reactions and behavioral dissonance”, shows that people recognize the risks associated with COVID-19 but are not always convinced of the problem. Difficulties arise in self-regulation and this risk behavior is not systematically adopted. Other studies indicated that the risk perception of COVID-19 was relatively high (Dryhurst et al., 2020). Results from a multi-dimensional perspective found those individuals whose risk perception against the COVID-19 are high, tend to have greater severity of the disease, and low ability to execute to behaviors required to cope with the COVID-19, and poor mental health (Murat & Abdurrahim, 2020).

According to groups’ age, high level of knowledge and beliefs, emotional reactions and behavioral dissonance, motivations for change, and global risk perception were more frequent on participants older than 42 years old. Low levels were also more frequent on participants with 28 years old or less. Previous studies have found a higher likelihood of nursing in older adults resulting in a higher perceived risk (Ballew et al., 2020; Bruine de Bruin, 2021; Iorfa et al., 2020).

The results suggest that gender is an important predictor in health behaviors. Present study was found high level of risk perception about COVID-19 in woman. Some previous studies indicating that women maintain higher engagement in social distancing practices than men (Abdelrahman, 2020; Iorfa et al., 2020). Previous research in Cuban context has shown that women have higher levels of fear of COVID-19 (Broche-Pérez et al., 2020). The authors have found that males are more likely to take risks than female. Also, it is necessary to analyze how that gender differences varied according to context and age level (Byrnes et al., 1999). Future researches could be oriented to this topic for a better comprehension to risk perception about COVID-19.

Limitations and Future Directions

The present study has some limitations. First, it is necessary to confirm the factorial structure of Risk Perception Scale about COVID-19 (RP-COVID19-S) and explore other psychometric propriety such as convergent validity, concurrent validity, sensitivity, and specificity. Second, it is necessary to expand the sample and access to diverse populations, including strata from different provinces, for extended the findings in the present study. Third, to analyze the relationship between risk perception and other mental health indicators such as stress, coping strategies, and the well-being.

In conclusion, this study presents a new instrument with satisfactory psychometric properties to evaluated Risk Perception about COVID-19. We found middle level of global risk perception in the Cuban population. Also, high level of risk perception about COVID-19 was found on participants older than 42 years old and in the woman.

Table 8 Escala de Percepción de Riesgo sobre Coronavirus-19 (Risk Perception of Coronavirus-19 Scale)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
1	<p>Poseo información de los síntomas que provoca la COVID-19 (fiebre, tos seca, dificultad para respirar) [I have information about COVID-19 symptoms (fever, dry cough, difficulty to breathe)]</p> <p>Conozco las formas para prevenirlo (lavado correcto de manos, desinfección de superficies, evitar aglomeraciones, aislamiento social) [I know how to prevent the disease (correct hands washing, disinfection of surfaces, avoiding crowds, social isolation)]</p>				
2	<p>Me percato de que la COVID-19 puede afectar mi salud [I realize that the COVID-19 can affect my health]</p>				
3					

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
4 Reconozco que no cumplir con las medidas preventivas me expone a situaciones que implican un riesgo para mi vida y la de los demás [I recognize that failing to keep preventive measures exposes me to situations that imply a risk for my life and the one of the other ones]					
5 Poseo información de a quién y/o dónde hay que dirigirse en caso de presentar síntomas asociados a la COVID-19 [I have information about who/where I have to go in case to present COVID-19 symptoms]					
6 [I need to stick at my everyday activities even though I recognize the harmful consequences that he can have for me and for my family not to follow the measures hygienic physicians extend to avoid catching the COVID- 19]					

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
7	Las medidas que debo tomar para evitar el contagio de la COVID-19, están en correspondencia con mis hábitos y valores, por lo que las realizo sin problemas [The actions to avoid the COVID-19 correspond themselves with my habits and values, I accomplish them without problems]				
8	Reconozco las consecuencias dañinas que puede tener la COVID-19 pero las ignoro sin que ello me genere contradicciones [I recognize the harmful consequences of the COVID-19 but I ignore them without personal contradictions]				

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
9 Pienso que cuento con recursos psicológicos suficientes para poner en práctica las medidas higiénico-sanitarias y de esta forma evitar el contagio de la COVID- 19 [I think that I have enough psychological resources to put into practice the hygienic actions to avoid the infection of the COVID- 19]					
10 El miedo y el nerviosismo que estoy sintiendo me impiden llevar a cabo correctamente las medidas para prevenir la COVID-19 [Fear and nervousness I feel disable my realizing correctly the actions to prevent the COVID-19]					
11 Suelo escuchar y seguir los rumores relacionados con la COVID-19 [I use to listening and following the rumors related with the COVID-19]					

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]			Totalmente de acuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
<p>12 Cuando tomo todas las medidas para prevenir la COVID-19 soy consciente de la importancia de mi comportamiento para frenar el curso de la enfermedad [I am aware of the importance of my behavior to stop the progress of disease when I take the measures to prevent the COVID-19]</p>								
<p>13 Realizar las medidas de prevención de la COVID-19 me permite tener mayor tranquilidad y seguridad [Carrying on the preventive actions of the COVID-19 allows me having bigger quietness and safety]</p>								

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
<p>14 Siento motivación para cuidar mi salud y la de los demás, por eso estoy cumpliendo con las orientaciones y medidas para evitar el contagio de la COVID-19 [I feel motivated to take care of my health and the one of the other ones, that's why I hold by orientations and measures to avoid the contagion of the COVID-19]</p>					
<p>15 No me interesa conocer sobre el tema, estoy seguro que a mí no me pasará [I am not interested in knowing about the topic, I am sure that it will not happen to me]</p>					
<p>16 Pienso que cuento con los recursos materiales indispensables para poner en práctica las medidas higiénico sanitarias frente a la COVID-19 [I think I have the indispensable material resources to put into practice the hygienic measures facing the COVID-19]</p>					

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
17 Mi fe y mis creencias religiosas me ayudarán a prevenir el contagio de la COVID-19 [My faith and my religious beliefs will help me to prevent the infection of the COVID-19]					
18 Quisiera poder implementar todas las medidas de protección contra la COVID-19 pero no lo he conseguido [I wish to accomplishing all the protection measures against the COVID-19 but I have not obtained it]					
19 Soy capaz de comparar información estadística de cómo se está comportando la enfermedad en el mundo y en Cuba y esto me permite valorar la complejidad del problema [I am able to compare statistical information about the disease behavior in Cuba and around the world, which enables judging the complexity of the problem]					

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
20 Me comprometeré o proponeré algo positivo de esta situación [I tried to obtain something positive from this situation]					
21 De algún modo expreso mis sentimientos ante la situación que estamos viviendo [I express my feelings about the situation we are living somehow]					
22 Intento olvidarme de todo y seguir con mi vida normalmente [I try to forget about everything and to go on with one's life normally]					
23 Para sobrellevar la situación y poder cumplir las medidas que se orientan me apoyo en mi familia y amigos aunque sea en la distancia [I support on my family and friends to tolerate the situation and to obey the orientated measures, although in distance]					

Table 8 (continued)

Enunciados (Statements)	Escala de respuesta (Por favor, seleccione una opción) [Response scale (Please tick one box)]				
	Totalmente en desacuerdo (Completely Disagree)	Parcialmente de acuerdo (Partially agree)	Ni de acuerdo ni en desacuerdo (Neither agreed neither disagree)	Casi siempre de acuerdo (Almost agree)	Totalmente de acuerdo (Completely agree)
24 Me informo diariamente de la situación de Cuba ante la COVID-19 por los medios oficiales y en determinados momentos del día [Every day I get information about COVID-19 Cuban state from official mass media and in specifics daily moments]					

Appendix

Authors' Contributions Study planning: EFC. Study plan validation: all authors. Data interpretation: all authors. Data analysis: EFC and ZFF. First draft: EFC and YBP. Final approval: all authors.

Data Availability Data will be available on request.

Declarations

Ethical approval All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with Helsinki Declaration of 1975, as revised in 2000.

Informed consent Informed consent was obtained for all participants for being included in the study.

Conflict of Interest 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.

Financial disclosure The authors involved in this research communication do not have any relationships with other people or organizations that could inappropriately influence (bias) the findings.

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