

## Cabin Fever Syndrome Post-SARS-CoV-2: Design and Validation of a Scale

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### Abstract

*The primary objective of this research is to design and validate an instrument called "CSC-19" to assess Cabin Fever Syndrome in health students and professionals. Methodology: A descriptive cross-sectional design was used. 499 health students and teachers participated in this study. The internal consistency and linguistic validation of the instrument were evaluated. Cronbach's alpha was used to analyze the reliability of the instrument, and the Pearson statistical test was used to establish the correlation between the elements of the form. Results and Discussion: The correlation of the instrument was analyzed, according to Pearson's correlation statistic, obtaining an average of 0.521 between the 25 elements; 22 of which presented a high correlation. Regarding the reliability of the instrument, significant results were obtained in the parameters Risk of outings (0.964), return to normality (0.963), avoidability (0.965), risk thinking (0.963), preventive activities (0.965), emotions (0.963) and beliefs (0.967). Conclusions: The proposed instrument can support future research to apply it in educational environments of health training in the effects of social isolation, being able to identify parameters of mental health impairment in both university students and health professionals in their teaching work.*

**Keywords:** *Nursing, Cabin Fever Syndrome, COVID-19.*

### Introduction

In 2020, the SARS-CoV-2 virus disrupted the normalcy of the entire world due to the frequency, severity, and impact of the COVID-19 infectious disease. The World Health Organization (WHO) declared a pandemic on March 11, 2020, necessitating the implementation of strict prevention measures to safeguard global health (OPS, 2020).

Among these measures, social isolation was established as a mandatory strategy, confining all citizens of each country to their homes for two months. However, in the face of socioeconomic imbalances, gradual strategies were determined to emerge from social isolation, while the mortality rate due to this condition remained high (CEPAL, 2021). Due to this, many countries contributed to research to halt the natural history of the disease, resulting in the development of vaccines of different origins (Díaz-Badillo et al., 2021).

Even with the high mortality rate from COVID-19 in several countries, in 2021, the global application of vaccines began, with the aim of reducing this rate to a medium proportion. However, the concern of entire societies about facing death became a mental health problem (Pandey et al., 2021).

Health professionals' concern for mental health begins with revealing particular characteristics related to fear, anxiety, and various associated signs, which provoke resistance to returning to face-to-face interactions among the world's citizens (Rubio-Tomás et al., 2022). This situation has been identified as "Cabin Fever Syndrome," as a possible consequence of prolonged isolation (Tonks, 2008), which, among its effects of loss or grief due to COVID-19, includes generalized anxiety, insomnia, and depression (Chen et al., 2021).

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The "Cabin Syndrome", is characterized by the presence of fear or rejection in the face of the need to expose oneself and leave the house, generally after a long period without doing so, this can occur in people (as individuals) or social groups. The syndrome refers to the fear and possible unpleasant experiences, which are activated either by real or mental exposure, to what involves leaving the current situation or the last few months, having seclusion as an option since it is conceived as a form of control and true security (Moreno, 2021).

When analyzing the Cabin Syndrome, one of the consequences is Post-traumatic Stress, which requires social support in a formal and informal way, with family and their environment being important. The group of people who are victims in this case due to the presence of the Covid 19 virus who need different types of support is analyzed. This perceived support and the symptomatology such as: anxiety, depression and stress; as well as post-traumatic stress is due to the severity of the problem to be faced. According to Granados, et al. (2020) establishes the danger of Burnout Syndrome, and other problems of a psychological nature present in workplaces are aggravated by the presence of the Pandemic and that requires being studied (Lema & Suárez, 2022).

In this regard, and starting from the global obligation to prolonged confinement, various instruments have been developed to analyze different symptoms produced by this condition, determining important indicators in the avoidance of contagion and emotional distress (Garcia et al., 2021), determining the levels of presence of cabin fever syndrome combining sociodemographic factors with post-traumatic stress (Tuta-Quintero et al., 2022), phobic anxiety, anxiety, and depression (Vizioli & Crespi, 2020).

Cabin fever is not a medically defined condition, but a "folk syndrome" commonly understood to refer to a combination of anxiety, lassitude, irritability, moodiness, boredom, depression, or a feeling of dissatisfaction in response to confinement, bad weather, routine, isolation, or lack of stimulation. A person subject to cabin fever may suffer from sleeplessness (insomnia) or sleepfulness (hypersomnia). They may even develop paranoia and difficulty in making rational decisions. At its extreme, people may feel compelled to escape their spatial restrictions or limited routines, regardless of external conditions or the cost to themselves or others. Cabin fever may also lead to self- and other-directed violence, including suicide (Crawford, 2021).

The primary characteristic of Generalized Anxiety Disorder (GAD) is having excessive worry and anxiety (apprehensive expectation or anxious apprehension), persistent (more than half the days for at least 6 months) and difficult to control about a number of events or activities such as work or school performance. That excessive worry and anxiety means that its intensity, duration, or frequency are disproportionate to the likelihood or actual impact of the feared event. The most common areas of concern usually refer to circumstances of daily life; topics such as family, friends, interpersonal relationships in general, money, work, studies, household management, and one's own health and that of others are common. Concerns may be about minor issues such as household chores, car repairs, or being late for a place or appointment. Compared to physical or economic worries, social worries seem to carry more weight when predicting the general tendency to worry (Rojas et al., 2023).

García Gutiérrez (2020) mentions that some of the reactions that can be taken as symptomatology are in three areas:

#### *Cognitive Area*

- Catastrophic thoughts associated with what is outside the home.
- The preparation or anticipation, to have a "plan b", constantly, for the resolution of hypothetical situations.
- Thoughts that are directed to having maximum control, of the environment as well as one's own and others' responses (Moreno, 2021).

### *Physiological Area*

- Tachycardia.
- Excessive sweating.
- Rapid and shallow breathing, which leads to hyperventilation.
- Tingling in extremities.
- Generalized nervousness.
- Irritability.
- Modification in sleep habits (Moreno, 2021).

### *Behavioral Area*

- Avoiding activities outside the home, for example, the work routine.
- Avoiding social contact, especially in person.
- The modification of activities in order to avoid going out (Moreno, 2021).

The psychological and clinical sequelae left by the fear of facing external threats have a strong impact on the mental health of the population (Salegui, 2020). Therefore, it is proposed to design a validated instrument to determine the mental health situation of people in the face of prolonged confinement processes, and to identify the risk to the well-being of not only individuals but also families and organizations.

## **Methods**

A cross-sectional descriptive design was employed to validate the CSC-19, an acronym for Questionnaire (C), Syndrome (S), Cabin (C), 19 (referencing the year 2019 due to the COVID-19 pandemic). The aim was to detail its psychometric properties (reliability and validity) in measuring the contributing factors, anxiety, and general discomfort associated with Cabin Fever Syndrome.

The study was conducted at the Pontificia Universidad Católica del Ecuador in Quito, Ecuador, involving 499 students and faculty from Nursing, Nutrition, and Physical Therapy programs. A simple random sampling method was used. All participants provided informed consent prior to completing the questionnaire.

The instrument was designed and statistically analyzed using a sample population of healthcare professionals (faculty) and students in training (Nursing, Nutrition, and Physical Therapy). This was done to obtain data that could be generalized to the Cabin Fever Syndrome, allowing for decision-making regarding educational well-being.

In the first design stage, a literature review, concept exploration, item formulation for specific syndrome analysis, and selection of peers for scale review were considered. The test was then administered to participants. Internal consistency was evaluated to determine correlations between different items of the same test, item and dimension reduction, and criterion identification.

In the second stage, linguistic validation was considered, which was carried out through expert validation. A committee of health and language professionals was formed to ensure cultural and grammatical validity.

Cronbach's alpha was used to analyze the reliability of the instrument, and Pearson's correlation test was used to establish the correlation between the items. This data was processed using SPSS v28.0 statistical software.

## Results and Discussion

### *Characterization of the Population for Instrument Validation*

#### *Sociodemographic Data*

The ages of the participants for instrument validation in the total sample (n=499) ranged from 18 to 25 years with (n=429) being the largest proportion of the total sample, followed by the intervals of 26 to 35 years with (n=39), and 46 to 55 years with (n=16). Of the total sample, 75% (n=374) were female and 25% (n=125) were male. Regarding family and social analysis, 50% (n=252) did not have a partner, 38% (n=189) had a partner but did not live with them, and 12% (n=58) had a partner with whom they lived.

Regarding educational level, 51% (n=253) had incomplete higher education (in progress), 28% (n=138) had completed secondary education, 20% (n=101) had completed higher education, 1% (n=4) had incomplete primary/secondary education, and 1% (n=3) were qualified as technicians or artisans.

Regarding place of residence, 85% (n=422) lived in urban areas and 15% (n=77) in rural areas; of these, 93% (n=462) had all basic services in their homes (potable water, electricity, sewerage, and internet) and 7% (n=37) did not have one or more of these services; similarly, 91% (n=454) had open spaces in their homes (balcony, patio or terrace) and 9% (n=45) did not have these spaces.

Regarding employment status, 62% (n=310) were not employed, 21% (n=103) worked occasionally or temporarily, 12% (n=62) had a dependent job, and 5% (n=24) were self-employed.

#### *Other Contributing Factors (Vulnerability, Confinement, and Mental Health History)*

Considering the factors contributing to Post-COVID-19 Cabin Fever Syndrome, it was identified that, among the participants in the instrument validation, 56% (n=281) presented potential vulnerabilities; similarly, between 22% and 24% (n=110 and 118) of participants experienced difficulties during confinement; and 30% (n=149) of respondents reported a history of some type of mental health condition. All of these elements can influence the appearance of discomfort or a state of anxiety (Table 1).

**Table 1. Percentage Presentation of Contributing Factors to Post-COVID-19 Cabin Fever Syndrome (N=499)**

DIMENSION	INDICATOR	YES	NO	TOTAL
<b>VULNERABILITY</b>	Living with children under 12	21% (105)	79% (394)	100% (499)
	Living with individuals with health conditions	35% (176)	65% (323)	100% (499)
	Total	56% (281)	44% (218)	100% (499)
<b>CONFINEMENT</b>	In-person activities	22% (110)	78% (389)	100% (499)
	Economic resources	76% (381)	24% (118)	100% (499)
	Total			
<b>MENTAL HEALTH HISTORY</b>	Diagnosis of mental health conditions	30% (149)	70% (350)	100% (499)

*Instrument Reliability*

Instrument reliability was estimated using Cronbach's alpha, considering only items with nominal qualitative measures, resulting in a value of 0.96. For the analysis by variables, two items from the instrument that were not significant were eliminated: NAMG19-E (I would be afraid of the possibility of contagion when the authorities say that activities outside the home can be resumed with complete normality) and NAMG22-B (I would prefer not to resume face-to-face social relationships, see friends, coworkers). Based on the analysis by variable in items with nominal measures, the alpha value remained stable (Table 2).

**Table 2. Total-Item Statistics**

<b>DIMENSION</b>	<b>CRONBACH'S ALPHA</b>	<b>NUMBER OF ITEMS</b>
<b>RISK OF GOING OUT</b>	964	3
<b>RETURN TO NORMALCY</b>	963	2
<b>AVOIDABILITY</b>	965	8
<b>RISK THINKING</b>	963	6
<b>PREVENTIVE ACTIVITIES</b>	965	1
<b>EMOTIONS</b>	963	2
<b>BELIEFS</b>	967	1

The items on the scale that assessed anxiety and general discomfort were grouped together for statistical analysis. These items were grouped into the following dimensions: Risk of going out (NAMG3A, NAMG4A, NAMG5A), Return to normality (NAMG6-B, NAMG7-B), Avoidability (NAMG1-C, NAMG2-C, NAMG8-C, NAMG9-C, NAMG10-C, NAMG20-C, NAMG21-C, NAMG23-C), Risk thinking (NAMG13-E, NAMG15-E, NAMG17-E, NAMG18-E, NAMG24-E, NAMG26-E), Preventive activities (NAMG14-F), Emotions (NAMG16-G, NAMG27-G), and Beliefs (NAMG25-H).

Pearson's correlation coefficient was used to analyze the correlation between the 25 items. The minimum correlation value was 0.207, the maximum was 0.847, and the mean was 0.521, with a variance of 0.033. When examining the corrected item-total correlations, it was found that items NAMG1-C (Avoid contact with people?) and NAMG25-H (Believe that, even taking all precautions, one's health may still be compromised after confinement) had low correlations. Item NAMG12-D (Most of the time I think that others do not comply with the correct biosafety and hygiene protocols) had a moderate correlation, while the rest of the items had high correlations (Table 3).

**Table 3. Item-Total Statistics**

<b>ITEM</b>	<b>VARIANCE OF THE SCALE IF ITEM IS DELETED</b>	<b>CORRECTED ITEM-TOTAL CORRELATION</b>
<b>NAMG1-C</b>	<b>410.443</b>	<b>,261</b>
<b>NAMG2-C</b>	392.796	,722
<b>NAMG3-A</b>	390.732	,693
<b>NAMG4-A</b>	388.431	,717
<b>NAMG5-A</b>	387.501	,699
<b>NAMG6-B</b>	389.887	,681
<b>NAMG7-B</b>	383.625	,860
<b>NAMG8-C</b>	386.055	,782

NAMG9-C	389.575	,652
NAMG10-C	381.097	,890
NAMG11-D	380.380	,880
NAMG12-D	<b>399.457</b>	<b>,514</b>
NAMG13-E	385.540	,804
NAMG14-F	388.308	,653
NAMG15-E	388.832	,792
NAMG16-G	389.926	,751
NAMG17-E	389.910	,682
NAMG18-E	387.360	,789
NAMG20-C	379.833	,870
NAMG21-C	384.454	,777
NAMG23-C	387.463	,604
NAMG24-E	386.849	,725
NAMG25-H	<b>414.167</b>	<b>,278</b>
NAMG26-E	380.623	,861
NAMG27-G	385.370	,817

## Discussion

The objective of this research was to design and validate the "CSC-19" instrument, which evaluates "Cabin Fever Syndrome" through an analysis of the scale of anxiety and general discomfort caused by confinement and the external threat of COVID-19, specifically for healthcare professionals and students in training.

The results showed a higher correlation of Cabin Fever Syndrome in healthcare students and professionals, such as avoiding leaving home due to fear of contagion (0.890), thinking that leaving home could cause the death of a family member due to contagion (0.880), and avoiding going to places or activities due to fear of possible contagion (0.890).

As this is a health condition that affected the global population, various strategies have been developed and applied to identify the impact and effects on individuals' mental health, across different age groups and occupations.

Similar to our study, the literature shows that short questionnaires have been created for university students in medicine and health sciences, considering aspects of social isolation, cabin fever, and demotivation or demoralization, finding a significant association between isolation, depression, ineffective study, and doomscrolling, which refers to excessive time spent reading large amounts of online news (Conroy & Fitzgerald, 2023).

Within the university context, the impact of COVID-19 isolation and its relationship to access to information on social networks has also been studied in Asian populations, considering an instrument that collected aspects of risk perception, cabin fever, subjective norms, perceived behavioral control, and intensity of access to social networks, demonstrating that the affective perception of risk and the cognitive perception of COVID-19 risk were significantly associated with subjective norms. This could be explained by the fact that when university students perceive COVID-19 as more dangerous, their environment also perceives it as more risky and may emphasize social protection measures more (Jo & Baek, 2023), which coincides with the results of the present study.

Our results also contrast with another study conducted during the first weeks of the pandemic in a university student population, using a self-administered questionnaire at two time points during isolation, showing an increase in externalizing problems and attention problems in those who were at home compared to those who were isolated on campus. Additionally, in both groups, mood, daily well-being behaviors, and stress were negatively affected by the COVID-19 crisis (Copeland et al., 2021).

Another study conducted on undergraduate students during lockdown (Silva et al., 2023) showed a high prevalence of depression and anxiety (83.0% and 76.1%, respectively), but a low prevalence of fear of COVID-19 (28.9%) during remote classes. However, those students who had lost a family member due to COVID-19 had the highest levels of fear.

Similar fear factors to our results were also found in a study conducted on university students in Poland, where the level of fear was significantly higher in the group of young people who knew someone close with COVID-19 or whose family member or acquaintance had died from this condition (Turska et al., 2022).

Regarding the psychometric properties of the study, most of the items proposed in the questionnaire have a high correlation, evidencing the availability of the battery for the analysis of symptoms that affect mental health in the university students and healthcare professionals analyzed. These results can also be seen in previous studies where the average scores of anxiety and depression are significantly high, and 51.82% of the student sample reported depressive symptoms (Herbert et al., 2021). Additionally, online surveys applied to French health science students showed high levels of self-reported mental health problems and poor quality of life related to mental health during the initial stage of the COVID-19 pandemic (Leaune et al., 2022). Regarding the temporality of the study, a correlational survey between lifestyles and healthy behaviors, coping style, and mental health during the COVID-19 pandemic was applied in 2020, among university students with two rounds of application, showing that the prevalence of anxiety and depression in the two rounds of surveys was different, and the prevalence in the second round was higher than the first, identifying that unhealthy lifestyles were positively associated with symptoms of depression and anxiety (Zhang et al., 2023).

## Conclusions

The proposed instrument can support future research to apply it in educational environments of health training in the effects of social isolation, being able to identify parameters of mental health impairment in both university students and healthcare professionals in their teaching work.

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