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Construction and Validation of the Fear of Contamination Scale (FOCS)

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Abstract

Fear of contamination occurs when there is an interpretation of contamination as a considerable social threat or an expressive danger to the individual's physical and/or mental health. This study presents the development and validation, by means of the Item Response Theory (IRT) of an instrument that seeks to assess fear of contamination in different situations. The initial instrument was created after an extensive literature review and is composed of 30 items. A total of 380 individuals participated in the research. The scale was evaluated by expert judges and pilot-tested. Dimensionality was verified by factor analysis, satisfying the criteria for analysis using the IRT. The data were submitted to Samejima's Gradual Response Model. The instrument, called Fear of Contamination Scale (FOCS), had 18 items in its final version, presenting evidence of validity based on content and internal structure.

Keywords: contamination, scale construction, psychometrics, item response theory, validation studies

Resumo

Construção e validação da Escala de Medo de Contaminação (EMEC). O medo de contaminação ocorre quando existe a interpretação da contaminação como uma ameaça social considerável ou um perigo expressivo para a saúde física e/ou mental do indivíduo. Este estudo apresenta a elaboração e validação, por meio da Teoria de Resposta ao Item (TRI), de um instrumento que busca avaliar o medo de contaminação em diferentes situações. O instrumento inicial foi criado após extensa revisão de literatura, sendo composto por 30 itens. Participaram da pesquisa 380 indivíduos. A escala passou pela avaliação de juízes especialistas e testagem piloto. Foi verificada a dimensionalidade por meio da análise fatorial, satisfazendo critério para a realização de análise por meio da TRI. Os dados foram submetidos ao Modelo de Resposta Gradual de Samejima. O instrumento, denominado Escala de Medo de Contaminação (EMEC), contou com 18 itens em sua versão final, apresentando evidências de validade baseadas no conteúdo e na estrutura interna.

Palavras-chave: contaminação, construção de escala, psicometria, teoria de resposta ao item, estudos de validação

Resumen

Construcción y validación de la Escala de Miedo a la Contaminación (EMEC). El miedo a la contaminación se produce cuando existe la interpretación de la contaminación como una amenaza social considerable o un peligro expresivo para la salud física y/o mental del individuo. Este estudio presenta la elaboración y validación, mediante la Teoría de Respuesta al Ítem (TRI), de un instrumento que pretende evaluar el miedo a la contaminación en diferentes situaciones. El instrumento inicial se creó tras una amplia revisión bibliográfica y constaba de 30 ítems. Un total de 380 personas participaron en la investigación. La escala se sometió a la evaluación de jueces expertos y a pruebas piloto. La dimensionalidad se verificó mediante análisis factorial, satisfaciendo los criterios para el análisis por TRI. Los datos se sometieron al Modelo de Respuesta Gradual de Samejima. El instrumento, denominado Escala de Medo de Contaminación (EMEC), cuenta con 18 ítems en su versión final, presentando evidencias de validez basadas en el contenido y en la estructura interna.

Palabras clave: contaminación, construcción de escalas, psicometría, teoría de respuesta al ítem, estudios de validación

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Contamination is a sensation that arises from direct or indirect contact with an infected or harmful object. This sensation can be intense and persistent, and is accompanied by different negative emotions, including fear. Examples of contaminants are decaying materials, body fluids such as blood and saliva, chemicals, impurities, items or people carrying germs and diseases, among others (Rachman, 2004).

Fear is an adaptive defense mechanism that is essential to survival (Garcia, 2017), influencing the behavior of the population. In the current context, this emotion leads to greater caution and, as a result, less spread of the disease. Conversely, when fear takes on a chronic or exaggerated character, it can trigger the development of various psychological disorders (Shin & Liberzon, 2010).

As of the end of 2019, the population experienced a pandemic caused by the coronavirus, the fear of contamination has become something common and even useful. In this period, there was more room for habits that aim to reduce contamination by the virus, encouraging attitudes such as constant hand washing, not sharing personal objects, and sanitizing surfaces. Studies such as Knowles' (2021), have shown that fear of contamination prior to the pandemic may predict greater engagement in preventive attitudes during the pandemic. Furthermore, Knowles (2021) demonstrated that individuals concerned about COVID-19 are more likely to perform safety behaviors with increasing frequency, which may consequently increase fear and anxiety around contamination, even when the threat has passed or subsided. Other studies, such as that of Taylor and Asmundson (2020) predict that there will be persistent consequences of fear of contamination long after the risk of contracting COVID-19 has decreased.

In view of this, there is a need to better understand how this condition arises. The present research intends to contribute to the area by aiming to elaborate and validate an instrument to assess the fear of contamination in different situations, using Item Response Theory (IRT).

Justification

As of March 2020, the lives of Brazilians were significantly altered due to the social distancing advocated as one of the main ways to deal with the pandemic in Brazil. This distancing, although necessary, has brought losses to the life of each individual and also challenges to society as a whole. The new ways of establishing social coexistence inside and outside the home pose these same challenges. In these terms, it is important for researchers to employ psychological assessment resources, using already validated instruments, as well as creating and validating new scales that allow the investigation of variables related to these situations.

The present study intends to elucidate aspects related to mental health during and after the pandemic, with a special focus on the fear of contamination. It is understood that the pertinence of this study lies in its uniqueness and topicality. To date, there are not a wide range of Brazilian instruments that assess the fear of contamination in its entirety, regardless of the pathogen involved. It is noteworthy, in this sense, that a search in the portals Scielo and Pepsic indicated the existence of only two similar instruments. The first, called Padua Inventory (PI) (Sanavio, 1988) is divided into five subscales, with one of them focusing on contamination. However, the PI was created with the goal of assessing the severity of obsessive-compulsive symptoms, which is different from what the current study prioritizes. The second instrument, the Fear of COVID-19 Scale (FCV-19S), emerged in order to develop a brief measure for investigating the fear of COVID-19 (Ahorsu et al., 2020). This scale was validated for the Brazilian context by Faro et al. (2022), but it aims to assess the fear of COVID-19, excluding contamination by different pathogens.

That said the creation of instruments with this focus is perceived as necessary, considering the possible impacts that the COVID -19 pandemic may have generated for society. Moreover, the study may generate advances in a truly new field of investigation for Psychology and related sciences.

Theoretical Framework

Fear

Fear is considered a basic emotion, a response to a perceived threat. In most cases, it has an adaptive function, serving as a way to protect individuals from potentially dangerous situations. It also functions as an alarm system that prepares our body to face danger. Biologically, we are prepared to learn some fears more easily than others. Life-threatening situations promote the development of fear more readily (e.g., stimuli such as snakes and precipices) (Myers, 2012; Rachman, 2004).

Fear is expected and considered a normal emotion and is also sometimes necessary by virtue of its protective

function. However, there are situations in which fear interferes with the individual's daily life activities, bringing harm and suffering. Furthermore, avoidance behaviors may arise, aiming to escape from the threatening situation or stimulus. Myers (2012) calls fear "poisonous" because of the negative consequences that can accompany it, such as excessive worry and avoidance of situations important to the individual's life. In this case, fear can be considered pathological and acquire a greater proportion than that expected for the situation, becoming a reason to seek professional help (Schoen & Vitalle, 2012).

Moreover, fear is controlled by a specific neuronal circuit involving the amygdala, a brain structure located in the anterior mesial temporal lobe, essential in the control of emotional activities and self-preservation. In addition, fear is represented by an activation of the autonomic nervous system and a set of associated neurophysiological activities, such as changes in heart rate, adrenaline secretion, and metabolic changes (Ekman, 2004; Freitas-Magalhães, 1996; Freitas-Magalhães & Batista, 2009; Holanda et al., 2013). In addition, to the role of the amygdala in fear generation, this process also appears to depend on the central serotoninergic, noradrenergic, and GABAergic systems (Esperidião-Antonio, 2008).

Also worth noting is the concept of fear conditioning. Through what is known as Pavlovian conditioning, the subject can interpret biologically insignificant stimuli as threat signals. This occurs since aversive experiences can be fear generating. Because there are no completely identical experiences, animals can generalize the fear generated by a past experience to other future situations that have degrees of similarity to the original event (Asok et al., 2019; Ledoux, 2012).

Fear of Contamination

Contamination is defined as a persistent and intense feeling of having been polluted or infected as a result of direct or indirect contact with something perceived as dirty or harmful. As a result, negative emotions such as fear, disgust and shame arise. Examples of contaminants are bodily products (such as blood, urine, saliva and sweat), places and people carrying infectious diseases, as well as items potentially carrying germs and bacteria (Rachman, 2004).

Fear of contamination occurs when there is an interpretation of contamination as a considerable social threat or an expressive danger to the individual's physical and/or mental health. As with other fears, there appears to be a *continuum* of contamination fears, ranging from mild to moderate to overly intense. According to Rachman (2004, p. 1228), "strong contamination fears are inflexible, expansive, persistent, commanding, contagious, and resistant to normal cleaning".

In different cultures, the definition of contaminating situations is particular. Religious and cultural beliefs, forms of communication, and common sense knowledge affect how contamination and its consequences are perceived. In some societies, such as in India, contact with people of a lower caste is considered contaminating and should be avoided. However, if contact does occur, the affected person must engage in a ritualized cleansing process (Human Rights Watch, 1999).

Rachman (2004) further states that observing other people's fear reactions can generate the acquisition of fear of contamination, and that physical contact with the contaminant is not a necessary condition for the fear to appear. In addition, the communication of information about threatening situations can also generate fear.

The maintenance of the fear of contamination is facilitated by virtue of the maladaptive cognitions present, which promote the adoption of self-destructive safety behaviors, such as avoidance and compulsive cleaning. Because of this, psychological treatment, focused on exposure and response prevention, is challenging as it is stated as exhausting by some patients (Rachman, 2004).

As for fear extinction in general, Di Nardo et al. (1988) demonstrated that the more experience we have with fearful situations, the less likely we are to develop symptoms of significant fear. In their study, they showed that people with direct and frequent contact with dogs were less likely to have a phobia of dogs than people with little contact with them, even if their lived experiences also included adverse situations.

Fear of contamination is among the most common obsessive themes associated with Obsessive Compulsive Disorder (OCD), with 50% of people with OCD having a fear of contamination (Rasmussen & Eisen, 1992). Intrusive thoughts of contamination in OCD cause excessive sanitizing behaviors of oneself and the environment.

Covid-19

As far as the current scenario is concerned, the emergence of the SARS-CoV-2 virus, popularly known as coronavirus, has caused abrupt changes in the way of life and behaviors of the entire society. With a high power of infectivity and possibility of mortality, measures that hinder the virus propagation, such as the

use of masks and frequent hand washing, have been adapted to the routine of the population.

Based on this, the emergence of fear and insecurity in the population was perceived. Lindemann et al. (2021) evaluated that 64% of people have a high perception of fear of being contaminated by the new coronavirus, and this is a determining factor in the adherence to preventive measures, which are among the main tools to reduce contagion. Moreover, the fear generated by the possibility of contamination by a possibly fatal pathogen has a significant impact on the mental health of individuals. Studies (Schmidt et al., 2020; Wang et al., 2020) show that in times of pandemic, the fear of contamination can increase the occurrence of depression, anxiety and stress.

Method

To construct and validate the FOCS, a cross-sectional, quantitative study was conducted. The study was conducted in six stages, described as follows: 1) theoretical foundation; 2) construction of the preliminary version of the instrument; 3) evaluation by expert judges; 4) pilot testing; 5) data collection; 6) data analysis.

Theoretical Background

An in-depth theoretical review of the construct of interest, fear of contamination, was conducted. Scientific articles, books and national and international instruments involving the variables fear and possibility of contamination were consulted, as suggested by Hutz et al. (2019).

Construction of the Draft Version of the Focs

Based on the theoretical foundation, with the construct being one-dimensional, items for the FOCS were elaborated. The created items should translate the latent trait into behaviors, since the trait is considered as the investigated characteristic; however, it is only possible to access it through its manifestations (Hutz et al., 2015). To this end, the constructed items represented everyday situations that can generate fear of contamination, such as, for example, using a public bathroom.

The items were constructed considering the elaboration criteria: clarity, relevance, accuracy, variety and credibility (Hutz et al., 2015). The elaborated preliminary version contained 30 items. As a response scale of the instrument, a five-point Likert-type scale was defined, in which the individual should mark how much fear of contamination he/she feels in each exposed situation, being 0 – no fear of contamination, 1 – little fear of contamination, 2 – neither much nor little fear of contamination, 3 – a lot of fear of contamination, and 4 – extreme fear of contamination.

Evaluation by Expert Judges

The constructed draft version was forwarded for the assessment of three judges, as suggested by Hutz et al. (2015). All had familiarity with the topic. They are a psychologist, a nurse and a biomedical expert.

The judges received specific instructions on how to evaluate the instrument. They were required to evaluate each item individually, as well as the instrument as a whole, determining comprehensiveness, clarity and relevance. The judges could also draft suggestions and make comments.

To analyze the judges' agreement on certain aspects of the instrument, the content validity index (CVI) was used. The CVI employs a Likert-type scale that quantifies from one to four how relevant and representative each item is. Items that receive a score of '1' or '2' should be revised or eliminated (Alexandre & Coluci, 2011).

Pilot Testing

The next step consisted of data collection with a pilot sample, which was representative of the target sample, but with a smaller number of participants. Data were collected with 15 people, which made it possible to expose the need for adjustments before the final collection. Each participant answered the FOCS, now in its second version, and at the end they could leave suggestions.

Data Acquisition

Data acquisition took place in the months of September and October 2021, totaling a period of 46 days. Dissemination was carried out through social networks and email contacts, and participation occurred through the Google Forms platform.

Instruments

A sociodemographic questionnaire was used to characterize the sample, covering variables such as age, gender, marital status, and education. Moreover, the second version of the FOCS was applied, including items that aimed to quantify the fear already experienced or presumed when facing different situations that may cause contamination of the individual.

Participants

For the validation of the FOCS, 380 people participated, aged between 18 and 73 years (M = 29.8 years,

SD = 11.9); 71.58% were female. Inclusion criteria were: residing in Brazil and being aged 18 years or older. Most participants lived in the South region (85.47%), and the rest in the Southeast (8.71%), Northeast (3.93%), Center-West (1.40%) and North (0.28%). As far as education is concerned, 48.68% have incomplete higher education, and 36.84% have complete higher education.

Participants were collected by convenience and in sufficient numbers, since Reise and Yu (1990) showed that the Gradual Response Model (GRM) can be estimated with MULTILOG with only 250 examinees, and Pasquali (2001) recommends at least 10 subjects for each item of the assessment instrument, and the initial version of the scale contained 30 items.

Data Analysis

The items were analyzed in order to search for evidence of validity based on the internal structure of the FOCS. Initially, evidence of unidimensionality was sought, since this is a prerequisite for IRT analyses.

Next, we used the Item Response Theory (IRT), an item-centered method that considers both the subject's skill level and the complexity of the task to be performed (Hutz et al., 2015). We chose to use Samejima's Gradual Response Model (GRM) and R Software (R Development Core Team, 2018; Samejima, 1997).

The IRT assumptions were considered, which inform the need for discrimination values greater than 0.7 to affirm the minimum quality of the item and Baker and Kim's criterion, which informs on the consideration of items with high discrimination above 1.35. (Baker & Kim, 2017). Besides these, there is the assumption of the search for an easy-to-apply instrument, whose preserved items correspond to the content validity assessed in the previous step. Considering that higher levels of discrimination signal better item quality, we chose to eliminate items with discrimination lower than 1.4, ensuring that the remaining items have optimal quality (Sartes & De Souza-Formigoni, 2013). In other words, that items with high psychometric adequacy and pertinent content be kept, resulting in a final version that is a brief and versatile instrument to be applied in different contexts. Then, the GRM was applied again in order to check the quality of the items after elimination.

Ethical Considerations

The Research Ethics Committee of the University that conducted the study previously approved the research (CAEE 47465021.5.0000.5346 and Consubstantiated Opinion Number 4.839.519). As explained, the disclosure occurred in social networks and via email contacts, and the data was collected through an online platform. In this, prior to participation, it was necessary to agree to the study's Free and Informed Consent Form.

Results

Evaluation by Judges

The draft version of the FOCS sent to the judges for evaluation had 30 items. After analyzing the judges' agreement by means of the CVI, six items were eliminated from the draft version, which are shown in Appendix B. Two items were revised, which are shown in Appendix C. After the adjustments, the FOCS now contains 24 items.

Pilot Testing

The pilot testing, which consisted of data collection with 15 subjects, resulted in changes in the introductory text of the scale, which were made based on comments and suggestions made by the participants. Thus, the clarity of the text was improved, and previously unexposed points were elucidated. Appendix D shows the new version of the introductory text.

Data Analysis

Initially, the dimensionality of the latent trait under analysis was assessed by means of polycoric factor analysis. Considering the 24 remaining items, it was verified that the construct satisfies the unidimensionality assumption. Since, to satisfy this assumption, it is sufficient to admit that there is a dominant skill responsible for the set of items. This factor is what is supposed to be measured by the test. Typically, the dimensionality of the test is verified through analysis (Andrade et al., 2000). To evaluate this assumption, a Polycoric Factor Analysis was performed using the principal components extraction method. Considering the 24 items of the questionnaire, the first factor explained 50% of the variance, while the second factor explained only 9%, thus observing the existence of a dominant factor.

Once the conditions for the IRT were met, Samejima's Gradual Response Model was applied. Through the analysis, it was observed that 18 items presented discrimination higher than 1.4, which indicates very well adequate discrimination values (Table 1). Six items showed discrimination lower than 1.4 (items 13, 14, 15, 16, 18, and 21), which were eliminated from the final version of the FOCS, given the desire to preserve the quality of the instrument.

Table 1. *Statistical Information Regarding Samejima's GRM of the 24-Item Version*

Items	b1	b2	b3	b4	a
01	-1,167	-0,072	0,837	1,884	2,127
02	-2,494	-1,496	-0,563	0,651	1,618
03	-1,514	-0,478	0,359	1,418	1,947
04	-2,544	-1,511	-0,699	0,463	1,531
05	-1,647	-0,685	0,122	1,387	1,937
06	-1,639	-0,672	0,180	1,142	2,433
07	-2,606	-1,730	-1,054	-0,143	1,673
08	-2,930	-1,704	-0,954	-0,115	1,796
09	-2,433	-1,365	-0,428	0,669	1,917
10	-1,036	-0,294	0,536	1,628	2,840
11	-2,345	-1,568	-0,818	0,271	1,866
12	-2,440	-1,647	-0,662	0,478	1,629
13	-0,946	0,326	1,562	3,019	0,876
14	-3,134	-1,714	-0,562	0,984	1,055
15	-1,424	-0,456	0,549	1,712	1,370
16	-2,291	-1,036	0,443	2,059	0,720
17	-1,207	-0,429	0,421	1,392	2,236
18	-3,549	-2,449	-1,618	-0,242	1,248
19	-2,915	-1,852	-0,914	0,296	1,792
20	-1,888	-0,887	0,154	1,273	1,903
21	-1,320	-0,116	1,068	2,315	1,159
22	-1,067	-0,149	0,967	2,317	1,732
23	-3,463	-1,683	-0,695	0,550	1,591
24	-0,966	-0,093	0,710	1,847	1,521

After eliminating the items with low discrimination, the parameters were recalculated (Table 2). Considering the remaining 18 items, the factor analysis was redone. As for dimensionality, the first factor explained 58% of the variance, while the second factor explained only 6%, observing that the dominant factor became more prominent compared to the previous analysis.

Table 2. *Statistical Information Regarding Samejima's Grm of the 18-Item Version*

Items	b1	b2	b3	b4	a
01	-1,176	-0,093	0,787	1,790	2,287
02	-2,550	-1,549	-0,601	0,629	1,606
03	-1,530	-0,503	0,329	1,368	2,030
04	-2,511	-1,501	-0,709	0,423	1,637
05	-1,661	-0,703	0,095	1,327	2,043
06	-1,667	-0,701	0,148	1,101	2,516
07	-2,556	-1,702	-1,046	-0,161	1,840
08	-2,945	-1,727	-0,980	-0,140	1,848
09	-2,426	-1,369	-0,445	0,623	2,062
10	-1,079	-0,312	0,521	1,591	2,837
11	-2,382	-1,596	-0,841	0,247	1,920
12	-2,627	-1,787	-0,745	0,473	1,461
17	-1,288	-0,475	0,401	1,402	2,047
19	-2,986	-1,903	-0,966	0,266	1,759
20	-2,005	-0,962	0,131	1,292	1,750
22	-1,139	-0,187	0,962	2,350	1,627
23	-3,701	-1,813	-0,772	0,545	1,450
24	-1,001	-0,123	0,683	1,817	1,515

The discrimination values remained adequate for all items (>1.4). The item difficulty parameter presented different values, ranging from -3.701 to 1.001 for B1, -1.903 to -0.093 for B2, -1.046 to 0.962 for B3, and between -0.161 and 2.350 for B4, suggesting that the instrument appropriately assesses subjects with different levels of fear of contamination. Finally, the validity of the final version of the FOCS was confirmed. A preview of this version is available in Appendix A.

Discussion and Conclusions

The FOCS aims to assess the fear of contamination in different situations, configuring itself as an innovative instrument in the area. As described above, before creating the items, an extensive literature review of the construct was necessary. As part of this review, only two studies were found that were similar, but had different objectives than what FOCS proposes (Ahorsu et al., 2020; Sanavio, 1988). After that, expert judges performed a theoretical analysis of the items in order to verify validity evidence based on content. Next, pilot testing, data collection, and extensive analysis of the psychometric characteristics were performed in order to verify validity evidence based on the internal structure.

The literature review allowed the creation of the initial 30 items of the scale, which represented situations that could generate fear of contamination. The option for using a Likert-type scale was due to the fact that this instrument is considered valid and reliable, allowing the collection of precise information about individuals (Selltiz, 1987).

The analysis by expert judges, and later the pilot testing, ensured the content validity and semantic quality of the instrument. Through the requested changes, six items were deleted, and the content of two was altered. Thus, it was confirmed that the remaining items were easy to understand and did not present regionally used terms or slang.

Regarding the IRT analysis, it is known that the Samejima's Gradual Response Model allows obtaining information through individuals' answers. This type of analysis provides a single value for the 'a' parameter (discrimination) and different values for the 'b' parameters, which relate to the difficulty of the test items. Based on the analysis, six items with lower psychometric quality were excluded. Furthermore, we noted that 18 remaining items matched the expected values for discrimination and difficulty.

The items "touching a doorknob other than that of your own house", "touching money (without wearing gloves)", "greeting someone with a handshake", "standing 1 meter away from someone who has an apparent bandage", "drinking from the same glass as someone else without having it sanitized", "using a computer keyboard that is used by other people", and "making a call on a cell phone that has been recently used by someone else" had discrimination index greater than 2. The high indices represent optimal discrimination between subjects with different levels of fear of contamination, which represents the "quality" of the item (Moreira et al., 2015).

The final version seems, therefore, to quantify the fear of contamination considering the characteristics that make up this construct. The instrument is compatible with what is exposed by Rachmann (2004), who reports the existence of a continuum of contamination fears, ranging from mild to moderate and excessively intense. The high discrimination levels contribute to the differentiation of the subjects within this *continuum*.

Assessing fear of contamination accurately can contribute to the design of health interventions. Shigemura et al. (2020) demonstrated the importance of attention to individuals with high fear, since common mental disorders such as anxiety and depression were associated with fear in severe public health crises. Furthermore, individuals with low fear may more easily expose themselves to threatening situations and contribute to the loosening of safety measures, which in a pandemic context may pose public health risks (Martínez-Lorca et al., 2020; Van Bavel et al., 2020).

Thus, this study met the proposed objectives, promoting the development of a new instrument that aims to assess fear of contamination in different contexts and demonstrating validity evidence based on the IRT. As limitations of the study, we can consider the interference that the current pandemic context may have generated in the participants' answers. It is suggested that new studies be conducted in the coming years in order to confirm the validity evidence of the FOCS in another historical moment. Furthermore, a limitation of the study is the predominance of participants with complete or ongoing higher education, accounting for 85.62% of the total sample. The predominance also refers to the female gender, which represented 71.58% of the participants. Similar studies with more heterogeneous samples are encouraged.

It is worth mentioning that this research presented a brief instrument that is easy to use and apply. Therefore, it is expected that it can be useful for better understanding the fear of contamination in general, but also in a pandemic context. Finally, this study shows itself as pioneering in the area, since it presented an innovative tool for the assessment of fear of contamination in different contexts. Considering the current pandemic context and its likely repercussions, tools such as the FOCS encourage future studies.

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Appendix A

Preview of the Final Version of the Focs Fear of Contamination Scale (Focs), Which in Its Entirety Has 18 Items

The Fear of Contamination Scale is a questionnaire that aims to evaluate the level of fear of contamination you feel in certain situations. The questionnaire has 18 items. Each item consists of a certain situation, which should be rated from 0 to 4 in terms of the fear of contamination that it causes, regardless of the type of contamination or pathogen involved.

Answer based on what has happened in the past two weeks. If you have never experienced a similar situation, try to imagine what it would be like if such a situation occurred. Consider that on all occasions you are not wearing a facemask and are not wearing gloves on your hands.

A. Mark how much fear of contamination you feel in each situation, being:

0 - no fear of contamination; 1 - little fear of contamination; 2 - neither a lot nor a little fear of contamination; 3 - a lot of fear of contamination; 4 - extreme fear of contamination

	0	1	2	3	4
1 - Touching a doorknob that is not of your own home.					
2 - Using a public bathroom.					
3 - Touching money.					
4 - Waiting in the waiting room of a busy hospital.					
5 - Greeting someone with a handshake.					
6 - Using the handrail of a stairway that is not in your own home.					

Appendix B

Items of the Preliminary Version Eliminated after Evaluation by Judges

6 - Standing 1 meter away from someone with an apparent bandage.
12 - Eating salad at a buffet in a restaurant.
17 - Eating food that may contain pesticides (for example, unwashed goods).
19 - Sitting next to a person with a hematocontagious (blood-borne) disease.
24 - Sitting on a bench in a square.
30 - Donating blood.

Appendix C

Items with Amendments after the Judges' Evaluation

26 - Sleeping in a hotel, using the sheets and towels made available there.
29 - Staying at home with the shoes that were previously worn on the street.

Appendix D

Introductory Text with Changes after Pilot Testing

The Fear of Contamination Scale is a questionnaire that aims to evaluate the level of fear of contamination you feel in certain situations. The questionnaire has 24 items. Each item consists of a certain situation, which should be rated from 0 to 4 in terms of the fear of contamination that it causes, regardless of the type of contamination or pathogen involved. Answer based on what has happened in the past two weeks. If you have never experienced a similar situation, try to imagine what it would be like if such a situation occurred. Consider that on all occasions you are not wearing a facemask and are not wearing gloves on your hands.

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