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Development of the COVID-19 Stigma Scale: Validity and Reliability Study

COVID-19 Damgalama Ölçeğinin Geliştirilmesi: Geçerlilik ve Güvenilirlik Çalışması

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ABSTRACT

Objective: Stigmatization leads to severe consequences both individually and socially. This situation can also occur in epidemics and complicate the treatment process. Therefore, the objective evaluation of stigma and the creation of an action plan on this issue are the most basic steps in the fight against the epidemic. This study aimed to develop and study the reliability and validity of a scale that evaluates stigma against individuals who experienced coronavirus disease-2019 (COVID-19).

Methods: A 24-item draft scale was prepared by considering the stigma experienced by individuals who experienced COVID-19 both in their close relations and social environment. The study was conducted on the relatives of patients referred to Kocaeli University Faculty of Medicine Hospital's different polyclinics. In addition to the developed COVID-19 Stigma Scale (CSS), the COVID-19 Information Questionnaire (CIQ) was used.

Results: The sample of the study consisted of 323 healthy individuals who were 54.5% male, with a mean age of 39.0±13.7 years. In the factor analysis, which included 24 items, five items with a factor load below 0.40 were eliminated. The final version of the scale consisted of three factors, and these factors (rejection, discrimination, and emotional reactions) explained 61% of the total variance. Cronbach's alpha coefficient for the total CSS was calculated as 0.91. A significant negative correlation was found between the CSS total and CIQ total scores ($r=-0.301$, $p<0.001$).

Conclusion: The CSS is valid and reliable in assessing the stigmatization of individuals in the healthy population toward COVID-19 patients.

Keywords: COVID-19, social stigma, scale, validity, reliability

ÖZ

Amaç: Damgalama hem bireysel hem de toplumsal olarak ciddi sonuçlara yol açmaktadır. Bu durum salgınlarda da ortaya çıkabilir ve tedavi sürecini zorlaştırabilir. Bu nedenle damgalanmanın objektif olarak değerlendirilmesi ve bu konuda bir eylem planının oluşturulması salgınla mücadelede en temel adımlardır. Bu çalışma, koronavirüs hastalığı-2019 (COVID-19) geçirmiş bireylere yönelik damgalamayı değerlendiren bir ölçeğin geliştirilmesini, güvenilirliğini ve geçerliliğini incelemeyi amaçlamaktadır.

Yöntemler: COVID-19 geçirmiş bireylerin hem yakın ilişkilerinde hem de sosyal çevrelerinde yaşadıkları damgalanma dikkate alınarak 24 maddelik taslak ölçek hazırlandı. Araştırma Kocaeli Üniversitesi Tıp Fakültesi Hastanesi'nin farklı polikliniklerine başvuran hastaların yakınlarında yapıldı. Geliştirilen COVID-19 Damgalama Ölçeğine (CDÖ) ek olarak COVID-19 Bilgi Anketi (CBA) uygulandı.

Bulgular: Araştırmanın örneklemini yaş ortalaması 39,0±13,7 yıl olan %54,5'i erkek 323 sağlıklı birey oluşturdu. Yirmi dört maddenin yer aldığı faktör analizinde faktör yükü 0,40'ın altında olan beş madde elendi. Ölçeğin son halinin üç faktörden oluştuğu ve bu faktörlerin (reddetme, ayrımcılık ve duygusal tepkiler) toplam varyansın %61'ini açıkladığı belirlendi. Toplam CDÖ için Cronbach alfa katsayısı 0,91 olarak hesaplandı. CDÖ toplam ve CBA toplam puanları arasında anlamlı bir negatif bağıntı bulundu ($r=-0,301$, $p<0,001$).

Sonuç: CDÖ, sağlıklı nüfustaki bireylerin COVID-19 hastalarına yönelik damgalanmalarını değerlendirmede geçerli ve güvenilirirdir.

Anahtar Sözcükler: COVID-19, toplumsal damgalama, ölçek, geçerlik, güvenilirlik

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INTRODUCTION

According to the World Health Organization, social stigmatization means when individuals or groups in the immediate environment of an individual are labeled, discriminated against, or lose their status because of conditions related to a disease (1). Individuals can be subject to stigmatization for being close to an individual with a disease even when they are not sick themselves. Family members who undertake the care of the patient and healthcare employees who maintain the treatment are the groups that are subject to stigmatization (2). Stigmatization leads to severe consequences both individually and socially. It might cause stigmatized individuals to avoid treatment and thus increase mortality and morbidity rates (3,4). Additionally, it is well known that stigmatization is correlated with higher depression rates and lower self-regard in these individuals (5). Stigmatization is widespread during epidemics and that used to manifest itself for tuberculosis (TBC), human immunodeficiency virus (HIV), severe acute respiratory syndrome (SARS), and swine flu is present today for coronavirus disease-2019 (COVID-19) (5,6). Stigmatization of COVID-19 poses a severe threat to healthcare employees, patients, elders, and patients' relatives (7). Physical and verbal violence toward healthcare employees who play a key role in the fight against epidemics increased during the COVID-19 pandemic (6). This makes it even harder for healthcare employees to continue with their duties under already challenging working conditions.

In addition to the direct negative effects of the epidemic on physical health, there are many indirect negative social effects. Stigma creates divisions in the mind, leading to discrimination. In this case, a loss of status may occur according to the social, economic, and political power of the stigmatized group (8). It seems that there are two types of stigma in the stigma studies conducted on people who have had COVID-19. While the first is self-stigmatization, the second is society's stigmatization of people with COVID-19 (9). People with COVID-19 may feel differentiated in their physical or mental abilities. This differentiation can cause social isolation and some psychiatric disorders (10). The second type of stigma, social stigma, can increase the self-stigma of people with COVID-19. As a result, existing mental problems may intensify and the functionality of individuals may deteriorate (11).

The psychometric assessment tools used in studies on stigmatization in epidemics are very rich. The literature on stigmatization of COVID-19 gets richer every day, while there are some shortcomings in terms of psychometric measurements. The researchers used the scales frequently used in past epidemics by adopting COVID-19 (7,12). However, it should be noted that this method can be problematic because every epidemic has its specific development and perception created by this development in people's minds. For example, in any diseases such as TBC, bird flu, swine flu (H5N1), or SARS transmitted through the respiratory tract, there has never been a period in which worldwide precautions were taken and habit changes were experienced as in the period of COVID-19. This period brought many new practices, including shutting down airports to flights, closing down cafes, restaurants, and stadiums, transforming in-person education into online education, and modifying measures taken depending on age groups. Therefore, it can be assumed that developing disease-specific scales will be more effective in

determining the size of stigmatization and in terms of measures to be taken. It is noteworthy that generally, a limited number of items are used in the assessment of stigmatization about COVID-19 in studies.

Moreover, as such assessments that lack validity and reliability analyses might lead to erroneous and missing results, it can be suggested that these methods are insufficient. The purpose of this study is to develop a scale that evaluates stigmatization of COVID-19 and analyzes its validity and reliability, considering the shortcomings in the literature. We believe that this scale will be important in evaluating the problems of stigmatization in the literature and developing solution recommendations.

MATERIALS AND METHODS

Development of the COVID-19 Stigma Scale

While developing the COVID-19 Stigma Scale (CSS), stigmatizations experienced by people with COVID-19 in both their close interpersonal contacts and social life were addressed. Studies on stigmatization attitudes about COVID-19 were reviewed. In addition, studies on infections with high contagiousness, such as TBC, HIV, and H5N1, with a stigmatization attitude were reviewed. While deciding on the scale items, attention was paid to making the items plain and understandable and ensuring that a single item only has a single idea or judgment. Because of the evaluations made among the researchers, areas such as labeling, stigmatization in close contact people, stigmatization in social relations, inequality, discrimination, loss of social status, and emotional responses were identified as main dimensions. It was observed that the scales developed for stigmatization were especially combined on three conceptual fields: labeling, emotional response, and loss of social status. In this framework, a 39-item form was created initially. Although these items were created considering the dimensions in design, it was predicted that every item could occur in another dimension. For example, the item "The society should respect fewer people who experienced COVID-19" includes both labeling (disrespect) and loss of social status concepts. These items corresponded to multiple situations regarding labeling (stigmatizing the individual, healthcare employees, foreigners, people in close contact, and people who experienced COVID-19). As the study's main purpose was to determine social stigmatization against patients, in other words, stigmatization against COVID-19 patients, items outside this framework were excluded. Some similar items were combined. In the final assessment among the researchers, the number of items in the draft scale dropped to 25.

In the second stage, for content validity, opinions were sought from three academic members, two from psychiatry and one from adolescent mental health, and a nurse specializing in public health. An item was removed, and corrections were made to make the items easier to understand on the basis of the recommendations of these persons who have sufficient background and expertise in their respective fields and are outside the study team. The Davis technique was used in content validity analysis. Because of this technique, the content validity index of the scale was determined to be 91.6%.

After these arrangements, a pilot study was conducted with 10 participants. The items that were not understood well or might have

caused a misunderstanding were corrected again. Thus, face validity was guaranteed for the form of 24-item CSS.

It was considered appropriate to use a Likert-type evaluation for the items on the scale. Because individuals might have demonstrated an attitude with which they might show less or partial participation rather than exhibiting a sharp attitude about the items. For every item, the participation level was configured as *completely disagree (0)*, *disagree (1)*, *slightly agree (2)*, *agree (3)*, and *completely agree (4)*. The total scale score ranges from 0 to 76-higher scores in the scale indicate a higher stigmatizing attitude toward COVID-19 patients. The Turkish and English versions of the final version of the scale are shown as an additional file (Appendix 1A).

Inclusion and Exclusion Criteria

Among the relatives of the patients who applied to the hospital, at least primary school graduates volunteered for the study, and over 18 were included in the study. As exclusion criteria, relatives who applied for infectious diseases, chest diseases, and COVID-19 polyclinics were accepted.

Sample

Three hundred twenty-nine people voluntarily agreed to be involved in the study. Three hundred twenty-three forms filled out with complete data were evaluated. The sample's mean age was 39.04 ± 13.74 , and mean years of education were 12.69 ± 4.38 . Most of the participants were female ($n=176$, 54.5%), married ($n=202$, 62.5%), and employed ($n=188$, 58.2%).

Assessment Tools

Sociodemographic Information Form: A form prepared by the researchers to evaluate the patients' population and other characteristics (age, gender, educational level, marital status, employment status, alcohol use and smoking habits, sickness status, and living environment) was used.

COVID-19-Related Experience Form: Information form with variables including having experienced COVID-19 and having been affected by the pandemic. It was prepared by the researchers.

COVID-19 Information Questionnaire: The COVID-19 Information Questionnaire (CIQ) was prepared by the researchers in light of the information in the literature. In this questionnaire comprising 15 items, every item has a right or wrong option. Some items are reverse scored-higher scores in this questionnaire indicate a higher level of knowledge about COVID-19. This questionnaire is attached (Appendix 1B).

Ethics Approval and Consent to Participate

Ethical permission for the study was obtained from the Kocaeli University Non-invasive Clinical Research Ethical Committee (approval number: KÜ GOKAEK-2021/7.18, project number: 2021/134). After obtaining ethical permission, the study was conducted between 15.04.2021 and 10.06.2021. Permission was also obtained from the Republic of Türkiye, Ministry of Health, Directorate of Healthcare Services Management. The participants were explained the purposes of the study and were told they could withdraw from the study at any stage without any reason. Written consent was obtained from all participants who agreed to participate in the study.

Statistical Analysis

SPSS 22 (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) was used for statistical analysis. Descriptive statistics are given in numbers, percentages, mean, and standard deviation (SD). Because the skewness and kurtosis values of the numeric variables were between (± 1), it was assumed that the data were evenly distributed (13). The correlation between the numeric variables was analyzed using Pearson's correlation test. The independent samples t-test was used to compare the numeric variables between the two groups, and One-Way analysis of variance was used to compare the numeric variables between three and more groups. Exploratory factor analysis (EFA) was used to determine construct validity. In this analysis, the Kaiser-Meyer-Olkin (KMO) test was used to evaluate the sufficiency of the sample size, and the Barlett sphericity test was used to evaluate the conformity of the scale items to the factor analysis. Principal component analysis was used in EFA, and direct Oblimin was preferred for the factor rotation technique. While determining the factor items, the item factor load was accepted as >0.40 . For their validity together, the correlation coefficient between the CIQ and CSS scores was examined. In the reliability analysis, both the total score and the internal reliability coefficient of the CSS subdimensions were determined using Cronbach's alpha value. In addition, when item-total scores and items were excluded, Cronbach's alpha value was calculated. For statistical analyses, the significance level was taken as $p < 0.05$.

RESULTS

Validity of the Scale

Construct Validity

An EFA was performed using the principal component method and the direct Oblimin rotation technique for the 24-item scale. Because of the KMO and Bartlett's tests, the KMO value was 0.929, and Bartlett's test ($\chi^2=4827.63$; SD: 276; $p < 0.001$) was significant. A four-factor structure that had an eigenvalue greater than one and explained 62.65% of the total variance was identified. Three items with a factor load below 0.40 were identified (items 7, 11, and 17). Factor analysis was renewed after removing these items. The scale explained 59.33% of the variance in a three-factor structure. However, with the new analysis, two more items in the scale had a factor load below 0.40 (items 12 and 23). These two items were also removed from the scale. With the renewed analysis after removing these items, a structurally valid scale comprising 19 items and three factors that explained 61.85% of the variance was obtained. The first factor explained 43.08%, the second factor explained 11.75%, and the third factor explained 7.02% of the total variance. Considering the items that constituted the factors, the first factor (1, 2, 3, 4, 5, 16, 22, 24) was called the rejection dimension, the second factor (8, 13, 14, 15, 18, 19, 20) the discrimination dimension, and the third factor (6, 9, 10, 21) the emotional reaction (Table 1).

Considering the items that failed to provide a sufficient factor load in the factor analysis made in the first stage (items 7, 11, and 17), it was observed that perception of riskiness about persons who experienced COVID-19, shopping restrictions, and feeling angry about the bad news on the media were not correlated with stigmatization. This situation suggests that there is a limit between

fundamental rights, needs, and stigmatization. Additionally, people might not see other people who experienced COVID-19 as risky, or even if they do so, it seems to be not in correlation with stigma. The items that were excluded from the scale (items 12 and 23) look similar. Both items meet at a common point based on insufficiency. Removing these similar items together shows the fact that scale validity was obtained. Individuals do not establish a relationship between receiving COVID-19 and insufficiency (physical weakness) or insufficiency in work performance after receiving COVID-19 and stigmatization.

Content Validity

For this type of validity, the correlation between the total score of the scale and its subscales was calculated (Table 2). There was

a significant high correlation between the CSS total score and rejection ($r=0.929$, $p<0.001$), discrimination ($r=0.789$, $p<0.001$), and emotional reaction sub-scales ($r=0.733$, $p<0.001$).

Concurrent Validity

The concurrent validity of CSS was evaluated with its correlation with CIQ. The results are presented in Table 2. There was a significant negative relationship between the CSS total score and the CIQ total score ($r=-0.301$, $p<0.001$). Similarly, there was a significant negative relationship between the CSS subscale scores and the CIQ total score (Table 2).

Discriminant Validity

In terms of discriminant characteristics, past studies have

Table 1. Explanatory factor analysis and reliability analysis results of CSS

CSS items	Factor loading	Corrected item-total correlation	Cronbach's alpha when the item is removed
Factor 1: Rejection			
1. People who experienced COVID-19 cannot be considered "normal" even if they have recovered	0.598	0.537	0.912
2. I would feel uncomfortable near a person who has experienced COVID-19	0.884	0.795	0.903
3. I don't want my kid to be in the same environment as a person who has experienced COVID-19	0.902	0.711	0.906
4. I would be extremely concerned if a person who experienced COVID-19 coughs around me	0.894	0.655	0.908
5. I do not want to live, work, or travel with someone who has experienced COVID-19 in the same environment	0.856	0.718	0.906
16. People who have experienced COVID-19 should not stroll around in society	0.499	0.623	0.908
22. People who have experienced COVID-19 should be kept at a more physical distance	0.610	0.725	0.906
24. People who have experienced COVID-19 should not be in close contact with family members	0.462	0.711	0.907
Factor 2: Discrimination			
8. Society should have less respect for people with COVID-19	0.820	0.595	0.911
13. Even if my friend who has COVID-19 has recovered, I would not want to meet her/him	0.582	0.592	0.910
14. People who have experienced COVID-19 should be ashamed of their illness	0.817	0.492	0.912
15. If my partner experienced COVID-19, I would re-evaluate our relationship	0.845	0.545	0.912
18. It is normal not to employ people who have experienced COVID-19	0.685	0.458	0.912
19. People who experienced COVID-19 should not eat in crowded places	0.571	0.722	0.907
20. People who experienced COVID-19 are paying for their sins	0.745	0.575	0.911
Factor 3: Emotional reactions			
6. People who experienced COVID-19 were inattentive and careless	0.497	0.544	0.911
9. People who experienced COVID-19 are responsible for their fault	0.794	0.385	0.915
10. Patients with COVID-19 are the primary worry of society	0.702	0.426	0.914
21. The main reason for our recent unhappiness is the COVID-19 patients	0.584	0.453	0.914
Items with a factor load below 0.40			
7. My anger builds up toward COVID-19 patients as I see bad news about COVID-19 in the media	-	-	-
11. People should not buy from shops or markets run by people who have experienced COVID-19	-	-	-
12. Experiencing COVID-19 as an indicator of physical insufficiency	-	-	-
17. People who have experienced COVID-19 are dangerous	-	-	-
23. People who experienced COVID-19 had low work performance	-	-	-

COVID-19: Coronavirus disease-2019, CSS: COVID-19 Stigma Scale.

demonstrated a clear relationship between education status and stigmatization attitudes (9,10). Our study reinforces this outcome (Table 3). There is a significant negative relationship between education level and CSS total score ($r=-0.254$, $p<0.001$). The relationship between the CSS total score and pandemic experiences is shown in Table 4. The CSS total score was significantly high in those whose income level dropped post-pandemic ($F=5.580$, $p=0.004$), significantly low in those who experienced COVID-19

[$t(321)=3.174$, $p=0.002$], and significantly low in those whose family member experienced COVID-19 [$t(321)=2.082$, $p=0.038$]. These results reinforce the fact that the scale has a discriminant character.

CSS Reliability Analysis

Internal Consistency

In the internal consistency analyses, the item-total item correlation coefficients were used, and when the item was removed, Cronbach's

Table 2. Correlation coefficients between the CSS subdimension and total score and the CIQ total score

Variable	Mean	SD	1	2	3	4	5
1 CIQ	11.87	2.08	-				
2 CSS-total	13.30	11.94	-0.301**	-			
3 CSS-rejection	7.47	7.38	-0.332**	0.929**	-		
4 CSS-discrimination	2.30	3.46	-0.216**	0.789**	0.591**	-	
5 CSS-emotional reactions	3.52	3.20	-0.124*	0.733**	0.519**	0.498**	-

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed). CSS: COVID-19 Stigma Scale, CIQ: COVID-19 Information Questionnaire.

Table 3. Sociodemographic characteristics of the participants and their relationship with CSS scores

Characteristics	Number (%)	CSS scores t/F/r	Statistical analysis	
			p	
¹ Age (mean ± SD)	39.04±13.74	13.30±11.94	0.129	0.020
¹ Education years (mean ± SD)	12.69±4.38	13.30±11.94	-0.254	<0.001
² Gender	Female	176 (54.5)	13.48±11.45	0.290
	Male	147 (45.5)	13.09±12.54	
³ Occupation	Unemployed	71 (22)	14.22±13.17	1.546
	Employed	188 (58.2)	13.04±11.70	
	Student	31 (9.6)	9.93±8.75	
	Retired	33 (10.2)	15.96±12.75	
² Marital status	Married	202 (62.5)	14.27±12.25	1.894
	Single	121 (37.5)	11.68±11.27	
² Alcohol use	No	226 (70.0)	14.98±12.46	3.933
	Yes	97 (30.0)	9.40±9.63	
² Smoking	No	234 (72.4)	13.47±11.99	0.398
	Yes	89 (27.6)	12.87±11.88	
² Somatic illness	No	265 (82.0)	13.52±12.24	0.701
	Yes	58 (18.0)	12.31±10.51	
² Psychiatric illness	No	285 (88.2)	13.15±11.79	-0.626
	Yes	38 (11.8)	14.44±13.13	
² Children of age <18 in family	No	205 (63.5)	12.75±12.28	-1.092
	Yes	118 (36.5)	14.26±11.31	
² Elderly of age >65 years in family	No	287 (88.9)	12.85±12.05	-1.932
	Yes	36 (11.1)	16.91±10.52	
² Number of family members	≤3	194 (60.1)	12.89±12.27	-0.765
	≥4	129 (39.9)	13.93±11.45	

¹The Pearson correlation test was used. ²Independent samples t-test was used. ³One-Way analysis of variance was used. Bold characters indicate statistical significance. SD: Standard deviation, CSS: COVID-19 Stigma Scale.

alpha coefficients were used, as shown in Table 1. Of the 19-item scale, the corrected item-total item correlation coefficients were between 0.385 and 0.795. The scale's internal consistency Cronbach's alpha coefficient was calculated as 0.91. Cronbach's alpha coefficient was 0.90 in the rejection sub-dimension, 0.88 in the discrimination sub-dimension, and 0.68 in the emotional reaction sub-dimension.

Sociodemographic Characteristics of the Participants

The sociodemographic characteristics of the participants and their relationship with the CSS scores are shown in Table 3. While there was a significant positive relationship between CSS scores and age ($r=0.129$, $p=0.020$), a significant negative relationship was found between CSS scores and education years ($r=-0.254$, $p<0.001$). The CSS score was significantly lower in alcohol users than in the non-users [$t(321)=3.933$, $p<0.001$].

DISCUSSION

To the best of our knowledge, our study is the first community-based scale development study that intends to evaluate stigmatization against patients who experienced COVID-19. The adoption of scales that are not COVID-19 specific (5,7) or stigmatization in the items created by the researchers (15) was evaluated. Furthermore, stigma scales are presented as recommendations (16). However, these studies' validity and reliability analyses were either not done at all or not on the desired level. The scale we developed based on this gap in the literature was shown to be a valid and reliable tool for evaluating stigmatization against patients who experienced COVID-19.

The CSS, which was completed through in-person interviews with the participants, revealed a three-factor configuration that was found to be valid and reliable for psychometric assessment. The factor constructs of the scale are generally in conformity with the conceptual foundation of stigmatized beliefs, attitudes, and behaviors. The first factor we call rejection in our scale evaluates avoiding both close and social relations, in other words, rejecting the establishing relationships with the patients. Not approving being in a close relationship with people who experienced COVID-19, not wanting to live and travel in the same environment, not wanting their kid to be in the same environment, and being concerned or uncomfortable while in the same environment are suitable for the denomination of this factor. Rejection was defined as the first stage in Rosenberg's (17) study, which attempts to determine the social stages of epidemics. The researcher who took inspiration from the book of Albert Camus while identifying these phases suggested that society, in the first place, attempts to reject the presence of epidemics to secure themselves and protect their financial interests (14). From this perspective, rejection is the first stage in which society begins to stigmatize.

Meanwhile, this rejection continues and becomes an individual attitude in further stages. Link and Phalen (8) in 2001 reported that another important component of stigmatization is ironically "power". It was stated that the main structure of this power comprised factors such as not approving, excluding, discriminating, categorizing, and rejecting (18,19). Considering the items under the second factor

Table 4. Relationship of scale with pandemic experiences

Variables	n (%)	CSS scores	Statistical analysis		
			t/F	p	
Post-pandemic income level	Reduced	95 (29.4)	15.12±12.39	5.580	0.004
	Not changed	194 (60.1)	13.46±11.87		
	Increased	34 (10.5)	7.29±9.13		
Post-pandemic job loss	No	277 (85.8)	13.15±12.16	-0.558	0.577
	Yes	46 (14.2)	14.21±10.64		
Experiencing COVID-19 infection	No	67 (20.7)	14.37±12.55	3.174	0.002
	Yes	256 (79.3)	9.23±8.14		
Experiencing COVID-19 infection in the family	No	118 (36.5)	14.35±13.00	2.082	0.038
	Yes	205 (63.5)	11.49±9.61		
Experiencing COVID-19 infection in a close environment	No	277 (85.8)	15.71±14.43	1.481	0.140
	Yes	46 (14.2)	12.90±11.46		
Have a relative who died of COVID-19	No	252 (78)	13.17±12.35	1.344	0.511
	Yes, a first-degree relative	11 (3.4)	15.54±13.37		
	Yes, a second- or third-degree relative	60 (18.6)	13.45±9.88		
How much did the pandemic affect you?	Not at all	17 (5.3)	12.70±14.52	0.604	0.660
	Slightly	38 (11.8)	14.73±14.61		
	Moderately	114 (35.3)	14.26±11.40		
	Significantly	72 (22.3)	12.09±11.42		
	Very much	82 (25.4)	12.50±11.31		

Bold characters indicate statistical significance. CSS: COVID-19 Stigma Scale, COVID-19: Coronavirus disease-2019.

of the scale, it was found appropriate to call this sub-dimension discrimination. Items such as not wanting to meet friends who experienced COVID-19, thinking about re-evaluating the relationship after the partner experiences COVID-19, not employing people who experienced COVID-19, and showing less respect by the society are placed in a common structure about discrimination. While discrimination is an important part of all types of stigmatization, it is one of the main components of social stigmatization. Social stigmatization exists based on society's stereotypes, prejudices, and discriminatory beliefs (18). On the other hand, a main component of discrimination, "social stigmatization" is closely related to other types of stigmatizations (primary, secondary, corporate, and structural stigmatization), and social stigmatization can be a result of and a reason for other types of stigmatizations (20). Because the COVID-19 pandemic is not limited to an individual level and impacts social habits, attitudes, and perceptions, stigmatization of COVID-19 is clearly a type of social stigmatization. Discrimination is also a component of stigmatization.

Because of the studies in the literature, it was concluded that stigmatization has phases such as "labeling", "stereotyping", "prejudice", "loss of social status and discrimination" (19). These phases are not distinguished from each other with clear borders, and it is possible to see that one of them can embody one another or others at the same time. Although emotional reactions were not discussed much in the initial studies on stigmatization, Link et al. (21) emphasized that emotional reactions are an important part of the stigmatization process. When stigmatization occurs, emotions emerge in both the stigmatizer and the stigmatized. The severity of these emotions is closely related to the depth of stigmatization. The third factor in our scale clearly demonstrates the emotional reactions that emerge despite stigmatization. Items such as blaming people who experienced COVID-19, seeing them as the source of concern of society, and as the main reason for the recent unhappiness they experienced explicitly include these emotional reactions. Considering the scale factors in light of the information from the literature, it seems suitable for the conceptual content of stigmatization. On the other hand, as mentioned by the researchers, the relationship between these factors is highly dynamic, and its boundaries are not clear.

It is a known fact that humans can marginalize others with an instinct to protect themselves despite situations or events that they are not knowledgeable about (22). In other words, people create a border with another by stigmatizing them. Therefore, they feel safe in their inner world. The relationship between stigmatization and lack of information is clearly observed in both psychiatric and medical illnesses (23). For example, the less knowledgeable individuals are about schizophrenia, the more they tend to stigmatize them (22,23). It has been demonstrated that providing information about diseases reduces negative opinions and stigmatization about the disease (24,25). The moderately significant negative correlation ($r=-0.301$, $p<0.001$) between the CSS scale developed in our study and the total scores in the CIQ shows the validity of the scale. In addition, stigmatization level was high in individuals with lower levels of education (Table 3). Studies on stigmatization of the COVID-19 pandemic demonstrate that individuals with low educational levels are under social media impression and engage in stigmatization to a higher degree (10).

Behaviors such as stigmatization, discrimination, marginalization, and avoidance emerged in past epidemics such as the COVID-19 pandemic (26). Because of the potentially lethal situations, new diseases and incurable/unknown diseases are defined as factors related to an increased risk of stigmatization (27). The COVID-19 pandemic is the first pandemic that occurred in an era in which communication networks were developed to such an extent, despite having similarities to other pandemics. This pandemic we live through has created many specific conditions because of the period we live in.

Investigating the impact of these conditions, Yuan et al. (28) recently compared individuals who experienced COVID-19 with healthy controls in terms of self-stigma. This study yielded very striking outcomes. For individuals who experienced COVID-19, stigmatization areas such as social rejection, financial insecurity, internalized embarrassment, and social isolation were significantly higher than those in healthy controls. The researchers who evaluated factors related to stigmatization stated that male gender, low educational level (high school and below), unemployment, experiencing COVID-19 by a family member, and economic loss variables were closely related to stigmatization. Another study was conducted with 7411 participants from 173 countries (29). This study had a cross-sectional design, and it was found that 27.3% of the participants believed that people spoke ill or spread rumors about individuals who experienced COVID-19. However, as one of the most important study results, one out of five persons in the sample (21.9%) believed that people who experienced COVID-19 lost their dignity and status in society (29). In our study, the total score on the scale was significantly higher in people who had lower income levels in the post-pandemic period, people who did not experience COVID-19 infection, and people whose family did not experience COVID-19 than in other categories (Table 4). These results demonstrate that the scale has a predictive character. Additionally, the level of stigmatization against people who experienced COVID-19 by people who used alcohol was significantly lower than that against those who did not use alcohol (Table 3). These results can be explained by the higher education level of individuals who use alcohol (14.82 ± 3.52 vs. 11.78 ± 4.40 , $p<0.001$). The lack of a detailed investigation of alcohol use makes it harder to interpret the outcomes obtained in the respective field.

Conducting the study face-to-face and reaching a sample beyond the necessary sample for developing the scale are the strengths of the study. We believe that our study will provide important contributions to the literature in measuring COVID-19-related stigma, which is also considered a public health problem. These evaluations will provide a basis for further studies.

Study Limitations

However, our study has certain limitations. The COVID-19 pandemic is a dynamic process in which individuals' perceptions and attitudes can change periodically. Conducting this study in a specific period might be a particular limitation. It should also be noted that although there were individuals from each education group in our study, the average years of education were above the country average, and the study represents the results of a single center.

CONCLUSION

With this study attended by enough persons from every educational level in society and conducted by in-person interviews, the 19-item three-factor CSS was found to be valid and reliable. For both the total and scale factors, Cronbach's alpha internal consistency coefficients were found to be sufficient. Evaluating the stigmatization attitude against people who experienced COVID-19 and taking necessary measures in this context will play a key role in preventing possible psychiatric disorders and trauma experienced by society.

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Ethics

Ethics Committee Approval: Ethical permission for the study was obtained from the Kocaeli University Non-invasive Clinical Research Ethical Committee (approval number: KÜ GOKAEK-2021/7.18, project number: 2021/134).

Informed Consent: Written consent was obtained from all participants who agreed to participate in the study.

Authorship Contributions

Concept: B.G., M.Y., Design: B.G., M.Y., Data Collection or Processing: B.G., M.Y., Analysis or Interpretation: B.G., Literature Search: B.G., M.Y., Writing: B.G., M.Y., Critical Review: B.G., M.Y.

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Appendix 1A. COVID-19 Stigma Scale**Name:****Date:** / /

Below are the thoughts and attitudes regarding COVID-19 patients. Please indicate at what level you agree with the ideas in each item by ticking (✓) the most appropriate option. Thank you for participating in this study.

Completely disagree Disagree Slightly agree Agree Completely agree

- 1 People who experienced COVID-19 cannot be considered “normal” even if they have recovered.
- 2 I would feel uncomfortable near a person who has experienced COVID-19.
- 3 I don’t want my kid to be in the same environment as a person who has experienced COVID-19.
- 4 I would be extremely concerned if a person who experienced COVID-19 coughs around me.
- 5 I do not want to live, work, or travel with someone who has experienced COVID-19 in the same environment.
- 6 People who have experienced COVID-19 should not stroll around in society.
- 7 People who have experienced COVID-19 should be kept at a more physical distance.
- 8 People who have experienced COVID-19 should not be in close contact with family members.
- 9 Society should have less respect for people with COVID-19.
- 10 Even if my friend who has COVID-19 has recovered, I would not want to meet her/him.
- 11 People who have experienced COVID-19 should be ashamed of their illness.
- 12 If my partner experienced COVID-19, I would re-evaluate our relationship.
- 13 It is normal not to employ people who have experienced COVID-19.
- 14 People who experienced COVID-19 should not eat in crowded places.
- 15 People who experienced COVID-19 are paying for their sins.
- 16 People who experienced COVID-19 were inattentive and careless.
- 17 People who experienced COVID-19 are responsible for their illness.
- 18 Patients with COVID-19 are the primary worry of society.
- 19 The main reason for our recent unhappiness is that COVID-19 patients.

Appendix 1A. Turkish version of COVID-19 Stigma Scale

İsim:

Tarih: / /

Aşağıda COVID-19 hastalarıyla ilgili düşünce ve tutumlar yer almaktadır. Lütfen her bir maddedeki fikirlere hangi düzeyde katıldığınızı en uygun seçeneği (✓) işaretleyerek belirtiniz. Çalışmaya katıldığınız için teşekkür ederiz.

Kesinlikle Katılmıyorum Biraz Katılıyorum
katılmıyorum Katılıyorum Tamamen Katılıyorum

- 1 COVID-19 geçiren kişiler iyileşmiş olsalar bile "normal" değerlendirilmez.
- 2 COVID-19 geçirmiş bir kişinin yanında kendimi huzursuz hissedirim.
- 3 Çocuğumun COVID-19 geçirmiş bir kişiyle aynı ortamda olmasını istemem.
- 4 COVID-19 geçirmiş bir kişi yanımda öksürürse çok endişelenirim.
- 5 COVID-19 geçirmiş biriyle aynı ortamda yaşamak, çalışmak veya seyahat etmek istemem.
- 6 COVID-19 geçirmiş kişiler toplumda dolaşmamalıdır.
- 7 COVID-19 geçirmiş kişilere karşı daha fazla fiziksel mesafe koyulmalıdır.
- 8 COVID-19 geçirmiş kişiler aile üyeleriyle yakın temasta bulunmamalıdır.
- 9 Toplum, COVID-19 geçirmiş kişilere daha az saygı duymalıdır.
- 10 COVID-19 olan bir arkadaşım iyileşse bile onunla görüşmek istemem.
- 11 COVID-19 geçirmiş insanlar hastalıklarından utanmalıdır.
- 12 Partnerim COVID-19 geçirirse ilişkimizi yeniden değerlendiririm.
- 13 COVID-19 geçirmiş kişilere iş vermemek normaldir.
- 14 COVID-19 geçirmiş kişiler kalabalık ortamlarda yemek yememelidir.
- 15 COVID-19 geçirmiş insanlar günahlarının bedelini ödüyor.
- 16 COVID-19 geçirmiş insanlar dikkatsiz ve özensizdir.
- 17 COVID-19 geçirmiş kişiler hastalıklarından kendileri sorumludur.
- 18 COVID-19 hastaları toplumun birincil endişe kaynağıdır.
- 19 Son zamanlardaki mutsuzluğumuzun asıl sebebi COVID-19 hastalarıdır.

Appendix 1B. COVID-19 Information Questionnaire

No	Item	True	False
1	COVID-19 is a virus-transmitted disease.		
2	COVID-19 is transmitted by both droplets and direct contact.		
3	COVID-19 improves with antibiotics.		
4	Pets and street animals are a risky group in terms of transmission.		
5	Children do not easily catch COVID-19.		
6	COVID-19 is more severe in the elderly.		
7	COVID-19 often leads to death.		
8	Those with COVID-19 often have sequela that worsens their quality of life.		
9	Headache, fever, cough, and sore throat are the main symptoms of COVID-19.		
10	Frequent gargling kills the coronavirus.		
11	Malaria drugs are the most effective in the fight against COVID-19.		
12	In the fight against COVID-19, frequent hand washing is sufficient.		
13	Sun rays kill coronavirus.		
14	Wind is an important factor in the spread of coronavirus.		
15	A person who catches COVID-19 will not get COVID-19 again.		

Scoring:

The answers to the above statements are given below.

1: True, 2: True, 3: False, 4: False, 5: False, 6: True, 7: False, 8: False, 9: True, 10: False, 11: False, 12: False, 13: False, 14: False, 15: False. In questions "1st, 2nd, 6th, and 9th", the "True" answer is "1" point, and marking the "False" answer is "0". In questions "3rd, 4th, 5th, 7th, 8th, 10th, 11th, 12th, 13th, 14th, and 15th", the "False" answer is "1" and marking the "True" answer is "0." Higher scores suggest that the person has more accurate information about COVID-19. COVID-19: Coronavirus disease-2019.

Appendix 1B. Turkish version of COVID-19 Information Questionnaire

No	İfade	Doğru	Yanlış
1	COVID-19 virüsle bulaşan bir hastalıktır.		
2	COVID-19 hem damlacık yoluyla hem de doğrudan temas yoluyla bulaşır.		
3	COVID-19 antibiyotiklerle iyileşme gösterir.		
4	Evcil hayvanlar ve sokak hayvanlar bulaş açısından riskli bir gruptur.		
5	Çocuklar COVID-19'a kolay kolay yakalanmazlar.		
6	Yaşlılarda COVID-19 daha ağır seyretmektedir.		
7	COVID-19 sıklıkla ölüme yol açar.		
8	COVID-19 hastaları genellikle yaşam kalitelerini kötüleştiren bir sekel yaşarlar.		
9	Baş ağrısı, ateş, öksürük ve boğaz ağrısı COVID-19'un temel semptomlarıdır.		
10	Sık sık gargara yapmak koronavirüsü öldürür.		
11	Sıtma ilaçları COVID-19 ile mücadelede en etkin ilaçlardır.		
12	COVID-19 ile mücadelede sık el yıkamak yeterlidir.		
13	Güneş ışınları koronavirüsü öldürür.		
14	Rüzgar, koronavirüsün yayılmasında önemli bir etkidir.		
15	COVID-19'a yakalanan bir kişi bir daha COVID-19 geçirmez.		

Puanlama:

Yukarıda yer alan ifadelerin yanıtları aşağıda belirtilmiştir.

1: Doğru, 2: Doğru, 3: Yanlış, 4: Yanlış, 5: Yanlış, 6: Doğru, 7: Yanlış, 8: Yanlış, 9: Doğru, 10: Yanlış, 11: Yanlış, 12: Yanlış, 13: Yanlış, 14: Yanlış, 15: Yanlış. "1., 2., 6. ve 9." sorularda doğru yanıt "1" puan, yanlış yanıtın işaretlenmesi ise "0" puandır. "3., 4., 5., 7., 8., 10., 11., 12., 13., 14. ve 15." sorularda yanlış yanıt "1" puan, doğru yanıtın işaretlenmesi ise "0" puandır. Puanların yükselmesi kişinin COVID-19 hakkında daha fazla doğru bilgiye sahip olduğunu düşündürmektedir. COVID-19: Koronavirüs hastalığı-2019.