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The Somatosensory Perceptions of Individuals Living in Istanbul During the Covid-19 Pandemic Process

İstanbul'da Yaşayan Bireylerin Covid-19 Pandemi Sürecinde Bedensel Duyum Algıları

Gülcan Kendirkıran[1*], Esra Uslu[2]

[1]Haliç Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, İstanbul, Türkiye
[2]Eskişehir Osmangazi Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Eskişehir, Türkiye

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ABSTRACT

Aim: This study was planned to evaluate individuals' somatosensory perceptions during the pandemic process. **Subjects and Method:** The study used a descriptive and cross-sectional design and was carried out with the participation of 613 individuals who are aged between 18 and 65 and live in Istanbul. Data were collected using a Personal Information Form and the Somatosensory Amplification Scale (SSAS). Mann-Whitney U test, Kruskal-Wallis H test, and Bonferroni correction were used for data analysis. **Results:** According to the findings, 69.3% of the participants were female, 53% had a university degree, and 12.4% had chronic diseases. The SSAS scores were statistically significantly higher in those who were female (Z=-6.028, p=0.000), had a chronic disease (Z=-2.760; p=0.006), were afraid that they/their family members would get infected with COVID-19 (Z=-4.220; p=0.000), had tested positive for COVID-19 (Z=-2.305; p=0.021), and had a relative who tested positive for COVID-19 (Z=-2.549; p=0.011) (p<0.05). Also, 84.3% of the participants stated that they were afraid they/their family members would be diagnosed with COVID-19. The examination of the risk factors affecting the participants' somatosensory amplification status indicated that age (β= -0.088; p=0.038), sex (β= -0.232; p<0.001), presence of a chronic disease (β= -0.116; p<0.005), fear that they/ their family members would test positive for COVID-19 (β = -0.175; p<0.001), and being diagnosed with COVID-19 (β= -0.089; p=0.025) were negative risk factors **Conclusion:** This study revealed that individuals exaggerated their somatic sensations during the pandemic process. In addition, age, sex, the presence of chronic diseases, fear that they/their family members would be diagnosed with COVID-19, and getting a diagnosis of COVID-19 were found to be risk factors in terms of amplifying somatic sensations. It is believed that the results obtained from this study will be a guide in developing strategies and helpful approaches to support individuals in terms of psychosocial and psychosomatic perceptions during the pandemic process.

Keywords: COVID-19, pandemic, somatic sensations

Makale Bilgisi

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ÖZ

Amaç: Bu çalışma, bireylerin pandemi sürecinde bedensel duyum algılarını değerlendirmek amacıyla planlanmıştır. **Örneklem ve Yöntem:** Çalışma, tanımlayıcı ve kesitsel desende tasarlanmıştır. Araştırma, İstanbul'da yaşayan 18-65 yaş arası 613 bireyin katılımı ile tamamlanmıştır. Veriler, Kişisel Bilgi Formu ve Bedensel Duyumları Abartma Ölçeği ile toplanmıştır. Verilerin analizinde, Mann-Whitney U test, Kruskal-Wallis H test ve Bonferroni düzeltmesi uygulanmıştır. **Bulgular:** Katılımcıların, %69,3'ünün kadın, %53'ünün üniversite mezunu, %12,4'ünün kronik hastalığı olduğu belirlenmiştir. Çalışmaya katılan kişilerde, kadınların (Z=-6,028, p=0,000), kronik hastalığı olanların (Z=-2,760; p=0,006), kendisinin/yakınının Covid-19 tanısı alma korkusu olanların (Z=-4,220; p=0,000), kendi (Z=-2,305; p=0,021) ve yakını Covid-19 tanısı alanların (Z=-2,549; p=0,011) SSAS puanları istatistiksel olarak anlamlı düzeyde daha yüksek bulunmuştur (p<0,05). Katılımcıların %84,3'ünün kendisinin/yakının Covid-19 tanısı almasından korktuğunu belirtmiştir. Beden duyumlarını abartma durumunu etkileyen risk faktörleri incelendiğinde yaşın (β=-0,088; p=0,038), cinsiyetin (β=-0,232; p<0,001), kronik hastalık varlığının (β=-0,116; p<0,005), kendisinin/yakınının Covid-19 tanısı almasından korkmasının (β=-0,175; p<0,001) ve Covid-19 tanısı almanın (β=-0,089; p=0,025) negatif yönde etkileyen bir risk faktörü olduğu görülmüştür. **Sonuç:** Bu araştırma, bireylerin pandemi sürecinde bedensel duyumlarını abarttığını ortaya koymuştur. Ayrıca yaşın, cinsiyetin, kronik hastalık varlığının, kendisinin ve bir yakının Covid-19 tanısı almasından korkmasının ve kendisinin Covid-19 tanısı almasının bedensel duyumları abartma açısından risk faktörü olduğu tespit edilmiştir. Bu araştırmadan elde edilen sonuçların pandemi sürecinde bireyleri psikososyal ve psikosomatik algılar yönünden desteklemek için geliştirilecek stratejiler ve yardımcı yaklaşımlar açısından yol gösterici olacağına inanılmaktadır.

Anahtar Kelimeler: COVID-19, pandemi, bedensel duyumlar

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[*]**Sorumlu yazar/Corresponding Author:** Gülcan Kendirkıran, gulcank_87@hotmail.com

Introduction

Since the emergence of COVID-19 in Wuhan province of China as of December 2019, millions of people have been infected, hundreds of thousands of people have died worldwide, and the number of deaths and cases has continued to increase rapidly in this process (Huang et al., 2020; Tian et al., 2020; Wang Z. et al., 2020; WHO, 2020). The common symptoms of this disease are related to the respiratory system, especially the lungs (Zhou et al., 2020), and it is characterized by progressive respiratory failure and may even result in death; yet, its severity is different in each patient (Aktoz et al., 2020). The ease of transmission of the virus, the presence of chronic diseases, immune deficiency, delayed tests, limited medical equipment, and the uncertainty of the pandemic trajectory (Alharbi et al., 2020) negatively affect people and increase anxiety in the community (Uslu, 2020).

During the pandemic, healthcare professionals and healthy/sick individuals experience anxiety, fear, and pessimism, and these psychological effects can cause negative consequences in the long run (Jungmann & Witthöft, 2020). The disease has different levels of effects on each individual and leads to different levels of health anxiety (Nakao & Barsky, 2007; Hart & Björgvinsson, 2010; Kandemir & Ak, 2013). Depending on somatic sensations, symptoms, and test results, individuals with pathological levels of anxiety may seek healthcare to improve their condition (Brown et al., 2020; Kosic et al., 2020). Amplification of somatosensory perceptions means individuals perceive normal bodily sensations as more intense, harmful, and disturbing than normal (Taycan et al., 2017). There are three situations in somatosensory amplification. These are; increased attention and arousal to bodily sensations, selective concentration on some weak and rare sensations, responding to bodily sensations with affects and cognitions that make them more uncomfortable and threatening (Güleç et al., 2007). Individuals exhibit negative attitudes towards the disease and complain about mental and physical symptoms a lot (Aydemir et al., 2013; Kaya et al., 2015). Individuals with high bodily sensations in situations outside the normal order such as COVID-19, especially use primary health care services more and create an intensity there, increase the workload of health workers, and aggression can be seen in individuals with the stress experienced. For this reason, evaluating the somatic sensations, which are an indicator of the stress experienced by the society during the pandemic, is important for stress management. Therefore, the study was planned to evaluate the somatosensory perceptions of individuals during the pandemic process.

Research Questions

- Is the pandemic process effective on bodily sensation perceptions?
- Do sociodemographic characteristics have an effect on bodily sensation perceptions?
- Does the individual or their relative's being diagnosed with Covid-19 have an effect on their bodily sensation perceptions?

Subjects and Method

Research Type and Place

A descriptive cross-sectional design was employed in the study. The study was carried out in Istanbul between June 2020 and August 2020.

Research Population and the Sample

The study was planned to determine the somatosensory amplification status of individuals living in Istanbul during the COVID-19 process. The inclusion criteria targeted individuals (i) who were between the ages of 18 and 65, (ii) volunteered to participate in the study, (iii) and had a device to participate in the study online.

According to the 2019 data of the Turkey Statistical Institute (TURKSTAT), the population of Istanbul regarding individuals between the ages of 18 and 65 is 9,472.040. This number constituted the population of the study (N= 9,472.040). As a result of the power analysis based on 90% power, 5% margin of error, and d = 0.150 effect size, a total of at least 469 subjects were found to be adequate for the study. The study was completed with the participation of 613 individuals. Istanbul was chosen because the highest number of patients was in Istanbul during the pandemic process.

Variables of the Study

The dependent variables of the study were the scores of the individuals on the Somatosensory Amplification Scale; The independent variables were determined as individuals' personal characteristics and Covid-19 diagnoses.

Data Collection Procedure

The number of subjects was determined based on the data of TURKSTAT, and the participants were reached using the snowball method and informed about the study. Each participant completed the questionnaires only once, and the online questionnaire was limited to prevent refilling. Participants who volunteered to participate in the study marked the written consent form before starting the questionnaire and then accessed the questionnaire. The questionnaire, which took about 5 minutes to complete, was sent to the mobile phones of the individuals who agreed to participate in the study. The contact information of the researchers was shared with the participants so that they could come up with solutions when the participants encountered problems while responding to the questionnaire.

Data Collection Tools

The personal information form

This form was developed by the researchers based on the literatüre (Aktoz et al., 2020; Jungmann & Witthöft, 2020). It has 13 items and aims to collect data about the sociodemographic characteristics of the participants and their perceptions/experiences about the COVID-19 process.

The Somatosensory Amplification Scale (SSAS)

This scale was developed by Barsky et al. (Güleç et al., 2007). The Turkish validity and reliability study was carried out by Güleç et al. (2007). It consists of 10 items, which are about a range of disturbing somatic sensations, most of which do not indicate an illness. A total amplification score is obtained by summing the scores of the items. Each item is scored between 1 and 5. The score to be taken from the scale varies between 10-50. A high score on the scale indicates that bodily sensations are exaggerated more. The total score is evaluated as the amplification score. In the internal consistency analysis of the scale, Cronbach's Alpha values were found to be between 0.62-0.76. In this study, Cronbach's Alpha coefficient of the scale was found as 0.667.

Data Analysis

Statistical analyses were carried out using a statistical software package. Frequency tables and descriptive statistics were used in the interpretation of the findings. Nonparametric methods were used for measurement values that were not suitable for normal distribution. In accordance with the non-parametric methods, the "Mann-Whitney U" test (Z-table value) was used to compare the measurement values of two independent groups, and the "Kruskal-Wallis H" test (χ2-table value) was used to compare the measurement values of three or more independent groups. The Bonferroni correction was employed for paired comparisons of variables that yielded a significant difference in three or more groups. Multivariate linear regression analysis was also performed for the variables.

Ethical Considerations

To implement the study, ethical approval was obtained from the Haliç University Non-Interventional Clinical Research Ethics Committee (Date: 18/05/2020, Issue: 22), and permission to utilize the scale was obtained from its authors. After the necessary permissions were obtained, written consent of all participants was obtained before the study began.

Results

In line with the distribution of the findings related to the scale and the reliability coefficient, it was determined that answers given to the scale were reliable enough (Table 1).

Table 1. Distribution of Findings Regarding the Somatosensory Amplification Scale

Scale (N=613)	$\bar{X}$	S.D.	Median	Min.-Max.
The Somatosensory Amplification Scale	30.37	6.74	30.0	10.0-49.0
	Number of items		Cronbach's-α coefficient	
	10		0.667	

Min.: Minimum, Max: Maxiumum, S.D.: Standard deviation.

The mean age of the participants was 32.39±12.00 (years). It was determined that 69.3% of the participants were female, 53% had a university degree, 54.8% had equal income and expenses, and that 12.4% had chronic diseases. Also, 27.6% of them had a family member who worked as a healthcare worker, 43.3% of the healthcare workers were nurses, 84.3% of the participants stated that they were afraid they/their relatives would be diagnosed with COVID-19. Moreover, 2.1% of the participants and family members of 28.9% had been diagnosed with COVID-19 and 80.6% had received training/information about COVID-19 (Table 2).

Table 2. Distribution of Findings About the Participants

Variable (N=613)	n	%
Age		
≤20	111	18.1
21-30	**186**	**30.3**
31-40	167	27.2
≥40	149	24.3
Sex		
Female	**425**	**69.3**
Male	188	30.7
Level of education		
Literate	3	0.5
Primary school	45	7.3
High school	147	24.0
University	**325**	**53.0**
Graduate	93	15.2
Level of income		
Income less than expenses	133	21.7
Equal income and expenses	**336**	**54.8**
Income more than expenses	144	23.5
Presence of a chronic disease		
Yes	76	12.4
No	**537**	**87.6**
Healthcare worker in the family		
Yes	169	27.6
No	**444**	**72.4**
Relation to the healthcare worker in the family		
Relative	**82**	**47.4**
Father	4	2.3
Sibling	43	24.8
Spouse	19	11.0
The person himself/herself	25	14.5
Occupation of the healthcare worker in the family		
Doctor	51	29.5
Chemist	14	8.1
Nurse	**75**	**43.3**
Health manager	9	5.2
Other healthcare occupations	24	13.9
Fear of getting infected with COVID-19 in the person or their family members		
Yes	**517**	**84.3**
No	96	15.7
Diagnosed with COVID-19		
Yes	13	2.1
No	**600**	**97.9**
A family member diagnosed with COVID-19		
Yes	177	28.9
No	**436**	**71.1**
Receiving training/information about COVID-19		
Yes	**494**	**80.6**
No	119	19.4

The Somatosensory Amplification Scale scores of the participants who were female (Z= -6.028, p=0.000), had a chronic disease (Z= -2.760; p=0.006), were afraid that they/their family members would get infected with COVID-19 (Z= -4.220; p=0.000), had tested positive for COVID-19 (Z= -2.305; p=0.021), and had a relative who had tested positive for COVID-19 (Z= -2.549; p=0.011) were found statistically significantly higher ($p<0.05$) (Table 3).

There was no statistically significant difference between the Somatosensory Amplification Scale scores of the participants in terms of their age, education level, income level, presence of a healthcare worker in the family, and receiving information/education about COVID-19 (p>0.05) (Table 3).

Table 3. Comparison of the Somatosensory Amplification Scale Scores

Variable (N=613)	n	The Somatosensory Amplification Scale		Statistical analysis* Likelihood
		$\bar{X}$±S.D.	Median [IQR]	
Age				
≤20	111	30.2±6.29	30.0 [9.0]	
21-30	186	30.9±6.70	31.5 [9.3]	χ^2=1.901
31-40	167	29.6±7.13	30.0 [10.0]	p=0.593
≥40	149	30.2±6.70	30.0 [9.0]	
Sex				
Female	425	31.4±6.44	32.0 [9.0]	Z=-6.028
Male	188	27.7±6.73	27.0 [9.0]	**p=0.000**
Level of education				
Primary school or lower	48	30.5±5.80	32.0 [7.8]	
High school	147	29.6±6.34	29.0 [8.0]	χ^2=2.885
University	325	30.4±7.17	30.0 [10.0]	p=0.410
Graduate	93	30.9±6.31	32.0 [9.5]	
Level of income				
Income less than expenses	133	30.4±7.51	30.0 [10.0]	χ^2=0.392
Equal income and expenses	336	30.2±6.40	30.0 [9.0]	p=0.822
Income more than expenses	144	30.4±6.85	30.0 [8.0]	
Presence of a chronic disease				
Yes	76	32.4±6.79	32.0 [10.8]	Z=-2.760
No	537	30.0±6.69	30.0 [8.0]	**p=0.006**
Healthcare worker in the family				
Yes	169	30.7±6.76	30.0 [10.0]	Z=-0.951
No	444	30.1±6.74	30.0 [9.0]	p=0.342
Fear of getting infected with COVID-19 in the person or their family members				
Yes	517	30.8±6.59	31.0 [9.0]	Z=-4.220
No	96	27.3±6.86	27.0 [9.8]	**p=0.000**
Diagnosed with COVID-19				
Yes	13	34.1±4.63	34.0 [5.5]	Z=-2.305
No	600	30.2±6.76	30.0 [9.0]	**p=0.021**
A family member diagnosed with COVID-19				
Yes	177	31.2±6.54	32.0 [9.5]	Z=-2.549
No	436	29.9±6.80	30.0 [8.0]	**p=0.011**
Receiving training/information about COVID-19				
Yes	494	30.3±6.48	30.0 [9.0]	Z=-0.348
No	119	30.2±7.79	30.0 [9.0]	p=0.728

*Mann-Whitney U test (Z-table value) was used for comparing the measurement values of two independent groups in data with non-normal distribution; Kruskal-Wallis H test (χ2-table value) statistics were used to compare three or more independent groups.

The examination of risk factors affecting participants' somatosensory amplification status indicated that age (β= -0.088; p=0.038), sex (β= -0.232; p<0.001), presence of chronic diseases (β= -0.116; p<0.005), fear that they/their family members would be diagnosed with COVID-19 (β= -0.175; p<0.001), and being diagnosed with COVID-19 (β= -0.089; p=0.025) were found to be risk factors affecting negatively (Table 4).

Table 4. Factors Affecting the Overall SSAS Score

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
	B	SE	β			Lower Bound	Upper Bound
(Constant)	54.146	4.728		11.452	**.000**	44.861	63.432
Age	-.049	.024	-.088	-2.077	**.038**	-.096	-.003
Gender	-3.395	.574	-.232	-5.916	**.000**	-4.521	-2.268
Education	.236	.325	.028	.727	.468	-.402	.875
Income	.114	.389	.011	.294	.769	-.649	.878
Chronic disease	-2.373	.853	-.116	-2.783	**.006**	-4.047	-.698
Presence of a healthcare worker in the family	-.412	.586	-.027	-.702	.483	-1.563	.740
Fear of getting infected with COVID-19 in the person or their family members	-3.245	.733	-.175	-4.430	**.000**	-4.684	-1.807
Diagnosed with COVID-19	-4.150	1.845	-.089	-2.249	**.025**	-7.774	-.526
A family member diagnosed with COVID-19	-.877	.589	-.059	-1.490	.137	-2.033	.279
Receiving training/information about COVID-19	-.249	.658	-.015	-.379	.705	-1.542	1.043

$p<0.001$, Multivariate linear regression analysis

Discussion

Moreover, age, sex, the presence of a chronic illness, fear that they/their family members would be diagnosed with COVID-19, and being diagnosed with COVID-19 were found to be risk factors in terms of exaggerating bodily sensations.

COVID-19 is not only an infectious pandemic but also a public health problem that causes anxiety and fear in people due to the risk of death (Alimoğlu & Erol, 2020). Because of the fear of transmitting infection during the pandemic process, healthcare workers separate from their family members and homes and live away from their loved ones (Enli Tuncay et al., 2020; Mo et al., 2020). This anxiety and fear experienced by both healthcare professionals and healthy/sick individuals can also affect their somatosensory perceptions (Özsoy & Kulu, 2019). In this context, the somatosensory perceptions of individuals during the pandemic process were evaluated, and the mean somatosensory amplification score of the participants was found as 30.3±6.74. This study revealed that factors, such as a person's/person's family member's getting or fear of getting infected with COVID-19, being a female, and the presence of chronic diseases, were effective in amplifying somatic sensations. It is thought that these results can be a guide in understanding how people perceive symptoms that are present or that people think they are present and in determining the approaches towards individuals with this regard.

The majority of COVID-19 cases include individuals with advanced age and chronic diseases (Abajo et al., 2020). This increases the risk of the disease becoming more severe and resulting in death (Chams et al., 2020). Arons et al. (2020) stated that 98% of patients diagnosed with COVID-19 had another disease. Similar to the literature, in this study, 12.4%

of the participants, regardless of age, stated that they had a chronic illness. According to the results of this study, chronic disease and age were risk factors affecting participants' amplification of somatic sensations. The somatosensory amplification status was found to be significantly higher in individuals with chronic diseases. It can be thought that individuals with chronic diseases have a higher risk of having COVID-19, so these individuals may perceive and exaggerate their bodily sensations differently. This result highlights the importance of the close follow-up of individuals with chronic diseases and the psychological support to be provided to them.

Studies conducted during the pandemic process have revealed gender differences in various issues, such as disease pathophysiology and effects, duration of occurrence, response to treatment, and disease levels (Machluf et al., 2020; Mauvais-Jarvis et al., 2020). In this study, female participants (n:424) had higher somatosensory amplification scores compared to those of males. Aronson et al. (2001) and Kulu et al. (2020) determined no differences between sexes; yet, the scores of females were found significantly higher in the study conducted by Bridou and Agurre (2013). The examination of the participant profiles related to COVID-19 indicated that although the mortality rate in male gender was high and the course of the disease was worse (Chen et al., 2020; Haitao et al., 2020), females were more effective in recognizing their emotions than males (Güçlü et al., 2013), which may suggest that they listen to the developments in their body more and amplify their somatic sensations by approaching this process more emotionally under their “mother, wife, and working” roles. For this reason, this study revealed that being a female was a risk factor for exaggerating bodily sensations, which indicates that necessary steps should be taken to prevent them from further perceiving the stress due to their roles and disease symptoms and that health professionals should emphasize this issue in support programs they develop.

During the pandemic process, individuals think that they are sick even if they are not, and in addition, they experience despair, stigma, and fear of death (Wang C. et al., 2020). In this study, those who feared that they/their relatives would be diagnosed with COVID-19 (84.3%) had higher somatosensory amplification scores, and this was determined to be a risk factor for exaggerating somatic sensations. Wang C. et al. (2020) reported that 40.7% of the participants in their study stated that they were somewhat worried that their family members would be diagnosed with COVID-19. Although the status of individuals’ fear that they/their family members would be diagnosed with COVID-19 varied by country, it was observed to be a worrying situation. The fear caused by the disease may lead to bodily sensations to be perceived more.

Individuals diagnosed with the disease may experience psychosocial problems, such as anxiety, fear, panic, and suicidal thoughts, negative social behaviours, skewed detection processes, due to exaggerating bodily sensations and not knowing the course of the disease (Wang C. et al., 2020; Yazıcı et al., 2021). In addition to China, the effects of the epidemic period on mental health are among the priority issues to be investigated in countries such as the USA, Italy, the United Kingdom, Iran and Brazil, which are largely affected by COVID-19, and in countries such as Singapore and Germany, which are considered to have successfully managed the epidemic process. and solution-oriented inclusive strategies have been tried to be built for this (Yazıcı et al., 2021). In the study, the somatosensory amplification scores of the participants who and whose family members were diagnosed with COVID-19 were higher, and the status of being diagnosed with COVID-19 was found to be among the risk factors. When a person tests positive for COVID-19, it means that their family members become suspicious cases; consequently, the person experiences fear, panic, and anxiety about themselves and

their family members (Gündüz & Çelik, 2020). Since people testing positive for the virus are quarantined, they experience various mental problems and feel shame, guilt, or face stigma (Kardeş, 2020). Disease and death cause fear in individuals. It can be thought that this fear leads individuals to feel bodily sensations more severely and that every single physical finding is perceived as a disease.

In addition to these findings, the somatosensory amplification scores were found higher in participants who were aged between 21 and 30 (30.9±6.70), who had a graduate degree (30.9±6.31), who had less income than expenses (30.4±7.51), who had a family member working as a healthcare worker (30.7±6.76), and who had received education/information about COVID-19 (30.3±6.48).

Limitations

Due to the use of online methods to reach the individuals participating in the study, individuals needed to have a technological device so that they could be included in the study. The necessity of responding to the questionnaire using these devices and difficulty adapting due to advanced age were among the limitations of this study. Addition, another limitation is the inability to control whether individuals fill in the questionnaires incompletely or incorrectly while answering the questionnaire, and they cannot communicate with the researchers if they want to ask questions.

Conclusion

This study revealed that individuals exaggerated their somatic sensations during the pandemic process. The level of somatosensory amplification was higher in participants who were female, who had chronic diseases, who feared that they/their family members would be diagnosed with COVID-19, and who/whose family members had been diagnosed with COVID-19. Knowing not only the physical findings but also how the person perceives the situation depending on the disease will be effective in determining the appropriate approach to physical and mental treatment and support processes. It is believed that the results obtained from this study will be a guide in developing strategies and helpful approaches to support individuals in terms of psychosocial and psychosomatic perceptions during the pandemic process. Future studies on this subject may help to take important steps in controlling the exaggeration of bodily sensations and supporting individuals.

Ethics Statement

The research conforms to the provisions of the Declaration of Helsinki. To implement the study, ethical approval was obtained from the Haliç University Non-Interventional Clinical Research Ethics Committee (Date: 18/05/2020, Issue: 22), and permission to utilize the scale was obtained from its authors. After the necessary permissions were obtained, written consent of all participants was obtained before the study began.

Conflict of Interests

The authors declare that there are no conflict of interests.

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