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The Pandemic-Related Difficulties Scale: Its Development and Psychometric Features in a Turkish Sample

Pandemiye İlişkin Güçlükler Ölçeği'nin Türk örnekleminde Geliştirilmesi ve Psikometrik Özellikleri

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ABSTRACT

Objective: This study was performed with the aim of developing a scale to determine difficulties experienced by people related to the pandemic in Turkey.

Method: A total of 500 participants completed an online survey in late June 2020. Cronbach alpha reliability analysis and confirmatory factor analysis were used for determination of the difficulties relating to the pandemic scale. The study data were collected online using a "personal information form" and the "difficulties related to the pandemic scale".

Results: As a result of statistical analyses about development of the 'Difficulties related to the Pandemic Scale' the scale was determined to contain four factors and exhibited good reliability (0.70-0.93). The confirmatory factor analysis results for the structure supported the fit of the four-factor model ($X^2/df = 2.346$, $GFI = 0.975$, $RMSEA = 0.0051$, $SRMR = 0.072$). The obtained findings show the difficulties related to the pandemic scale can be validly and reliably used for Turkish society.

Conclusion: Difficulties related to the Pandemic Scale is a low-cost measurement tool that captures the difficulties individuals experience during the epidemic period and can be used to determine the psychosocial resources they need.

ÖZ

Amaç: Bu çalışma, Türkiye'de pandemi ile ilgili olarak bireylerin yaşadıkları güçlükleri belirlemeye yönelik bir ölçek geliştirmek amacıyla yapılmıştır.

Yöntem: Haziran 2020'nin sonlarında toplam 500 katılımcı çevrimiçi bir anketi tamamlamıştır. Pandemiyeye ilişkin güçlüklerin belirlenmesi için Cronbach alfa güvenilirlik analizi ve doğrulayıcı faktör analizi kullanılmıştır. Çalışma verileri "kişisel bilgi formu" ve "Pandemiyeye İlişkin Güçlükler Ölçeği" kullanılarak çevrimiçi olarak toplanmıştır.

Bulgular: 'Pandemiyeye İlişkin Güçlükler Ölçeği'nin geliştirilmesine yönelik istatistiksel analizler sonucunda ölçeğin dört faktör içerdiği ve iyi düzeyde güvenilirlik gösterdiği (0.70-0.93) belirlenmiştir. Yapı için doğrulayıcı faktör analizi sonuçları, dört faktörlü modelin uyumunu desteklemiştir (2.346 , $GFI = 0.975$, $RMSEA = 0.0051$, $SRMR = 0.072$).

Sonuç: Elde edilen bulgular, "Pandemiyeye İlişkin Güçlükler Ölçeği'nin Türk toplumu için geçerli ve güvenilir bir şekilde kullanılabileceğini göstermiştir. Pandemiyeye İlişkin Güçlükler Ölçeği, bireylerin salgın döneminde yaşadıkları güçlükleri belirleyen ve ihtiyaç duydukları psikososyal kaynakları belirlemek için kullanılabilecek düşük maliyetli bir ölçüm aracı olduğunu göstermiştir.

Keywords:

Pandemic; Factor Analysis;
Affective Difficulties; Cognitive
Difficulties; Behavioral Difficulties;
Mental Health

Anahtar Sözcükler:

Pandemi; Faktör Analizi; Duygusal
Güçlükler; Bilişsel Güçlükler;
Davranışsal Güçlükler; Ruh
Sağlığı

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INTRODUCTION

One of the most significant disasters that humanity faces is epidemics (Ekiz, Iliman and Dönmez, 2020). It was declared an emergency public health situation of international importance on 31 January 2020 and a pandemic on 11 March 2020 by WHO (Baloran, 2020; Chen, Hung, Lee, Chen and Wu, 2020; Halayem, Savari, Wissal, Cheour and Damak, 2020). The virus continues to affect large populations from a variety of aspects (Arpaci, Karataş and Baloğlu, 2020).

With this pandemic, the whole world was faced with a pandemic including developed countries for the first time (Çakır and Gemlik, 2020). Many countries in the world had sustainable local transmission. Up to this day, the disease had affected 216 countries and now affected over 6.881.955 million people worldwide and is responsible for 478,691 fatalities (Fatma, 2023; John Hopkin University & Medicine, 2023). According to latest data regularly updated by Johns Hopkins University, globally there were 676.609.955 cases, with 13.338.833.195 vaccinated and 6.881.955 deaths in the world in general. For Turkey, there have been 17.042.722 cases and 101.492 deaths reported (John Hopkin University & Medicine, 2023). In 2020, the SARS CoV infected 8373 people in 30 countries and caused 774 deaths within one year and then fully disappeared by the summer of 2003. In June 2012, the MERS-CoV causing deadly viral pneumonia in the Arabian Peninsula emerged and caused the death of 420 people (Görgülü Ari and Hayır Kanat, 2020). These data also show the dimensions of the COVID-19 outbreak.

When the pandemic management status is examined for countries in relation to the COVID-19 pandemic, governments from all areas of the globe developed and applied different variations related to pandemic intervention strategies in attempts to prevent the spread of COVID-19 (Chang, Harding, Zachreson, Cliff and Prokopenko, 2020). Precautions within this scope included isolation of cases (home/hospital/dormitories), monitoring of contacts, limitations in places with social interaction, closure of schools, and curfews on people with weak immune systems (Chang, et. al., 2020; Çakır and Gemlik, 2020; Zhu, Wei and Niu, 2020). Though these precautions applied by many states and recommended by WHO are trusted by the majority of individuals in society, a significant minority are stated to feel mistrust and experience distress and unease (Baloran, 2020; Chen, et. al., 2020). Additionally, there is still no clear data about the natural history of COVID-19, infectiousness and psychosocial reactions of the public to the pandemic (Hellewell et. al., 2020; Plohl and Musil, 2020). In line with this, it is predicted that the effects of these difficulties experienced with relation to the pandemic development will be felt to a higher degree, more deeply and in the longer time as time passes (Killgore et al., 2020). For coping with these difficulties as individuals and society, it is necessary to determine the difficulties experienced in order to cope effectively.

The concept of difficulty is measured to identify problems in cognitive, emotional and behavioral dimensions in mental health (Guvendir et. al., 2008; Jones, et. al., 2020; Mohangi, Magagula and van der Westhuizen, 2020; Stokholm, and Lykke, 2020). In a mental health sense, difficulty is expressed as 'experiencing difficulty in sustaining normal mood, normal physiologic functions, normal perception, memory and normal state' (Türkçapar, 2004). Management and assessment of disease in mental health firstly is based on individuals determining, expressing and sharing difficulties they experience. Through determining difficulties experienced by individuals, the required strategies are identified and attempts are made to strengthen the individual (Polat and Kutlu, 2019). The concept of difficulties related to the pandemic may be defined in parallel with these definitions. It may be used to define difficulties experienced affectively, cognitively and behaviorally by individuals in relation to the pandemic.

Mental health promotion includes creating an environment that supports mental health and actions that improve psychological well-being. There are specific ways to improve mental health. One of these avenues is to develop programs targeting vulnerable people/groups, including people affected by disasters (WHO, 2018). In this sense, the COVID-19 pandemic and similar epidemics are significant health threats that affect the well-being of many individuals around the world, and involve difficulties like severe disease symptoms and risk of death (Brooks et al., 2020). The stress experienced related to this health threat is proposed to cause psychosocial problems from mild to severe levels including depression, somatization and anxiety (Bhuiyan, Sakib, N., Pakpour, AH., Griffiths, M.D., Mamun, 2020; Satici, Saricali, Satici and Griffiths, 2020). In this sense, the psychosomatic (psyche and soma: anima) medical understanding is an approach to investigating psychosocial problems emerging with physical disease proposing that human body and health is integrated with the mental being, that the mind and body are within an interaction and that mind and body should be considered together (Saltık Özkan, 2012).

When the studies are examined, it is seen that there are some measurement tools that have been newly developed or adapted to Turkish in order to evaluate the effects of COVID-19. These measurement tools; Short form of coronavirus anxiety scale (Biçer, Cakmak, Demir and Kurt, 2020), Multidimensional COVID Scale (Batigün and Ertürk, 2020), Coronavirus (COVID-19) Awareness Scale (Bilgin, 2020), COVID-19 Fear Scale (Bakioğlu, Korkmaz and Ercan, 2020) and the Coronavirus Anxiety Scale (Akkuzu et. al., 2020). When these measurement tools are examined in general, it is seen that it generally focuses on the fear and effects of the COVID-19 epidemic. It is seen that the number of scales that comprehensively evaluate the impact of COVID-19 on society with different dimensions is limited. With reasons such as the sudden emergence, uncertainties, speed of transmission, high

number of cases and deaths reported to data and negative health outcomes, difficulties requiring cognitive, mental, affective and behavioral coping developed (Chang, et. al., 2020; Çakır and Gemlik, 2020; Zhu, Wei and Niu, 2020). Due to this, there is a need for a measurement tool that addresses and evaluates the effects of the coronavirus on the individual and the difficulties experienced by individuals during the epidemic. It is important to develop a measurement tool on the subject in order for nurses, who are professional caregivers in the field of health, to identify the difficulties experienced by individuals in the COVID-19 pandemic, which is an important health crisis, and to develop effective interventions in this direction. With this aim, this study targeted creation of a scale to determine difficulties experienced by Turkish adult individuals during the pandemic.

The main purpose of this study is to determine the difficulties experienced by individuals due to the COVID-19 epidemic in cognitive / affective / behavioral dimensions and the difficulties caused by the negative news that emerged with the rapid development of technology.

METHODS

Research Design

The study is a methodological type of research.

Population and sample

The population for the study comprised all individuals aged from 18-65 years who lived in Turkey. The sample comprised individuals abiding by the inclusion criteria reached with an online survey collection method. Inclusion criteria were 1) living in Turkey, 2) age 18 years or older, 3) understanding/writing Turkish, and 4) use of the internet. Before collecting data, participants received an electronic 'informed consent' form. Data were collected through Google Forms based on voluntary participation of individuals in the research and a total of 500 participants who fully completed the survey were reached. Different approaches are used to determine sample size in methodological studies. Comrey and Lee (1992) evaluated the sample size as 50 (very poor), 100 (weak), 200 (moderate), 300 (good), 500 (very good), and 1000 (excellent) in their scale validity and reliability studies. Şencan (2005), on the other hand, accepted the sample below 100 as very low, between 100-200 as low, between 200-300 as medium, between 300-500 as good, between 500-1000 as very good, and above 1000 as excellent. has done. For these reasons, 500 people, which are considered to be a very good sample size, were included in this study. Several questionnaires that were not filled completely, totaling 62, were excluded. Of those participating in the research, 75.4% were female and mean age was 33.78 ± 10.19 years. The demographic data for participants are given in Table 1.

Table 1: Frequency analysis and descriptive statistical findings for demographic variables of the participants

Variable	n	%
Gender		
Men	123	24.6
Women	377	75.4
Education Level		
Primary Education	10	2.0
Post graduate	126	25.2
High School	28	5.6
University	330	66.0
Doctorate	6	1.2
Marital Status		
Single	253	50.6
Married	247	49.4
Family Type		
Nuclear Family	443	88.6
Extended Family	57	11.4
Have you been diagnosed with corona virus?		
Yes	27	5.4
No	473	94.6
Chronic illness condition		
Yes	111	22.2
No	389	77.8
	\bar{X}	SD
Age	33.78	10.19
Number of children in the family	4.06	1.57

Numerical data are presented as $\bar{X} \pm SD$. \bar{X} :Average; SD: Standart deviation

Data collection

We conducted a general population survey from June 26th to October 15th, 2020. After the WHO declared that COVID-19 was a global pandemic on March 11th, 2020 (WHO, 2020). By was conducted between June 26 and October 15, 2020 all over Turkey.

This research used the quantitative research model of screening pattern with the aim of developing a scale to determine difficulties experienced by individuals from 18-65 years during the novel coronavirus (COVID-19) pandemic. Quantitative research is used to measure a state and case objectively (Cohen, Manion and Morrison, 2007). The screening pattern model is used in research performed with the aim of identifying certain features (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz and Demirel, 2012).

Procedure

Development steps for the Difficulties Related to Pandemic Scale

To develop the 'Difficulties related to the Pandemic Scale (DPS)', the steps for scale development were followed. Firstly, comprehensive literature screening was performed about pandemic and difficulties. Difficulty definitions were based on the mental health sense of the word. In this sense statements directly related to the situation that reflect difficulties experienced in relation to the pandemic by individuals in society were determined and an item pool was created. Exploratory and confirmatory steps were followed during the item development stage. The pool included 65 statements independently created by the researchers which were assessed by 5 independent experts. The reason for obtaining the opinions of specialists in the field was to determine the degree of suitability of items in the item pool for the aims, that they were fluent and understandable, that there were no similar statements or inappropriate/inadequate items; in other words, for scope validity. The Davis technique, frequently used to obtain scope validity results (SCI) was used to obtain expert opinions. In line with expert opinions, similar statements were combined, unnecessary statements, and items with SCI less than 0.80 were discarded and a 48-item draft scale was created. Before administering to participants, they were given information about the study and with a 4-point Likert scale expressing their agreement with the scale statements was prepared (0: none of the time, 1: sometimes, 2: frequently, 3: all the time) and the scale was prepared for administration to a large group.

In line with the literature (Akkuzu et. al., 2020; Arpacı, Karataş and Baloğlu, 2020; Bakioğlu, Korkmaz and Ercan, 2020; Biçer, Cakmak, Demir and Kurt, 2020; Birimoğlu Okuyan, Karasu and Polat, 2020; Brooks, et. al., 2020; Chen et. al., 2020; Ekiz, İlman and Dönmez, 2020; Güvenir et. al., 2008; Mohangi, Magagula, and van der Westhuizen, 2020; Mroczek et. al., 2013; Stockholm and Lykke, 2020) item pool was created and presented to expert opinion. While creating the item pool, the scale, which was finalized after expert opinions, was applied to a group of 30 people who were similar to the sample and were not included in the main research group. As a result of the application, the feedback from the group was evaluated by the researchers and the final version of the scale was given. Before collecting data, participants provided informed consent and the 48-item scale was administered online to a large group of participants. Data collected underwent statistical analysis. As is known in statistical literature, there are two ways of constructing factors: 1) Using exploratory factor analysis, 2) Priorly determining the factors. It was preferred the second way and using our expert knowledge, based on our investigations, we determined the factors.

A total of 18 items were removed from the item pools that distort the reliability of the scale, and the remaining 30 items were used. To our prior knowledge, we constructed the sub-factors such as having four factors.

We have mentioned about the factor structures without performing exploratory factor analysis since we have determined the sub-factors. There are mainly four factors and we clearly mentioned about it. 1) The affective difficulties related to the pandemic 2) Cognitive difficulties related to the pandemic 3) Difficulties related to disinformation about the pandemic: 4) Behavioral difficulties related to the pandemic Due to the availability of the factors, we did not apply exploratory factor analysis further and we tested the validity of our scale using CFA.

Data collection tools

Personal information Form

Participants were asked to report their age, gender, education level, marital status, family type, coronavirus diagnosis, and chronic illness condition (Birimoğlu Okuyan, Karasu, and Polat,2020; Brooks, et. al., 2020; Chen, et. al., 2020; Ekiz, İlman and Dönmez, 2020).

Validity item

Participants were asked to choose, using a 4-point time anchored scale (0-3) (0: never, 1: sometimes, 2: often, 3: all the time) self-report scale. Total points vary from 0 to 60 and 4 sub-dimensions were determined (Factor 1: Affective difficulties related to the pandemic, Factor 2: Cognitive difficulties related to the pandemic, Factor 3: Difficulties related to disinformation about the pandemic, Factor 4: Behavioral difficulties related to the pandemic).

Affective difficulties related to the pandemic

Participants were asked to rate, using a 4-point time anchored scale (0: never, 1: sometimes, 2: often, 3: all the time), how often they engaged in mental and psychosomatic symptoms with the coronavirus. The average score of the participants from this subscale ($M \pm SD$: 2.13 ± 0.74) was measured by 12 items (1-12)

Cognitive difficulties related to the pandemic

Participants were asked to rate, using a 4-point time anchored scale (0: never, 1: sometimes, 2: often, 3: all the time), how often they engaged in cognitive symptoms with the coronavirus. The average score of the participants from this subscale ($M \pm SD$: 2.31 ± 0.58) was measured by 11 items (13-23)

Difficulties related to disinformation about the pandemic

Participants were asked to rate, using a 4-point time anchored scale (0: never, 1: sometimes, 2: often, 3: all the time), how often they engaged in disinformation symptoms with the coronavirus. The average score of the participants from this subscale ($M \pm SD$: 1.71 ± 0.68) was measured by 12 items (24-26)

Behavioral difficulties related to the pandemic

Participants were asked to rate, using a 4-point time anchored scale (0: never, 1: sometimes, 2: often, 3: all the time), how often they engaged in behavioral symptoms with the coronavirus. The average score of the participants from this subscale ($M \pm SD$: 1.87 ± 0.81) was measured by 3 items (27-30).

The data that support the findings of this study are available from the corresponding author upon reasonable request. Data collection is ongoing and available upon request.

Data Analysis

The statistical analysis techniques of frequency analysis and descriptive statistical data analyses, Cronbach alpha reliability analysis and confirmatory factor analysis (CFA) were used for development of the difficulties relating to the pandemic scale. Statistical analyses were completed with the psych (Revelle, 2018) and lavaan (Rosseel, 2012) packets found in the R-Project program. In the CFA stage, the diagonally weighted least squares (DWLS) technique was used, which is more suitable for data with ranked measure levels, to test the validity of the scale (Rosseel, 2012). All analyses were completed with R Project software (R Core Team, 2020).

Ethical Consideration

The study was approved by Ministry of Health of the Republic of Turkey (Decision number: 020-05-14T19_35_52 on 19 May 2020) and the Recep Tayyip Erdoğan University Faculty Of Medicine Non-invasive Clinical Clinical Research Ethics Committee (Decision Number: KAEK-135 on 23 June 2020). Participants were informed on the provisions of the 1995 Declaration of Helsinki (2013 as revised in Brazil). Informed consent was obtained from all participants. Prior to data collection from the participants, informed consent was obtained online.

RESULTS**Distribution of participants according to demographic features**

Table 1 gives the frequency analysis results and descriptive statistics for demographic data in the research. Accordingly, 75.4% of participants were women and mean age was 33.78 ± 10.19 years. Among participants, 50.6% were married and 88.6% lived with their nuclear family. The number of children in the family was 4.06 ± 1.57 and 66% were university graduates. Of participants, 5.4% had received coronavirus diagnosis and 77.8% did not have a chronic disease (Table 1).

Face validity

The total of 65 items created by the researchers after literature (Akkuzu et. al., 2020; Arpacı, Karataş and Baloğlu, 2020; Bakioğlu, Korkmaz and Ercan, 2020; Biçer, Cakmak, Demir and Kurt, 2020; Birimoğlu Okuyan, Karasu and Polat, 2020; Brooks, et. al., 2020; Chen, et. al., 2020; Ekiz, İlman, and Dönmez, 2020; Güvenir, et. al., 2008; Mohangi, Magagula and van der Westhuizen, 2020; Mroczek et. al., 2013; Stockholm and Lykke, 2020) screening was assessed with a 4-point Likert type scale using the Davis technique commonly used for scope validity results (SVI) by 5 independent experts (Yurdugül and Bayrak, 2012; Esin, 2014). The mean points varied from 0.2 to 1. Items on the scale with adequate validity of 0.80 and above were accepted and 48 items were included on the scale.

Internal consistency

Table 2 gives the Cronbach alpha reliability analysis and descriptive statistics for factors used to assess the internal consistency of the scale about difficulties related to the pandemic. All items on the scale had positive

corrected total item correlations and the reliability points for the subscales were very high ($\alpha > 0.70$). (Gliem and Gliem, 2003).

Construct Validity

To assess the fit of the model to data, multiple criteria including goodness of fit index (GFI), adjusted goodness of fit (AGFI), comparative fit index (CFI), normed fit index (NFI), incremental fit index (IFI), Tucker-Lewis fit index (TLI), and root mean squared error of approximation (RMSEA) were used (Tabachnick and Fidell, 2007). The results show the model has adequate fit.

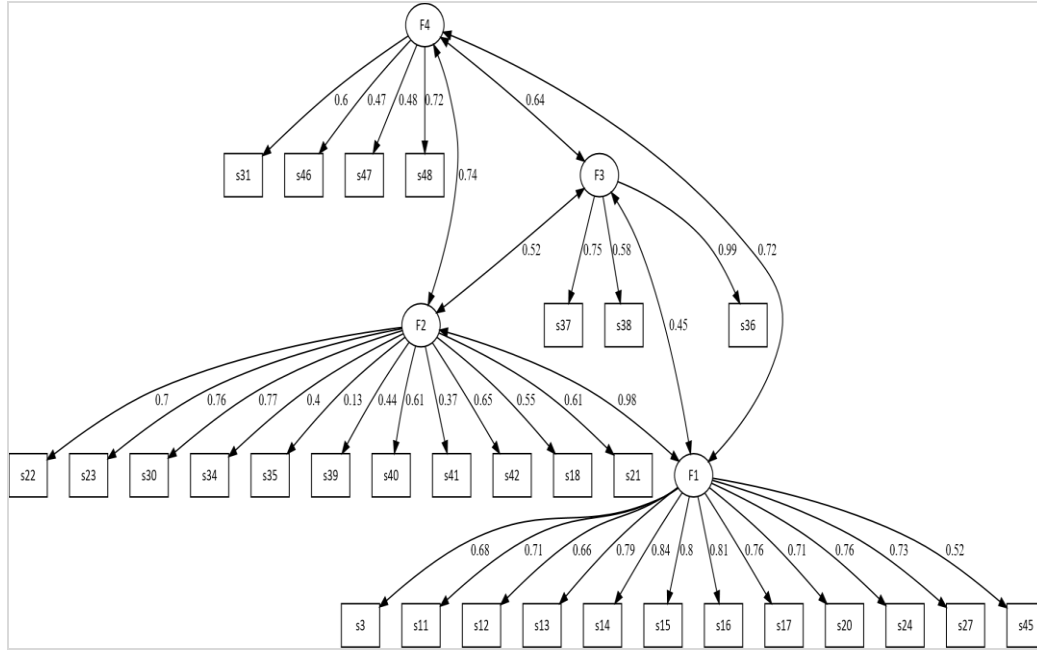


Figure 1: CFA chart of the scale of difficulties related to the epidemic

Figure 1 shows the graph of the CFA results for the difficulties coping with the pandemic scale. As a result of CFA, all items had standardized load values above 0.40 and the path coefficients for the items were statistically significant ($p < 0.05$).

Table 3 shows the goodness of fit values for the CFA results obtained for the difficulties related to the pandemic scale. According to the fit indices, the CFI, GFI, AGFI, and NNFI values were above 0.9 (Mulaik Stanley, Larry, Van Alstine, Bennett and Sherri 1989). The RMSEA value was lower than 0.05 and the SRMR value was below 0.10. According to the fit statistics, $\chi^2 / df = 2.346$, which is lower than 5. When all indices are examined in general, the CFA results for the scale developed for pandemic coping difficulties indicates the scale has perfect fit.

Table 2: Reliability analysis results of the scale of difficulties related to the epidemic

Factors	\bar{X}	SD	Min-Max	Corrected-R	Alpha
Factor-1	2.134	0.746	1, 4	0.483, 0.860	0.931
Factor-2	2.317	0.589	1, 4	0.112, 0.720	0.856
Factor-3	1.873	0.814	1, 4	0.657, 0.835	0.813
Factor-4	1.716	0.688	1, 4	0.394, 0.801	0.707

\bar{X} : Average; **SD:** Standart deviation; **Corrected-R:** Corrected item correlations; **Alpha:** Cronbach’s alpha

Table 3: Goodness of fit statistics of the scale of difficulties related to the epidemic

χ^2	df	CFI	GFI	AGFI	NNFI	SRMR	RMSEA
936.263	399	0.980	0.975	0.971	0.978	0.072	0.051

DISCUSSION

In this study, a self-report scale tool was developed with a 4-point likert rating with the aim of determining difficulties experienced during the pandemic among individuals aged 18 years and older and it was confirmed to be strong. The findings show the 'Difficulties related to the Pandemic Scale (DPS)' has strong psychometric features with a structure of 30 items in total and four subdimensions. Among these four subdimensions, the first is mental and psychosomatic difficulties experienced during the pandemic (12 items: affective difficulties with the pandemic (mental and psychosomatic symptoms)), the second is cognitive difficulties related to the pandemic (11 items: cognitive difficulties with the pandemic), the third is disinformation related to the pandemic (3 items: coping difficulties with excessive information, skewed information) and the fourth dimension is behavioral difficulties with the pandemic (4 items: difficulties with coping style). (Annex 1) Increases in points obtained for the subdimensions show high degree of difficulty experienced in that area.

The internal consistency coefficients for the subscales were determined to vary from 0.70-0.93 (Table 2). A study developing a COVID-19 phobia scale related to the COVID-19 pandemic found that the internal consistency coefficients for the subscales varied from 0.85-0.90 (Arpacı, Karataş and Baloğlu, 2020). Another study developing a COVID-19 fear scale found the Cronbach alpha internal consistency coefficient for the scale as.82 (Bakioğlu, Korkmaz and Ercan, 2020). When the literature is examined from a mental and psychosomatic aspect, it appears 25-35% of Chinese experienced anxiety and psychological distress during the COVID-19 pandemic and these individuals were especially affected by the quarantine process (Jungman and Withhöft, 2020). A qualitative study performed with 116 treatment refractive depression (TRD) patients about the topic identified homogeneity in the health of all individuals, interaction in bio-psycho-social terms and the three themes revealed positive growth of TRD individuals (Chen, et. al., 2020).

The affective difficulties related to the pandemic subscale (Factor 1: related to mental and psychosomatic symptoms) had Cronbach alpha of 0.93 (Table 2). The SARS epidemic known as the first epidemic of the 21st century and data obtained from the COVID-19 pandemic show that the COVID-19 pandemic is a situation which should not be dealt with just as a physical disease but also as a biopsychosocial situation (Baltacı and Coşar, 2020). A meta-analysis study related to the COVID-19 pandemic stated that it was associated with negative mental health outcomes and was characterized by generally subsyndromal mental health problems (Rajkumar, 2020). A study of nursing students found that, among participants, 76.7% felt distressed, 64.4% felt sad, 83.6% felt depressed, 59.3% felt irritated, 61% felt tense and angry, 64.6% experienced fear of catching the virus, 80.3% felt hopeless about the future and 66.6% stated they required most psychological support during the pandemic (Birimoğlu Okuyan, Karasu and Polat, 2020). Another study of health employees stated that health employees experienced anxiety (61.9%), psychological distress (61.7%) and physiological reactivity (61.2%), unwanted affective symptoms (85.2%) and arousal symptoms (sleep, anxiety, concentration, easily upset, fear of bad things) (73%) (Koç, Geniş, Seyran, Şirın and Gürhan, 2020). Another study about the COVID-19 pandemic determined that somatization symptoms were predicted at rates of 23.8% ($F(5,1239) = 77.28, p < 0.001$) by psychological resilience, fear of infection, distress, chances of infection and dysfunctional stress-coping styles. Additionally, participants were determined to have significant difference between the KSE somatization subscale before and after the pandemic ($t = -18.42, p < .001$) (Bilge and Bilge, 2020). A study administering cognitive-behavioral therapy to patients with hypochondriasis according to the DSM-IV, somatic symptom disorder (SSD) and illness anxiety disorder (IAD) according to the DSM-V investigated the efficacy of internet therapist-guided cognitive behavioral therapy (ICBT), guideline-led ICBT and booklet-led ICBT. They showed that all treatment groups had improvement compared to the control group ($p < 0.01$); however, therapist-guided ICBT was found to be more effective on somatic symptoms (Hedman, Axelsson, Andersson, Lekander and Ljö'tsson, 2016). These results are notable in terms of revealing the need to consider and intervene against somatic and mental symptoms together.

The cognitive difficulties related to the pandemic subscale (Factor 2: perceptive) had Cronbach alpha of 0.85 (Table 2). A study during the SARS epidemic found a positive association between perceptions related to risk of SARS with post-traumatic stress disorder among participants ($p < 0.05$). Trauma risk was reported to be 2-3 times more in health personnel working closely with SARS individuals or relatives of individuals with SARS. Additionally, it was stated that the perception of the epidemic as 'dangerous, unknown and uncontrollable' affected risk level (Wu, et al., 2009). Another study investigating perceptions related to causes and control of the COVID-19 pandemic found a positive correlation between increase perception of COVID-19 transmissivity with secondary traumatic stress symptoms ($p = 0.017$) (Koç, et. al., 2020). These results show that it is necessary to consider 'negative perceptions' related to the pandemic among difficulties experienced related to the pandemic.

The difficulties related to disinformation about the pandemic subscale (Factor 3: excessive information flow, distorted information) had Cronbach alpha of 0.81 (Table 2). A study of patients with TRD during the COVID-19 pandemic stated that long-term exposure to news about the pandemic had negative effects on this vulnerable group and that it was necessary to regularly monitor these negative effects (Chen, et. al., 2020). It is stated that one of the most significant difficulties causing harm during the COVID-19 pandemic is the uncertainty about the accuracy of current developments about the pandemic on social media and the internet and the spread of disinformation (Turkey

Academy of Sciences (TUBA), 2020). A study of nursing students determined that 53.8% of participants following news about the COVID-19 pandemic on social media, while 44.6% followed television news (Birimoğlu Okuyan, Karasu and Polat, 2020). One of the most important topics obstructing coping in both the USA and European Union (EU) countries is the spread of mistaken/misleading medication advice or information from mass media devices. In England, a ‘anti-disinformation unit’ was planned to be founded in Whitehall where the prime ministry and some ministries are located to identify organizations and states spreading virus disinformation. In India, social media companies were requested to check mistaken information and news related to the COVID-19 pandemic (Anadolu Agency, 2020). These findings are important in terms of showing that individuals experienced difficulties with negative effects due to news, when exposed to excessive news about the pandemic and distorted information related to it.

The behavioral difficulties related to the pandemic subscale (Factor 4: about coping style) had Cronbach alpha of 0.70 (Table 2). A study to determine the psychological symptoms of the coronavirus pandemic and effect of stress-coping styles found a negative significant association between dysfunctional coping styles with perceptions/attitudes related to the coronavirus and tolerance of social isolation processes ($p<0.05$) (Bilge and Bilge, 2020). A study of health employees determined that most participants used avoiding behavior as a coping style during the pandemic (68.1%) (Koç, et. al., 2020). These findings show that negative experiences and perceptions related to the pandemic are effective on individuals experiencing behavioral difficulties.

The most important limitations of this study are that it was conducted during the COVID-19 pandemic period, the survey was based on self-reporting, and the responses were completed online due to the pandemic. Secondly, during the scale development phase, other limitations include the inability to use qualitative data collection methods due to the impossibility of face-to-face interviews.

CONCLUSION

In conclusion, this study shows the Difficulties related to the Pandemic Scale (DPS) comprises four subdimensions and 30 items and is a scale with strong psychometric features. It is thought the scale may be used via information and communication technologies (ICT) during the pandemic or after the pandemic (considering there may be long-term effects of the pandemic) to assess and monitor difficulties related to this process

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REFERENCES

- Akkuzu, H., Soft, F.N., Karaman, G., Ladikli, N., Türkkkan, Z., Bahadır, E. (2020). Turkish reliability and validity study of the coronavirus anxiety scale. *Cyprus Turkish Journal of Psychiatry and Psychology*, 2(2), 63-67. <https://doi.org/10.35365/ctjpp.20.2.09>
- Anadolu Agency. (2020). Being kept in disinformation while escaping from Kovid-19. <https://www.aa.com.tr/tr/analiz/kovid-19dan-kacarken-dezenformasyona-tutulmak/1781644>, Access: 15.12.2020
- Arpacı, İ., Karataş, K., Baloğlu, M. (2020). The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and Individual Differences*, 164, 110108. <https://doi.org/10.1016/j.paid.2020.110108>
- Bakioğlu, F., Korkmaz, O., Ercan, H. (2020). Fear of COVID-19 and positivity: mediating role of intolerance of uncertainty, depression, anxiety, and stress. *International Journal of Mental Health and Addiction*, 28,1-14. <https://doi.org/10.1007/s11469-020-00331-y>
- Baloran, T. (2020). Knowledge, Attitudes, Anxiety, and Coping Strategies of Students during COVID-19 Pandemic. *Journal of Loss And Trauma*, 25(8),635–642.<https://doi.org/10.1080/15325024.2020.1769300>
- Baltacı, N.N., Coşar, B. (2020). COVID-19 Pandemic and Soul Body Relationship. *Psychiatry and COVID-19*. 1st Edition. Ankara: Turkey Clinics, 1-6.
- Biçer, İ., Cakmak, C., Demir, H., Kurt, M.E. (2020). Coronavirus anxiety scale short form: Turkish validity and reliability study. *Anadolu Clinic Journal of Medical Sciences*, 25 (Special Issue on Covid-19), 216-225. <https://doi.org/10.21673/anadoluklin.731092>

- Bilge, Y., Bilge, Y. (2020). Coronavirus pandemic and social isolation investigation of the effects on psychological symptoms in terms of psychological resilience and coping styles. *Journal of Clinical Psychiatry*, 23 (Attach 1), 38-51 <https://doi.org/10.5505/kpd.2020.66934>.
- Bilgin, O. (2020). Developing a coronavirus (Covid-19) awareness scale: validity and reliability study. *Electronic Turkish Studies*, 15(6). <http://dx.doi.org/10.7827/TurkishStudies.44168>
- Bhuiyan, A.K.M.I., Sakib, N., Pakpour, AH., Griffiths, M.D., Mamun, M.A. (2020). COVID-19-related suicides in Bangladesh due to lockdown and economic factors: case study evidence from media reports. *International Journal of Mental Health Addiction*. <https://doi.org/10.1007/s11469-020-00307-y>
- Birimoğlu Okuyan, C., Karasu, F., Polat, F (2020). Health Anxiety Levels of Nursing Students of COVID-19 Effect on. *Van Journal of Health Sciences*, 13 (Special Issue): 45-52.
- Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N., Rubin, G.J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8).
- Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, O.E., Karadeniz, Ş. Demirel, F. (2012). Scientific research methods (11th edition). Pegem Academy, Ankara
- Chang, SL., Harding, N., Zachreson, C., Cliff, OM., Prokopenko, M (2020). Modelling transmission and control of the COVID-19 pandemic in Australia. *Nature Communications*, 11, 5710. <https://doi.org/10.1038/s41467-020-19393-6>
- Chen, K-L., Hung, W-C., Lee, M-B., Chen, I-M., Wu, C-Y. (2020). The impact of the COVID-19 pandemic on the health and coping behaviors of patients with treatment-resistant depression. *HuLiZaZhi*, 67(5),56-64. [https://doi.org/10.6224/JN.202010_67\(5\).08](https://doi.org/10.6224/JN.202010_67(5).08)
- Cohen, L., Manion, L. Morrison, K. (2007). Research methods in education. NY, Routledge.
- Comrey AL, Lee HB. (1992). A first course in factor analysis. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Çakır, A., Gemlik, H.N. (2020). Perspective on COVID-19 in New Zealand. *Journal of Biotechnology and Strategic Health Research*, 4(2),98-106 <https://doi.org/10.34084/bshr.746521>
- Ekiz, T., İlman, E., Dönmez, E (2020). Comparison of individuals' health anxiety levels and perception of COVID-19 outbreak control. *International Health Management and Strategies Research Journal*, 6(1),139-154
- Esin, N. (2014). Data collection methods and tools, reliability and validity of data collection tools (1st ed). Istanbul: Nobel Medicine Bookstores.
- Fatma, S.N. (2023, February). Origin, Transmission and Spread of COVID-19: Lessons for Future. In 5th World Congress on Disaster Management: Volume III. Taylor & Francis. Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, 38,581-586.
- Gliem, J. A., Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education
- Görgülü Arı, A., Hayır Kanat, M. (2020). Teacher Candidates' Views on Covid-19 (Coronavirus). *Van Yüzüncü Yıl University The Journal of Social Sciences Institute Outbreak Diseases Special Issue*, 459-492.
- Güvenir, T., Özbek, A., Baykara, B., Arkar, H., Şentürk, B., İncekaş, S (2008). Psychometric properties of the Turkish version of the Strengths and Challenges Questionnaire (GGA). *Journal of Child and Youth Mental Health*, 15 (2),65-74
- Halayem, S., Sayari, N., Wissal C, Cheour, M., Damak, R. (2020). How Tunisian physicians of public health hospitals deal with COVID-19 pandemic: Perceived stress and coping strategies (Lettor to the Editor). *Psychiatry and Clinical Neurosciences*, 74,496-512. <https://doi.org/10.1111/pcn.13097>
- Hedman, E., Axelsson, E., Andersson, E., Lekander, M., Ljo'tsson, B (2016). Exposure based cognitive-behavioural therapy via the internet and as bibliotherapy for somatic symptom disorder and illness anxiety disorder: randomised controlled trial. *The British Journal of Psychiatry*, 209, 407–413. <https://doi.org/10.1192/bjp.bp.116.181396>
- Hellewell, J., Abbott, S., Gimma, A., Bosse, NI., Jarvis, CI., Russel TW..... Eggo, R (2020). Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. *Lancet Glob Health*, 8, e488-496. [https://doi.org/10.1016/S2214-109X\(20\)30074-7](https://doi.org/10.1016/S2214-109X(20)30074-7)
- Jones, C.R.G., Barrett, S.L., Bite, L., Legzdina, M., Arina, K., Higgins, Leekam, S.R.(2020). Development of the Signposting Questionnaire for Autism (SQ-A): measurement comparison with the 10-item Autism Spectrum Quotient-Child and the Strengths and Difficulties Questionnaire in the UK and Latvia .Jones et al. *Molecular Autism*, 11,64 <https://doi.org/10.1186/s13229-020-00368-9>
- John Hopkins University & Medicine (2023).COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at John Hopkins University (JHU). <https://coronavirus.jhu.edu/map.html>

- Jungman, S.M., Witthöft, M. (2020). Health anxiety, cyberchondria, and coping in the current COVID-19 pandemic: Which factors are related to coronavirus anxiety?. *Journal of Anxiety Disorders*, 73, 102239. <https://doi.org/10.1016/j.janxdis.2020.102239>.
- Killgore, W.D.S., Cloonen, S.A., Taylor, E.C., Fernandez, F., Grandner, M.A., Dailey, N.S. (2020). Suicidal ideation during the COVID-19 pandemic: the role of insomnia. *Psychiatry Research*, 290, 113-134. <https://doi.org/10.1016/j.psychres.2020>.
- Koç, M., Geniş, B., Seyran, F., Şirin, B., Gürhan, N. (2020). The effect of perceptions related to the causes and control of COVID-19 on post-traumatic stress disorder in healthcare workers. Black Sea Summit 4th International Applied Sciences Congress Full Text Book, 81-99.
- Mohangi, Y., Magagula, T.G., van der Westhuizen, D. (2020). Adolescent psychiatric outpatients and their caregivers: Comparing the Strengths and Difficulties Questionnaire. *South African Journal of Psychiatry*, 26(0), a1394. <https://doi.org/10.4102/sajpsychoiatry.v26.i0.1394>
- Mroczek, D.K., Stawski, R.S., Turiano, N.A., Chan, W., Almeida, D.M., Neupert, S.D., Spiro, A., III. (2013). Emotional reactivity and mortality: longitudinal findings from the va normative aging study. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 70(3), 398–406. <https://doi.org/10.1093/geronb/gbt107>.
- Mulaik Stanley, A., Larry, R., Van Alstine, J., Bennett, N., Sherri L.C. (1989). Dean Stilwell. "Evaluation of goodness-of-fit indices for structural equation models." *Psychological Bulletin*, 105(3), 430-445. <https://doi.org/10.1037/0033-2909.105.3.430>
- Polat, S., Kutlu, Y (2019). Disease management and recovery program in mental disorders. *İzmir Kâtip Çelebi University Journal of Health Sciences Faculty*, 4(3), 111-115
- Pohl, N., Musil, B. (2020). Modeling compliance with COVID-19 prevention guidelines: the critical role of trust in science. *Psychology, Health & Medicine*, 1-12. <https://doi.org/10.1080/13548506.2020.1772988>
- Rajkumar, R.P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. <https://doi.org/10.1016/j.ajp.2020.102066>
- R Core Team. (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Revelle, W. (2018) psych: Procedures for Personality and Psychological Research, Northwestern University, Evanston, Illinois, USA, <https://CRAN.R-project.org/package=psych> Version = 1.8.12.
- Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of statistical software*, 48(2), 1-36. <https://doi.org/10.18637/jss.v048.i02>
- Saltık Özkan, T.S. (2012). Theoretical approaches on the belief dimension of healing in traditional medicine: psychosomatic medicine, the placebo effect, and quantum healing. *National Folklore*, 24 (95), 307-314.
- Satıcı, B., Sarıcalı, M., Satıcı, S.A., Griffiths, MD. (2020). Intolerance of uncertainty and mental wellbeing: serial mediation by rumination and fear of COVID-19. *International Journal of Mental Health Addiction*. <https://doi.org/10.1007/s11469-020-00305-0>
- Stokholm, J.R., Lykke, K (2020). The Strengths and Difficulties Questionnaire is a usable way to address mental health at well-child visits in general practice - a qualitative study of feasibility. *BMC Family Practice*, 21, 126. <https://doi.org/10.1186/s12875-020-01156-3>
- Şencan H. (2005). Sosyal ve Davranışsal Ölçümlerde Güvenirlilik ve Geçerlik. Ankara: Seçkin Ofset. S:250-260.
- T.C. Ministry of Health, General Directorate of Public Health. COVID-19 Guide. <https://hsgm.saglik.gov.tr/tr/bulasici-hastaliklar/2019-n-cov.html>
- Türkçapar, H. (2004). Diagnostic relationships of anxiety disorder and depression. *Clinical Psychiatry, Supplement*, 4, 12-16
- Turkey Academy of Sciences (TUBA) (2020). COVID-19 pandemic assessment report, Ankara: Publication of the Academy of Sciences of Turkey
- World Health Organization (WHO, 2018). Mental health: strengthening our response. <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
- World Health Organization (WHO, 2020). Turkey-World Health Organization <https://www.who.int/countries/tur/>
- Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., Liu, X., Fuller, C.J., Susser, E., Lu, J., & Hoven, C.W. (2009). The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *Canadian Journal of Psychiatry*, 54(5), 302–311. <https://doi.org/PMC378035310.1177/070674370905400504>.
- Yurdugul, H., Bayrak, F. (2012). Content validity measures in scale development studies: Comparison of content validity index and kappa statistics. *Hacettepe University Journal of the Faculty of Education, Special Issue 2*, 264-271
- Zhu, H., Wei, L., Niu, P. (2020). The novel coronavirus outbreak in Wuhan, China. *Global Health Research Policy*, 5 (6), 1-3. <https://doi.org/10.1186/s41256-020-00135-6>