

The mediating role of self-compassion in the relationship between perceived COVID-19 threat and death anxiety

Algılanan COVID-19 tehdidi ve ölüm kaygısı arasındaki ilişkide öz şefkatin aracı rolü

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SUMMARY

Objective: The COVID-19 pandemic is a new and highly detrimental event that has influenced the world over. Besides the obvious health risks, COVID-19 has also affected people psychologically. The high risk of contamination can increase the perceived COVID-19 threat and death anxiety in individuals. The aim of the present study was to investigate the mediating role of self-compassion in the relationship between perceived COVID-19 threat and death anxiety. Additionally, the study also investigated the role of gender, profession and income level in the perceived COVID-19 threat and death anxiety. **Method:** The research sample was composed of 562 individuals from the community. The data was gathered by using personal information form and the Perceived COVID-19 Threat Form, Self-Compassion Scale and Turkish Death Anxiety Scale. **Results:** The relationship between perceived COVID-19 threat and death anxiety was partially mediated by self-compassion. Moreover, people in the high income group had a lower level of perceived COVID-19 threat and death anxiety score compared to the low-income group. Perceived COVID-19 threat levels were lower among health care professionals compared to unemployed individuals. Female participants had a higher level of perceived COVID-19 threat and death anxiety score compared to male participants. **Discussion:** Self-compassion may be an essential variable to help cope with problems related to perceived COVID-19 threat and death anxiety. Improving our understanding of the psychological impacts of COVID-19 is necessary and essential.

Key Words: Anxiety, anxiety disorders, COVID-19, death anxiety

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ÖZET

Amaç: COVID-19 pandemisi bütün dünyayı etkileyen yeni ve oldukça tehlikeli bir durumdur. Tıbbi süreçlerin yanı sıra bu pandemi insanları psikolojik ve mental olarak da etkilemektedir. Bulaşma riskinin yüksek olması bireylerin algıladıkları COVID-19 tehdidinin ve ölüm kaygısı düzeyinin artmasına neden olabilir. Bu çalışmanın amacı da algılanan COVID-19 tehdidi ile ölüm kaygısı ilişkisinde öz şefkatin aracı rolünün incelenmesidir. Bu temel amacı ek olarak çalışma grubu ve gelir düzeyine göre algılanan COVID-19 tehdidi ve ölüm kaygısı puanlarında bir farklılık olup olmadığı incelenmiştir. **Yöntem:** Çalışma toplamda 562 kişi ile yürütülmüştür. Veriler kişisel bilgi formu, Algılanan COVID-19 Tehdidi Formu, Öz Şefkat Ölçeği ve Ölüm Kaygısı Ölçeği yardımıyla toplanmıştır. **Bulgular:** Algılanan COVID-19 tehdidi ile ölüm kaygısı arasındaki ilişkide öz şefkat kısmi aracı değişken olarak rol oynamaktadır. Ayrıca yüksek gelir düzeyine sahip kişilerin algılanan COVID-19 tehdidi ve ölüm kaygısı düzeylerinin düşük gelir grubundakilere göre daha düşük olduğu saptanmıştır. Sağlık çalışanlarının algılanan COVID-19 tehdidi düzeylerinin çalışmayan gruptan daha düşük olduğu tespit edilmiştir. Kadınların hem algılanan COVID-19 tehdidi hem de ölüm kaygısı düzeyi erkeklerden daha yüksek bulunmuştur. **Sonuç:** Ölüm kaygısı ve COVID-19 tehdit algısı ile ilişkili sorunlarla baş etme noktasında öz şefkat önemli bir değişken olabilir. Salgının insanlar üzerindeki psikolojik etkilerini anlamak için bu konudaki bilginin de genişletilmesi gerekmektedir.

Anahtar Sözcükler: Kaygı, kaygı bozuklukları, COVID-19, ölüm kaygısı

INTRODUCTION

COVID-19 is a novel and highly contagious virus that spread out from China to the rest of the world since the end of December 2019. The World Health Organization has declared the spread of the virus as a pandemic. Currently, there are more than five million cases around the world, and approximately four hundred thousand people have died (1) with both numbers of cases and deaths increasing every day. Although numerous studies have and continue to evaluate the effect of COVID-19 on human physiology (2,3), studies investigating the psychosocial effects of the COVID-19 are extremely limited (4,5).

Anxiety is one of the harmful psychological manifestations of viral pandemics and can be triggered by COVID-19. Notably, people who have anxiety disorders can be affected more by the COVID-19 threat. Although the COVID-19 pandemic is likely to influence more than one aspect psychologically; being a fatal infection, it can resurface or enhance death anxiety. Data from the Severe Acute Respiratory Syndrome (SARS) pandemic in the past has provided some guidance. SARS survivors were reported to recover physically; however, the infection was associated with social and psychological disorders including anxiety (6). Another study stated that SARS survivors had a higher level of stress both during and after the outbreak (7). The COVID-19 outbreak was reported to be positively associated with anxiety (32). Moreover, one study reported that the prevalence of generalized anxiety disorder is common and quite high (35.1%) during the COVID-19 pandemic (33). The enhanced anxiety observed has valid reasons as individuals are constantly exposed to the news of death and other detrimental effects of COVID-19 via social media platforms and television during their stay at home. Individuals are monitoring not only the local but also the global effects of the pandemic, which can be mentally even more challenging.

In addition to enhanced anxiety in general, COVID-19 may specifically enhance death anxiety in individuals or even trigger it, even in people who are unaware of this. Previous research has suggested that diseases with high mortality rates may

increase death anxiety (8,9). Since COVID-19 is a very contagious virus and has killed many people all around the world, triggering of death anxiety by COVID-19 is highly feasible.

Death is an inevitable fact of life. What makes the human approach to death different from other organisms is that unlike other living things, human beings are aware of their mortality. Death anxiety can be defined in many ways such as the anxiety that occurs as a result of the realization of death (10). Another definition states that death anxiety creates unpleasant feelings and thoughts about the end of life (11). Given these definitions, and the fact that death is highly prevalent amidst this pandemic, COVID-19 is likely to enhance individuals' levels of death anxiety. Nevertheless, not all people will be equally affected psychologically by the virus with inevitable individual differences and this includes the perception of death anxiety. Therefore a valid question at this juncture is what could be the reason for this difference? Personality traits, psychopathology, and cultural differences could be some of the factors that contribute to this difference.

Self-compassion is a trait that can also contribute to this difference. Self-compassion is a concept in Eastern philosophy, particularly in Buddhist philosophy, that has only recently started to be seen in the psychology literature (12,13). Self-compassion in individuals is characterized by being open to feelings of pain and distress and approaching himself kindly. People with high levels of self-compassion are self-aware towards the negativities and inadequacies they experience. They acknowledge that the negativities they experience are experienced by other people too (14,15). In other words, when someone with a high level of self-compassion experiences negativities, they try to deal with these negative feelings and acts compassionately towards themselves. Self-compassion is related to psychological wellbeing and resilience (16). From perspective of the current study, self-compassion was hypothesized to be a variable that may affect the relationship between the threat of COVID-19 and death anxiety. Several studies have suggested that self-compassion is inversely related to anxiety (17,18,19) and is used in clinical practice as a coping strategy (20) by reducing clinical symptoms,

anxiety, and stress (21). A meta-analysis has suggested that self-compassion and psychopathology are related to each other, and self-compassion is a substantial variable in understanding psychopathology and mental health (34). Moreover, it was reported that mindful self-compassion practice (an eight-week training program that contains meditational practices) can diminish psychopathology.

An association between the perceived COVID-19 threat and death anxiety is obvious; however, the degree of this relationship may be affected by variables such as self-compassion. Individuals with self-compassion may perceive the virus as less threatening, and they can better evaluate the situation they are in. This can also alleviate death anxiety in these individuals when compared to people with lower self-compassion. Individuals who have higher levels of self-compassion may more be prone to reappraise their negative situation and to cope with it using emotion regulation strategies (22). A study examining the effect of self-compassion in HIV suggested that people with high self-compassion coped with stress and the harmful effects of the disease better (16).

In this context, four main hypotheses were examined in this study:

Hypothesis 1: The presence of a mediating role of self-compassion in the relationship between perceived COVID-19 threat and death anxiety.

Hypothesis 2: There are differences in perceived COVID-19 threat and death anxiety scores by individuals based on their profession.

Hypothesis 3: There are differences in perceived COVID-19 threat and death anxiety scores based on their income.

Hypothesis 4: There are significant differences in perceived COVID-19 threat and death anxiety scores based on their gender.

METHOD

Participants

A total of 562 community samples living in Turkey participated in the study. Three hundred and sixty-two participants (64.4%) were female and 200 (35.6%) were male ($M=33.53$, $SD=10.92$). The participants' age ranged from 18 to 72 years. The snowball sampling method was used. The inclusion criteria consisted of age over 18 years, answering all the items in the questionnaires, and volunteering to participate the study. Participants were asked if they had any history of psychiatric diseases and individuals with no prior psychiatric diagnoses were included in the study. This study was carried out on 21 and 22 March, 2020 in a period of 48 hours. At that time, there were a total of 30 deaths and 1236 COVID-19 cases in Turkey.

Measures

Personal Information Form: A personal information form was created that included questions about age, gender, job, income, history of psychiatric diseases, and marital status. The questionnaire also included an item asking whether there were individuals over sixty-five years of age who are in the high risk group in the household. Additionally, a question on whether the participants had been abroad in the past month was included.

Perceived COVID-19 Threat Form: Being a new disease, measurement tools to measure the COVID-19 pandemic are currently unavailable. Therefore, a form was developed by the authors of the current study which aimed to measure the participants' perceived COVID-19 threat levels. The form has seven items with a 5-point Likert type scale. Higher scores indicate higher perceived COVID-19 threat.

In order to investigate psychometric properties of the perceived COVID-19 threat, an explanatory factor analysis and reliability analysis was conducted with the open access statistics program Jamovi. The factor numbers were determined with parallel analysis. Exploratory factor analysis was conducted by using varimax rotation. The Kaiser-Meyer-Olkin

(KMO) coefficient was found to be .76, and Bartlett's Test of Sphericity result was found to be 1118.21 ($p < .001$). These tests show the suitability of the form for factor analysis. According to the parallel analysis result, the form has a one-factor structure, and factor loadings ranged from .34 to .80. One factor structure explains 43.57% of the total variance. Omega reliability score was calculated as .78.

Turkish Death Anxiety Scale: This scale was developed by Sarıkaya and Baloğlu (23). It has three factors, 20 questions, and 5 point-Likert type scale ranging from never (score of 0) to always (score of 4). The factors evaluated are the ambiguity of death, the agony of death, and exposure to death, along with a total death anxiety score; the latter score was used in the current study. High scores from the scale suggest a high perception of death anxiety. The scale's Omega reliability score was calculated as .97 in the current study.

Self-Compassion Scale: The self-compassion scale was developed by Neff et al. (14), and the adaptation study into Turkish was conducted by Deniz, Kesici, and Sümer (24). The original scale has six factors, but the Turkish version of this scale has a one-factor structure. It also gives a total score on the original scale. For this reason, total self-compassion results were used in this study. The scale has 26 questions, and a 5 point-Likert type scale ranging from almost never (score of 1) to almost always (score of 5). High scores from the scale indicate high levels of self-compassion. The scale's Omega reliability score was calculated as .93 in the current study. According to the Turkish validity and reliability study, the psychometric properties of the scale are suitable for the current study population.

Procedure and Data Analysis

Ethical evaluation and permission for the current study was obtained taken from Necmettin Erbakan University, Faculty of Medicine Ethics Committee (Ethics Committee decision number: 106) and the Turkish Ministry of Health. The COVID-19 pandemic is unprecedented and there is currently no scale available to measure the COVID-19 threat. Therefore, an operational definition was made by

authors. A perceived COVID-19 threat scale with seven questions was developed by the authors of the current study and an online questionnaire booklet was generated. The online nature of this study was inevitable due to travel restrictions and curfews during the coronavirus pandemic preem-
pting face to face interviews. It also allowed us to reach people easily from different regions in Turkey. The questionnaire booklets were prepared considering the order effect. Before the study, all participants who volunteered to participate read and approved the informed consent form stating the details of the study.

In order to examine the relationship among variables (age, perceived COVID-19 threat, self-compassion and death anxiety) Pearson correlation analysis was carried out. One-way ANOVA was carried out to determine the effect of the participants profession and income levels on their death anxiety and perceived COVID-19 threat. The mediating role of self-compassion in the relationship between perceived COVID-19 threat and death anxiety was evaluated by 5000 bootstrap mediation analysis with Jamovi. The effect of gender on perceived COVID-19 threat and death anxiety was examined with t-test.

RESULTS

Descriptives

Out of 562 participants, 287 were married (51.1%), 256 (45.6%) were single, 10 (1.8%) were widowed and 9 (1.6%) were engaged to be married. Only 10 of the participants (1.8%) stated that they had been abroad in the last month. There were 176 (31.3%) participants living with at least one person in a high-risk group (older than 65 years of age or with a weak immune system). The mean score of the perceived COVID-19 threat was 21.2 (SD=5.53), for self-compassion was 79.6 (SD=6.31) and for death anxiety was 35.4 (SD=21.7).

Perceived COVID-19 Threat and Death Anxiety in the Context of Income and Profession

The income level of the participants was classified

Table 1. Demographic information

Gender	N	%
Female	362	64.4
Male	200	35.6
Marital Status	N	%
Single	256	45.6
Married	287	51.1
Widow	10	1.8
Engaged	9	1.6
Geographic Region	N	%
Central Anatolian Region	366	65.1
Marmara Region	96	17.1
Mediterranean Region	38	6.8
Aegean Region	19	3.4
Black Sea Region	19	3.4
Eastern Anatolia Region	7	1.2
Southeastern Anatolia Region	7	1.2

as low, moderate, and high. In terms of their profession, the participants were divided into three groups: health care professionals, non-healthcare professionals, and unemployed. The category of health care professionals included doctors, nurses, psychologists, and other health care workers. Non-healthcare professionals consisted of soldiers, teachers, craftsmen, academicians, officers and private-sector workers. The unemployed category consisted of housewives, students, and retirees. There was a significant difference in the income level of the participants ($F(2,543)=5.55, p<.004$). Comparisons using Tukey HSD post hoc test showed that death anxiety among the low-income group ($M=59.37, SD=21.83, N=184$) was significantly higher than the high-income group ($M=52.02, SD=19.92, N=182$). The moderate-income group did not differ significantly from the other groups ($M=54.52, SD=22.61, N=180$). There was no significant difference in death anxiety among the different categories of professions evaluated ($F(2,559)=2.56, p>.05$).

One-way ANOVA indicated that there was a significant difference in the perceived COVID-19 threat among the different categories of professions

($F(2,559)=3.30, p<.038$). Comparisons using the Tukey HSD post hoc test showed that the perceived COVID-19 threat level of health care professionals ($M=20.18, SD=5.29, N=110$) was significantly lower than the unemployed participants ($M=21.88, SD=5.56, N=188$). The perceived threat among non health care professionals did not show any statistically significant difference with the other groups ($M=21.18, SD=5.56, N=264$). A significant difference in the perceived COVID-19 threat was seen in terms of income levels ($F(2,543)=4.86, p<.008$). Comparisons using the Tukey HSD post hoc test showed that the perceived COVID-19 threat level of the low-income group ($M=22.03, SD=5.86, N=184$) was significantly higher than the high-income group ($M=20.26, SD=5.28, N=182$). The perceived threat in the moderate-income group did not differ significantly from the other groups ($M=21.43, SD=5.33, N=180$).

The Relationships Among Variables

Correlation analyses were conducted to investigate the relationship between age, self-compassion, perceived COVID-19 threat, and death anxiety. The results showed that the age of the participants was negatively correlated only with death anxiety ($r=-.21, p<.001$). Self-compassion was negatively associated with both perceived COVID-19 threat ($r=-.26, p<.001$) and death anxiety ($r=-.24, p<.001$). Perceived COVID-19 threat was also positively correlated with death anxiety ($r=.44, p<.001$) (see also Table 2).

Testing for Mediation Analysis

Based on our primary hypothesis, we expected self-compassion to mediate the relationship between perceived COVID-19 threat and death anxiety. This mediation model was tested with Jamovi. The results suggest that the relationship between perceived COVID-19 threat and death anxiety was

Table 2. The relationship between age, self-compassion, perceived COVID-19 threat, and death anxiety

	1	2	3	4
1. Age	-			
2. SC	.03	-		
3. PCOV19	-.08	-.26***	-	
4. DANX	-.21***	-.24***	.44***	-

Note. N = 562, SC= Self-Compassion, PCOV19= Perceived covid-19 threat, DANX= Death anxiety, * $p<.05$, ** $p<.01$, *** $p<.001$

Table 3. The mediating role of self-compassion in the relationship between perceived COVID-19 threat and death anxiety

Effect	Label	Estimate	SE	95% CI		Z	p	% Mediation
				Lower	Upper			
Indirect	a b	0.142	0.0447	0.0601	0.233	3.17	0.002	8.22
Direct	c	1.583	0.1581	1.2791	1.898	10.01	<?.001	91.78
Total	c + a b	1.724	0.1496	1.4282	2.020	11.52	<?.001	100.00

partially mediated by self-compassion [Indirect effect = .14, SE =.05, 95% CI (.0601, .233); see also Table 3].

marily focused on demographic variables (26,27). In the current study a mediating model was created and investigated for the first time for COVID-19.

Gender Differences in Perceived COVID-19 Threat and Death Anxiety

Independent sample t-test was carried out to determine the role of gender in perceived COVID-19 threat and death anxiety. The perceived COVID-19 threat was significantly higher among the female participants ($M=21.93$, $SD=5.41$) when compared to the male participants ($M=19.93$, $SD=5.53$). Similarly, the death anxiety levels among female participants ($M=40.41$, $SD=21.18$) was significantly higher than the male participants ($M=26.32$, $SD=19.52$).

DISCUSSION

The results of the current study support our primary hypothesis indicating that the relationship between perceived COVID-19 threat and death anxiety was partially mediated by self-compassion. Since the COVID-19 pandemic resulted in widespread death and disease, individuals who realize and see this may feel anxious, and news about deaths and new cases might trigger their death anxieties. Therefore, the authors of the current study expected a positive relationship between perceived COVID-19 threat and death anxiety. Since the threats from COVID-19 are unprecedented, research on the psychological effects of the virus on humans is extremely limited. Most of the current studies have focused on the pathological effects of COVID-19 (25). Studies that investigated the psychological effects of COVID-19 were pri-

Many situational, environmental, and personal factors can affect the relationship between death anxiety and the COVID-19 pandemic. Among the variables, self-compassion may influence this relationship. Since no published study to date have evaluated the mediating role of self-compassion in the relationship between perceived COVID-19 threat and death anxiety, it is not possible to discuss the findings of the current study comparatively. Nonetheless, our findings regarding the mediating role of self-compassion were within our expectations. Studies have shown that individuals with high levels of self-compassion do not avoid taking responsibility for negative events and while doing this, they do not have negative thoughts about themselves (14,15,28). People with high levels of self-compassion try to understand themselves instead of blaming themselves when faced with difficulties in their life, which enables them to reduce anxiety (13,21). A person with high self-compassion is aware that his weaknesses and suffering are not unique to him; rather, other people are also exposed to similar situations. In this context, the mediating role of self-compassion in the relationship between death anxiety and perceived COVID-19 threat in the current study seems reasonable. When the perceived COVID-19 threat triggers an individual's death anxiety, people with a higher level of self-compassion may feel less anxious compared to individuals who have a lower level of self-compassion. This may also stem from the fact that people with high self-compassion can treat themselves more compassionately and evaluate their worries regarding COVID-19 more realistically.

Table 4. Path estimates

	Label	Estimate	SE	95% Confidence Interval		Z	p
				Lower	Upper		
PCOV19 SC	a	-0.298	0.0461	-0.387	-0.207	-6.46	<?.001
SC DANX	b	-0.476	0.1397	-0.743	-0.200	-3.40	<?.001
PCOV19 DANX	c	1.583	0.1581	1.279	1.898	10.01	<?.001

Note. N = 562, SC= Self-Compassion, PCOV19= Perceived covid-19 threat, DANX= Death anxiety

Table 5. Comparison of participants' perceived COVID-19 threat and death anxiety scores by gender

Variables	Group	N	M	SD	t	df	p
Perceived COVID-19 Threat	Female	362	21.93	5.41	4.17***	560	.000
	Male	200	19.93	5.53			
Death Anxiety	Female	362	40.41	21.18	7.76***	560	.000
	Male	200	26.32	19.52			

Note. N = 562, M = Mean, SD = Standard deviation, df = degree of freedom, *p<.05, **p<.01, ***p<.001

Besides, the use of self-compassion as a coping strategy is known to reduce anxiety and certain psychological symptoms (12,20). This idea supports the finding of a mediating role of self-compassion in the current study. Furthermore, individuals with higher self-compassion may use better emotion regulation strategies (22,29), which may enable them to deal with an anxious situation more effectively. In the current study, individuals with high self-compassion were seen to regulate their emotions better and feel less death anxiety.

An additional aim of this study was to investigate the perceived COVID-19 threat and death anxiety levels in the context of the participants' profession, gender and income level. There are many aspects to the COVID-19 pandemic. Many people have been affected economically and psychologically with loss of livelihood and income during this pandemic. According to the data from the current study, the perceived COVID-19 threat by health care professionals was lower than the participants who were unemployed. Interestingly, the difference in perceived threat among the non-healthcare professionals and the other groups did not reach statistical significance. From the perspective of the health care professional, the pandemic did not change their routine much and most of them had to continue with their profession. The unemployed (housewife, students and retirees), on the other hand, were obliged to stay at their homes during the COVID-19 pandemic. These individuals were more likely to be exposed to social media and television news, and occasionally were subject to incorrect information about COVID-19. This may trigger these individuals to perceive the threat of COVID-19 more strongly. Uncertainty is also an important factor here; health care professionals are likely to have access to more reliable and specific information about COVID-19 than the unemployed group. People who stay at home can be exposed to relentless negative automatic thoughts. For this reason, they may perceive an exacerbated threat of COVID-19.

Another significant result of the current study is that the perceived COVID-19 threat was higher among people with a lower income level compared to people who have a higher income level. The perceived threat in the middle-income group was similar to the low and high-income groups. The COVID-19 pandemic has affected people economically, with many people undergoing loss of income, potential loss of their livelihood and are worried about their economic future. From this perspective, individuals with low income are likely to be more anxious and insecure with worries about receiving necessary treatment upon getting infected, as well as being able to take care of their family economically after the illness. Individuals in the low-income category were also seen to have greater death anxiety compared to the high-income group most likely for the same reasons. Notably, individuals in the low-income category may perceive more risk factors, feel the COVID-19 threat more, and this threat may trigger their death anxiety level more.

Finally, the female participants in the study group showed higher perceived COVID-19 threat and death anxiety than the male participants. This can be expected because in general, females have higher anxiety and anxiety disorders along with higher levels of death anxiety (30,31) compared to males.

Based on the results of the current study, some suggestions can be made. COVID-19 is a detrimental pandemic, and both during and after this pandemic, people may experience psychiatric and mental problems. In order to overcome these potential mental health issues, self-compassion might be a crucial variable, and it can be used as a coping strategy by psychiatrists and clinical psychologists. Clinicians can make it easier for people to cope with the pandemic with the use of existing self-compassion training programs. Moreover, it is also vital to evaluate economic problems during this pandemic. Governments taking more effective economic measures can make individuals feel better

and more robust in the face of this epidemic. Provision of financial assurance to individuals during this disease is likely to be beneficial.

This study has some limitations which should be considered when evaluating the results. Due to the quarantine and curfews it was impossible to meet the participants face to face, and self-report scales was used. Furthermore, the current depression or anxiety levels of the participants was not measured with a scale and no data were available on the personality traits of participants. The study was completed in a very short time and in the absence of any face to face interviews, the evaluation of the presence of a psychiatric disorder was not feasible.

CONCLUSION

In summary, the current research results suggest that self-compassion may be an essential variable to help deal with problems related to perceived COVID-19 threat and death anxiety. Improving our understanding of the psychological impacts of

COVID-19 is necessary and substantial. We should expend our knowledge about the psychological and social effects of this pandemic on humankind. Moreover, the economic status (low and high) of individuals is also critical, and females may be more sensitive than males about COVID-19 threat and death anxiety.

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