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Death Anxiety and Fear of Covid-19 In Patients With Schizophrenia and Bipolar Affective Disorder During the Covid-19 Pandemic

Objective: This study aimed to investigate death anxiety and fear of Covid-19 in patients with schizophrenia and bipolar affective disorder (BAD) during the Covid-19 pandemic.

Materials and Methods: A total of 212 participants (72 schizophrenia, 70 BAD, 70 controls) were included in the study. Interviews with the participants were held face-to-face in July 2021.

Results: In the BAD group and control group Templer Death Anxiety Scale (TDAS) scores were higher than the TDAS scores of the schizophrenia group. The Covid-19 Fear Scale scores of the BAD group and control group were higher than the Covid-19 Fear Scale scores of the schizophrenia group. There was a positive correlation between the schizophrenia group Positive and Negative Syndrome Scale total scores, positive subscale scores and TDAS scores; and positive subscale scores and Covid-19 Fear Scale scores. There was a positive correlation between the Young Mania Rating Scale scores of the BAD group and TDAS and Covid-19 Fear Scale scores. Those with shorter disease duration in the schizophrenia group had higher TDAS scores. Those with a history of Covid-19 in the BAD group had higher TDAS and Covid-19 Fear Scale scores.

Conclusion: In the Covid-19 pandemic, it will be beneficial to investigate death anxiety and fear of Covid-19 in patients with schizophrenia and BAD and to plan the necessary treatment approaches.

Key Words: Covid-19, death anxiety, fear of Covid-19, schizophrenia, bipolar affective disorder

Covid-19 Pandemisinde Şizofreni ve Bipolar Affektif Bozukluk Hastalarında Ölüm Kaygısı ve Covid-19 Korkusu

Amaç: Bu çalışmada, Covid-19 pandemisinde şizofreni ve bipolar affektif bozukluk (BAB) hastalarında ölüm kaygısı ve Covid-19 korkusunun araştırılması amaçlandı.

Gereç ve Yöntem: Çalışmaya 212 katılımcı (72 şizofreni, 70 BAB, 70 kontrol) alındı. Katılımcılarla görüşmeler Temmuz 2021'de yüz yüze gerçekleştirildi.

Bulgular: BAB grubu ve kontrol grubunun Templer Ölüm Kaygısı Ölçeği (TÖKÖ) puanları şizofreni grubunun TÖKÖ puanlarından daha yüksekti. BAB grubu ve kontrol grubunun Covid-19 Korkusu Ölçeği skorları şizofreni grubunun Covid-19 Korkusu Ölçeği puanlarından daha yüksekti. Şizofreni grubunun Pozitif ve Negatif Sendrom Ölçeği toplam puanları, pozitif alt ölçek puanları ile TÖKÖ puanları arasında ve pozitif alt ölçek puanları ile Covid-19 Korkusu Ölçeği puanları arasında pozitif korelasyon vardı. BAB grubunun Young Mani Derecelendirme Ölçeği puanları ile TÖKÖ ve Covid-19 Korkusu Ölçeği puanları arasında pozitif korelasyon vardı. Şizofreni grubunda hastalık süresi daha kısa olanların TÖKÖ puanları daha yüksekti. BAB grubunda Covid-19 öyküsü olanların TÖKÖ ve Covid-19 Korkusu Ölçeği puanları daha yüksekti.

Sonuç: Covid-19 pandemisinde şizofreni ve BAB hastalarında ölüm kaygısı ve Covid-19 korkusunun araştırılarak, gerekli tedavi yaklaşımlarını planlamanın yararı olacaktır.

Anahtar Kelimeler: Covid-19, ölüm kaygısı, Covid-19 korkusu, şizofreni, bipolar affektif bozukluk

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Introduction

On December 31, 2019, the World Health Organization (WHO) became aware of an increasing number of idiopathic cases of pneumonia in the Chinese city of Wuhan. Investigations revealed that the cause was a coronavirus. This new virus, previously unidentified in humans, was named Covid-19. The WHO director-general has declared the Covid-19 outbreak an "international public health emergency", the WHO's highest alert level. Later, with the rapid spread of the virus to many other countries, the epidemic was declared a pandemic. As the pandemic moved throughout the world, thousands of deaths were reported every day, so much so that the death toll worldwide reached nearly 6 million (1).

Death anxiety is present in all people, but with lethal events, death anxiety is mentioned more. For centuries, death anxiety has been thought to be central to being human. People use different defense mechanisms to cope with this (2). Thoughts of death can be inside or outside of conscious awareness. When thoughts of death are conscious, the mind resorts to close defenses such as turning off the news of Covid-19-related deaths; thinking, "I am not in the high-risk group"; or constantly cleaning the

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environment with substances such as disinfectants. When thoughts of death leave conscious awareness, they are replaced by remote management defenses so that people feel stronger. For example, they try to increase their cultural worldviews or their self-esteem. These function to control the potential for anxiety when we know that death is inevitable (3).

Fear, on the other hand, is an emotion and an adaptive response that arises to cope with the threat in the presence of danger. When fear is disproportionate to the actual threat, there can be discordant results. For example, when fear is too extreme in a pandemic, there may be individual anxiety disorders, mental health problems, and social panic buying may take place. When there is insufficient fear, the necessary state measures to slow the pandemic are ignored, and reckless action can be taken. In addition, fear can be reduced as it triggers the fear of threats like contamination and safety behaviors such as hand washing. When fear is excessive, it can cause health concerns (4).

Fear of Covid-19 and death anxiety have not been investigated together in schizophrenia and BAD before. Schizophrenia is a mental illness that causes mental and perceptual disorders, decreased functionality, and cognitive impairments (5). Bipolar affective disorder (BAD) progresses with recurrent mood episodes. It is a mental illness that negatively affects life in general, even if there are symptom-free periods between the attacks (6). It has been shown that there is a relationship between many psychiatric diseases and death anxiety. There has been an increase in death anxiety due to the measures taken in the Covid-19 pandemic, death images exposed, and constantly updated case and death reports, which are always reminding of death (7). In addition, it was observed that the levels of fear increased during the Covid-19 pandemic (4).

The studies conducted so far found that the approach plans to the societies during the pandemic periods have been insufficient. Especially, studies on approaching vulnerable populations such as schizophrenia and BAD during the pandemic have not been sufficiently expanded. This study aimed to investigate death anxiety and fear of Covid-19 in patients with schizophrenia and BAD during the Covid-19 pandemic.

Materials and Methods

Research and Publication Ethics: All participants were given detailed information about the study and an informed written consent form was obtained. The study was carried out in accordance with the principles of the Declaration of Helsinki. The study was approved by Elazığ Firat University Clinical Research Ethics Committee (2021/08-46).

Interviews with the participants in the study were held in July 2021, when the number of Covid-19 cases and deaths increased rapidly, and the pandemic affected life intensely. The interviews were conducted face to

face. Having previously applied to the outpatient clinics of Elazığ Mental Health and Diseases Hospital or being in-patients there, 72 patients diagnosed with schizophrenia according to DSM-5 diagnostic criteria and 70 patients diagnosed with BAD according to these diagnostic criteria were included in the study. In addition, 70 healthy individuals who voluntarily participated in the study were included. The healthy volunteers in the control group did not have the diagnosis of any psychiatric disease at the time of the interview, and those aged between 18 and 65 were included in the study. Exclusion criteria for both the patient and the healthy control group were determined as follows: the presence of mental retardation and the presence of cognitive and neurological disease that hinder the individual from perceiving the scales.

During the interview, information such as demographic data, disease history, and history of Covid-19 were collected from the patients and the volunteers. The Templer Death Anxiety Scale (TDAS) and the Fear of Covid-19 Scale (FCV-19S) were administered to all participants. The Positive and Negative Syndrome Scale (PANSS) was applied to the patients with schizophrenia to measure the severity of the disease. The Young Mania Rating Scale (YMRS) was applied to the patients with BAD to measure the severity of the disease.

Data Collection Tools

Templer death anxiety scale (TDAS): This scale was developed by Templer in 1970; it was adapted into Turkish in a study by Şenol. The death anxiety scale assesses anxieties and fears about one's own death and risk of death. It consists of 15 items in the form of "yes" or "no" questions. The total score determines the severity of the death anxiety experienced. The highest score that can be obtained from the test is 15 (8).

The fear of Covid-19 scale (FCV-19S): The Fear of Covid-19 Scale was developed by Ahorsu et al. in 2020; it was adapted into Turkish by Satici et al. in 2021. The scale consists of 7 questions. All items are 5-point Likert type. A score between 7 and 35 is possible on the scale. As the score increases, the severity of the fear of Covid-19 increases (9).

Positive and negative syndrome scale (PANSS): This scale was developed by Kay et al. in 1987; the Turkish validity and reliability assessment of the scale was conducted by Kostakoğlu et al. in 1999. Of the 30 psychiatric parameters evaluated, 7 belong to the negative syndrome subscale, 7 to the positive syndrome subscale, and the remaining 16 to the general psychopathology subscale. The PANSS scale consists of 7-point Likert type items. Increasing scores along the scale indicate increasing severity of disease (10).

Young mania rating scale (YMRS): The scale was developed by Young et al. in 1978; the Turkish validity and reliability assessment of the scale was conducted by Karadağ et al. in 2001. The scale is used to measure the clinical condition of the patient and the severity of the disease. It consists of 11 items; 7 items are in 5-point Likert type, and 4 items are in 9-point

Likert type. A score of 12 points and more indicates mania (11).

Statistical Analysis: A power analysis was conducted to determine the number of people to be included in the study. The power of the test was calculated with the G*Power 3.1 program. In a similar study in the related literature, the effect size of the difference in death anxiety was calculated as 0.779 (12). In order for the power of the study to exceed 95%, the sample size was found to be 111 individuals in total, 37 individuals for each group (df=72; t=1.666).

The data obtained in the research were analyzed using the SPSS 22.0 (Statistical Package for Social Sciences) for Windows program. Kurtosis and Skewness values were examined to determine whether the research variables showed a normal distribution. It was determined that the research variables showed a normal distribution. Parametric methods were used in the analysis of the data. Number, percentage, mean and standard deviation were used as descriptive statistical methods in the evaluation of the data. The t-test was used to compare quantitative continuous data between two independent groups, and the One-way Anova test was used to compare quantitative continuous data among more than two independent groups. Scheffe test was used as a complementary post-hoc analysis to determine the differences after the Anova test. Differences between the ratios of categorical variables in independent groups were analyzed with Chi-square and Fisher's exact tests. The relationship between

continuous variables was analyzed with Pearson correlation. $p < 0.05$ values were considered to indicate statistical significance.

Results

The demographic data of all three groups matched in terms of age and sex are summarized in Table 1.

The distribution of scale scores according to the groups is shown in Table 2. TDAS scores differed significantly between the groups ($p < 0.001$). The reason for the difference is that the TDAS scores of the BAD group were higher than the TDAS scores of the schizophrenia group, and the TDAS scores of the control group were higher than the TDAS scores of the schizophrenia group. There was no significant difference between BAD and control groups (Table 2). FCV-19S scores differed significantly between the groups ($p < 0.001$). The reason for the difference is that the FCV-19S scores of the BAD group were higher than the FCV-19S scores of the schizophrenia group, and the control group's FCV-19S scores, were higher than the schizophrenia group's FCV-19S scores. There was no significant difference between BAD and control groups (Table 2).

The correlation analysis of TDAS and FCV-19S with demographic data is shown in Table 3. And the correlation analyzes between TDAS and FCV-19S with scale scores are shown in Table 4.

Table 1. Distribution of Demographic Characteristics by Groups

		Schizophrenia		BAD		HC		Total		P
		n	%	n	%	n	%	n	%	
Age	<30	22	30.6	22	31.4	22	31.4	66	31.1	0.994
	31-40	28	38.9	27	38.6	25	35.7	80	37.7	
	>40	22	30.6	21	30.0	23	32.9	66	31.1	
Gender	Male	39	54.2	36	51.4	35	50.0	110	51.9	0.880
	Female	33	45.8	34	48.6	35	50.0	102	48.1	
Marital Status	Married	25	34.7	36	51.4	40	57.1	101	47.6	0.021
	Single	47	65.3	34	48.6	30	42.9	111	52.4	
Educational Status	Primary School	53	73.6	23	32.9	19	27.1	95	44.8	<0.001
	Secondary School	15	20.8	33	47.1	33	47.1	81	38.2	
	University	4	5.6	14	20.0	18	25.7	36	17.0	
Disease Duration	<5 Years	18	25.0	23	32.9	-	-	41	28.9	0.242
	5-10 Years	25	34.7	28	40.0	-	-	53	37.3	
	>10 Years	29	40.3	19	27.1	-	-	48	33.8	
History of Covid-19	Yes	16	22.2	23	32.9	25	35.7	64	30.2	0.181
	No	56	77.8	47	67.1	45	64.3	148	69.8	

Chi-Square Analysis, One-Way Analysis of Variance

Mean±SD: Mean±Standard deviation, BAD: Bipolar Affective Disorder, HC: Healthy Control

Table 2. Differentiation of Scale Scores and Age by Groups

	Schizophrenia	BAD	HC	P	Group Comparison
	Mean±SD	Mean±SD	Mean±SD		
TDAS	5.47±3.94	8.96±3.53	8.79±3.45	<0.001*	BAD=HC> Schizophrenia
FCV-19S	11.78±6.79	19.39±8.59	21.50±9.13	<0.001*	BAD=HC> Schizophrenia
PANSS Total	47.03±18.23	-	-	-	-
PANSS Positive	17.00±13.59	-	-	-	-
PANSS Negative	14.33±8.44	-	-	-	-
PANSS General Psychopathology	15.69±9.08	-	-	-	-
YMRS	-	21.54±13.21	-	-	-
Age	35.75±10.59	35.06±10.65	35.63±10.69	0.918	

One-Way Analysis of Variance *p<0.05

BAD: Bipolar Affective Disorder, HC: Healthy Control

TDAS: Templer Death Anxiety Scale, FCV-19S: Fear of Covid-19 Scale, PANSS: Positive And Negative Syndrome Scale, YMRS: Young Mania Rating Scale

Table 3. Correlation Analysis of TDAS and FCV-19S with Demographic Characteristics

Age	n	Schizophrenia		n	BAD	
		TDAS	FCV-19S		TDAS	FCV-19S
		Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD
<30	22	5.05±4.07	12.95±7.26	22	8.77±3.75	19.86±8.99
31-40	28	5.93±4.26	11.93±7.61	27	9.33±3.64	21.11±9.14
>40	22	5.32±3.45	10.41±5.06	21	8.67±3.27	16.67±6.99
P		0.722	0.464		0.781	0.198
Gender	n	Mean ± SD	Mean ± SD	n	Mean ± SD	Mean ± SD
Male	39	3.28±2.15	10.00±4.80	36	7.81±3.38	17.06±7.73
Female	33	8.06±4.02	13.88±8.16	34	10.18±3.31	21.85±8.87
P		<0.001*	0.020*		0.004*	0.018*
Marital Status	n	Mean ± SD	Mean ± SD	n	Mean ± SD	Mean ± SD
Married	25	6.56±4.36	13.16±7.90	36	8.72±3.76	18.92±8.74
Single	47	4.89±3.61	11.04±6.09	34	9.21±3.31	19.88±8.52
P		0.088	0.211		0.571	0.642
Educational Status	n	Mean ± SD	Mean ± SD	n	Mean ± SD	Mean ± SD
Primary School	53	5.38±3.97	12.51±7.31	23	8.78±3.87	21.30±8.88
Secondary School	15	6.13±4.10	9.93±5.25	33	9.42±3.64	18.88±8.75
University	4	4.25±3.30	9.00±1.41	14	8.14±2.62	17.43±7.62
P		0.664	0.308		0.510	0.375
Disease Duration	n	Mean ± SD	Mean ± SD	n	Mean ± SD	Mean ± SD
<5 Years ^a	18	9.61±3.66	14.44±8.97	23	9.17±3.89	21.04±9.20
5-10 Years ^b	25	5.52±3.19	10.36±5.75	28	9.25±3.66	20.25±7.58
>10 Years ^c	29	2.86±2.10	11.34±5.77	19	8.26±2.92	16.11±8.78
P		<0.001*	0.137		0.610	0.142
PostHoc=		a>b, a>c, b>c (p<0.05)				
History of Covid-19	n	Mean ± SD	Mean ± SD	n	Mean ± SD	Mean ± SD
Yes	16	5.38±4.12	10.69±6.16	23	10.96±3.36	23.09±8.42
No	56	5.50±3.92	12.09±6.99	47	7.98±3.22	17.57±8.16
P		0.912	0.471		0.001*	0.011*

Pearson Correlation Analysis, *p<0.05

BAD: Bipolar Affective Disorder, TDAS: Templer Death Anxiety Scale, FCV-19S: Fear of Covid-19 Scale

Table 4. Correlation Analysis Between the Scales

	Schizophrenia				BAD			
	TDAS		FCV-19S		TDAS		FCV-19S	
	r	P	r	P	r	P	r	P
PANSS total	0.60**	<0.001	0.15	0.203	-	-	-	-
PANSS positive	0.83**	<0.001	0.29*	0.011	-	-	-	-
PANSS negative	0.17	0.138	0.09	0.418	-	-	-	-
PANSS general psychopathology	-0.19	0.098	-0.23	0.052	-	-	-	-
YMRS	-	-	-	-	0.70**	<0.001	0.44**	<0.001
FCV-19S	0.29*	0.011	-	-	0.56**	<0.001	-	-

Pearson Correlation Analysis, *p<0.05, **p<0.001

BAD: Bipolar Affective Disorder, TDAS: Templer Death Anxiety Scale, FCV-19S: Fear of Covid-19 Scale, PANSS: Positive And Negative Syndrome Scale, YMRS: Young Mania Rating Scale

Discussion

This cross-sectional study investigated the death anxiety and fear of Covid-19 in patients with schizophrenia and BAD. The study found death anxiety and fear of Covid-19 to be higher in the BAD and in the control group than in the schizophrenia group. There was no significant difference between the BAD and control groups. Importantly, the study also found a positive correlation between death anxiety and fear of Covid-19 in both groups.

The Covid-19 pandemic is a global epidemic that affects the whole world and causes the death of millions of people (1). In order to reduce the increasing number of cases, full or partial quarantines have been implemented in many countries and many restrictions have been introduced. Social isolation has distanced people from each other and placed the thought that the virus is deadly. The absence of social relationships is a risk factor for morbidity and mortality (13). Covid-19 causes more psychological effects than death. Following the news of countless deaths every day and watching the destruction of the Covid-19 pandemic all over the world caused many negative psychological effects, especially death anxiety and fear (14). Fear is a defense mechanism for self-protection and survival. The exaggerated fear of the pandemic can weaken defense mechanisms. It has been observed that the fear of Covid-19 may initiate a psychotic attack or cause the symptoms to recur. It has been thought that fear poses a risk for psychotic attacks, especially in sensitive individuals (15).

In some studies, death anxiety was found to be higher in schizophrenia patients than in healthy subjects (16), while in some other studies, death anxiety was found to be lower in schizophrenia patients than in healthy subjects (17). In BAD patients, on the other hand, it has been observed that anxiety symptoms may accompany the clinical manifestations of the sickness (18). In the Covid-19 pandemic, higher levels of fear and anxiety about Covid-19 were observed in BAD patients compared to healthy controls (19). A study conducted in Spain observed worse psychological distress in those with anxiety or depressive disorders compared to those with schizophrenia and bipolar diagnosis during the Covid-19 pandemic (20). Another study reported more Covid-19-related stress in patients with affective disorders than in those with schizophrenia spectrum disorders (21). This study found both TDAS and FCV-19S levels to be lower in patients with schizophrenia compared to those with BAD and healthy control groups. Lower levels of anxiety and fear about Covid-19 may be related to lack of knowledge about Covid-19, low education level, and cognitive deficiencies. Preoccupation with internal problems rather than ongoing events in the world may cause schizophrenia patients to move away from anxiety (22). In addition, there is an inverse and abnormal functional connection in the amygdala networks that underlie both conscious and unconscious fear perceptions of patients with schizophrenia. Therefore, these patients have a persistent deficit in the processing of fear (23). Cognitive

impairments in schizophrenia may be more severe and common than those in BAD. Cognitive functions are better preserved in BAD (24). This may be the reason why the death anxiety and fear levels of the schizophrenia group were lower in this study, and the levels of BAD patients were similar to those of the healthy group. Because anxiety states are associated with cognitions about danger (25).

A study of death anxiety found death anxiety in women to be significantly higher than in men (26). In another study, death anxiety was found to be higher in women with schizophrenia, as in other participating groups (17). In this study, both FCV-19S and TDAS levels were higher in females than males in both groups.

In the results of this study, the level of death anxiety was higher in patients with schizophrenia who had a shorter disease duration. Cognitive deficits seem to be one of the main features of schizophrenia. One of the important factors in the continuation of cognitive deterioration is the changes that occur in the brain tissue over time. And anxiety is associated with cognition (25). People having schizophrenia for a shorter period of time may have less cognitive impairment. Therefore, the level of death anxiety in such patients may be higher than in those who have had schizophrenia for a longer period of time.

This study found TDAS and FCV-19S levels to be higher in BAD patients with a history of Covid-19. Some studies have shown there may be a relationship between Covid-19 infection and inflammation of the central nervous system (27). The interactions among the immune system, neuroinflammation, and neurotransmitters support the formation mechanism of diseases such as anxiety. Apart from inflammation in Covid-19 infection, other stressors such as a long quarantine period and difficult infection processes cause increased psychological distress (28). Patients with Covid-19 may fear being infected with a new, as yet unknown virus that has a high potential risk of death. And those in the quarantine may experience anger, distress, loneliness, anxiety, and fear (29). For these reasons, death anxiety and fear of Covid-19 may be higher in BAD patients with a history of Covid-19. In the schizophrenia group, there was no significant relationship between the history of Covid-19 and TDAS and FCV-19S. The possible reason for this may be a lack of knowledge and cognitive inadequacies as explained before (22).

Dysphoric mood in schizophrenia may be associated with positive symptoms rather than negative symptoms. In one study, those with schizophrenia spectrum disorder, patients who experienced severe hallucinations had more severe anxiety (30). This study found a positive correlation between TDAS and FCV-19S and PANSS positive scores, more so with TDAS. That is, patients with more positive symptoms had higher anxiety and fear. A possible reason for this may be that patients' delusional content is affected by negative situations such as death due to Covid-19, which they are exposed to in real life or in the media. Many studies

have shown the comorbidity of anxiety and bipolar disorder (31). This study saw a positive correlation between TDAS and FCV-19S and YMRS score in bipolar disorder, more so with death anxiety. Those who experienced more severe manic episodes had more anxiety and fear. A study conducted with bipolar disorder patients found general anxiety levels to be associated with manic episodes (32).

An important finding of this study was that there was a positive correlation between FCV-19S and TDAS in both patient groups, more in BAD. The possible reason for this is that there are common neural circuits related to fear and anxiety in the amygdala and there are similarities in behavioral responses related to fear and anxiety (33). In addition, this result also supports that death anxiety of both patient groups may be related to the fear of Covid-19, and that fear and death anxiety may occur due to the Covid-19 pandemic, unlike any other period.

This study has some limitations. First, it was carried out with a limited number of participants. Further studies should be conducted in large populations so that the results can be generalized. New studies can be planned by examining the history of Covid-19 in depth (type of the treatment administered at that time, the duration of the quarantine period, whether the patients were treated at home, in the hospital or in the intensive care unit, etc.). In addition, since this is a cross-sectional study, the same results may not be obtained in a different periods of the pandemic. Longitudinal studies

are needed to generalize the results of the Covid-19 pandemic.

In conclusion, the important emphasis of this study is the importance of assessing the death anxiety and fear of Covid-19 experienced by patients with schizophrenia and BAD. In particular, death anxiety and fear of Covid-19 should not be neglected in patients with BAD. Although patients with schizophrenia showed lower levels of death anxiety and fear of Covid-19, anxiety and fear can be exacerbated in those with more positive symptoms. It is useful to investigate whether these patients have delusions related to the pandemic. In particular, death anxiety and fear of Covid-19 during the pandemic should be examined in schizophrenia patients with positive symptoms and those having schizophrenia of shorter durations; in BAD patients with severe manic episodes; and in female schizophrenia and BAD patients with a history of Covid-19. Decreased drug compliance and increased disease severity during the pandemic period may also pose a risk in terms of death anxiety and fear. For this reason, the general drug treatment of the patients should be reviewed and close follow-up of the patients should be ensured. Cognitive behavioral therapy has been shown to reduce death anxiety significantly (3), and it can be added to overall treatment planning, as can other approaches. Expanded treatment approaches will help prevent future disorders from occurring in vulnerable populations.

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