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Death anxiety and its association with severity of mental illness in patients with depression and schizophrenia

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ABSTRACT

BACKGROUND

Death and the anxiety of it becomes more apparent when confronted with a chronic disease. The aim of this study was to determine the level of death anxiety among patients with depression and schizophrenia, and the relationship between severity of the symptoms and death anxiety in these patients.

METHODS

A cross-sectional study was conducted on 29 patients with a depressive disorder, 18 with schizophrenia spectrum disorder and 31 healthy subjects, through face-to-face interviews. The general severity of the psychiatric disorder was measured using the Clinical Global Impression Scale (CGI). The severity of depressive symptoms was measured using the Beck Depression Inventory (BDI). Psychosocial performance was measured using the personal and social performance scale (PSP). To evaluate death anxiety, the Bochum Questionnaire on attitude to death and death anxiety 2.0 (BOFRETТА 2.0) was used. One-way ANOVA and Pearson correlation tests were used to analyze the data.

RESULTS

Regarding the BOFRETТА attitude scale, the schizophrenic patients (23.1 ± 9.12) showed significantly higher scores than healthy subjects (18.4 ± 4.56) and depressive patients (19.8 ± 5.20) ($p < 0.050$). The healthy controls achieved the least scores of BOFRETТА anxiety scale followed by depressive (30.67 ± 10.33) and schizophrenic patients (31.30 ± 12.18). However, there were no significant between-group differences regarding this scale. We found significant correlations of all BOFRETТА dimensions (attitude, anxiety, sum score) with CGI, PSP and BDI.

CONCLUSION

There was a significant relationship between the severity of symptoms and death anxiety in both depressed and schizophrenic patients. However, the latter showed a more negative attitude towards death.

Keywords: Death anxiety, schizophrenia, depression, severity, mental illness

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INTRODUCTION

Death anxiety is considered one of the basic human characteristics and has been recorded over the past 4000 years. More than three decades of experimental research and hundreds of studies have shown that death anxiety affects a wide range of human behaviors.^(1,2) To cope with death anxiety, human beings have developed a number of adaptation strategies, namely seeking for meaningful achievements and relationships, and creation of heritage.⁽³⁾ While some people may cope with this anxiety effectively, others resort to ineffective coping mechanisms, such as avoidance, which only make their anxiety worse.⁽¹⁾ Extensive studies have shown that death anxiety is a “trans-diagnostic construct” with the potential to cause maladaptive behaviors, which provides the basis for a range of different mental health states.^(4,5) The trans-diagnostic role of death anxiety in mentally ill patients has been confirmed by an increasing number of experimental studies, indicating that death reminders increase the maladaptive behaviors related to specific phobias, anxiety of attending the community,⁽⁶⁾ and eating disorders.⁽⁷⁾ Obsessive-compulsive disorder has been argued to be a major cause of death anxiety. In fact, it has been suggested that death anxiety includes subtypes of this disorder. Although it has also been argued that some of these obsessions may not be related to death at all (such as sexual obsessions),⁽⁸⁾ death anxiety appears to be the main cause in most forms of obsession. There is increasing evidence supporting the fact that death reminders can stimulate an anxious response among patients with social anxiety and spider phobia. Some other studies found significant correlations between death anxiety and hypochondriasis, depression, schizophrenia and post-traumatic stress disorder.⁽⁹⁻¹³⁾ Several studies suggested a higher rate of death anxiety among depressed patients than in healthy controls.^(13,14) Soleimani et al.⁽¹⁴⁾ in their systematic review reported a higher rate of death anxiety among patients with breast

cancer who developed depression compared to other breast cancer patients. On the other hand Sharpe et al.⁽¹⁵⁾ indicated that treatment of depression can significantly reduce death anxiety among patients who suffered from depression. However, the results of studies regarding schizophrenia are somehow limited and inconsistent.⁽¹⁶⁻¹⁸⁾ Some studies reported a higher rate of death anxiety among these patients compared to patients with depression and healthy cases.^(16,17) Meanwhile, one study reported a lower rate of death anxiety among schizophrenia patients compared to depressed patients.⁽¹⁸⁾ None of the above-mentioned studies evaluated the correlation between the severity of symptoms and death anxiety in these patients. For the above-mentioned reasons, the present study was conducted to evaluate the level of death anxiety among patients with depression and those with schizophrenia, as well as investigating how the severity of the symptoms affects death anxiety in Iranian patients.

METHODS

Research design

The present study is a cross-sectional study on patients with depressive disorder and patients with schizophrenia who were referred to the Amir-Al Momenin Hospital of Zabol from February 1st 2020 to December 1st 2021.

Research subjects

The sample size was determined to compare means between two groups, with effect size of 0.7, $\alpha=0.05$ and $\beta=0.2$, the sample size per group being 34. The inclusion criteria were all patients with the definite diagnosis of depressive disorder or schizophrenia spectrum disorder based on ICD-10 criteria,⁽¹⁹⁾ who were referred to the Psychiatry Department of Amir-al Momenin Hospital, Zabol, Iran. The exclusion criteria were patients with organic disorders based on ICD-10, related neurological disorders, or other internal disorders, severe alcohol consumption and substance abuse addiction.

Subjects with a definite diagnosis of depressive disorder at the Psychiatry Department of Zabol University of Medical Sciences and patients with schizophrenia spectrum disorder were included in the study. The diagnosis was based on the ICD-10 (F2.X) diagnostic criteria.⁽¹⁹⁾ In addition, healthy subjects with no personal or family history of neurological or psychiatric disorders were selected as the control group from an extensive database of healthy subjects in the Psychiatry Department, Zabol University of Medical Sciences. All subjects underwent a Mini international Neuropsychiatric Interview for Diagnostic and Statistical Manual of Mental Disorders, and ICD-10 Disorders-10 (Mini international Neuropsychiatric Interview-Plus version),^(20,21) and psychometric tests to diagnose signs of depression.

Healthy subjects and patients were studied through face-to-face interviews. The patients were asked to attend these sessions after the first treatment and establishment of stability in their status.

Clinical evaluation

The general severity of the psychiatric disorder was measured using the Clinical Global Impression Scale (CGI).⁽²²⁾ The severity of depressive symptoms was measured using the Beck Depression Inventory (BDI).⁽²³⁾ Psychosocial performance was measured using the personal and social performance scale (PSP).⁽²⁴⁾

Measure of death anxiety

To evaluate death anxiety, the Bochum Survey for Assessment of Attitude to Death and Death Anxiety questionnaire was used,⁽²⁵⁾ the reliability and validity of which were recently confirmed in a sample of about 200 healthy subjects. This questionnaire includes 25 items about attitudes toward death (10 items) and death anxiety (15 items). The criterion was based on the Templer's death anxiety scale, the Leicester Death Anxiety Scale, and the FIMEST.⁽²⁶⁾ For a semi-quantitative scale

(BORFETTA), one can select one of the following items: "irrelevant" (score 1), "slightly relevant" (score 2), "mostly relevant" (score 3) or "highly relevant" (score 4). A score of 10 to 40 has been considered for the "Attitude Towards Death" subscale (items 2, 3, 10, 16, 17, 19, 21 to 23, 25), and a score of 15 to 60 has been considered for the "death anxiety" subscale (items 1, 4 to 9, 11 to 15, 18, 20, 24). In the qualitative analysis, participants can express their personal thoughts and anxieties about death, respectively, in two separate columns.

Statistics

Statistical analysis of the neuropsychiatric data was performed using statistical analysis software (IBM SPSS) for the Windows operating system, version 25.0 (IBM, Armonk, New York, USA). Statistical data were analyzed using parametric tests (One-way ANOVA and Pearson correlation coefficient). Tukey multiple comparisons test was used for pairwise comparisons between groups. Statistical significance was defined at a probability value of less than 0.05.

Ethical clearance

All participants submitted their written consent after receiving information about the objectives of this study. The ethics committee of Rudehen Islamic Azad University, Iran, approved the study. It was also conducted in accordance with the 1975 Helsinki Declaration. Ethical clearance code: IR.ZBMU.REC.1399.172.

RESULTS

A total of 29 patients (13 females and 16 males with mean age of 43.7 ± 15.65 years with a definite diagnosis of depressive disorder at the Psychiatry Department of Zabol University of Medical Sciences were collected during the study. Also, 18 patients (9 females and 9 males with mean age of 41.15 ± 9.68 years with schizophrenia spectrum disorder were included in the study. In addition, 31 healthy subjects (18

females and 13 males with mean age of 29.80 ± 16.45 years with no personal or family history of neurological or psychiatric disorders were selected as the control group.

Table 1 shows the demographic and clinical data of the included cases. As was expected, the patients with schizophrenia showed a significant difference in social class, occupational status and educational level compared to the other two groups ($p < 0.050$). However, the depressed group were mostly categorized as being of middle social class and high-school educational level. Meanwhile there was no significant difference in these measures between the depressed group and the healthy individuals. The complete list of characteristics is shown in Table 1.

The mean GGI value for both study groups and was significantly different from that of the healthy controls ($p < 0.050$). On the other hand, the mean PSP score among patients with schizophrenia (47.54 ± 12.30) was significantly

lower than those of the healthy (89.41 ± 6.12) and depressed (72.1 ± 12.29) groups ($p < 0.050$). Regarding the BOFRETТА attitude scale, the schizophrenic patients (23.1 ± 9.1) showed significantly higher scores ($p < 0.050$). The healthy controls achieved the least scores (26.3 ± 11.3) in the BOFRETТА anxiety scale followed by depressive (30.6 ± 10.3) and schizophrenic patients (31.3 ± 12.1). However, there was no significant difference among the groups regarding this scale. The schizophrenic patients also had the highest score of BOFRETТА sum scale (50.1 ± 15.3), but this was not significantly different from those of the other two groups (Table 2). We also found significant correlations of all BOFRETТА dimensions (attitude, anxiety, sum score) with CGI, PSP and BDI ($p < 0.050$) (Data not shown).

The post-hoc analysis indicated a significant difference between healthy controls and schizophrenic patients regarding the BOFRETТА attitude scores ($p = 0.013$). These patients also

Table 1. Demographic and clinical data of healthy subjects, depressive, and schizophrenia patients

Variables	Healthy volunteers (n = 31)	Depressive patients (n = 29)	Patients with schizophrenia (n = 18)	p value
Gender				
Female	15 (48.4)	16 (55.2)	7 (38.9)	0.340
Male	16 (51.6)	13 (44.8)	11 (61.1)	
Age (years)	29.18 (16.45)	43.7 (15.65)	41.15 (9.68)	0.068
Marital status				
Married	20 (64.5)	6 (20.6)	2 (11.1)	0.036
Single	11 (35.5)	23 (79.4)	16 (88.9)	
Children				
Yes	11 (35.5)	5 (17.2)	1 (5.6)	0.051
No	20 (64.5)	24 (82.8)	17 (94.4)	
Educational level				
College	29 (93.5)	10 (34.5)	3 (16.7)	0.029
High school	2 (6.5)	15 (51.7)	6 (33.3)	
Basic school	0 (0.0)	3 (10.3)	5 (27.8)	
No school	0 (0.0)	1 (3.5)	4 (22.2)	
Occupational status				
Full	29 (93.5)	17 (58.6)	3 (16.7)	0.022
No activity	2 (6.5)	5 (17.2)	10 (55.6)	
Retired	0 (0.0)	7 (24.2)	5 (27.7)	
Social class				
Working class	4 (12.9)	6 (20.7)	10 (55.5)	0.073
Middle class	5 (16.1)	19 (65.5)	5 (27.8)	
Academic	22 (71.0)	4 (13.8)	3 (16.7)	

Data presented as n (%), except for age [mean (SD)]

had significantly higher scores when compared to the depression group ($p=0.026$). Schizophrenic and depressed patients both showed significantly higher CGI scores compared to healthy controls ($p=0.010$ and 0.034 , respectively). However, there was no significant difference between the two study groups regarding CGI scores ($p=0.061$). Regarding the PSP scores, although there was no significant difference between depressive and schizophrenic patients, both of these groups obtained significantly higher scores than did the healthy subjects ($p=0.018$ and $p=0.011$, respectively) (Table 2).

DISCUSSION

According to the results, a significant positive relationship was found between death anxiety and the severity of depression and schizophrenia. Also, for both disorders with 29 and 18 participants, a significant relationship was reported between death anxiety and the severity of the symptoms of the disorder. In general, these results support the claim that death anxiety is a trans-diagnostic construct, ^(4,7) and are consistent with those of previous studies, supporting the relationship between death anxiety and the severity of specific disorders. Attitudes toward death were significantly worse in patients with schizophrenia. As shown, a completely negative attitude toward death was

found in those patients with significant negative symptoms. Patients with recurrent depression disorder, as do patients with schizophrenia, have a higher level of death-related anxiety. Death anxiety was significantly high in the two groups, but patients with schizophrenia had higher (in other words, uncontrollable) negative attitude toward death.

Our results were in line with Menzies et al.,⁽²⁷²⁸⁾ who evaluated 200 mental disorder patients (anxiety, eating and affective disorders, psychotic disorders, obsessive-compulsive disorders) after treatment. In their study, it was reported that the severity of the mental disorder was closely related to the level of the patients' death anxiety. On the other hand, Mavrogiorgou et al.⁽³⁰⁾ in a more recent study indicated a higher rate of death anxiety among depressed and schizophrenic patients.

Considering the latest observations, this result is consistent with our results that patients with a chronic period and marked negative symptoms were characterized by a negative and uncontrollable attitude toward death. Therefore, it can be stated that these patients have lower death anxiety, and the reason is a disorder in their emotions (due to the disappearance or lack of emotions). In contrast to predictions, although the existence of meaning in life predicted the science of psychopathology, neither the attachment style nor meaning in life moderated the relationship

Table 2. Comparison of the psychometric scales applied to the healthy subjects, depressive and schizophrenia patients

Psychometric scale	Healthy volunteers (n=31)	Depressive patients (n=29)	Patients with schizophrenia (n = 18)	p value	Post hoc analysis		
					H-D p	H-S p	D-S p
BOFRETТА Attitude	18.4 (4.56)	19.8 (5.20)	23.1 (9.12)	0.021*	0.056	0.013	0.026
BOFRETТА Anxiety	26.3 (11.3)	30.67 (10.33)	31.30 (12.18)	0.812	--	--	-
BOFRETТА Sum Score	43.8 (12.5)	49.9 (12.9)	50.18 (15.3)	0.530	-	-	-
CGI	1.00 (0.0)	5.12 (0.33)	5.15 (0.65)	0.000*	0.034	0.010	0.061
PSP	89.41 (6.12)	72.1 (12.29)	47.54 (12.30)	0.000*	0.018	0.011	0.074

Data presented as Mean (SD), -One-way Anova; BOFRETТА: Bochum Survey for Assessment of Attitude to Death and Death Anxiety; CGI: Clinical Global Impression scale; PSP, Personal and Social Performance scale; H: healthy volunteers; D: depressive patients; S: Patients with Schizophrenia

between death anxiety and the science of psychopathology. Attachment style can moderate death anxiety among non-clinical participants,⁽²⁹⁾ and early evidence of an association between death anxiety and understanding of meaning in life among non-clinical participants⁽³⁰⁾ with mild depression⁽³¹⁾ indicates a moderating role of attachment style, which is consistent with previous findings.

A recent study conducted by Zhang et al.⁽³²⁾ indicated that meaning in life is adversely correlated with death anxiety, which means the higher the meaning in life scores were the lower the rate of death anxiety was. Mohammadpour et al.⁽³³⁾ in their study reported that older adults who obtained higher scores regarding meaning in life seemed to completely understand their own values and goals of their life. As a result, they were able to look at death calmly and objectively which resulted in their lower death anxiety. Therefore, it is suggested to consider the aspects of meaning in life in the context of death, while trying to treat mental disorders effectively.

There are limitations in the interpretation of our data. A realistic study (patients hospitalized in a large university hospital on a daily basis) has its shortcomings. The patient group was more or less homogeneous, while the healthy group was heterogeneous, so they did not match well. The healthy group was far higher than the two patient groups in terms of social and educational status, so the studied groups were not comparable and at the same level. The BOFRETТА scale should be considered critically, since it was previously approved but has not yet been widely used in psychiatry. Most of the patients in our relatively small groups were affected by psychotherapy drugs, but we still could show the differences in attitudes of the two groups toward death and the death anxiety. Although these results need to be confirmed by using larger sample groups in future studies, it can be suggested that practical interviews must be considered in both depression and schizophrenia cases who seem to be influenced by death anxiety, especially the ones with more severe symptoms. In addition,

psychologists must be aware to mention this issue and ask the patient to talk about it in order to see if they have developed death anxiety or not.

CONCLUSION

There was a significant relationship between the severity of symptoms and death anxiety in both depressed and schizophrenic patients. However, the patients with schizophrenia showed a more negative attitude towards death.

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CONTRIBUTORS

HSM participated in conception and design of the study, library searches and assembling relevant literature, critical review of the paper, supervising writing of the paper, and database management. SN participated in data collection, library searches and assembling relevant literature, writing the paper, and critical review of the paper. Both authors read and approved the final manuscript.

CONFLICT OF INTEREST

We declare that we do not have any conflicts of interests. 

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