# It is illegal to post this copyrighted PDF on any website. Suicidal Ideation, Self-esteem, and Hopelessness in Patients With Pulmonary Arterial Hypertension

Sevda Korkmaz, MD<sup>a,\*</sup>; Mehmet Akbulut, MD<sup>b</sup>; Aslı Kazgan, MD<sup>a</sup>; Alaattin Hekim, MD<sup>a</sup>; Sevler Yıldız, MD<sup>a</sup>; Filiz Özsoy, MD<sup>c</sup>; Sema Baykara, MD<sup>a</sup>; Murad Atmaca, MD<sup>a</sup>; Evrim Gül, MD<sup>d</sup>; and Hasan Korkmaz, MD<sup>b</sup>

## ABSTRACT

**Objective:** To investigate the frequency of suicidal ideation and its correlation with other clinical variables in patients with pulmonary arterial hypertension.

*Methods:* Fifty patients with pulmonary arterial hypertension who presented to the cardiology department between 2018 and 2019 and 50 healthy controls were included in the study. A sociodemographic and clinical data form was completed by both the patients and controls, and the Beck Depression Inventory (BDI), Beck Hopelessness Scale (BHS), Rosenberg Self-Esteem Scale (RSE), and Suicide Probability Scale (SPS) were administered. SPSS version 22 software was used in the statistical analysis.

**Results:** The mean  $\pm$  SD systolic pulmonary pressure of the patients was 47.48  $\pm$  18.86 and the pulmonary artery pressure was 33.32  $\pm$  19.69. BHS, BDI, and SPS total scores were statistically significantly higher in the patient group compared to the control group (*P* < .001, *P* = .001, *P* = .026, respectively). RSE scores were also higher in the patient group compared to the control group (*P* = .017).

**Conclusions:** It is important to identify pulmonary arterial hypertension patients with intense feelings of hopelessness and depressive symptoms and to provide psychiatric treatment and psychotherapeutic interventions to improve their self-esteem.

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<sup>a</sup>Department of Psychiatry, Faculty of Medicine, Fırat University, Elazıg, Turkey

<sup>c</sup>Department of Psychiatry, Tokat State Hospital, Tokat, Turkey <sup>d</sup>Department of Emergency Medicine, Faculty of Medicine, Firat University, Elazig, Turkey

\*Corresponding author: Sevda Korkmaz, MD, Department of Psychiatry, Faculty of Medicine, Fırat University, 23119, Elazıg, Turkey (skorkmaz23@hotmail.com).

ulmonary arterial hypertension is a disease characterized by an increase in mean pulmonary artery pressure and pulmonary vascular resistance. In cases wherein the mean pulmonary arterial pressure exceeds 25 mm Hg in rest and 30 mm Hg in exercise, pulmonary arterial hypertension could be present.<sup>1,2</sup> It has been reported that anxiety and depression symptoms are quite common in patients with pulmonary arterial hypertension due to the clinical symptoms of the disease, their negative impact on the patient's quality of life, and resulting socioeconomic problems.<sup>3-5</sup> In this group of patients, depressive symptoms are accompanied by several psychological symptoms such as suicidal ideation, low self-esteem, and feelings of despair about the future.<sup>3,6,7</sup> However, there are no studies in the literature that analyzed concomitant depression, suicidal ideation, and self-esteem in patients with pulmonary arterial hypertension. Thus, the present study aimed to compare the frequency of suicidal ideation, self-esteem, and depression scores in patients with pulmonary arterial hypertension with that of healthy controls.

# **METHODS**

The present study compared pulmonary arterial hypertension patients with a healthy control group based on certain parameters such as depression and despair and self-esteem and suicidal ideation levels. This cross-sectional study was approved by the local ethics committee of the Fırat University Faculty of Medicine and was conducted in accordance with the Declaration of Helsinki. The study included a group of consecutive outpatients aged 18-50 years with pulmonary hypertension who presented to the Cardiology Department of Fırat University Hospital (the cardiology outpatient clinic is a third-level outpatient institution) between 2018 and 2019. The healthy control group comprised 50 individuals, matched on age and sex, who completed the scales in a room at the outpatient clinic. The control group members included relatives of the hospital staff. Exclusion criteria included physical and mental illnesses that could prevent the participants from responding to the survey and the scales and those who abused alcohol and other substances. A sociodemographic and clinical data form developed by the authors was completed by both the patients and controls, and the Beck Depression Inventory (BDI),<sup>8</sup> Beck Hopelessness Scale (BHS),<sup>9</sup> Rosenberg Self-Esteem Scale (RSE),<sup>10</sup> and Suicide Probability Scale (SPS)<sup>11</sup> were administered to both groups.

## Scales

*Beck Depression Inventory.* The BDI is a Likert-type scale that includes 21 symptom categories. Each symptom category is analyzed

<sup>&</sup>lt;sup>b</sup>Department of Cardiology, Faculty of Medicine, Fırat University, Elazıg, Turkey

**Clinical Points** 

- In patients with pulmonary arterial hypertension, depressive symptoms are accompanied by several psychological symptoms such as suicidal ideation, low selfesteem, and feelings of despair about the future.
- Interventions to improve self-esteem may have a positive effect on the reduction of suicidal ideation and treatment of the disease.

based on scores that range from 0 to 3. The highest possible score is 63. A high total score indicates high-level or severe depression. The validity and reliability of the scale were determined by Hisli.<sup>12</sup> The cutoff score was 17 in the reliability and validity tests conducted on the Turkish language version of the scale.<sup>12</sup>

Beck Hopelessness Scale. The BHS includes 20 items that measure future expectations and pessimism of the individual. The participants are asked to indicate whether the statements are true or false for them. The scale includes 11 true and 9 false answers. If the answers to the questions 2, 4, 7, 9, 11, 12, 14, 16, 17, 18, and 20 are true, the participant receives 1 point, and if the answers to questions 1, 3, 5, 6, 8, 10, 13, 15, and 19 are false, the participant receives 1 point. In other cases, the participant is not awarded any points. The total score reflects the total hopelessness score. The BHS is analyzed in 3 subdimensions. However, the present study was conducted solely based on the total scale score. The validity and reliability of the scale in the Turkish language was determined by Durak and Palabiyikoğlu.<sup>13</sup>

Rosenberg Self-Esteem Scale. The RSE includes 63 items and 12 subscales. To preserve the integrity of the scale, although the participants responded to all scale questions in the present study, only the responses to the first 10 statements on "self-esteem" were included in the analysis. The subjects are scored between 0 and 6 points based on the assessment principles of the scale. A higher score on the scale indicates a low self-esteem level.

Suicide Probability Scale. The SPS is a 36-item, 4-point Likert-type scale developed by Cull and Gill.<sup>11</sup> The scale includes 3 subdimensions: negative self-evaluation and exhaustion, suicide ideation, and hostility. The lowest possible score on the scale is 36, and the highest possible score is 144. A high score on the scale indicates high suicidal probability. In the present study, the analysis was conducted with the total scale score. The reliability and validity of the scale in the Turkish language was determined by Atlı et al.<sup>14</sup>

## **Statistical Analysis**

Statistical analyses were conducted with SPSS version 22 software. Normal distribution of the data was tested with the Kolmogorov-Smirnov test with Lilliefors correction. In comparisons between the groups, student t test was used for the data with normal distribution; otherwise, Mann-Whitney U test was utilized. P values < .05 were considered statistically significant.

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Variable	Patients n (%)	Control Group n (%)
Sex (female)	39 (78)	36 (74)
Primary school graduate	39 (78)	29 (58)
High school graduate	7 (14)	12 (24)
College graduate	4 (8)	9 (18)
Residence/urban center	34 (68)	44 (88)
Income level (low)	18 (36)	14 (28)
Smoker	7 (14)	8 (16)
Concomitant disease	20 (40)	3 (6)
Psychiatric treatment history	2 (4)	
Psychiatric disorder diagnosis in family	4 (8)	2 (4)

#### RESULTS

The mean  $\pm$  SD age of the 50 patients included in the study was  $48.6 \pm 12.2$ , and the age of the control group was  $46.3 \pm 13.3$ . There was no significant difference between the patient group and the control group based on sociodemographic parameters such as age, marital status, income level, and employment (Table 1). The mean  $\pm$  SD right ventricular diameter of the patients was  $22.54 \pm 3.32$ , systolic pulmonary pressure was 47.48±18.86, and pulmonary artery pressure was  $33.32 \pm 19.69$ . BDI scores of 9 patients and 3 controls were  $\geq$  17, which was the upper limit for depression. The patient group's mean  $\pm$  SD scale scores were BHS:  $6.8 \pm 4.08$ , BDI:  $10.46 \pm 6.24$ , and SPS:  $61.0 \pm 14.7$ . The control group's mean  $\pm$  SD scale scores were BHS: 3.92 ± 2.8, BDI: 6.54 ± 5.49, and SPS: 55.3 ± 9.85. It was determined that total BHS, BDI, and SPS scores were statistically significantly higher in the patient group compared to the control group (P < .001, P = .001, P = .026, respectively). The mean  $\pm$  SD RSE score was  $0.83 \pm 0.72$  for the patient group and  $0.55 \pm 0.38$  for the controls. RSE scores were also statistically significantly higher in the patient group compared to the controls (P = .017) (Table 2). A high score on the RSE indicates low self-esteem.

#### DISCUSSION

In this study, we found that individuals with pulmonary arterial hypertension had higher hopelessness and depression scores compared to the control group, and their self-esteem levels were also lower. In individuals with a chronic physical disease, feelings of hopelessness and depression symptoms are very common.<sup>15</sup> Anxiety disorders comprise another important group of psychiatric disorders that are common in individuals who suffer from physical diseases.16

In pulmonary arterial hypertension, which is a chronic disease, it was reported that anxiety and depression symptoms are common due to lifestyle changes induced by clinical symptoms and associated socioeconomic problems.<sup>5</sup> Furthermore, although mood disorders are frequent in this patient group, these disorders are seldom diagnosed, and mood disorders improved after treatment of the clinical disease symptoms.<sup>17</sup> In a study conducted in 64 patients with pulmonary arterial hypertension,

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Table 2. Patient and Control Gloup Scale Scoles								
Variable	Patients (n=50)	Controls (n=50)	P Value	t				
Age, y	48.6±12.2 (49.0)	46.3±13.3 (47.5)	.367	0.907				
Beck Hopelessness Scale score	6.8±4.08 (6.0)	3.92±2.8 (3.0)	<.001**	4.116				
Beck Depression Inventory score	10.46±6.24 (9.0)	6.54±5.49 (5.0)	.001*	3.337				
Rosenberg Self-Esteem Scale score	0.83 ± 0.72 (0.5)	0.55±0.38 (0.5)	.017*	2.435				
Suicide Probability Scale score	61.0±14.7 (60.5)	55.3±9.85 (55.0)	.026*	2.262				

<sup>a</sup>Data are presented as mean  $\pm$  SD (median).

<sup>b</sup>The calculations depicted in the table were conducted with the student *t* test, which determines the significance of the difference between the 2 means.

\*P<.05 (statistically significant).

\*\*P<.001 (very statistically significant).

Aguirre-Camacho and Moreno-Jiménez<sup>3</sup> analyzed anxiety and depression symptoms and investigated the possible effects of these symptoms on life satisfaction, optimism, and quality of life of the individuals. The study findings demonstrated that anxiety and depression symptoms were prominent in patients independent of disease severity, and anxiety symptoms especially led to more negative effects on quality of life.<sup>3</sup>

In this study, we found that both hopelessness and depression scores of pulmonary arterial hypertension patients were higher compared to those of the healthy control group, which is consistent with findings reported in the literature.<sup>3,5</sup> It was also determined that although these patients exhibited psychiatric symptoms that could negatively affect their quality of life, only 2 individuals received psychiatric treatment, while the others did not. Our findings suggest that despite the clinical symptoms observed in these patients, they did not resort to psychiatric treatment and/or most psychiatric symptoms were not noticed by their health care providers.

Furthermore, in the present study it was also determined that the self-esteem of pulmonary arterial hypertension patients was lower, and the suicide probability risk was higher, compared to healthy controls. Presence of a chronic physical disease is always a suicide risk factor in all age groups.<sup>18</sup> Also, in the course of physical diseases, a patient or family history of suicide attempt, poor prognosis, uncontrolled pain, lack of social support, death of a relative, psychopathological history, anxiety, and hopelessness have also been considered as risk factors for suicide attempt that may accompany depression.<sup>19</sup> Physical diseases increase the risk of suicide by initiating or exacerbating depression and other psychiatric diseases by leading to organic mental disorders that cause perceptual-cognitive and affective changes, reasoning disorders, impulsivity, and suicidal behavior.<sup>20</sup> In the present study, the high suicide risk could be explained by perceptual, cognitive, and affective changes in this patient group as well as by the depressive symptoms. Also, it was determined that self-esteem levels of the patient group were lower compared to the healthy controls.

CONCLUSION

In individuals with physical disease, depression leads to significant disabilities, disrupts quality of life, and negatively

affects the prognosis of the physical disease. In patients with pulmonary arterial hypertension, the presence of several psychological problems, especially depressive symptoms, negatively affects the quality of life.<sup>21</sup> Depressive symptoms are accompanied by negative emotions such as hopelessness and lower self-esteem in these patients. Self-esteem reflects individuals' perceptions about their conditions and their ability to act to change these conditions. Low self-esteem due to a chronic disease may lead to loss of self-confidence, may damage social relationships of the individual, and may cause them to stop fighting the disease.<sup>22</sup> Individuals with low selfesteem may be left alone with their desire and thoughts to end their lives due to a lack of adequate coping mechanisms when faced with difficulties induced by the disease. This lack of coping mechanisms would adversely affect the patient's quality of life and start to be an obstacle to the follow-up and treatment of the primary disease. Thus, patients with intense emotions of despair and depressive symptoms should be identified, and psychotherapeutic intervention should be conducted. Also, in this group of patients it was suggested that interventions to improve self-esteem may have a positive effect on the reduction of suicidal ideation and treatment of the disease.

The present study findings would contribute to the current studies in the literature; however, there were certain limitations. First, the scales used in the study were self-report inventories and were completed by the subjects. Second, selfesteem was analyzed based on the total scale score rather than the self-esteem multidimensional analysis. We suggest that the multidimensional analysis of self-esteem based on academic achievements and physical and interpersonal relations would better clarify its correlations with suicidal ideation in future studies.

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