

**COVID-19 Content**

# Psychological Risk Factors of Functional Impairment After COVID-19 Deaths



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**Abstract**

**Context.** People bereaved from COVID-19 report higher levels of grief than people bereaved from natural causes. The full impact of this onslaught of grief will not be known for some time. Ensuring high-quality bereavement care in the context of COVID-19 presents unprecedented challenges to end-of-life care.

**Objectives.** We aimed to determine how psychological symptoms explain functional impairment.

**Methods.** A sample of people bereaved through COVID-19 ( $N = 307$ ) in the United States completed demographic questions and self-report measures of neuroticism; symptoms of depression, generalized anxiety, posttraumatic stress, separation distress, and dysfunctional grief; and functional impairment due to a COVID-19 loss.

**Results.** Most participants' scores were in the clinical ranges for generalized anxiety, depression, dysfunctional grief, and functional impairment. Functional impairment scores were not associated with age, gender, and time since loss but were associated with being diagnosed with COVID-19, having received professional help with the loss, and a close relationship to the deceased. A logistic regression model showed that, after controlling for covariates, the odds of functional impairment significantly increased by 27% for higher scores in separation distress, 25% for higher scores in dysfunctional grief, and 13% for higher scores in posttraumatic stress.

**Conclusion.** People bereaved because of COVID-19 are at risk of functional impairment, especially if they have symptoms of separation distress, dysfunctional grief, and/or posttraumatic stress. Attention to identifying and treating functional impairment may be important in facilitating grieving persons' full participation in social and economic life during and after the pandemic. *J Pain Symptom Manage* 2021;61:1–4. © 2021 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

**Key Words**

Coronavirus, grief, bereavement

**Key Message**

Functional impairment is an important component of the burden of COVID-19 grief, but its psychological risk factors are unknown. Separation distress, COVID-19 grief, and posttraumatic stress significantly explained functional impairment. The integration of psychologists into palliative care is likely to facilitate

efficacious and cost-effective strategies to support grieving persons.

**Psychological Risk Factors of Functional Impairment After COVID-19 Deaths**

Nearly 1.8 million people worldwide have died from COVID-19.<sup>1</sup> Millions more are in mourning.<sup>2</sup> Predic-

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tions that the unique circumstances of COVID-19 deaths will precipitate a worldwide increase in persistent and pervasive grief<sup>3</sup> appear correct. Very recent research shows that acute grief after a COVID-19 death is more severe than grief after death from other natural causes.<sup>4,5</sup> The full impact of this onslaught of grief will not be known for some time. What is known is that responding to the mental health effects of the pandemic will be a substantial challenge to health systems.<sup>6</sup>

Functional impairment is a diagnostic criterion in mental disorders. It encompasses impairments in social, occupational, and other important areas of functioning<sup>7</sup> and is commonly experienced by grieving persons.<sup>8</sup> Emerging research and case reports indicate that functional impairment is an important component of the burden of grief after a COVID-19 death.<sup>9,10</sup> However, no study has explored how psychological factors might increase risk of functional impairment when a close person dies from COVID-19. The identification of such factors is likely to be important to underpin effective and economical decisions about resource allocation. This then was the aim of the present study.

## Methods

After obtaining approval from an institutional review board, we collected online survey data from adults in the United States in early November 2020. The participants were recruited through Amazon MTurk in exchange for payment (\$0.50) and were eligible if they provided informed consent, had a significant person in their life die from COVID-19, and furnished complete information. MTurk provides data equivalent in quality to other methods of data collection, especially when data are screened appropriately,<sup>11</sup> and tends to provide more demographically diverse samples than other recruitment sources.<sup>12</sup>

Participants were asked to report their age, gender, race, COVID-19 diagnosis, relationship to a significant person in their life who died from COVID-19, how long ago this person died, and if the participant received professional help for this loss. Participants then completed a range of self-report measures with sound psychometric properties (Cronbach's alpha for each measure in the current sample is provided in the following sentences.). The generalized tendency to experience negative emotions was measured using an 8-item neuroticism subscale ( $\alpha = 0.80$ ) of the Big Five Inventory.<sup>13</sup> Symptoms of depression ( $\alpha = 0.66$ ) and generalized anxiety ( $\alpha = 0.68$ ) were measured using the four-item, Patient Health Questionnaire-4.<sup>14</sup> Symptoms of posttraumatic stress ( $\alpha = 0.88$ ) were measured using the 9-item, National Stressful Events Survey PTSD Short Scale.<sup>15</sup> Symptoms of separation distress ( $\alpha = 0.74$ ) were measured with

the 4-item, core grief subscale of the Persistent Complex Bereavement Inventory.<sup>16</sup> Symptoms of dysfunctional grief ( $\alpha = 0.83$ ) were measured with the 5-item Pandemic Grief Scale.<sup>17</sup> Functional impairment due to a COVID-19 loss was measured using the 5-item Work and Social Adjustment Scale,<sup>18</sup> which assesses impairment in work, home management, social leisure activities, private leisure activities, and family and relationships. Participants were asked to rate how much impairment they experienced because of their COVID-19 loss ( $\alpha = 0.92$ ). A 4-point time anchored score (0 = *not at all* to 3 = *nearly every day*) that spanned the previous two weeks was applied to all the measures except for the functional impairment scale which has a 9-point severity scale (0 = *not at all* to 8 = *very severely*). Item scores within a measure were summed to form composite scores with higher scores indicating higher levels of a particular condition.

## Results

We performed the analyses in SPSS 25.0 with an alpha set at .05. Participants were 307 adults ( $M_{\text{age}} = 35.58$ ;  $SD = 10.66$ ). Most were white (78.8%), followed by black (9.8%), Hispanic (8.1%), Asian (2.3%), and other (1.0%). There was an almost even split between genders (male = 50.8%, female = 49.2%), whether they had received a diagnosis of COVID-19 (yes = 50.8%, no = 49.2%), and whether they had sought professional help for their loss (yes = 50.2%, no = 49.8%). The deceased was immediate family (25.4%), extended family (22.5%), romantic partner (12.4%), acquaintance (20.2%), close friend (18.6%), or other (1.0%). Time since loss varied from <1 month (10.1%), 1 month to <2 months (24.8%), 2 months to <3 months, 25.1%), 3 months to <4 months (21.2%), 4 months to <5 months (9.4), 5 months to <6 months (4.6%), and 6 months or more (4.9%).

Most of the participants were in the clinical ranges of generalized anxiety (70% scored  $\geq 3.0$ <sup>14</sup>), depression (74.3% scored  $\geq 3.0$ ; Kroenke et al., 2009), dysfunctional grief (66.1% scored  $\geq 7.0$ <sup>17</sup>), and functional impairment due to the COVID-19 loss (63.2% scored  $\geq 21.0$ <sup>18</sup>). Functional impairment scores were not associated with age ( $r = -0.10$ ,  $P = 0.08$ ), gender ( $t[305] = 0.04$ ,  $P = 0.97$ ), race ( $t[88.59] = -0.15$ ,  $P = 0.88$ ), and time since loss ( $r = -0.07$ ,  $P = 0.28$ ). However, functional impairment was higher among those who were diagnosed with COVID-19 (Welch's  $t[276.78] = 6.54$ ,  $P < 0.001$ ), received professional help with their loss (Welch's  $t[289.30] = -6.04$ ,  $P < 0.001$ ), and lost romantic partners or immediate family members ( $F[4, 299] = 6.09$ ,  $P < 0.001$ ). These background variables were dummy coded and

Table 1  
Zero-Order Correlation Matrix and Descriptive Statistics (N = 307)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	—												
2. Gender	-0.02	—											
3. Race	-0.01	0.05	—										
4. Diagnosis	-0.07	-0.06	0.02	—									
5. Help	0.03	-0.06	0.01	0.47***	—								
6. Relation	-0.09	-0.12*	0.08	0.34***	0.29***	—							
7. Time	0.06	0.10	-0.01	-0.03	-0.02	0.05	—						
8. Neuroticism	0.05	0.02	-0.08	0.35***	0.34***	0.24***	0.00	—					
9. Generalized anxiety	-0.06	-0.08	0.00	0.25***	0.23***	0.25***	-0.09	0.60***	—				
10. Depression	-0.05	-0.02	0.05	0.31***	0.29***	0.27***	0.10	0.61***	0.64***	—			
11. Posttraumatic stress	-0.10	-0.06	-0.02	0.33***	0.26***	0.26***	-0.02	0.61***	0.73***	0.70***	—		
12. Separation distress	-0.08	0.00	-0.05	0.23***	0.26***	0.19**	-0.12*	0.45***	0.52***	0.47***	0.62***	—	
13. Dysfunctional grief	-0.06	-0.02	0.02	0.33***	0.33***	0.27***	-0.02	0.58***	0.55***	0.62***	0.75***	0.73***	—
14. Functional impairment	-0.10	0.00	-0.01	0.35***	0.33***	0.26***	-0.07	0.54***	0.58***	0.55***	0.73***	0.69***	0.79***
M	35.58	0.51	0.79	0.51	0.38	2.78	29.12	3.04	3.33	14.86	6.69	7.74	22.57
SD	10.66	0.50	0.41	0.50	0.49	1.54	5.39	1.56	1.62	5.77	2.57	3.63	9.24

Race (1 = white; 0 = non-white); gender (1 = male; 0 = female); diagnosis (1 = COVID-19 diagnosis; 0 = no COVID-19); help (1 = received professional help for loss; 0 = no help); relation (1 = immediate family and romantic relation; 0 = other); time = time since loss in months.

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

included in the subsequent logistic regression analysis as statistical controls. Table 1 shows the descriptive statistics and correlation matrix for the variables.

Data screening revealed no problems with linearity, multicollinearity, independent responses, and sample size. The primary analysis was a binary logistic regression to quantify how individual differences in demographic and psychological factors were related to the probability of reporting functional impairment due to a COVID-19 death as a binary outcome (1 = impaired based on Work and Social Adjustment Scale cut score; 0 = not impaired). The Hosmer-Lemeshow test ( $\chi^2 [8, N = 307] = 9.48, P = 0.30$ ) and Nagelkerke  $R^2$  of 0.54 indicated that the model was a good fit for the data. Overall accuracy of the model was 81.4%. Among the covariates, posttraumatic stress ( $B = .12, P = 0.021$ , odds ratio [OR] = 1.13, 95% confidence interval [CI] = 1.02, 1.25), separation distress ( $B = .24, P = 0.008$ , OR = 1.27, 95% CI = 1.06, 1.51), and dysfunctional grief ( $B = .22, P = 0.004$ , OR = 1.25, 95% CI = 1.08, 1.45) explained functional impairment. Specifically, this model revealed that, after accounting for relevant background variables, neuroticism, depression, and generalized anxiety, the odds of being functionally impaired by a significant COVID-19 death is increased by 27% for higher scores in separation distress, 25% for higher scores in dysfunctional grief, and 13% for higher scores in posttraumatic stress.

## Discussion

This is the first study to focus on psychological factors that could increase risk of functional impairment after bereavement from COVID-19. Our findings

suggest that the predicted worldwide tsunami of grief from this pandemic is likely to be associated with much functional impairment experienced by grieving persons, particularly for bereaved individuals reporting symptoms of separation distress, dysfunctional grief, and posttraumatic stress. Efficacious and cost-effective strategies to identify, limit, and treat functional impairment experienced by people bereaved by COVID-19 are urgently needed.

Palliative care, which is the most well-developed approach to managing end of life, grapples with questions concerning who to provide bereavement support, when and what to provide, and on what basis.<sup>19,20</sup> Psychologists and other mental health professionals are ideally placed to provide evidence-based guidance. Indeed, 7 years ago, Kasl-Godley et al.<sup>21</sup> proposed a call for action to integrate psychologists into palliative care. Yet, the role of psychologists within end-of-life care is underdeveloped.<sup>22</sup> This gap underpinned a recent editorial calling for improvements in supporting the bereaved in greatest need.<sup>23</sup> This editorial affirmed, "We need to improve screening efforts, reduce barriers to accessing support, improve our ability to assess the bereaved, improve the fit and efficacy of therapies, disseminate and implement empirically supported grief interventions, establish standards of care, increase the workforce of grief specialists, and minimize burnout of these providers" (<sup>23</sup> p. 371). Psychologists and other mental health professionals working in end-of-life settings could find that the inclusion of brief screeners for dysfunctional grief, traumatic stress, and functional impairment such as those used in this study could help identify family members meriting preventive intervention or systematic follow-up in the course of bereavement. Such measures could also pinpoint specific symptoms or struggles to help target intervention.<sup>17</sup>

### Limitations

Our study has several limitations, including using a convenience sample drawn from one country using one method of recruitment. MTurk samples tend to report significantly lower mean scores on measures of posttraumatic stress, depression, and generalized anxiety symptoms than undergraduate, community, and treatment-seeking samples,<sup>24</sup> meaning that our results might be conservative. The findings should be investigated with longitudinal studies in various contexts to identify the extent of functional impairment and its risk factors. Doing so would assist with cost-effective strategies for its amelioration to facilitate full participation in social and economic life on the part of family members bereaved by COVID-19 during and after the pandemic.

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