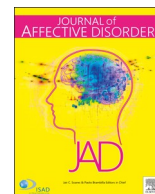




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Correspondence

Acute grief after deaths due to COVID-19, natural causes and unnatural causes: An empirical comparison



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ABSTRACT

Background: There are now over 800,000 registered deaths due to the COVID-19 pandemic worldwide. Researchers have suggested that COVID-19 death characteristics (e.g., intensive care admission, unexpected death) and circumstances (e.g., secondary stressors, social isolation) will precipitate a worldwide increase of prolonged grief disorder (PGD) and persistent complex bereavement disorder (PCBD). Yet, no study has investigated this. Since acute grief is a strong predictor of future pathological grief, we compared grief levels among people recently bereaved due to COVID-19, natural, and unnatural causes.

Methods: People bereaved through COVID-19 ($n = 49$), natural causes ($n = 1182$), and unnatural causes ($n = 210$), completed self-report measures of demographic and loss-related characteristics and PGD and PCBD symptoms.

Results: COVID-19 bereavement yielded higher symptom levels of PGD ($d = 0.42$) and PCBD ($d = 0.35$) than natural bereavement (but not unnatural bereavement). Effects held when limiting analyses to recent losses and those who participated during the pandemic. Expectedness of the death explained this effect.

Limitations: Limitations include using a convenience sample and self-report measures.

Conclusions: Higher grief levels occur among people bereaved due to COVID-19 compared to people bereaved due to natural loss. We predict that pandemic-related increases in pathological grief will become a worldwide public health concern.

The COVID-19 pandemic is a health crisis unparalleled in recent history. With currently 23,057,288 confirmed cases and 800,906 confirmed deaths worldwide (World Health Organization, 2020), its impact exceeds even the most devastating natural disasters of previous decades, including the South-East Asia Tsunami and the Haiti Earthquake. Researchers have predicted that the circumstances and characteristics of COVID-19 related deaths will lead to a worldwide rise in severe, persistent, and disabling grief reactions, termed prolonged grief disorder (PGD, International Classification of Diseases-11, World Health Organization, 2018) or persistent complex bereavement disorder (PCBD, Diagnostic and Statistical Manual of Mental Disorders 5, DSM-5, American Psychiatric Association, 2013).

Specifically, experiencing a sudden loss, in intensive care, combined with exposure to multiple secondary stressors (e.g., infection, social isolation, job loss) has been argued to elicit severe grief reactions in those experiencing bereavement due to COVID-19 (e.g., Eisma et al., 2020; Kokou-Kpolou et al., 2020; Morris et al., 2020). Moreover, government policy to reduce the spread of COVID-19 (e.g., social distancing, quarantine) may yield additional stress, as it may affect death rituals and social support, thereby hampering the grief process (Eisma et al., 2020). The projected rise of disturbed grief during the pandemic is expected to precipitate a heightened need for remotely delivered treatments for PGD and PCBD, including therapy delivered via internet platforms and videoconferencing (e.g., Boelen et al., 2020).

Despite the clinical importance of the topic, no quantitative research has yet examined bereavement due to pandemics, let alone the health consequences of bereavement due to COVID-19 (Mayland et al.,

2020). Specific learning on COVID-19 and the impact of bereavement is therefore pertinent. Accordingly, within the present study we examined acute grief reactions in people bereaved due to COVID-19 and compared these with grief among people who have experienced unnatural and natural loss. Acute grief is among the strongest predictors of the development of PGD (e.g., Boelen and Lenferink, 2020) and the time criteria of PGD (6 months post-loss) and PCBD (12 months post-loss) preclude the establishment of diagnoses among those recently bereaved due to COVID-19. Therefore, the study of acute grief is presently most informative to ascertain if disturbed grief prevalence will rise due to the pandemic.

A local ethics committee approved the present ongoing study. Adult bereaved participants were recruited on a website containing an online self-test for PCBD. Prior to study participation, participants were given information about the study procedure and background (e.g., study aims, data handling, and voluntariness). All participants provided informed consent. After filling in the survey, participants received a preliminary indication if they met criteria for PCBD (including information on its time-criterion and the message that only a licensed professional can establish diagnoses).

The self-test included an assessment of demographic characteristics (age, gender), loss-related characteristics (time since loss, relationship with the deceased, cause of death, expectedness of the death), and one item tapping satisfaction with social support (scored 1 = very unsatisfied to 5 = very satisfied). Grief severity was assessed with the Traumatic Grief Inventory Self Report (TGI-SR; Boelen and Smid, 2017). This 18-item scale assesses current criteria for PCBD per

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Table 1

Group comparisons of COVID-19, unnatural, and natural bereavement on demographic and loss-related characteristics and grief levels.

	COVID-19 (n = 49)	Unnatural (n = 210)	Natural (n = 1182)	Group comparisons
Age (Mean (SD))	48.08 (15.61)	41.22 (15.49)	46.71 (16.28)	$F(2, 1408) = 10.49^{**}, C > U^*, N > U^{**}$
Female (n,%)	41, 83.7%	163, 78.4%	913, 77.6%	$p = .63$
Time since loss in months (Mean (SD))	1.95 (1.17)	38.94(75.52)	24.68 (54.56)	$F(2, 1386) = 9.28^{**}, U > N^*, U > C^{**}, N > C^*$
Relationship with deceased (n,%)				$p < .001$
Partner	12, 24.5%	35, 16.7%	374, 31.6%	$N > U^{**}$
Parent	25, 51.0%	52, 24.8%	558, 47.6%	$N, C > U^{**}$
Child	0, 0%	43, 20.5%	59, 5.0%	$N, C < U^{**}$
Sibling	2, 4.1%	21, 10.0%	53, 4.5%	$N < U^*$
Other family member	7, 14.3%	22, 10.5%	104, 8.8%	
Friend	3, 6.1%	37, 17.6%	34, 2.9%	$C < U^*, N < U^{**}$
Expectedness of death (n,%)				$p < .001$
Expected	0, 0%	2, 1.0%	269, 22.8%	$C, U < N^{**}$
Unexpected	31, 63.3%	171, 81.4%	335, 28.3%	$C, U > N^{**}, C < U^*$
Both or neither	18, 36.7%	37, 17.6%	578, 48.9%	$C > U^*, N > U^{**}$
Satisfaction with social support	3.23 (0.98)	3.05 (1.07)	3.13 (0.96)	$F(2, 1438) = 0.89, p = .41$
Grief levels PCBD (Mean (SD))	57.37 (9.60)	56.45 (10.97)	53.49 (11.18)	$F(2,1438) = 8.61^{**}, C > N^*, U > N^{**}$
Grief levels PGD (Mean (SD))	38.94 (6.40)	37.82 (7.62)	35.59 (7.98)	$F(2, 1438) = 10.62^{**}, C > N^*, U > N^{**}$
Grief levels PCBD \leq 6 months post-loss (Mean (SD))	57.37 (9.60)	56.10 (11.74)	53.19 (10.74)	$F(2, 693) = 5.46^*, C > N^*, U > N^*$
Grief levels PGD \leq 6 months post-loss (Mean (SD))	38.94 (6.40)	37.58 (8.08)	35.39 (7.70)	$F(2, 693) = 7.07^{**}, C > N^*, U > N^*$
Grief levels PCBD during pandemic (Mean (SD))	57.37 (9.60)	58.16 (9.30)	53.33 (10.95)	$F(2, 792) = 11.61^{**}, C > N^*, U > N^{**}$
Grief levels PGD during pandemic (Mean (SD))	38.94 (6.40)	38.97 (6.47)	35.39 (7.77)	$F(2, 792) = 14.06^{**}, C > N^*, U > N^{**}$

Note. C = COVID-19 loss; U = unnatural loss, N = natural loss.

* $p < .05$.

** $p < .001$.

DSM 5 and PGD per Prigerson et al. (2009) on a five-point Likert-scale (from 1 = never to 5 = always). Given that none of the people bereaved due to COVID-19 could meet the time-criterion of these disorders, summed scores of items tapping PCBD ($\alpha = 0.89$) and PGD ($\alpha = 0.86$) were included as dependent variables in the group comparisons.

Before the analyses, duplicates ($n = 79$), non-adults ($n = 117$), and those labelling the cause of loss as “different” ($n = 208$), were removed from the dataset, leaving 1441 participants. We compared participants who experienced COVID-19-related bereavement ($n = 49$), natural loss ($n = 1182$), and unnatural loss (i.e., accident, suicide, homicide, $n = 210$). We examined differences between groups on demographic and loss-related variables and symptom levels using Fisher's exact test for categorical variables and ANOVAs (with LSD post-hoc tests) for continuous variables. We performed analyses in SPSS 25.0 and applied a two-sided significance level of 0.05.

Table 1 summarizes main results. People who experienced COVID-19-related bereavement reported more severe grief than people who experienced natural losses (PGD $d = 0.42$; PCBD $d = 0.35$), but did not experience more severe grief than people bereaved through unnatural causes (PGD $d = 0.15$; PCBD $d = 0.09$). Sensitivity analyses were run, limiting analyses on symptom levels to people who experienced a recent unnatural or natural loss (≤ 6 months ago), or to those filling out the survey during the pandemic (from March 9th, 2020 onwards, when Dutch national policy on COVID-19 was implemented). These analyses yielded similar results. Notably, people who experienced COVID-19-related bereavement more often experienced the loss as unexpected than those experiencing natural loss. People bereaved through COVID-19 were older and more often lost a parent and less often a child or friend than those experiencing unnatural loss. To explore whether expectedness explained the group differences in PCBD grief levels between COVID-19 loss and natural loss, we included expectedness as a covariate in an ANOVA comparing these two groups, $F(3, 1227) = 13.45, p < .001$. Expectedness (expected vs. other), $F(1, 1227) = 24.75, p < .001$, explained differences in grief between natural and COVID-19 losses, $F(1, 1227) = 2.65, p = .104$. In a similar analysis on PGD grief levels, $F(3, 1227) = 23.09, p < .001$, expectedness (expected vs. other, $F(1, 1227) = 36.24, p < .001$, unexpected vs. other, $F(1, 1227) = 6.93, p = .009$), also explained differences in grief between these loss types, $F(1, 1227) = 3.36, p = .067$,

suggesting that it mediates the effect of cause of death on grief levels.

Study limitations included our reliance on convenience sampling and self-report measures and considering a limited set of demographic and loss-related characteristics in our group comparisons. Nevertheless, this is the very first study demonstrating that more severe acute grief reactions occur after COVID-19-related bereavement compared to natural bereavement (but not unnatural bereavement). Our research further suggests that expectedness of the death explains differences in grief between people experiencing COVID-19-related and natural loss. Since acute grief is a strong longitudinal predictor of PGD (Boelen and Lenferink, 2020), our findings strengthen predictions of grief researchers that disturbed grief will become a worldwide health concern during this pandemic and that remotely delivered grief treatments should be developed, tested and implemented.

Author's contributions

ME and AT developed the study concept; AT gathered the data; ME conducted the data preparation and analyses; ME drafted the first version of the manuscript; AT, GS and PB added important intellectual content and contributed to revisions of the manuscript and approved the final version for submission.

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Declarations of Competing Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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References

- American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental disorders : DSM-5. American Psychiatric Association, DSM. <https://doi.org/10.1176/appi.books.9780890425596.744053>.
- Boelen, P.A., Eisma, M.C., Smid, G.E., de Keijser, J., Lenferink, L.I.M., 2020. Remotely delivered cognitive behavior therapy for disturbed grief during the COVID-19 crisis: challenges and opportunities. *J. Loss Trauma*. <https://doi.org/10.1080/15325024.2020.1793547>.
- Boelen, P.A., Lenferink, L.I.M., 2020. Symptoms of prolonged grief, posttraumatic stress, and depression in recently bereaved people: symptom profiles, predictive value and cognitive-behavioral correlates. *Soc. Psychiatry Psychiatr. Epidemiol.* 55, 765–777. <https://doi.org/10.1007/s00127-019-01776-w>.
- Boelen, P.A., Smid, G.E., 2017. The Traumatic Grief Inventory Self-Report version (TGI-SR): introduction and preliminary psychometric evaluation. *J. Loss Trauma*. 22, 196–212. <https://doi.org/10.1080/15325024.2017.1284488>.
- Eisma, M.C., Boelen, P.A., Lenferink, L.I.M., 2020. Prolonged grief disorder following the Coronavirus (COVID-19) pandemic. *Psychiatry Res.* 288, 113031. <https://doi.org/10.1016/j.psychres.2020.113031>.
- Kokou-Kpolou, C.K., Fernández-Alacántara, M., Cénat, J.M., 2020. Prolonged grief related to COVID-19 deaths: do we have to fear a steep rise in traumatic and disenfranchised griefs? *Psychol. Trauma*. 12, S94–S95. <http://dx.doi.org/10.1037/tra0000798>.
- Mayland, C.R., Harding, A.J.E., Preston, N., Payne, S., 2020. Supporting adults bereaved through COVID-19: a rapid review of the impact of previous pandemics on grief and bereavement. *J. Pain Symptom Manage.* 60, e33–e39. <https://doi.org/10.1016/j.jpainsymman.2020.05.012>.
- Morris, S.E., Moment, A., deLima Thomas, J., 2020. Caring for bereaved family members during the COVID-19 pandemic: before and after the death of a patient. *J. Pain Symptom Manage.* 60, e70–e74. <https://doi.org/10.1016/j.jpainsymman.2020.05.002>.
- Prigerson, H.G., Horowitz, M.J., Jacobs, S.C., Parkes, C.M., Aslan, M., Goodkin, K., Maciejewski, P.K., 2009. Prolonged grief disorder: psychometric validation of criteria proposed for DSM-V and ICD-11. *PLoS Med.* 6, 10–14. <https://doi.org/10.1371/annotation/a1d91e0d-981f-4674-926c-0fbd2463b5ea>.
- World Health Organization, 2020. Coronavirus (COVID-19). <https://who.sprinklr.com/> (accessed 24th August 2020).

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