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Correlates of Mental Health After COVID-19 Bereavement in Mainland China

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Abstract

Context. Pioneering empirical studies show that people bereaved due to COVID-19 experience elevated acute grief, posttraumatic stress, anxiety, and depressive symptom levels, which relate to functional impairment. However, studies focused on Western samples and multivariate analyses of relations between potential risk factors and mental health in this population are lacking.

Objectives. To assess the mental health of Chinese adults bereaved due to COVID-19. To elucidate the associations of demographic and loss-related characteristics with mental health after COVID-19 bereavement.

Methods. Four hundred twenty-two Chinese adults (56% male; Mean age: 32.73 years) recently bereaved due to COVID-19 completed an online survey. Demographic and loss-related characteristics and prolonged grief, posttraumatic stress, anxiety, and depressive symptoms were assessed.

Results. Clinically relevant prolonged grief (49%, $n = 207$), posttraumatic stress (22%, $n = 92$), depressive (70%; $n = 294$), and anxiety symptoms (65%; $n = 272$) were reported by a substantial group of participants. In four multiple regressions predicting each mental health indicator, Fs$(15,406) = 5.08-7.74$, Ps < 0.001, loss-characteristics (i.e., a shorter time since loss, βs = -.12−.11, loss of a first-degree relative, βs = .18-.37) and subjective loss experiences (i.e., feeling traumatized by the loss, βs = .13-.18, or a close and/or conflictual relation with the deceased, βs = .12-.23) related most consistently to mental health problems.

Conclusion. Many Chinese adults bereaved due to COVID-19 experience severe mental health problems. The recent loss of first-degree relatives, feeling traumatized by the loss, and having a close and/or conflictual relationship with the deceased may elevate risk for these mental health problems, which could require indicated psychological treatment. J Pain Symptom Manage 2021;61:e1−e4. © *2021 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.*

Key Words

Coronavirus, bereavement, prolonged grief disorder, posttraumatic stress disorder, anxiety, depression

Key Message

Prolonged grief, posttraumatic stress, anxiety, and depressive symptom levels are elevated among Chinese people bereaved due to COVID-19. Shorter time since loss, closer kinship with the deceased, feeling traumatized by the loss, and a close and/or conflictual relationship with the deceased relate most consistently to these mental health problems.

Introduction

The worldwide death toll of the COVID-19 pandemic recently exceeded 2.2 million,[1] leaving an estimated 20 million newly bereaved people.[2] Grief researchers have expressed concerns that people bereaved due to COVID-19 will suffer from more severe grief and related mental health problems for various reasons, including the experience of a sudden, trau-

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matic loss, the co-occurrence of a variety of additional stressors (e.g., multiple losses, severe illness, financial setbacks), difficulties obtaining social support, and limited opportunities to perform death rituals.[3]

In support of these concerns, a pioneering study demonstrated that Dutch people bereaved due to COVID-19 experience more severe acute grief reactions than people bereaved due to natural causes.[4] This likely implies that severe, persistent grief, i.e., prolonged grief disorder, will become prevalent in this population. Another ground-breaking study demonstrated high levels of acute grief, posttraumatic stress, depression, anxiety symptoms in a sample experiencing recent COVID-19 bereavement in the United States.[5] Certain prolonged grief symptoms (e.g., separation distress) and posttraumatic stress symptoms in turn related to functional impairment in a multivariate analysis. While these studies provide an important starting point to help understand the grief process after COVID-19 deaths, they used Western samples, which may threaten the generalizability of findings to other cultures.

Given the severe distress that may ensue after COVID-19 related bereavement, studying factors that contribute to the mental health of this population appears critical. This will enable the identification of groups that are most at risk for disturbed grief reactions following this life-event, which may be offered indicated remotely delivered treatment.[6] Whereas research on this topic is still limited, both objective loss-related characteristics (i.e., relationship with the deceased) and subjective loss experiences (i.e., expectedness of the death) related to mental health outcomes in prior studies on COVID-19 related bereavement.[4,5] However, comprehensive, multivariate analyses of the relations of potential risk factors with such mental health problems are lacking.

Therefore, in the present study, we aimed to conduct a comprehensive assessment of mental health problems (i.e., prolonged grief, posttraumatic stress, anxiety, and depressive symptoms) in Chinese adults bereaved due to COVID-19. Moreover, we conducted exploratory, multivariate analyses to identify the sociodemographic and loss-related variables relating most strongly and consistently to these mental health problems.

Methods

The first author's institutional ethics committee approved this study. We conducted an online survey in mainland China between September and October 2020. We recruited adult participants bereaved due to COVID-19 via advertisements on social network websites (e.g., Baidu, Weibo) and mobile applications (e.g., WeChat). Advertisements linked to an online information page explaining the aims and procedure of the study (e.g., voluntariness, confidentiality, data handling). After providing online informed consent, participants could access the survey. Following the survey, information on sources for psychological support (e.g., crisis hotlines, free grief counseling) was provided.

Participants reported demographic characteristics (i.e., age, gender, religious beliefs) and loss-related characteristics (i.e., age of the deceased, relationship with the deceased, time since loss, cause of death). Additionally, participants were asked to answer two questions on how they experienced the death (i.e., *how unexpected was the loss for you?; how traumatized do you feel by the loss?*) and two questions on the perceived relationship with the deceased (i.e., *how close were you to the deceased?; how much conflict did you have with the deceased?*). These items were scored on 5-point Likert scales, ranging from *not at all* (1) to *very (much)* (5). Prolonged grief symptoms were assessed by the 13-item version of the International ICD-11 Prolonged Grief Disorder Scale (IPGDS; $\alpha = 0.89$).[7] Posttraumatic stress symptoms were assessed by the 20-item PTSD Checklist for DSM-5 (PCL-5; $\alpha = 0.94$).[8] Anxiety and depressive symptoms were measured by the 7-item anxiety subscale ($\alpha = 0.77$) and the 7-item depression subscale ($\alpha = 0.76$) of the Hospital Anxiety and Depression Scale (HADS), respectively.[9]

To safeguard data quality, entries of 54 participants were removed before the main analyses, because these participants had response times of five minutes or less ($n = 21$), provided inconsistent information about the deceased ($n = 15$), experienced bereavement before the pandemic ($n = 11$), or showed patterned responses (e.g., the same score for all items; $n = 8$). This resulted in a final sample of 422 participants. Analyses were performed in SPSS 26.0 with a two-sided significance level of 0.05.

Results

The 422 participants were on average 33 years old (Mean = 32.73; $SD = 9.31$). More than half was male (56%; $n = 234$). The majority reported no religious beliefs (94%; $n = 395$). On average, the deceased was 48 years old (Mean = 47.81; $SD = 21.55$). Participants had lost a partner (33%; $n = 139$), child (6%; $n = 24$), parent (23%; $n = 97$), grandparent (16%; $n = 69$), other relative (5%; $n = 22$), friend (15%; $n = 64$), or another relationship (2%; $n = 7$). Most deceased died directly from COVID-19 (97%; $n = 408$) yet a minority died from COVID-19-related complications (3%; $n = 14$). On average, time since loss was five months (Mean = 5.10; $SD = 1.72$). In general, participants experienced the death as unexpected (Mean = 3.67; $SD = 1.23$), felt it was traumatic (Mean = 3.86; $SD = 0.97$), felt close to the deceased (Mean = 4.15; $SD = 0.88$), and experienced little conflict with them (Mean = 1.76; $SD = 1.11$).

Table 1
Correlates of Prolonged Grief, PTSD, Anxiety, and Depression Symptoms

Variable	Prolonged Grief		PTSD		Anxiety		Depression	
	B (95% CI)	*β*	*B* (95% CI)	*β*	*B* (95% CI)	*β*	*B* (95% CI)	*β*
Age	-0.05 (-0.18, 0.09)	-0.05	-0.11 (-0.31, 0.08)	-0.08	-0.03 (-0.08, 0.02)	-0.07	-0.01 (-0.07, 0.05)	-0.03
Gender	0.43 (-1.33, 2.18)	0.02	0.70 (-1.86, 3.26)	0.03	0.40 (-0.26, 1.07)	0.06	0.76 (0.05, 1.47)[e]	0.10[e]
Religious belief[a]	2.15 (-1.50, 5.81)	0.06	3.41 (-1.92, 8.75)	0.06	0.25 (-1.13, 1.63)	0.02	0.38 (-1.11, 1.86)	0.03
Age of deceased	-0.01 (-0.12, 0.09)	-0.03	0.01 (-0.14, 0.16)	0.01	0.02 (-0.02, 0.06)	0.10	0.003 (-0.04, 0.05)	0.02
Time since loss in months	0.02 (-0.48, 0.52)	0.003	-0.40 (-1.12, 0.33)	-0.05	-0.24 (-0.43, -0.05)[e]	-0.12[e]	-0.24 (-0.44, -0.03)[e]	-0.11[e]
Cause of death[b]	5.33 (0.52, 10.15)[e]	0.10[e]	4.69 (-2.34, 11.71)	0.06	0.16 (-1.66, 1.98)	0.01	0.81 (-1.13, 2.78)	0.04
Relationship with deceased[c]								
Partner	7.43 (2.89, 11.97)[f]	0.36[f]	4.47 (-2.15, 11.09)	0.16	2.16 (0.44, 3.88)[f]	0.29[f]	2.91 (1.07, 4.75)[f]	0.37[f]
Child	7.27 (0.22, 14.31)[e]	0.18[e]	8.71 (-1.58, 19.00)	0.15	2.54 (-0.12, 5.21)[d]	0.17[d]	2.78 (-0.18, 5.94)[d]	0.17[d]
Parent	5.42 (1.43, 9.42)[f]	0.24[f]	2.16 (-3.68, 7.99)	0.07	0.84 (-0.67, 2.35)	0.10	2.08 (0.46, 3.70)[f]	0.23[f]
Grandparent	4.37 (-0.39, 9.13)	0.17	2.01 (-4.93, 8.96)	0.06	0.37 (-1.43, 2.17)	0.04	0.92 (-1.01, 2.86)	0.09
Friend	2.74 (-1.84, 7.31)	0.10	1.11 (-5.56, 7.79)	0.03	-0.06 (-1.79, 1.67)	-0.006	0.72 (-1.14, 2.57)	0.07
Unexpectedness of death	-0.03 (-0.79, 0.74)	-0.003	0.64 (-0.47, 1.76)	0.06	0.15 (-0.14, 0.44)	0.05	0.05 (-0.27, 0.36)	0.02
Perceived traumatic severity	1.65 (0.46, 2.84)[f]	0.17[f]	0.98 (-0.76, 2.72)	0.07	0.48 (0.03, 0.94)[e]	0.13[e]	0.71 (0.22, 1.19)[f]	0.18[f]
Closeness with deceased	1.57 (0.32, 2.83)[e]	0.14[e]	1.93 (0.09, 3.76)[e]	0.12[e]	0.20 (-0.27, 0.67)	0.05	-0.15 (-0.66, 0.36)	-0.04
Conflict with deceased	0.58 (-0.24, 1.41)	0.07	2.77 (1.56, 3.98)[g]	0.23[g]	0.58 (0.27, 0.89)[g]	0.18[g]	0.25 (-0.09, 0.59)	0.07
F (15, 406)	7.74[g]		5.09[g]		5.51[g]		5.08[g]	
R^2	22.2%		15.8%		16.9%		15.8%	
M (SD)	41.58 (9.60)		20.84 (13.47)		9.37 (3.75)		10.18 (3.51)	

Note. PTSD = Posttraumatic Stress Disorder; B = unstandardized coefficient; CI = Confidence Interval; β = standardized coefficient Beta; M = Mean; SD = Standardized Deviation.
[a]Reference group: no religious belief (n = 27). Religious beliefs included Buddhism (n = 17), Taoism (n = 3), Catholicism (n = 3), Christianism (n = 3), and Islamism (n = 1).
[b]Reference group: COVID-19 related complications (n = 14). COVID-19 related complications included heart disease (n = 2), fever (n = 2), acute respiratory distress syndrome (n = 1), asthma (n = 1), cardiovascular and cerebrovascular diseases (n = 1), chronic obstructive pulmonary disease (n = 1), diabetes (n = 1), high blood pressure (n = 1), liver cancer (n = 1), lung cancer (n = 1), obesity (n = 1), and respiratory failure (n = 1).
[c]Reference group: a combined group of other relative (n = 22) and other relationship (n = 7). Other relative included uncle (n = 5), aunt (n = 4), cousin (n = 4), grandaunt (n = 3), granduncle (n = 1), great grandmother (n = 1), and not specified (n = 4). Other relationship included colleagues (n = 4), acquaintance (n = 2), and not specified (n = 1).
[d]P = 0.05.
[e]P < 0.05.
[f]P < 0.01.
[g]P < 0.001.

Nearly half of the participants (both in the full sample and a subsample of participants bereaved six months or longer, n = 188) scored above the clinical cut-off for ICD-11 PGD symptoms (49% scored ≥ 42.5,[7] n = 207 for the full sample, n = 92 for the subsample). About one-fifth had clinically relevant PTSD symptom levels (22% scored ≥ 33,[8] n = 92). Clinically relevant symptom levels of anxiety (70% scored ≥ 9,[10] n = 294) and depression (65% scored ≥ 9,[10] n = 272) were reported by about two-thirds of participants.

Demographic and loss-related variables were entered in four separate multiple linear regression analyses predicting each mental health outcome (Table 1). The models were all significant and explained variance in prolonged grief (22%), posttraumatic stress (16%), anxiety (17%), and depression symptoms (16%). Gender, time since loss, relationship with the deceased, feeling traumatized by the loss, closeness with the deceased, and conflict with the deceased were significant correlates of mental health. Main findings included that a shorter time since loss related to higher anxiety and depressive symptoms. Partner and child loss (vs. other relation) related to higher levels of prolonged grief, anxiety, and depressive symptoms, while parental loss (vs. other relation) related to more severe prolonged grief and depressive symptoms. Feeling traumatized by the loss related to more prolonged grief, anxiety, and depressive symptoms. The closer participants were to the deceased, the more severe prolonged grief and posttraumatic stress symptoms they experienced. Lastly, more conflict with the deceased was associated with higher posttraumatic stress and anxiety symptoms.

Discussion

This study's first main aim was to conduct a comprehensive assessment of the mental health problems experienced by Chinese adults bereaved due to COVID-19. The finding that high proportions of participants reported clinically relevant prolonged grief, posttraumatic stress, anxiety and depressive symptoms align with the concerns of grief researchers,[3] and with empirical findings from pioneering empirical studies.[4,5] Specifically, the high levels of prolonged grief symptoms found in this study (49%) correspond with a Dutch survey showing that acute grief after COVID-19 deaths is higher than acute grief after natural deaths.[4] The high estimates of clinically relevant anxiety (70%) and depression (65%) symptom levels correspond with findings from one prior study in a recently COVID-19 bereaved

American sample in which 70% met a cut-off for generalized anxiety and 74% for depression.[5]

A second main aim was to explore the relations of demographic and loss-related variables with mental health problems in this sample in multivariate analyses, to identify those most at risk to develop severe post-loss distress. Analyses show that males who experienced a recent, traumatic loss of a first-degree relative, with whom they had a close and conflictual relation, may experience most mental health problems. While similar multivariate analyses are not available in the literature on COVID-19 bereavement and mental health, findings at least partly correspond with reviews of risk factors of severe grief [11] and studies on the perceived relationship with the deceased and post-loss distress.[12]

Strengths of the study include a comprehensive assessment of mental health with validated measures in a large survey among Chinese adults bereaved due to COVID-19. Limitations include online voluntary response sampling, which has yielded a relatively young sample, a limited consideration of correlates reflecting features of COVID-19 bereavement, the use of cut-offs on questionnaires instead of diagnostic interviews to assess mental health problems, and a cross-sectional study design.

Despite these limitations, our results, together with prior research,[4,5] show that in the first months following loss due to COVID-19, severe affective and stress-related symptomatology is commonly experienced by a majority, across cultural backgrounds. Both objective loss-characteristics as well as the subjective experience of the loss and the relationship with the deceased warrant attention when aiming to identify those most at risk of experiencing severe loss-related mental health problems. Remotely delivered grief interventions could be indicated for those experiencing such problems.[6]

Disclosures

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