Growing in Suffering: The Curvilinear Relationship Between Prolonged Grief and Post-traumatic Growth of Recently Bereaved Individual During the COVID-19 Pandemic

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Abstract
The outbreak of the COVID-19 pandemic brought new challenges to mourning and growth of bereaved. The purpose is to explore the relationship between the prolonged grief (PG) symptoms and the post-traumatic growth (PTG) of recently bereaved people during the COVID-19 period, and the mediating role of meaning making. 305 participants were recruited to complete the Posttraumatic Growth Inventory, Inventory of Complicated Grief, and Integration of Stressful Life Experiences Scale. Hierarchical multiple regression analyses and Medcurve in SPSS were adapted to test the hypotheses. The results revealed that there was a curvilinear relationship between PG and PTG and meaning making had a completely mediating effect on this relationship. Different intervention goals - whether alleviating distress or cultivating growth – should

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be set up according to the level of grief for recently bereaved individuals during COVID-19. More attention should be paid to the role of meaning making in the future clinical practice.

**Keywords**
Prolonged grief, posttraumatic growth, bereaved, meaning making, COVID-19

**Introduction**

**Bereavement During the COVID-19 Pandemic**

The novel coronavirus disease (COVID-19) has rapidly spread across the entire globe and undeniably caused severe consequences. As of April in 2022, there were over 510 million confirmed cases and over 6 million deaths of individual worldwide (World Health Organization, 2022a). The background in which bereavement occurs is special. Many have died alone because of the requirements for social distancing. Moreover, a larger number of the deaths were caused by other COVID-19-related challenges, such as avoiding visiting hospitals or postponing treatments of their other life-threatening diseases (Eisma et al., 2020). At the beginning of the epidemic, the COVID-19 was explosive and traumatic, which seriously affected psychological health of the bereaved, especially the people in China from the end of 2019 to the 2020. Due to the social distance policies, the governments banned large scale funerals, some cemeteries were closed to the public, people might be unable to say goodbye to their beloved ones in to receive warmth or affection from others (Cardoso et al., 2020; Diolaiuti et al., 2021; Gomez-Salgado et al., 2020; Ingravallo, 2020; Marazziti et al., 2020).

Researchers believe that coping with loss and grief during the COVID-19 pandemic, particularly in the situation of individual susceptibility and related challenges, may influence the grief process and increase the risk of Prolonged Grief Disorder (PGD) (Eisma et al., 2020; Gesi et al., 2020).

**Positive and Negative Psychological After Bereavement**

When confronted with the death of a loved one, people commonly experience grief and may return to their normal level of functioning after a period of bereavement (Bonanno & Kaltman, 2001). However, it is estimated that one in 10 bereaved of natural causes and one in two of unnatural causes have reported severe and disabling grief reactions that deserve clinical attention (Djelantik et al., 2020; Lundorff et al., 2017). Some of them cannot be alleviated and may develop pathological and maladaptive consequences, such as PGD defined by ICD-11 (World Health Organization, 2022b) and the text-revision of 5th Diagnostical and Statistical Manual of Mental Disorders (DSM-5-TR; APA, 2022). In DSM-TR, the PGD is characterized by yearning for or persistent
preoccupation with the deceased, accompanied by intense emotional symptoms which persist for at least 12 months (6 months for children) and lead to impairment of individual functioning. Considering of inability to say “goodbye” to the bereaved and conduct funeral ceremonies, lack of expectation for the death, lower level of support, multiple losses (due to the disease spreading), and continuous realistic stress, the COVID-19 pandemic may increase the risk of PGD (Eisma et al., 2020; Stroebe & Schut, 2021; Wallace et al., 2020; J. Xu et al., 2020a). Previous research also highlighted the prolonged grief (PG) symptoms of recently bereaved individuals as a strong predictor of future pathological grief (Boelen & Lenferink, 2020; Eisma et al., 2021; Goldsmith et al., 2008).

In the meantime, struggling with stressful events, such as bereavement, could also lead to positive psychological changes named posttraumatic growth (PTG) (Eisma et al., 2019; Levi-Belz, 2020; Salloum et al., 2019; Xu et al., 2015; X. Xu et al., 2020b). The PTG includes feeling stronger, feeling closer to others, experiencing new possibilities, more appreciation of life, and spiritual change (Tedeschi & Calhoun, 2004). For example, losing a loved one could increase the compassion for other bereaved people (Eisma et al., 2019). Additionally, as COVID-19 is also considered to be a type of mass trauma (Xie & Kim, 2022), people who lost their relatives within 1 year during the COVID-19 also showed both PG symptoms and PTG (Chen & Tang, 2021). However, the relationship of PG and PTG for recently bereaved during this pandemic is unidentified.

Prolonged grief and Post-Traumatic Growth

The PG symptoms and PTG sound like two sides of a coin, which brought a “less-is-better” view at first: Less grief enhances growth (Engelkemeyer & Marwit, 2008; Feigelman et al., 2009). However, some researchers challenged this view. For example, positive association (Xu et al., 2015) or no significant correlation (Salloum et al., 2019) between the two variables were found. According to the model of growth in grief, a high level of distress means that the assumptive world beliefs were challenged by the bereavement, which promoted individuals to find ways to manage pain, understand the death, reassess the event and finally accept the changed world or gain growth, while people with a very low level of grief adjusted to the death directly because of the beliefs were not being challenged (Calhoun et al., 2010). Besides, too much grief may be too stressful to develop growth (Butler et al., 2005). Drawing from these insights, some researchers seek to provide a more balanced point of view: Moderate-is-better, which means that there was a curvilinear (inverted U-shape) relationship between PG and PTG (Eisma et al., 2019; Levi-Belz, 2020; Yilmaz & Zara, 2016).

The meaning making theory may contribute to understanding the mechanisms of this curvilinear relationship between PG and PTG (Park, 2010). People constructed their global meaning in early life, consisting of beliefs, goals, and subjective feelings. With the occurrence of a potentially stressful event (such as loss), people began the process including assigning meaning to the event (or appraised meaning), determining
discrepancies between appraised and global meaning (feeling distress if it was discrepant), meaning making, meanings made (such as perception of growth or positive life change), and adjustment to the event. In other words, PTG, as a commonly accessed type of meaning made, was the product of meaning-making processes. Meaning making (MM) refers to the cognitive processes aimed at understanding and finding significance or benefits of experiences and reflects the degree to which individuals integrated memories of the event into a coherent self-narrative (Holland et al., 2010). Some empirical researches indicate a positive relationship between meaning making and PTG (Boyraz & Efstathiou, 2011; Jin et al., 2014; Williams et al., 2020). Additionally, meaning making is associated with decreased PG symptoms both theoretically (Park, 2010) and empirically (Boyraz & Efstathiou, 2011; Holland et al., 2010; Milman et al., 2019; Pan et al., 2018; Zakarian et al., 2019).

Although prior research has generated a wealth of insights about PG and PTG, this view has yet to be examined among recently bereaved people during the COVID-19, as the relationship between PG and PTG as well as the role of meaning making in this relationship may vary with bereavement characteristics and circumstances (Eisma et al., 2020).

**Cross-Culture View of Grief and Growth**

Not only do social circumstances influence grief and growth after loss, but the cultural influence is also significant. Chinese people view death and grief from a collective perspective rather than as an individual, while American tend to focus on the individual view (Zhao et al., 2007). For instance, with the ingrained traditional culture of filial piety in China, the death of children means the interruption of continuity of the family line and the loss of future hope for Chinese parents (Zhang & Jia, 2018). Research of Chinese Shidu parents who lost their only child indicated these bereaved parents were more likely to endorse negative beliefs about the self, life, world, and the future (He et al., 2014) and they held culture-related grief beliefs containing filial piety belief, destiny belief and perceived stigma (Shi et al., 2019). When comforting the bereaved person, it is common to hear American people say words about passing and accepting grief like “you will get over this in time” or “he or she is in a better place”. However, in Chinese culture, a common saying heard is “save the tears and follow the flow (jie ai shun bian)”, which implies an avoidance tendency in it (Chow et al., 2007). Cross-culture studies about bereavement showed that Chinese people were discouraged to express grief openly and their acceptance of death still mix with shock and pain (Moats, 2011). They tended to search for meaning and avoiding thinking about the deceased (Pressman & Bonanno, 2016). Given the culture-related cognitions and emotional expression about death, it is not surprising that Chinese people do have special characteristic in grieving. As a result, paying specific attention to the Chinese bereaved is necessary.
The Present Study

The aims of the current study were twofold. Firstly, to examine the relationship of PG and PTG among Chinese recently bereaved people during the COVID-19. We hypothesize that PG and PTG have a curvilinear relationship and the moderate levels of grief yield higher levels of PTG. Secondly, we set out to clarify the role of meaning making in the relationship between PG and PTG. In line with this, we hypothesized that meaning making mediated the relationship between PG and PTG.

Methods

Participants and Procedure

As a part of the project named “Psychological assistance for bereaved persons during COVID-19 pandemic in mainland China”, the present study was an online-research which collected data from May 2020 to January 2021 via internet media, such as WeChat and websites related to bereavement. The details of the project were introduced in another essay (Tang et al., 2021).

A representative sample of 339 bereaved persons who lost their loved one during the COVID-19 epidemic period in mainland China was adopted in our current study. After excluding 8 adolescent data (age <18) and 26 incomplete questionnaires, 305 questionnaires were included in the data analysis finally. The participants contained 219 females (71.80%) and 86 males (28.20%), and their average age was 34.08 years (SD = 11.82). Although most of the individuals had no religious beliefs, it was worth noting that two bereaved people became interested in religious after their relatives died. The demographic information is presented in Table 1.

About half of them lost their parent (n = 132, 43.28%), and most of the rest lost their other important individual (e.g., spouse, sibling, grandparent). All participants lost their important one within 12 months. Besides, 151 (49.51%) participants had not psychological expectation of the death at all. Among the death, 12.31% of them died of COVID-19 and at least 18.04% was violent death (from suicide or accidental death). Although the COVID-19 was not the direct cause of death, two participants reported that their relatives died of untimely treatment or care because of the COVID-19. The loss characteristics of participants are presented in Table 2.

Measures

Socio-Demographics Information. A brief self-designed questionnaire was adopted to collect participants’ information about themselves (e.g., gender, age, education) and their loss (e.g., cause of death, time since loss).

Posttraumatic Growth Inventory (PTGI). Posttraumatic growth (PTG) was accessed by Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996; Wang et al., 2011). PTGI
consisted of 21 items and that can be divided into 5 dimensions: relating to others (7 items, e.g., “A sense of closeness with others.”), new possibilities (5 items, e.g., “I developed new interests.”), personal strength (4 items, e.g., “A feeling of self-reliance.”), spiritual change (2 items, e.g., “A better understanding of spiritual matters.”), and appreciation of life (3 items, e.g., “An appreciation for the value of my own life.”). Items were rated on a 6-Liked scale, which described the extent of experiencing the change as a result of this crisis, ranging from 1 (did not at all) to 6 (a very great degree). Total scores ranged from 21 to 126, with higher scores reflecting greater growth. The PTGI displayed good internal consistency in the present study (α = 0.931).

**Inventory of Complicated Grief (ICG).** Inventory of Complicated Grief was adapted to measure the severity of participants’ prolonged grief (PG) symptoms (Prigerson et al., 1995). It showed good reliability and validity in previous research conducted in the Chinese sample (Li & Prigerson, 2016). The ICG has 19 items (e.g., “Memories of the person who died upset me.”) and participants were asked to report the frequency of

| Table 1. Demographic of the sample (N = 305). |
|---------------------------------------------|
| **Variables** | **n (%)**/M (SD) | **Variables** | **n (%)** |
|----------------|------------------|----------------|--------|
| Gender         |                  | Monthly Income (CNY) |        |
| Female         | 219 (71.80%)    | 0               | 96 (31.48%) |
| Age (range)    |                  | 0–3000          | 34 (11.15%) |
| 18–79          | 34.08 (11.82)   | 3000–5000       | 64 (20.98%) |
| Residence      |                  | 5000–10,000     | 69 (22.62%) |
| Rural          | 40 (13.11%)     | 10,000–20,000   | 19 (6.23%)  |
| Town           | 41 (13.44%)     | >20,000         | 9 (2.95%)   |
| Urban          | 224 (73.44%)    | Missing         | 14 (4.59%)  |
| Education level|                  | Subjective economic condition | |
| Junior high school | 14 (4.59%) | Wealthy | 3 (0.98%) |
| Senior high school/technical secondary school | 25 (8.20%) | Moderately wealthy | 68 (22.30%) |
| College/junior college | 197 (64.59%) | General | 185 (60.66%) |
| Master         | 60 (19.67%)     | Poor            | 49 (16.07%) |
| Doctor         | 9 (2.95%)       | Religion        |        |
| Marriage status|                  | None            | 263 (86.23%) |
| Unmarried      | 142 (46.56%)    | Buddhism        | 23 (7.54%)  |
| Married        | 117 (38.36%)    | Christianity    | 15 (4.92%)  |
| Divorced       | 10 (3.28%)      | Taoism          | 1 (0.33%)   |
| Widowed        | 36 (11.80%)     | else*           | 3 (0.98%)   |

*else include: 1. Catholicism; 2. No specific religious belief but being interested in Buddhism after loss.
these grief experiences on a 5-point Likert scale (0 = never, 4 = always). The scale also demonstrated good internal consistency (α = 0.935) in the present sample.

Integration of Stressful Life Experiences Scale (ISLES). The Integration of Stressful Life Experiences Scale measured the extent to which stressful life experiences (such as bereavement) were adaptively integrated into individuals’ broader life narrative (Holland et al., 2010). Five items assessed comprehensibility (e.g., “This event is incomprehensible to me.”), and 11 items related to footing in the world (e.g., “Since this event happened, I don’t know where to go next in my life.”). A five-point scoring system was used (1 = strongly agree and 5 = strongly disagree) for rating. Item 2 was calculated by reverse scoring, and a higher total score reflected a higher level of meaning making of the death. The Chinese version of ISLES was obtained by a back-translation method. The results of confirmatory factor analysis (CFA) were: RMSEA = 0.104, CFI = 0.917, TLI = 0.904, and SRMR = 0.039. Besides, Cronbach’s alpha was 0.945 for ISLES in this sample. As a result, the psychometric properties of ISLES were acceptable in the current study.

Table 2. The Loss-related Characteristics of the sample (N = 305).

| Variables                              | n (%) | M (SD) | Variables                              | n (%) |
|----------------------------------------|-------|--------|----------------------------------------|-------|
| Gender of deceased                     |       |        | Relationship to deceased               |       |
| Male                                   | 197 (64.59%) |       | Parent                                 | 132 (43.28%)  |
| Age of deceased (range)                |       |        | Spouse                                 | 41 (13.44%)   |
| 0–99                                   | 57.31 (22.97) |       | Child                                  | 22 (7.21%)    |
| Time since loss (month range)          |       |        | Sister/brother                         | 30 (9.84%)    |
| 0–12                                   | 3.99 (2.45)   |       | Grandparent                            | 50 (16.39%)   |
| Cause of death                         |       |        | Other relatives                        | 15 (4.92%)    |
| COVID-19                               | 37 (12.31%) |       | Friends                                | 4 (1.31%)     |
| Acute illness (<1 month)               | 86 (28.20%)  |       | Else                                   | 11 (3.61%)    |
| Chronic illness (≥1 month)             | 99 (32.46%)  |       | Relationship with deceased             |       |
| Accident                               | 34 (11.15%)  |       | Very close                             | 171 (56.07%)  |
| Suicide                                | 21 (6.89%)   |       | Quite close                            | 96 (31.48%)   |
| Else a                                 | 28 (9.18%)   |       | General                                | 30 (9.84%)    |
| Expectation of death                   |       |        | Quite distant                          | 7 (2.30%)     |
| Totally no expectation                 | 151 (49.51%) |       | Very distant                           | 1 (0.33%)     |
| Not enough expectation                 | 70 (22.95%)  |       |                                        |               |
| General                                | 33 (10.82%)  |       |                                        |               |
| Quite enough expectation               | 46 (15.08%)  |       |                                        |               |
| Totally enough expectation             | 5 (1.64%)    |       |                                        |               |

*a* else include: 1. Fell ill during the COVID-19 and could not be treated in time, which delayed the disease and led to death; 2. Quarantine due to the COVID-19 and lack of timely care; 3. Abortion; 4. Natural aging; 5. The persistent chronic disease suddenly worsened; 6. Natural disaster.
There was three missing data and sequence average was used to replace them. Before analyzing, Harman’s single-factor test was used to determine whether a common method bias existed. All observation variables, including PTG, PG and meaning making, were included into an exploratory factorial analysis (EFA). The results showed that 8 factors eigenvalues were larger than 1 and the maximum factor explanted 33.44% of the total variance, which was less than 40% (Podsakoff et al., 2003). It indicated that there was no significant common method bias in the present study and further analyses could be conducted.

Statistical analyses were performed by SPSS version 25.0. Descriptive statistics were used to introduce demographic information, means and standard deviation of the main variables. Person correlation was carried out to present the relationship between variables. Additionally, series hierarchical multiple regression (HMR) analyses were conducted to test our hypotheses about the curvilinear relationship between PG and PTG. Lastly, Medcurve in SPSS was adapted to test the mediation model (Hayes & Preacher, 2010).

### Results

#### Preliminary Analyses

Descriptive results and bivariate correlations of variables are presented in Table 3. Expectation of death had significantly positive association with PTG ($r = 0.16, p < .01$), negative association with PG ($r = -0.32, p < .001$) and positive association with MM ($r = 0.33, p < .001$). Additionally, PTG was negatively associated with PG ($r = -0.13, p < .05$) and positively associated with MM ($r = 0.19, p < .01$). Moreover, there was a significantly negative correlation between PG and MM ($r = -0.80, p < .001$).

**Table 3.** Descriptive results and bivariate correlations.

| Variables                  | M (SD)     | PTG   | PG     | MM     |
|----------------------------|------------|-------|--------|--------|
| 1 PTG                      | 58.86 (20.74) | 1     |        |        |
| 2 PG                       | 37.66 (16.28) | -0.13* | 1      |        |
| 3 MM                       | 49.77 (15.95) | 0.19*** | -0.80*** | 1      |
| 4 Gender                   | /          | -0.08 | 0.08   | -0.20*** |
| 5 Age                      | 34.08 (11.82) | 0.00  | 0.07   | -0.12*   |
| 6 Relationship to deceased | /          | -0.03 | -0.27*** | 0.26*** |
| 7 Relationship with deceased | 1.59 (0.79) | 0.05  | -0.36*** | 0.26*** |
| 8 Cause of death           | /          | 0.04  | 0.09   | -0.04    |
| 9 Time since loss          | 3.99 (2.45) | 0.06  | -0.05  | 0.15**   |
| 10 Expectation of death    | 1.96 (1.17) | 0.16** | -0.32*** | 0.33*** |

Notes. PTG = Posttraumatic growth; PG = Prolonged grief; MM = Meaning making. *p < .05; **p < .01; ***p < .001.
Table 4. Hierarchical Regression for PTG.

| Model | DV: PTG | Model 2 | DV: PTG | Model 3 | DV: PTG | Model 4 | DV: MM | Model 5 | DV: PTG | Model 6 | DV: PTG |
|-------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| Gender | -1.14   | -0.99   | -0.94   | -3.22**| -0.55   | -0.67   |
| Age    | -0.29   | -0.39   | -0.41   | -1.27   | -0.26   | -0.34   |
| Relationship to deceased | -0.54   | -0.92   | -0.62   | 0.96    | -0.74   | -1.07   |
| Relationship with deceased | 0.41    | -0.08   | 0.28    | -1.30   | 0.43    | 0.27    |
| Cause of death | 0.59    | 0.71    | 1.08    | 0.52    | 1.02    | 0.86    |
| Time since loss | 0.55    | 0.52    | 0.48    | 2.39*   | 0.20    | -0.19   |
| Expectation of death | 2.80**  | 2.19*   | 2.36*   | 2.79**  | 2.01*   | 1.63    |
| PG     | -1.46   | 2.30*   | -5.28***| 2.81**  | 1.03    |
| PG²    | -2.77** | 0.38    | -2.83** | -0.86   |
| MM     | 2.02*   | 3.08**  |
| MM²    |        |        | -2.67** |
| R²     | 0.04    | 0.04    | 0.07    | 0.67    | 0.08    | 0.10    |
| ΔR²    | 0.04    | 0.00    | 0.02    | 0.01    | 0.01    | 0.02    |

Notes: DV = Dependent variable; PTG = posttraumatic growth; PG = prolonged grief; MM = meaning making. *p < .05; **p < .01; ***p < .001.

Figure 1. Curvilinear relationship of PG and PTG \( y = -0.01x^2 + 0.76x + 45.43 \).
Table 4 presents the results of hierarchical Multiple Regression (HMR). In Model 3, the addition of PG\(^2\) shows significant R\(^2\) changes (\(\Delta R^2 = 0.02, p < .01\)). It indicates that there was a significant curvilinear relationship between PG and PTG in the current study. As a result, it supports our first hypothesis that there was an inverted U-shape model between PG and growth after controlling the influence of covariate variables (Figure 1). As the PG level increases, the PTG gradually increases, and at very high PG levels the PTG begins to decrease.

Afterward, we tested the indirect curvilinear effect of PG. Model 4 (Table 4) indicated that the PG was significantly related to meaning making (\(\beta = -0.79, SE = 0.15, p < .05\)). Besides, comparing model 6 to model 5 showed that when included the quadratic effect of meaning making (\(\Delta R^2 = 0.02, p < .01\)), the effect of PG\(^2\) became nonsignificant. These support the indirect effect hypothesis. That is, the observed curvilinear relationship between meaning making and PTG explained the overall curvilinear indirect effect of PG on PTG. The figure 2 shows the relationship between PTG and meaning making virtually after controlling the influence of PG and covariate variables.

Finally, we tested the significance of the indirect curvilinear effect of PG on PTG by using the “Medcurve” bootstrapping procedure (Hayes & Preacher, 2010). The 1000 bootstrap was adopted and the results showed statistically significant as the 95% confidence interval of the indirect effect did not contain zero (−0.37, −0.01). Thus, the indirect curvilinear effect of PG on PTG through meaning making was further supported.

**Figure 2.** Curvilinear relationship of MM and PTG (\(y = -0.01m^2 + 1.62m + 5.59\)).
Discussion

The current research examined the relationship between PG and PTG, and the mediating role of meaning making among recently bereaved people during COVID-19. The results of this study provide support for the proposed hypotheses: an inverted U-shape relationship between PG and PTG was found and meaning making played a complete mediation role in this curvilinear relationship.

In this research, we found a negative correlation between expectation of death and grief-related results, which is consist with previous research (Eisma et al., 2019; He et al., 2013), while a positive correlation between expectation and posttraumatic growth, which is inconsistent with previous studies (McClatchey, 2020; Salloum et al., 2019). A possible reason for this inconsistency is that different from the prior studies which defined unexpected death as death caused by accidental reasons (McClatchey, 2020; Salloum et al., 2019), we directly measured the subjective expectation degree of the bereaved. For the bereaved, a high level of expectation may be conducive to making psychological preparation for the subsequent separation before the death. Besides, those with high expectation may be able form a reasonable explanation for the death through meaning making and then gain growth. Furthermore, time after loss did not significantly correlate with PG and PTG, which is not consistent with some previous results (He et al., 2013), but echoes the findings of McClatchey, 2020; Xu et al., 2015, 2020a. Differences in sample sizes and ranges of time since loss may explain the discrepancy.

Consistent with our hypothesis, there was a curvilinear relationship between PG and PTG among recently bereaved people during the COVID-19. Specifically, those who experienced little grief in response to the bereavement gained certain growth; those who experienced moderate levels of grief developed higher levels of PTG; and the other people experienced the event as too emotionally overwhelming to experience much PTG. The result aligns with Eisma et al. (2019), Levi-Belz (2020) and Yilmaz and Zara (2016) and confirms the “moderate-is-better” idea: experiencing a certain level of distress contributes to getting positive life changes, but too much distress will hinder one’s path to gain benefits. Additionally, this study focused on the individuals who lost their loved ones during the social situation of COVID-19 pandemic, expanding our understanding of the relationship between grief and growth in different environments.

A strong negative relationship between PG-symptoms severity and meaning making has been reported in the previous literature and this study (Pan et al., 2018; Rozalski et al., 2016; Zakarian et al., 2019). That is to say, people with more distress may be more difficult to make sense of and integrate the loss event. The results also showed a curvilinear relationship between meaning making and PTG, which was inconsistent with previous research demonstrating a positive linear relationship (Boyraz & Efstathiou, 2011; Jin et al., 2014; Williams et al., 2020). In the present research, although the level of PTG increased with meaning making increasing from the whole view, individuals with moderate meaning making of bereavement events already perceived a relatively high level of growth, while excessive meaning making would
bring an inappreciable increase of growth. Given that a cross-culture qualitative investigation indicated that Chinese bereaved participants mixed shock, absurdity, and pain with the acceptance and making sense of the death (Moats, 2011), we could interpret that probably culture-related factors played an important role in the relationship between meaning making and PTG. The results suggested that, despite the importance of meaning making for promoting growth, it is unnecessary to blindly pursue an adequate understanding or gain complete meaning from death for the bereaved.

Furthermore, after including the square of meaning making in the model of PG and PTG, the link of PG² and PTG became non-significant, suggesting full mediation. This finding fits the theory that distress evoked by stressful events would develop PTG through cognitive processes involving attempts to understand and quest for meaning (Park, 2010). Our mediated model suggested that, when individuals experience a low level of grief, they might use an excessive meaning making process to avoid their own pain. Their PTG could include fantasy and deception in the Janus Face Model of PTG (Zoellner & Maercker, 2006). When the bereavement event brought great pain, individuals with seriously damaged functions were unable to carry out better meaning making for the loss event and cannot perceive much PTG either. The findings have implications for future clinical work: For individuals with moderate grief response, we could help them achieve a high level of growth by promoting their expression and meaning construction of death events. For those individuals with severe grief symptoms, simple meaning making is not enough to alleviate their pain and help them grow and more comprehensive intervention is needed to guide their adaptation through bereavement.

The current study extends existing knowledge about the relationship between different psychological outcomes of recently bereaved people during COVID-19 and the significance of cognitive processes in it. The results have some strengths and clinical implications for the treatment of grief-related distress. It is noteworthy that several studies have examined the effectiveness of interventions for alleviating the distress of the bereaved, such as PG and posttraumatic stress symptoms (Lund et al., 2010; Shear et al., 2005; Waller et al., 2016) and some authors have demonstrated the effectiveness of interventions to cultivate growth after stress event (Bower & Segerstrom, 2004; Dolbier et al., 2010; Hagenaars & van Minnen, 2010). However, based on the finding of the current investigation about curvilinear relationship between PG and PTG, for the recently bereaved individuals during COVID-19, reducing distress may not equally increase their PTG. As a result, it is necessary to choose the appropriate intervention scheme according to the different conditions of the bereaved, rather than adopting a unified method for all people. With the normalization of the COVID-19, we suggest that a key to future clinical interventions for bereavement is to focus on both alleviating suffering and cultivating growth. When the bereaved are in moderate grief, we can reduce their suffering and actively promote their posttraumatic growth simultaneously. And for people with a high degree of grief, the primary task is to reduce the pain and then pay attention to growth after the grief is reduced. Moreover, the
significant role of meaning making in this study suggested that interventions which help people find meaning in the grief experience and integrate it into a reconstructed self-narrative (Neimeyer et al., 2010), such as narrative retelling and therapeutic writing, may contribute to promote grief to growth and could be adopted when supporting the bereaved people during COVID-19.

There are some limitations that should be acknowledged in the present research. Firstly, cross-section design excludes causal inferences regarding PG, PTG, and meaning making. According to the Janus-Face model of PTG (Maercker & Zoellner, 2004), there was two components of self-perceived PTG: the functional side and the illusory side. Longitudinal studies may show whether individuals’ growth will reduce or increase the possibility of mental health problems, that is, whether it is functional or illusory. This study is a prospective part of a whole program and longitudinal research and intervention studies testing the relationship are warranted in the future. Secondly, the bereavement period in our samples was limited within 1 year. Because the whole program was launched shortly after the outbreak of the COVID-19 in order to provide psychological help to the bereaved as soon as possible. More kinds of bereaved people during the COVID-19 should be included in future study. Thirdly, due to a wide range of bereavement types (such as loss of child, parent, and spouse) and the unequal number of different types among our participants, we need to be cautious in the generalization of results. Lastly, this study conducted a self-reported measurement and an important direction for future studies is adding other indicators, such as evaluations by families.

**Conclusion**

In a whole, the present study demonstrates that concurrent associations between PG and PTG is curvilinear following recent bereavement during COVID-19. Moreover, the mediated effect of meaning making was tested, showing that meaning making plays a complete mediation role in the relationship between PG and PTG. This suggests that for recently bereaved individuals during COVID-19, different intervention goals need to be selected according to different situations: For bereaved persons with low grief level, they could recover without professional intervention; for bereaved people with moderate grief symptoms, attention should be given to both alleviating distress and cultivating growth simultaneously; and primary aim of intervention for that with serious grief response is to alleviate symptoms. As an important element of grief intervention, meaning making could play a positive role in healing the pain and promoting growth, which should be paid attention to in future clinical practice.

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
Funding

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: This work was supported by the [National Social Science Fund of China] under Grant [number 16ZDA233].

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