



## SYSTEMATIC REVIEW

# Prevalence and correlates of positive and negative psychological effects of bereavement due to COVID-19: A living systematic review [version 1; peer review: awaiting peer review]

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## Abstract

Background: The coronavirus disease 2019 (COVID-19) pandemic is associated with an increase in mortality rates globally. Given the high numbers of deaths and the potentially traumatic characteristics of COVID-19 deaths, it is expected that grief-related distress levels are higher in COVID-19 bereaved (compared to non-COVID-19 bereaved) people. This living systematic review (LSR) investigates the empirical evidence regarding this claim. More specifically, this LSR summarizes studies evaluating prevalence and correlates of positive and negative psychological effects of COVID-19 bereavement. This iteration synthesizes evidence up to July 2022. Methods: Systematic searches were conducted in PsychInfo, Web of Science, and Medline by two independent reviewers. Eligible studies included quantitative peer-reviewed articles reporting on positive and/or negative psychological outcomes, using validated measures, in COVID-19 bereaved adults. The primary outcome was prolonged grief symptoms (PG). Results: Searches identified 9871 articles, whereof 12 studies met the inclusion criteria. All studies included prevalence rates and/or symptom-levels

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of psychological outcomes after COVID-19 losses. Prevalence rates of psychological outcomes were primarily reported in terms of (acute) PG, pandemic grief, depression, anxiety, and functional impairment, and varied widely between studies (e.g., ranged between 29% and 49% for acute PG). No studies reported on prevalence rates of positive psychological outcomes. Closer kinship to the deceased, death unexpectedness, and COVID-19 stressors were identified as correlates of increased psychological symptoms. Conclusions: Due to the small number and heterogeneity of studies, knowledge about psychological effects of COVID-19 bereavement is limited. This LSR offers a regular synthesis of up-to-date research evidence to guide clinicians, policy makers, public health professionals, and future research on the psychological effects of COVID-19 bereavement.

### Keywords

systematic review; COVID-19; pandemic; grief; posttraumatic stress; bereavement; loss; mental health; posttraumatic growth

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## Introduction

The coronavirus disease 2019 (COVID-19) pandemic is associated with an increase in mortality rate throughout the world. As of 28 October 2022, there have been over 6.5 million reported deaths due to COVID-19 globally (World Health Organization [WHO], 2022). This number only includes registered deaths; it is likely that this is a considerable underestimation of the actual number of COVID-19 deaths (Woolf *et al.*, 2020). A study by Verdery *et al.* (2020) reported that for each COVID-19 death, nine persons will be affected. These estimates imply that worldwide approximately 58.5 million people have to cope with the loss of a close person due to COVID-19 as of October 2022.

Bereavement may lead to a variety of psychological reactions, such as acute grief responses. Acute grief often includes symptoms such as longing for the deceased, sadness, and difficulties experiencing positive feelings (Boelen & Lenferink, 2022; Djelantik *et al.*, 2017). Although the death of a close person is one of life's most stressful experiences, most people navigate through a period of intense acute grief reactions that decrease over time (Jordan & Litz, 2014; Nielsen *et al.*, 2019; Lenferink *et al.*, 2020). Nevertheless, a significant minority (approximately 10%) of bereaved people are at risk for developing long-lasting and debilitating prolonged grief reactions after a natural death (e.g., old age) (Lundorff *et al.*, 2017).

Prolonged Grief Disorder (PGD) has been included as a distinct psychological disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, Text Revision (DSM-5-TR; American Psychiatric Association [APA], 2022). PGD can be diagnosed when acute grief reactions remain distressing and disabling, at least twelve months after the death. Furthermore, a diagnosis of PGD is included in the International Classification of Diseases, 11th Edition (ICD-11; WHO, 2018), characterized by severe, persistent, and disabling grief reactions, at least six months after the death. Unnatural or traumatic losses (e.g., due to suicide, accidents) are associated with a heightened risk for developing PGD in nearly 50% of bereaved people (Djelantik *et al.*, 2020). This can be partly explained by the interference of daily life and the violation of positive assumptions about the world (i.e., that the world is a benign, safe and predictable place) (Boelen *et al.*, 2015). In the current study, the term prolonged grief (PG) reactions is used as an umbrella term for disordered grief reactions.

Many grief researchers have argued that COVID-19 losses could also be considered potentially traumatic, likely leading to increases in PG levels (Breen, 2020; Carr *et al.*, 2020; Eisma *et al.*, 2020; Gesi *et al.*, 2020; Goveas & Shear, 2020; Johns *et al.*, 2020; Jordan *et al.*, 2022; Kokou-Kpolou *et al.*, 2020; Masiero *et al.*, 2020; Mortazavi *et al.*, 2020; Petry *et al.*, 2021; Wallace *et al.*, 2020; Zhai & Du, 2020). Several pandemic-related stressors may account for this increased risk for PG after the loss of a loved one due to COVID-19, including limited opportunity for grieving rituals (Chen, 2022; Mitima-Verloop *et al.*, 2022), reduced social support (Lobb *et al.*, 2010), experiencing multiple losses (Hengst *et al.*, 2018), secondary stressors (Brooks *et al.*, 2020; Cao *et al.*, 2020), and/or feeling responsible for having contaminated the deceased (Erlangsen *et al.*, 2017). While researchers expected an increased risk for grief-related distress after COVID-19 deaths, few empirical studies have examined this claim (see also Eisma & Boelen, 2021). To illustrate this, a literature review on coping with bereavement during the COVID-19 pandemic found that, during the first six months of the pandemic, empirical research supporting this claim is lacking (Stroebe & Schut, 2021). However, noteworthy is that one study (Eisma & Tamminga, 2020) demonstrated that the loss of a loved one during the pandemic (but not due to COVID-19) led to more severe acute grief symptoms relative to those who lost a loved one recently before the pandemic. These findings indicate that coping with the death of a loved one during the pandemic might be more challenging compared to coping with deaths that occurred before the pandemic.

Most studies examining the aftermath of bereavement have so far concentrated on negative psychological outcomes (e.g., symptoms of PGD). Yet, according to the dual-continua model (Keyes, 2005), mental health is not only defined by psychopathology, it also consists of positive psychological outcomes (such as well-being). The dual-continua model states that negative and positive psychological outcomes are related, but distinct dimensions (Keyes, 2005; Westerhof & Keyes, 2010), implying that the absence of psychopathology does not necessarily entail the presence of positive psychological outcomes and the other way around. Therefore, focusing on mental health, including both negative and positive psychological outcomes, may provide a more complete understanding of the psychological effects of bereavement due to COVID-19.

Taken together, many claims have been made about the mental health consequences of the loss of a loved one due to COVID-19. However, a systematic overview of empirical evidence supporting these claims is lacking. Given the potentially traumatic circumstances and high number of people bereaved due to COVID-19, it is highly relevant to provide a systematic overview of the research evidence regarding mental health in people who lost a loved one due to COVID-19. Additionally, it is likely that the literature on mental health after bereavement due to COVID-19 will emerge rapidly. Consequently, it is crucial that the best available knowledge is made quickly available to clinicians, researchers,

policy makers, and public health professionals. Therefore, we are performing a living systematic review (LSR) on the psychological effects of bereavement due to COVID-19. LSRs are systematic reviews that are regularly updated and summarize relevant new research findings as they become available (cf. see [John \*et al.\*, 2020](#)). Among other things, this LSR can provide 1) knowledge of psychological outcomes in people bereaved due to COVID-19, 2) the identification of correlates of psychological outcomes in people bereaved due to COVID-19, and 3) guidelines for clinicians, policy makers, public health professionals, and future research.

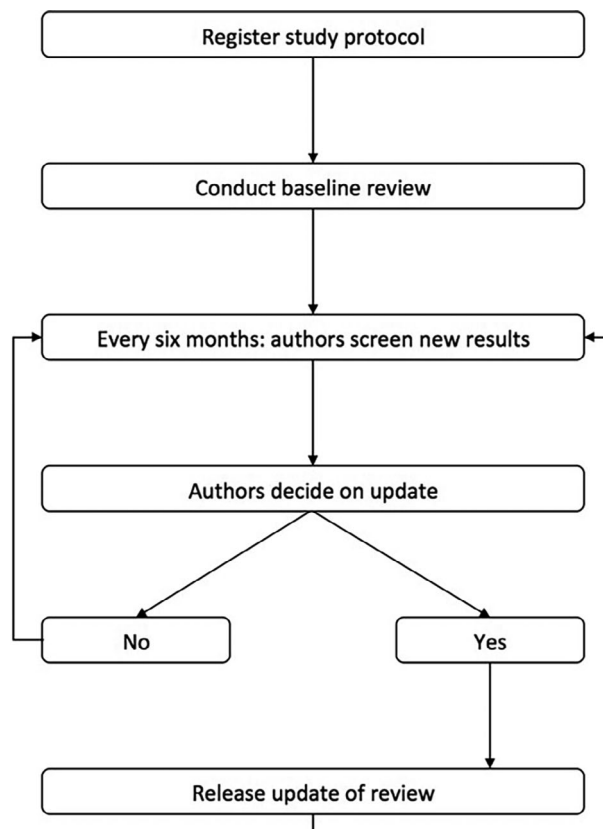
The aim of the current LSR is to identify and evaluate empirical research on mental health, including negative and positive psychological outcomes, in people who lost a close person due to COVID-19. This LSR extends the review by [Stroebe and Schut \(2021\)](#) in that a systematic approach is being implemented to avoid selection bias of the included studies and to ensure replicability. Our first objective was to summarize findings from studies on prevalence rates and severity of negative psychological outcomes in people bereaved due to COVID-19. Second, we summarized studies examining indicators of positive psychological outcomes in people bereaved due to COVID-19. Third, we aimed to examine correlates of psychological outcomes in bereaved people due to COVID-19.

## Methods

This review adheres to guidelines for writing LSRs ([Akl \*et al.\*, 2017](#); [Elliott \*et al.\*, 2017](#)). In addition, the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines were followed ([Page \*et al.\*, 2021a, 2021b](#)). A study protocol of the LSR was pre-registered in the international prospective register of systematic reviews (PROSPERO; registration number: CRD42021225347) ([Reitsma \*et al.\*, 2021](#)). In [Figure 1](#) an illustration is provided of the LSR process.

### Eligibility criteria

Quantitative peer-reviewed academic journal articles written in English were included. The publication period was set from January 2020 until July 15, 2022. The studies needed to report on positive and/or negative psychological outcomes in adults who had lost a family member, spouse, or friend due to COVID-19. Additional inclusion criteria were that the



**Figure 1.** Living systematic review process.

main outcome was PG and any secondary outcomes were for instance posttraumatic stress, depression, well-being, and/or posttraumatic growth. Lastly, all outcomes should have been measured using validated instruments. An article was excluded when it 1) was a qualitative study, 2) was an intervention study, 3) did not include data of participants (e.g., a literature review), or 4) was conducted with children or adolescents (i.e., <18 years of age).

### Search strategy

The three following electronic databases were searched: PsycInfo (<https://psycnet.apa.org>), Web of Science (<https://webofscience.com>), and Medline (<https://www.nlm.nih.gov>). Three topics structured the search terms: 1) bereavement, 2) positive and/or negative psychological outcomes, and 3) COVID-19. To be as comprehensive as possible, we inserted at least six synonyms for each topic. We limited the search to 1) scholarly peer-reviewed journal articles, 2) date of publication (i.e., January 2020–present), and 3) English language. **Figure 2** displays the search string in Medline.

The first search was performed on March 3, 2021 and was updated on July 15, 2022. The LSR process deviates from the process described in the study protocol (Reitsma *et al.*, 2021) with regard to anticipated starting and completion date. Due to practical reasons we started later with the study than was expected. The anticipated latest search will be performed in January, 2024 (instead of June 1<sup>st</sup>, 2022 as described in the study protocol). Several steps were performed to select studies based on eligibility criteria. Each of the steps were executed independently by two reviewers. First, two reviewers (LR and HM) selected relevant studies by screening titles and abstracts based on the inclusion and exclusion criteria. Second, LR and LHL assessed the relevance of the remaining studies by screening the full texts. The remaining eligible studies were included in the LSR. The level of interrater agreement was calculated with Cohen's Kappa ( $\kappa$ ) for both the title/abstract and full text screening procedures (McHugh, 2012). Kappa can be interpreted as follows: values  $\leq 0$  as indicating no agreement and 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41–0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1.00 as almost perfect agreement. Disagreements between the raters were resolved through discussion.

### Data extraction and quality assessment

Data of the included studies were extracted by two reviewers (LR and CK). One reviewer (LR) extracted data from the articles using an Excel spreadsheet, and the extracted data were then checked by the other reviewer (CK). Any differences

- 1) ("loss" OR "losses" OR "bereaved" OR "bereavement" OR "bereaved people" OR "death\*" OR "dying")
- 2) ("mourn" OR "mourning" OR "grief" OR "posttraumatic stress" OR "post-traumatic stress" OR "stress" OR "depression" OR "depressive" OR "well-being" OR "happiness" OR "life satisfaction" OR "satisfaction with life" OR "compassion" OR "optimism" OR "gratitude" OR "kindness" OR "meaning made" OR "meaning making" OR "benefit finding" OR "posttraumatic growth")
- 3) ("COVID-19" OR "coronavirus disease 2019" OR "COVID-19 pandemic" OR "coronavirus pandemic" OR "sars-cov-2" OR "Severe Acute Respiratory Syndrome Coronavirus 2")
- 4) 1) AND 2) AND 3)

Limit results to: scholarly (peer-reviewed) journals

Date of Publication: January 2020 – present

Language: English Language

**Figure 2.** Search strategy in medline.

between individual judgements were resolved through discussion. The following data were collected of the included studies: 1) characteristics of study design, 2) characteristics of participants, 3) findings on indicators of negative and positive psychological outcomes after a COVID-19 loss, and 4) findings on correlates of negative and positive psychological outcomes after a COVID-19 loss.

In accord with the PRISMA guidelines, we assessed the risk of bias of included studies. The quality of the included studies was evaluated using the Systematic Assessment of Quality in Observational Research (SAQOR; Ross *et al.*, 2011), which has been used in prior systematic reviews (cf. Dubreucq *et al.*, 2021; Lenferink *et al.*, 2019). The SAQOR examines the risk of bias in six domains: 1) sample, 2) control/comparison group, 3) outcome measurements, 4) follow-up, 5) confounders, and 6) reporting of data. Every domain is comprised of several criteria. All domains are scored as 'adequate', 'inadequate', 'unclear' or 'not applicable' based on the number of criteria of the specific domain. Subsequently, for each study an overall quality assessment (high, moderate, low, or very low) is defined according to the frequency of adequate domains. Following the example of prior research (Lenferink *et al.*, 2019), studies with very low-quality ratings were not further described in results of this review. In line with previous systematic reviews (e.g., Lenferink *et al.*, 2019) and recommendations proposed by Ross *et al.* (2011), we have adapted the SAQOR to accommodate our specific target group. See Table 1 for a detailed explanation of the SAQOR. The risk of bias assessment was conducted independently by LR and CK. Discrepancies between researchers were resolved through discussion.

### Synthesis of results

We implemented a narrative synthesis on the results of the studies. For each included study, a descriptive summary is provided. We incorporated a description of the design of the studies, characteristics of participants, and results on prevalence rates, symptom-levels, and correlates of negative and positive psychological outcomes. LR extracted the information from the eligible studies using an Excel spreadsheet, and synthesis was then checked by the other reviewer (CK). In case of disagreement between individual judgements, consensus was reached via discussion. No sensitivity analyses were performed.

### Searching and screening frequency

The exact same electronic database searches will be run every six months up until January 2024, once the first version of the LSR has been published, resulting in two additional literature search updates. After each literature search, any new eligible studies will be incorporated in an update of the review. More specifically, we will update the methods section with the new search date, update the results, tables and figures, and revise the conclusion and discussion (if needed) as new evidence becomes available.

### Living review method

It is anticipated that this review will cease to be living one year after submission of the first version. In case relevant literature is still regularly published, the living method will be extended by six months, which will result in one additional update of the review.

## Results

### Study selection

In total, 9871 articles (published by July 15, 2022) resulted from the systematic literature search. After removing duplicates, the remaining 7707 studies were screened by title and abstract. This resulted in 21 studies being included for full text screening. Finally, twelve studies remained for inclusion in this LSR. Lastly, the reference lists of the twelve included articles were screened for additional eligible studies, however this did not result in any additional eligible studies. The levels of agreement between the reviewers for title/abstract and full text screening were moderate (i.e., 0.43 and 0.46, respectively). Interrater reliability was relatively low because LR was stricter in adhering to the defined inclusion and exclusion criteria, while HM and LHL were more lenient in the screening procedure. See Figure 3 for the results of the study selection.

### Risk of bias assessment

Based on the SAQOR criteria, six studies were assessed as high quality (Breen *et al.*, 2021; Downar *et al.*, 2022; Eisma & Tamminga, 2022; Gang *et al.*, 2022; Tang *et al.*, 2021; Yaghoubi *et al.*, 2021), and six studies as moderate quality (Bovero *et al.*, 2022; Breen *et al.*, 2022a, 2022b; Chen & Tang, 2021; Eisma *et al.*, 2021; Tang & Xiang, 2021). In Table 1 more detailed information is presented with respect to the quality assessment of the twelve studies.

### Characteristics of included studies

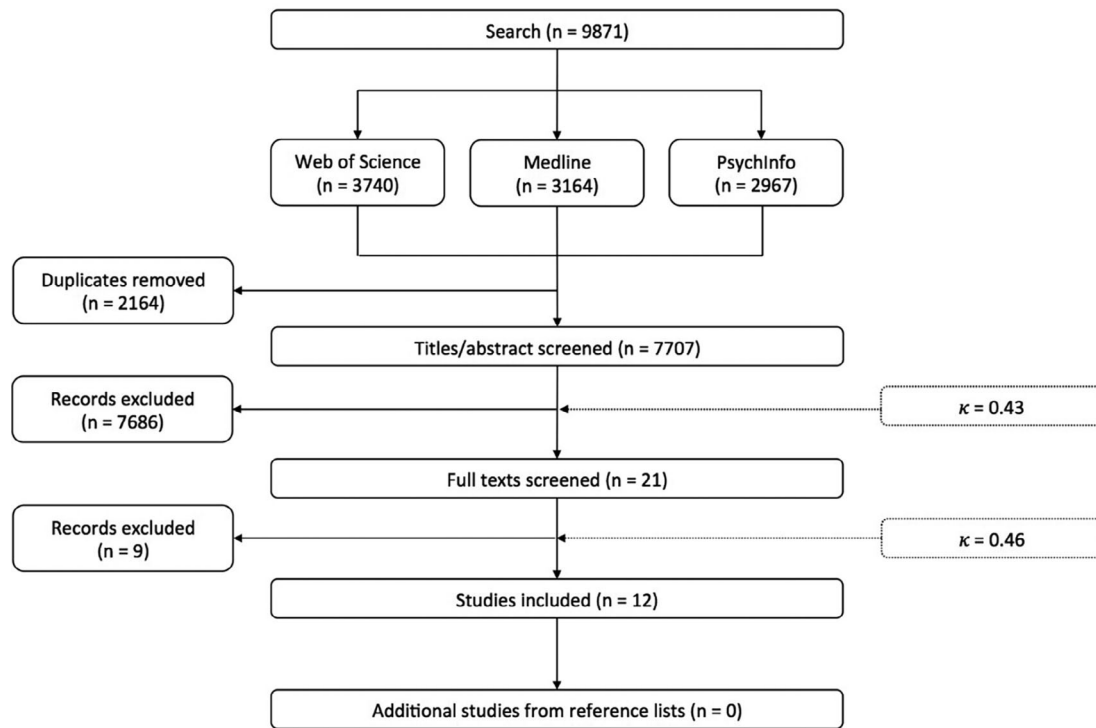
In Table 2 an overview of the characteristics of the studies is provided. All twelve studies used a cross-sectional design. Sample sizes ranged from 30 to 422 people bereaved due to COVID-19 ( $M = 224.08$ ;  $SD = 162.33$ ). The studies used different definitions of PG and varied in instruments used to assess PG (see Table 2 for more detailed information).



**Table 1. Quality Assessment of the Studies.**

Citation	Sample			Control/comparison group			Outcome		Follow-Up		Confounders		Data Reporting		Quality		
	Representative	Source	Method	Sample Size	Inclusion/Exclusion	Inclusion	Identifiable	Source	Matched	Statistical control	Outcome	Number Lost	Reason for loss	Confounding variables	Missing data	Clarity Accuracy	Quality
<i>Bovero et al. (2022)</i>	N	Y	Y	N	Y	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	N	N	Y	M
<i>Breen et al. (2021)</i>	N	Y	Y	N	Y	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	Y	N	Y	H
<i>Breen et al. (2022a)</i>	N	N	Y	N	N	Y	Y	N	N	N	Y	n/a	n/a	Y	N	Y	M
<i>Breen et al. (2022b)</i>	N	Y	Y	N	N	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	Y	N	Y	M
<i>Chen &amp; Tang (2021)</i>	N	Y	Y	N	Y	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	N	N	Y	M
<i>Downar et al. (2022)</i>	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	n/a	n/a	Y	Y	Y	H
<i>Eisma et al. (2021)</i>	N	N	Y	N	N	Y	Y	N	N	Y	Y	n/a	n/a	N	N	Y	M
<i>Eisma &amp; Tamminga (2022)</i>	N	Y	Y	N	N	Y	Y	Y	N	Y	Y	n/a	n/a	Y	Y	Y	H
<i>Gang et al. (2022)</i>	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y	n/a	n/a	Y	Y	Y	H
<i>Tang et al. (2021)</i>	N	Y	Y	N	Y	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	Y	N	Y	H
<i>Tang &amp; Xiang (2021)</i>	N	N	Y	N	Y	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	Y	N	Y	M
<i>Yaghoubi et al. (2021)</i>	N	Y	Y	Y	Y	n/a	n/a	n/a	n/a	n/a	Y	n/a	n/a	Y	N	Y	H

Note. N = no; Y = yes; n/a = not applicable; H = high; M = moderate; L = low. For sample, the "representative" criterion was met if the study determined a base sample across multiple sources that matched the target population and used random sampling to arrive at the sample. The "source" criterion was met if the study included a description of where the sample was drawn from. The "method" criterion was met if the recruitment or selection procedure of participants was explicitly stated. The "sample size" criterion was met if a power calculation was reported and the sample size was in accord with the power calculation. The "inclusion/exclusion" criterion was met if a description and justification was given of inclusion/exclusion criteria. To achieve a score of "adequate", a minimum of three sample criteria had to be met. For control/comparison group, all types of control/comparison groups were considered. The "inclusion" criterion was met if a control/comparison group was included. The "identifiable" criterion was met if the control/comparison group was identifiable, and a distinction was made between the groups in the study. The "source" criterion was met if a description was given of the source and recruitment of the control/comparison group. The "matched" criterion was met if matching or randomizing techniques were applied and described. The "statistical control" criterion was met if statistical differences between the groups were controlled for except for the primary outcomes or when it was described that there were no statistical differences between the groups. To achieve a score of "adequate", a minimum of three control/comparison criteria had to be met. Studies without a control/comparison group were rated "not applicable" for this domain. For outcome, the "outcome" criterion was met if the article clearly stated what measures were used for which purposes and these measurements were methodologically sound. To achieve a score of "adequate" in this category, studies must have met the criterion. For follow-up, all study designs were marked as not applicable, due to non-longitudinal study designs. For confounders, this criterion was met if studies controlled for confounding variables and gave a clear description of how and why they controlled for other variables. To achieve a score of "adequate" in this category, studies must have met the criterion. For data reporting, the "missing data" criterion was met if the article reported about how missing data were handled. The "clarity accuracy" criterion was met if data were clearly and accurately presented (e.g., appropriate use of statistics). To achieve a score of "adequate", studies must have met both criteria. A final quality level was calculated for the studies as follows: high = three or more adequate in applicable domains, moderate = two adequate in applicable domains, low = one adequate in applicable domains, very low = none adequate in applicable domains.



**Figure 3. Flow Diagram of Study Selection.** Note.  $\kappa$  = Cohen's Kappa.

Three studies relied on the same sample ( $n = 422$ ) of Chinese people who lost a loved one due to COVID-19 on average 5.10 months ( $SD = 1.72$ ) ago (Chen & Tang, 2021; Tang *et al.*, 2021; Tang & Xiang, 2021). Three studies were conducted among people from the United States (Breen *et al.*, 2021, 2022a; Gang *et al.*, 2022). Breen *et al.* (2021) included COVID-19 related bereaved adults ( $n = 307$ ) in which most deaths (95%) occurred < 6 months ago. The study by Breen *et al.* (2022a) was based on 409 people bereaved due to COVID-19 ( $n = 206$ ), natural losses ( $n = 111$ ), and unnatural losses ( $n = 92$ ) during the pandemic with a median time since loss of 4 months. Gang *et al.* (2022) included 1470 people bereaved due to COVID-19 ( $n = 118$ ) and from other causes of death ( $n = 1352$ ) (e.g., dementia, cancer) on average 24.50 months ( $SD = 84.40$ ) ago. Two studies (Eisma *et al.*, 2021;  $n = 1441$ ; Eisma & Tamminga, 2022;  $n = 1266$ ) were executed in the Netherlands including people bereaved due to COVID-19 ( $n = 49$ ;  $n = 99$ ), natural losses ( $n = 1182$ ;  $n = 1006$ ), and unnatural losses ( $n = 210$ ;  $n = 161$ ). The mean time since loss in COVID-19 bereaved people was 1.95 ( $SD = 1.17$ ) months (Eisma *et al.*, 2021) and 4.31 ( $SD = 3.50$ ) months (Eisma & Tamminga, 2022).

Another study, executed in Iran, focused on 400 COVID-19 bereaved people in which most deaths (64%) occurred more than 4 months ago (Yaghoubi *et al.*, 2021). In Italy, Bovero *et al.* (2022) studied a small sample of 31 bereaved caregivers who lost a family member through COVID-19 at least 6 months ago. The authors did not provide information about the time since death. Another study focused on a UK sample ( $n = 183$ ), all bereaved through COVID-19 with most deaths (56%) occurring over 6 months ago (Breen *et al.*, 2022b). Lastly, people ( $n = 121$ ) bereaved through COVID-19 ( $n = 30$ ), non-COVID-19 illness during the pandemic ( $n = 46$ ) and pre-pandemic ( $n = 45$ ) at least 6 months ago were the subjects of a study in Canada (Downar *et al.*, 2022). No details were provided about the time since death.

### Prevalence and severity levels of negative psychological symptoms of bereavement due to COVID-19

All studies reported prevalence rates and/or symptom-levels of negative psychological outcomes of bereavement through COVID-19. Since different instruments were used to assess psychological outcomes, prevalence rates and/or severity levels of negative psychological symptoms are described separately for every study (see Table 2 for the main findings of the studies). In eight out of twelve studies, prevalence rates were reported of negative psychological symptoms of people who lost a loved one due to COVID-19. Most studies reported on (acute) PG ( $k = 4$ ), followed by pandemic grief ( $k = 3$ ), depression ( $k = 3$ ), anxiety ( $k = 3$ ), functional impairment ( $k = 3$ ), PTSD ( $k = 2$ ), and grief experience ( $k = 1$ ). Details regarding severity levels of negative psychological outcomes of COVID-19 bereaved people are depicted in Table 2, but are not further explained in text.



**Table 2. Characteristics of the studies.**

Citation; study design	Participants	Outcomes of interest	Instruments	Prevalence and severity levels of psychological symptoms	Correlates of psychological symptoms
<p><i>Bovero et al. (2022); cross-sectional</i></p>	<p>31 bereaved caregivers who lost a (extended) family member or spouse ≥ 6 months prior due to COVID-19. Females (22, 71%); age (56.03 (12.33)); time since loss (-)</p>	<p>Prolonged grief (PG) (as per <i>Prigerson et al., 1995</i>)</p>	<p>Inventories of Complicated Grief (ICG)</p>	<p>48% PG. Subgroup with ICG score &lt; 30, <i>M</i> = 17.62; subgroup with ICG score ≥ 30, <i>M</i> = 39.53</p>	<p>Marital and cohabitant status during lockdown, increased perceived sense of guilt, and increased depression levels were associated stressors for PG. Funeral attendance and social support were associated protective factors. Attachment style, anxiety, and stress levels were not associated with PG</p>
<p><i>Breen et al. (2021); cross-sectional</i></p>	<p>307 people bereaved of a significant other (extended) family member, spouse, friend, or other) due to COVID-19. Females (-, 49%); age (35.58 (10.66)); time since loss (95% &lt; 6 months; 5% ≥ 6 months)</p>	<p>Pandemic grief (PG) (as per <i>Lee &amp; Neimeyer, 2022</i>), neuroticism, depression, anxiety, PTSD, and functional impairment (FI)</p>	<p>Pandemic Grief Scale, subscale of Big Five Inventory, Patient Health Questionnaire-4, National Stressful Events Survey PTSD Short Scale, Work and Social Adjustment Scale</p>	<p>66% PG (<i>M</i> = 22.57), 74% depression (<i>M</i> = 14.86), 70% generalized anxiety (<i>M</i> = 3.33), and 63% functional impairment (<i>M</i> = -)</p>	<p>FI was higher in people who were diagnosed with COVID-19, received professional help with their loss, and lost romantic partners or immediate family members (vs. other). FI was not associated with age, gender, race, and time since loss. The odds of FI significantly increased by 25% for higher scores in PG, and 13% for higher scores in PTSD</p>
<p><i>Breen et al. (2022a); cross-sectional</i></p>	<p>409 people in total bereaved of a (extended) family member, spouse, friend, or other during the pandemic. People bereaved due to COVID-19 (<i>n</i> = 206), natural causes (<i>n</i> = 111), and unnatural causes (<i>n</i> = 92). Females (132, 32%); age (37.54 (10.04)); time since loss in months (median = 4)</p>	<p>Pandemic grief (PG) (as per <i>Lee &amp; Neimeyer, 2022</i>), functional impairment (FI), and disrupted meaning</p>	<p>Pandemic Grief Scale, 5-item scale adapted from the Work and Social Adjustment Scale, and The Integration of Stressful Life Experiences Scale Short Form</p>	<p>PG: Total sample: 72% (<i>M</i> = 8.17), COVID-19 sample: 68.90% (<i>M</i> = 7.72), natural causes sample: 71.12% (<i>M</i> = 8.32), and unnatural causes sample: 78.26% (<i>M</i> = 9.00). FI: Total sample 77% (<i>M</i> = 25.64), COVID-19 sample: 74.80% (<i>M</i> = 24.65), natural causes sample: 78.40% (<i>M</i> = 26.11), and unnatural causes sample: 80.40% (<i>M</i> = 27.29)</p>	<p>Males (vs. females) reported higher PG levels, not on the other outcome variables. Time since death was positively correlated with all outcomes. Age was not associated with any of the outcome variables. Disrupted meaning partially explained the relationship between stressors with FI and PG</p>

**Table 2.** *Continued*

Citation; study design	Participants	Outcomes of interest	Instruments	Prevalence and severity levels of psychological symptoms	Correlates of psychological symptoms
Breen <i>et al.</i> (2022b); cross-sectional	183 people bereaved of a (extended) family member, spouse, or other due to COVID-19. Female (168, - %); age (47.40 (11.26)); time since loss (56% > 6 months; 44% ≤ 6 months)	Pandemic grief (PG) (as per Lee & Nelimeyer, 2022), depression, anxiety, PTSD, functional impairment (FI), and disrupted meaning	Pandemic Grief Scale, Patient Health Questionnaire-4, The PTSD screen for DSM-5, 5-item scale adapted from the Work and Social Adjustment Scale, and The Integration of Stressful Life Experiences Scale-Short Form	40% PG (M = 5.77), 62% depression (M = -), 59% anxiety (M = -), 83% PTSD (M = 3.79), and 56% functional impairment (M = 22.53)	Age was negatively associated with risk factors and PTSD symptoms (not with PG, disrupted meaning, depression, or anxiety). Time since death was negatively associated with PG, disrupted meaning, FI, depression, anxiety, and PTSD symptoms. Gender was not associated with any of the outcome variables. Disrupted meaning partially explained the relationship between risk factors with all outcome variables
Chen & Tang (2021); cross-sectional	422 people recently bereaved of a close person (extended) family member, spouse, friend or other) due to COVID-19. Females (188, 44.5%); age (32.73 (9.31)); time since loss in months (5.10 (1.72))	Prolonged grief (PG) (as per ICD-11), PTSD, and posttraumatic growth	International ICD-11 Prolonged Grief Disorder Scale, PTSD Checklist for DSM-5, and Posttraumatic Growth Inventory	PG (M = 44.62), PTSD (M = 38.36), and posttraumatic growth (M = 66.81)	-
Downar <i>et al.</i> (2022); cross-sectional	121 people in total bereaved of an immediate family member, spouse, friend or other ≥ 6 months prior. People bereaved due to COVID-19 (n = 30), non-COVID-19 illness during pandemic (n = 46), and pre-pandemic illness (n = 45). Females (80, 66%); age (58.4 (14.7)); time since loss (-)	Prolonged grief (PG) (as per Prigerson <i>et al.</i> , 1995)	Inventory of Complicated Grief-revised	28.9% PG in overall sample. 30.0% in COVID-19 bereaved sample, 30.4% in non-COVID-19 illness bereaved sample, and 26.7% in pre-pandemic illness bereaved sample	Severity of PG was not associated with demographic factors, physical presence in the final 48 hours of life, intubation, or relationship with the deceased
Eisma <i>et al.</i> (2021); cross-sectional	1441 people in total bereaved of a (extended) family member, spouse, or friend. People bereaved of COVID-19 (n = 49), natural (n = 1182), and unnatural causes (n = 210). For COVID-19 bereaved sample: females (41, 84%); age (48.08 (15.61)); time since loss in months (1.95 (1.17))	Prolonged grief (PG) (both as per Prigerson <i>et al.</i> , 2009 and DSM-5)	Traumatic Grief Inventory - Self Report	COVID-19 loss: PCBD levels (M = 57.37), PGD levels (M = 38.94), Unnatural loss: PCBD levels (M = 56.45), PGD levels (M = 37.82). Natural loss: PCBD (M = 53.49), PGD levels (M = 35.59)	Expectedness was related to differences in PG levels between COVID-19 and natural losses

**Table 2.** *Continued*

Citation; study design	Participants	Outcomes of interest	Instruments	Prevalence and severity levels of psychological symptoms	Correlates of psychological symptoms
<p><b>Eisma &amp; Tamminga (2022);</b> cross-sectional</p>	<p>1266 people in total bereaved of a (extended) family member, spouse, or friend. People bereaved of COVID-19 (n = 99), natural (n = 1006), and unnatural causes (n = 161). For COVID-19 bereaved sample: females (83, 84%); age (46.11 (15.24)); time since loss in months (4.31 (3.50))</p>	<p>Prolonged grief (PG) (both as per ICD-11 and DSM-5-TR)</p>	<p>Traumatic Grief Inventory - Self Report Plus</p>	<p>COVID-19 loss: PGD DSM-5-TR (M = 39.23), PGD ICD-11 (M = 41.47), Unnatural loss: PGD DSM-5-TR (M = 39.63), PGD ICD-11 (M = 42.78). Natural loss: PGD DSM-5-TR (M = 37.52), PGD ICD-11 (M = 38.92)</p>	<p>Expectedness and saying goodbye was associated with differences in PG symptoms between COVID-19 and natural losses</p>
<p><b>Gang et al. (2022);</b> cross-sectional</p>	<p>1470 people in total bereaved of a (extended) family member, spouse, friend, or other. People bereaved of COVID-19 (n = 118). Females (-); age (-); time since loss in months (24.50 (84.40))</p>	<p>Prolonged grief (PG) (as per DSM-5-TR)</p>	<p>Grief Intensity Scale</p>	<p>67% PGD in overall sample (M = 25.1)</p>	<p>COVID-19 losses were associated with probable PGD compared to natural losses (e.g., dementia). Compared to unnatural losses, COVID-19 bereaved people were less likely to meet criteria for PGD</p>
<p><b>Tang et al. (2021);</b> cross-sectional</p>	<p>See <b>Chen &amp; Tang (2021)</b></p>	<p>Prolonged grief (PG) (as per ICD-11), PTSD, anxiety, and depression</p>	<p>International ICD-11 prolonged grief disorder scale, PTSD Checklist for DSM-5, and Hospital Anxiety and Depression Scale</p>	<p>49% PGD (M = 41.58), 22% PTSD (M = 20.84), 70% anxiety (M = 9.37), and 65% depression (M = 10.18)</p>	<p>Shorter time since death was associated with higher anxiety and depressive symptoms. Partner/child loss (vs. other) related to higher PG, anxiety, and depression symptoms. Parental loss (vs. other) related to more severe PG and depression symptoms. Feeling traumatized by the loss related to more PG, anxiety, and depression symptoms. Closeness to the deceased was positively associated with PG and PTSD symptoms. More conflict with the deceased was associated with higher PTSD and anxiety symptoms</p>

**Table 2.** Continued

Citation; study design	Participants	Outcomes of interest	Instruments	Prevalence and severity levels of psychological symptoms	Correlates of psychological symptoms
Tang & Xiang (2021); cross-sectional	See <a href="#">Chen &amp; Tang (2021)</a>	Prolonged grief (PG) (both as per ICD-11 and DSM-5)	International ICD-11 prolonged grief disorder scale, and Traumatic Grief Inventory - Self Report	37.8% PGD ICD-11 ( $M = 41.58$ ), and 29.3% PCBD DSM-5 ( $M = 54.07$ ) <sup>a</sup>	Losing a partner, child, or (grand) parent (vs. other), feeling traumatized by the loss, more conflicts and closeness with the deceased were related to elevated PG
Yaghoubi <i>et al.</i> (2021); cross-sectional	400 people bereaved of a first degree relative due to COVID-19. Female (168, 42.4%); age (43.76 (11.36)); time since loss (64% > 4 months; 36% ≤ 4 months)	Grief experience (GE) (-)	Grief Experience Questionnaire (GEQ)	54.5%, 40.2%, and 5.3% experienced low, moderate, and high GE levels, respectively. ( $M = 67.22$ )	Women, being widowed, unemployed, and primary education level were related to elevated GE reactions. Moreover, GE reactions were elevated when the deceased was male, single, had no underlying diseases, and had a higher rate of recurrent hospitalization

Note. ICD-11 = International Classification of Diseases – Eleventh Edition; DSM-5(-TR) = Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (- Text Revision); PGD = prolonged grief disorder; PCBD = persistent complex bereavement disorder; PTSD = posttraumatic stress disorder; M = mean; - = not applicable because the information was not reported in the study.

<sup>a</sup>Prevalence rates and symptom-levels of PGD and PCBD were based on a subsample of people bereaved six months ago.

*PG:* In two studies acute PG reactions, namely within six months post-loss, were examined. Tang *et al.* (2021) showed self-rated prevalence rates of 49% for acute PG as per PGD ICD-11 criteria. Another study demonstrated self-reported prevalence rates of 29% as per PCBD DSM-5 criteria (Tang & Xiang, 2021). Three studies reported on PG rates at least six months post-loss. Two of these studies demonstrated self-rated prevalence rates of 48% and 30% for PG in line with PG criteria as per Prigerson *et al.* (1995) (Bovero *et al.*, 2022; Downar *et al.*, 2022, respectively). A third study included self-rated prevalence rates of 38% for PG according to PGD ICD-11 criteria (Tang & Xiang, 2021).

*Pandemic grief:* Three studies examined grief reactions following a COVID-19 loss based on the Pandemic Grief Scale (Lee & Neimeyer, 2022) (Breen *et al.*, 2021, 2022a, 2022b). Self-rated prevalence rates of 66%, 69%, and 40% for pandemic grief symptoms were reported, respectively.

*Depression:* One study showed self-rated prevalence rates of 62% for depression (Breen *et al.*, 2022b). Breen *et al.* (2021) reported self-rated prevalence rates of 74% for depression. A third study indicated self-rated prevalence rates of 70% for depression (Tang *et al.*, 2021).

*Anxiety:* Two studies reported self-rated prevalence rates of 70% for anxiety (Breen *et al.*, 2021; Tang *et al.*, 2021). A third study demonstrated self-reported prevalence rates of 59% for anxiety (Breen *et al.*, 2022b).

*Functional impairment:* Self-rated prevalence rates of 63% were found for functional impairment in Breen *et al.* (2021). Another study demonstrated self-rated prevalence rates of 75% for functional impairment (Breen *et al.*, 2022a). A third study indicated self-reported prevalence rates of 56% for functional impairment (Breen *et al.*, 2022b).

*PTSD:* One study showed self-reported prevalence rates of 22% for PTSD (Tang *et al.*, 2021), whereas a second study indicated self-rated prevalence rates of 83% for PTSD (Breen *et al.*, 2022b).

*Grief experience:* Yaghoubi *et al.* (2021) showed that 45% reported interview-based moderate to high grief experience levels, based on the Grief Experience Questionnaire (Mehdipour *et al.*, 2009).

#### Prevalence of positive psychological outcomes of bereavement due to COVID-19

Merely one out of twelve studies included indicators of positive psychological outcomes of bereavement due to COVID-19 (Chen & Tang, 2021). This study reported on posttraumatic growth levels (PTG;  $M = 66.81$ ;  $SD = 16.71$ ) based on the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) (see Table 2). Following an earlier study that used a cutoff of  $\leq 45$  as none to low PTG levels, and  $> 45$  representing moderate to very high PTG levels (Mazor *et al.*, 2016), PTG levels in Chen and Tang (2021) can be considered moderately high. The objective of the study was to examine profiles of PTG, PG, and PTSD, in COVID-19 bereaved people using latent profile analysis. Prevalence rates of positive psychological outcomes of bereavement due to COVID-19 were not reported.

#### Correlates of negative psychological outcomes of bereavement due to COVID-19

Eleven out of twelve studies reported on correlates of negative psychological outcomes of bereavement due to COVID-19. Most studies reported on COVID-19 stressors ( $k = 6$ ) and concurrent psychopathology levels ( $k = 6$ ), followed by cause of death ( $k = 5$ ), gender ( $k = 4$ ), time since death ( $k = 4$ ), kinship and closeness to the deceased ( $k = 4$ ), age ( $k = 3$ ), expectedness of the death ( $k = 2$ ), and educational level ( $k = 1$ ). No studies reported on correlates of positive psychological outcomes due to COVID-19 bereavement.

*COVID-19 stressors:* Differences in symptom-levels and/or probable caseness of negative psychological outcomes according to COVID-19 stressors were evaluated in six studies (Bovero *et al.*, 2022; Breen *et al.*, 2021, 2022a, 2022b; Downar *et al.*, 2022; Eisma & Tamminga, 2022). Bovero *et al.* (2022) found that being single or widowed during lockdown was associated with probable PG caseness. Funeral attendance and more social support were associated with lower probable PG caseness. Breen *et al.*'s (2021) study showed that being diagnosed with COVID-19 was associated with higher functional impairment levels. Two studies showed that COVID-19 stressors (such as feeling upset that the deceased was not given a proper funeral or memorial service or feeling alone in the grieving process because of social distancing policies) were associated with elevated pandemic grief, functional impairment (Breen *et al.*, 2022a), depression, anxiety, and PTSD symptom-levels (Breen *et al.*, 2022b). Another study revealed that the inability to say goodbye appropriately explained differences in higher PG levels between people bereaved by COVID-19 and natural causes (Eisma & Tamminga, 2022). Lastly, Downar *et al.* (2022) reported that physical presence in the final 48 hours of life of the deceased and intubation of the deceased were not associated with PG symptom-levels.

*Concurrent psychopathology levels:* Six studies examined the association between concurrent psychopathology levels and probable caseness and/or symptom-levels of negative psychological outcomes (Bovero *et al.*, 2022; Breen *et al.*, 2021, 2022a, 2022b; Tang *et al.*, 2021; Tang & Xiang, 2021). Concurrent depression levels were positively correlated with probable PG caseness in a study by Bovero *et al.* (2022). On the contrary, they found that attachment style, anxiety, and stress levels were not associated with probable PG caseness. Breen *et al.* (2021) reported that functional impairment increased by 25% for elevated pandemic grief levels, and 13% for elevated PTSD levels. Two studies showed that disrupted meaning partially explained the association between COVID-19 stressors with pandemic grief, functional impairment (Breen *et al.*, 2022a), depression, anxiety, and PTSD symptom-levels (Breen *et al.*, 2022b). Lastly, two studies found that feeling traumatized by the loss (measured by one item: “How traumatized do you feel by the loss?” on a five-point Likert scale) was associated with elevated (acute) PG (Tang & Xiang, 2021), anxiety, and depression levels (Tang *et al.*, 2021).

*Cause of death:* The difference in symptom-levels and/or probable caseness of negative psychological outcomes according to cause of death was examined in five studies (Breen *et al.*, 2022a; Downar *et al.*, 2022; Eisma *et al.*, 2021; Eisma & Tamminga, 2022; Gang *et al.*, 2022). Three studies found that COVID-19 bereavement was associated with higher acute PG symptom-levels (Eisma *et al.*, 2021; Eisma & Tamminga, 2022) and probable PG caseness (Gang *et al.*, 2022) than natural bereavement, but not to unnatural bereavement. However, another study found no differences between people bereaved from COVID-19, natural, or unnatural causes on pandemic grief and functional impairment levels (Breen *et al.*, 2022a). Lastly, no differences in cause of death (COVID-19, non-COVID-19 illness, pre-COVID-19 illness) and PG levels were found by Downar *et al.* (2022).

*Gender:* Four studies examined the association between gender and negative psychological symptom-levels (Breen *et al.*, 2021, 2022a, 2022b; Yaghoubi *et al.*, 2021). In one study, males showed higher pandemic grief symptoms than females (Breen *et al.*, 2022a). Yet, another study found that females reported higher grief experience levels compared to males (Yaghoubi *et al.*, 2021). Two studies demonstrated that gender was unrelated to functional impairment (Breen *et al.*, 2021), pandemic grief, depression, anxiety, and PTSD levels (Breen *et al.*, 2022b).

*Time since death:* In four samples, the association between symptom-levels of negative psychological outcomes and time since death was studied (Breen *et al.*, 2021, 2022a, 2022b; Tang *et al.*, 2021). One study found that time since death was negatively correlated with levels of pandemic grief, depression, anxiety, functional impairment, and PTSD (Breen *et al.*, 2022b). Time since death was also negatively associated with anxiety and depression symptoms, but not with acute PG or PTSD, in a study by Tang *et al.* (2021). Another study found that time since death was positively correlated with pandemic grief and functional impairment levels (Breen *et al.*, 2022a). Breen *et al.* (2021) reported that functional impairment levels were not correlated with time since death.

*Kinship and closeness to the deceased:* The difference in negative psychological outcomes according to type of kinship and closeness to the deceased was examined in four studies (Breen *et al.*, 2021; Downar *et al.*, 2022; Tang *et al.*, 2021; Tang & Xiang, 2021). The loss of a spouse or immediate family member was significantly associated with higher functional impairment levels compared to other losses (i.e., an extended family member, acquaintance, close friend, and other) (Breen *et al.*, 2021). Another study showed that the death of a spouse or child (vs. other relationship) related to higher symptoms of acute PG, anxiety, and depression (Tang *et al.*, 2021). They also found that subjective closeness to the deceased (assessed with a single item on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much)) was positively correlated with (acute) PG and PTSD levels. Tang & Xiang (2021) demonstrated that losing a spouse, child or (grand) parent (vs. other relationship) and more subjective closeness to the deceased were associated with elevated acute PG symptoms. However, Downar *et al.* (2022) found that kinship to the deceased was not correlated with severity of PG.

*Age:* The association between age of the participant and negative psychological symptom-levels was evaluated in three studies (Breen *et al.*, 2021, 2022a, 2022b). One study reported that age was negatively associated with PTSD symptom-levels, but not with pandemic grief, anxiety or depression levels (Breen *et al.*, 2022b). Two studies showed that age was unrelated to functional impairment (Breen *et al.*, 2021) and pandemic grief levels (Breen *et al.*, 2022a).

*Expectedness of the death:* The association between negative psychological symptom-levels and expectedness of the death was assessed twice (Eisma *et al.*, 2021; Eisma & Tamminga, 2022). In both studies it was found that expectedness of the death was associated with differences in acute PG levels between people bereaved by COVID-19 and natural causes.

*Educational level:* The association between negative psychological symptoms and educational level was examined in one study (Yaghoubi *et al.*, 2021). They showed that primary education (vs. > primary education) was associated with elevated grief experience levels.



*Summary of correlational findings:* Studies showed that a closer relationship to the deceased was associated with elevated psychological symptom-levels (except for [Downar et al., 2022](#)). Furthermore, findings suggest that unexpectedness of the death was related to higher acute PG levels. Findings indicated that being exposed to various COVID-19 stressors is associated with elevated psychological symptoms (except for [Downar et al., 2022](#)). Based on one study, lower educational level was associated with elevated grief levels. No clear inferences can be made regarding the associations between psychological symptoms and gender, age, time since death, cause of death, or concurrent psychopathology levels.

## Discussion

The current study reviewed articles relevant to claims that have been made by many grief researchers regarding the increased risk of experiencing poor mental health consequences after losing a loved one due to COVID-19 ([Breen, 2020](#); [Carr et al., 2020](#); [Eisma et al., 2020](#); [Gesi et al., 2020](#); [Goveas & Shear, 2020](#); [Johns et al., 2020](#); [Jordan et al., 2022](#); [Kokou-Kpolou et al., 2020](#); [Masiero et al., 2020](#); [Mortazavi et al., 2020](#); [Petry et al., 2021](#); [Wallace et al., 2020](#); [Zhai & Du, 2020](#)).

Our first aim was to summarize the findings on prevalence rates of negative psychological symptoms in people bereaved due to COVID-19. Prevalence rates of negative psychological symptoms were primarily reported in terms of (acute) PG, followed by pandemic grief, depression, anxiety, and functional impairment, and varied widely among studies (i.e., 29–49% for acute PG, 30–48% for PG, 40–69% for pandemic grief, 62–74% for depression, 59–70% for anxiety, 56–75% for functional impairment, and 22–83% for PTSD). This wide variability in prevalence rates of psychopathology may be explained by studies using different measures to assess symptoms and due to non-representative study samples. Nevertheless, based on our review, prevalence rates of psychopathology after COVID-19 losses seem much higher compared to rates found after natural losses ([Lundorff et al., 2017](#)), and comparable to unnatural losses ([Djelantik et al., 2020](#)). Yet, despite claims that have been made by many grief researchers, so far, only few studies have examined the psychological consequences of bereavement due to COVID-19. Moreover, the included studies are extremely heterogeneous in terms of research methodology (e.g., different instruments were used to assess psychopathology). Therefore, no clear conclusions can be drawn as to which psychological symptoms are most prevalent in COVID-19 bereaved people.

Our second aim was to summarize studies evaluating indicators of positive psychological outcomes in COVID-19 bereaved people. Only one study reported on PTG levels, while none of the studies reported on the prevalence of positive psychological outcomes. In accordance with Keyes' dual-continua model ([Keyes, 2005](#)), it is however important to focus on both positive and negative psychological outcomes, to gain a more comprehensive picture of the psychological effects of bereavement due to COVID-19. So far, there is no research evaluating both positive and negative psychological outcomes after bereavement due to COVID-19.

The third aim was exploring correlates of psychological outcomes in people bereaved due to COVID-19. Kinship to the deceased and expectedness of the death were most consistently related to psychopathology levels, relative to other background characteristics. People bereaved by a spouse or immediate family member and people who experienced the loss as unexpected, seem to be most strongly affected by the loss. Yet, the association between kinship to the deceased and expectedness of the death with psychopathology levels, was only explored in four and two studies, respectively. Findings of other possible correlates (i.e., gender, age, time since death, cause of death, and concurrent psychopathology levels) of psychopathology levels were contradictory. These findings are more or less consistent with prior reviews showing conflicting associations between gender, age, time since loss and psychopathology ([Djelantik et al., 2020](#); [Heeke et al., 2019](#); [Kristensen et al., 2012](#); [Lobb et al., 2010](#); [Lundorff et al., 2017](#)).

Furthermore, COVID-19 stressors such as not being able to attend a funeral, inability to say goodbye, and alterations in funeral service, seem to be associated with higher psychopathology levels. But, only six studies explored the association between COVID-19 stressors and psychopathology. It is important to point out that based on this review, results about the association between COVID-19 stressors and psychopathology need to be interpreted with caution because the research evidence is scarce.

To our understanding, this is the first study to systematically review findings on indicators of negative and positive psychological outcomes in COVID-19 bereaved people. Nevertheless, it appears that many gaps in the literature remain due to the small number of studies and heterogeneity of the studies. Future research on the psychological effects of bereavement due to COVID-19 may benefit from 1) broadening the scope of research and 2) making improvements in research methodology.

*Broadening the scope of research:* The current review included studies evaluating positive and negative psychological effects of bereavement due to a COVID-19 loss. However, in agreement with our inclusion criteria, only studies were included that aimed to examine mental health in COVID-19 bereaved people, in which the primary outcome was PG symptoms. Accordingly, several studies were excluded in which the primary outcome was other than PG (e.g., Cleofas & Oducado, 2022; Grace, 2021; Katzman & Papouchis, 2022; Scheinfeld *et al.*, 2022; Wang *et al.*, 2022). For future research, it would be interesting to expand the focus of research, to enhance knowledge about the psychological effects of bereavement due to COVID-19.

*Improving research methodology:* First, the generalizability of the findings to all people bereaved due to COVID-19 is limited because of non-probability sampling methods in eleven out of twelve included studies. Non-probability sampling increases the risk of selection bias, restricting generalizability of the results. In addition, several studies relied on relatively small sample sizes of COVID-19 bereaved people (n = 31 in Bovero *et al.* (2022); n = 30 in Downar *et al.* (2022); n = 49 in Eisma *et al.* (2021)), increasing the risk of Type II error. Furthermore, one study relied on a treatment-seeking sample (Breen *et al.*, 2022b) and therefore, results may not be representative of the general population. Future studies should use larger samples and probability sampling methods to give more insights into correlates and psychological effects of bereavement due to COVID-19.

Second, all reviewed studies employed a cross-sectional design. For this reason, no conclusions can be drawn regarding the course and correlates of mental health over time. Studies using longitudinal designs are necessary to acquire knowledge about what factors predict the onset and/or maintenance of negative and positive psychological outcomes over time in people bereaved due to COVID-19. Longitudinal studies are also needed to shed light on mediating or moderating factors of mental health that could be targeted in treating grief-related distress.

Third, all studies but one (Yaghoubi *et al.*, 2021) relied on self-report measures to assess negative and positive psychological outcomes in people bereaved through COVID-19, likely providing an overestimation of symptom severity levels compared to interview-based assessments (Fresco *et al.*, 2001). Future research should use validated clinical structured interviews to evaluate severity levels of psychological outcomes in people who lost a loved one due to COVID-19.

Fourth, comparison of the results is restricted since many different instruments have been used to measure (acute) PG symptoms (and other psychological symptom-levels). Moreover, four studies did not strictly measure PG symptoms according to the ICD-11 or DSM-5-TR (Breen *et al.*, 2021, 2022a, 2022b; Yaghoubi *et al.*, 2021). For that reason, the results of these studies should be interpreted with caution. Future research should aim to harmonize the use of instruments for assessing PG symptoms. The TGI-SR+ (Lenferink *et al.*, 2022) is a self-report survey that can be used to assess PCBD symptoms according to DSM-5 criteria (APA, 2013), and PGD symptoms as per ICD-11 (WHO, 2018) and DSM-5-TR (APA, 2022). An interview version of the TGI-SR+ can also be used, i.e., the Traumatic Grief Inventory – Clinician Administered (TGI-CA; Lenferink *et al.*, preprint).

Fifth, many of the included studies focused on the recent loss of a loved one due to COVID-19 bereaved less than six months ago. Consequently, no formal PGD ICD-11 diagnosis could be established and certainly no PGD DSM-5-TR diagnosis. Therefore, based on this review, conclusions can mainly be drawn about the severity of acute PG in people bereaved due to COVID-19.

## Conclusion

Due to the small number and heterogeneity of studies, our understanding of the psychological consequences following the death of a loved one due to COVID-19 is limited. Yet, we cautiously conclude that 1) prevalence rates and symptom-levels of psychopathology (i.e., (acute) PG, pandemic grief, anxiety, depression, functional impairment, and PTSD) seem elevated in people bereaved due to COVID-19; 2) research into positive psychological effects of bereavement due to COVID-19 is lacking; and 3) people who lost a spouse or immediate family member, experienced the death as unexpected, and/or were exposed to COVID-19 stressors were at greater risk for developing psychological symptoms due to a COVID-19 loss. Moreover, given the conflicting findings on differences in psychological symptoms in people bereaved through COVID-19, natural, and unnatural causes, it may be concluded that losses during the pandemic may precipitate increased psychopathology regardless of the cause of death.

## Data availability

OSF: Prevalence and Correlates of Positive and Negative Psychological Effects of Bereavement due to COVID-19: A Living Systematic Review, <https://doi.org/10.17605/OSF.IO/NQZCW> (Reitsma, 2023).

This project contains the following underlying data:

- Extracted data of included studies.csv (Extracted data of the included studies for this publication).

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).

## Reporting guidelines

OSF: PRISMA checklist and flow chart for 'Prevalence and Correlates of Positive and Negative Psychological Effects of Bereavement due to COVID-19: A Living Systematic Review', <https://doi.org/10.17605/OSF.IO/NQZCW> (Reitsma *et al.*, 2023).

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