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## ABSTRACT

**Introduction** Many people experience lifelong impacts after losing a loved one. Bereavement adaptation, which refers to how people adapt to changes after a death, is crucial for their subsequent life stages. Bereavement experienced during one's childhood or teenage years can be even more challenging, considering the dual burden of bereavement adaptation and developmental tasks. However, no review identifies the risk or protective factors relating to such bereavement adaptation from a lifespan perspective. This review will thus unpack the factors that influence one's long-term adaptation to the bereavement experienced during childhood. This review will identify the risk and protective factors affecting individual adaptation to bereavement experienced during childhood and adolescence within a four-domain framework: mental health, grief, developmental competence and others.

**Methods and analysis** A systematic review and meta-analysis will be conducted based on the search from 24 February to 31 October 2025 in six databases: PsycINFO, PubMed, Web of Science, EMBASE, MEDLINE and Scopus. Only those studies that have specified the risk and protective factors for the bereavement adaptation of children and adolescents will be included. This protocol will follow the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols 2015 statement. Adhering to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 statement, two independent reviewers will conduct the literature search, screening, inclusion and data extraction, and assess the risk of bias using the Risk of Bias 2 tool and Critical Appraisal Skills Programme checklist. A third reviewer will perform the meta-analysis based on the data extracted by the first two reviewers. The effect sizes will be re-examined for each risk factor in the meta-analysis. A random-effects model will be employed to account for variability among studies. Heterogeneity will be assessed, and subgroup analyses will be performed. All the findings will be reported following the PRISMA 2020 statement.

**Ethics and dissemination** Ethical approval is not required for this systematic review and meta-analysis. Only those studies with ethical approval will be included in this review. The results will be shared by being published in a peer-reviewed journal and presented at academic conferences.

**PROSPERO registration number** CRD420250641709.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This review aims to comprehensively and explicitly identify the risk and protective factors of bereavement adaptation in children and adolescents.
- ⇒ This review will precisely examine the effect sizes of various risk and protective factors based on evidence synthesised through a systematic review and meta-analysis.
- ⇒ This review will provide a unique insight into individual bereavement adaptation from a lifespan perspective.
- ⇒ One limitation is that this review will only include publications published in English, which may exclude critical insights reported in other languages.

## INTRODUCTION

### Rationale

The death of family members is a distressing life event for many people.<sup>1</sup> Prior studies revealed the long-lasting effects of bereavement on individuals.<sup>2–4</sup> They typically focused on individual well-being in physical, emotional, psychological and behavioural domains.<sup>5–7</sup> Notably, as with the significant relationship between the age at which individuals encounter grief and bereavement outcomes,<sup>8–9</sup> the distinct impacts of grief on young people should be distinguished from those of adults. In particular, children and adolescents might suffer the dual burden of coping with death while also navigating individual developmental tasks,<sup>10–11</sup> and some studies specifically examined the educational outcomes regarding the individual development of young people.<sup>2–12–13</sup>

According to Sandler *et al*'s work,<sup>14</sup> the outcomes of bereavement for individuals were influenced by the cumulative effects of risk and protective factors at multiple levels (individual, family, community and culture). The process by which bereaved individuals change over time could be best captured as 'bereavement adaptation'. The outcomes of bereavement related to both positive and problematic functions, which



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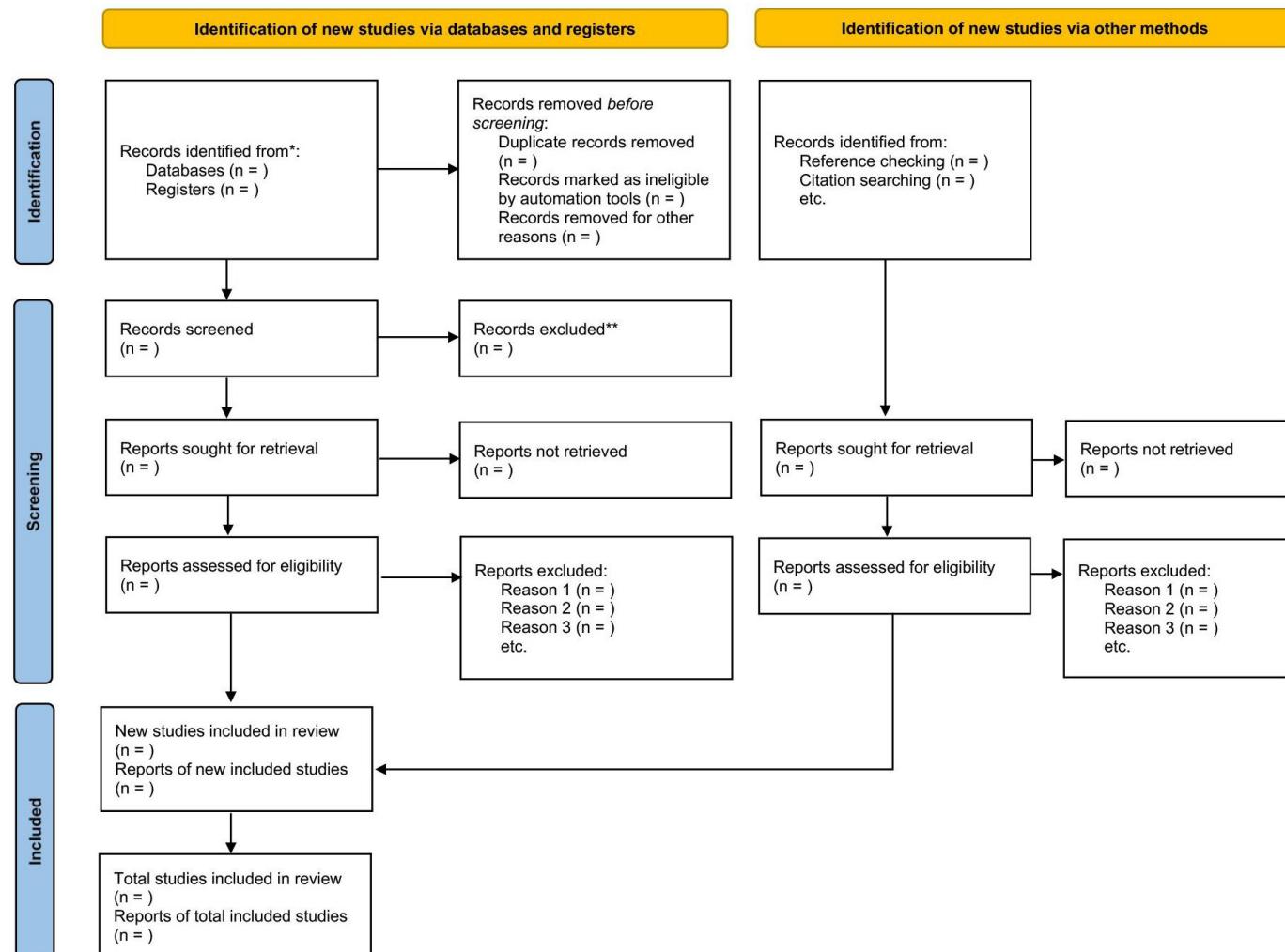
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could be categorised into four domains regarding the adaptation: mental health (eg, anxiety, depression, stress, child abuse, social discrimination, post-traumatic stress disorder, trauma, dissociative disorder, internalising and externalising problems and suicide risk), developmental competencies (eg, education aspiration, job aspiration, peer attachment), grief and others (eg, post-traumatic growth, thwarted belongings).<sup>15</sup> Several studies examined the associated factors that affect how children and adolescents adapt to changes in their daily lives after losing a loved one. For example, the parent attachment style (anxiety and avoidance)<sup>16</sup> and coping strategies employed by the surviving parent<sup>17</sup> play a crucial role in the way that young people cope with grief. Support from family and the community is another important factor.<sup>18</sup> Some other studies concluded that the age of children suffering bereavement and the cause of death (eg, natural or unnatural death) were significant for how children and adolescents adjust to loss.<sup>19-21</sup>

Several review papers identified risk factors considering the outcomes of bereavement, such as gender, causes of the death, mental health issues, socioeconomic

status, religious beliefs, relationship to the deceased and continuing bond.<sup>22-24</sup> While these studies primarily focused on adults, the unique characteristics of children and adolescents may reveal different factors that influence individual adaptation to bereavement. Some other studies concentrating on children mainly explored the bereavement experiences<sup>25</sup> and consequences<sup>26</sup> but did not examine the coping processes for grief. Other reviews examined the impacts of specific factors on bereavement adaptation, such as the external cause of parental death,<sup>8</sup> as well as particular bereavement consequences like educational outcomes<sup>12</sup> and post-traumatic growth.<sup>27</sup> Additionally, a review paper investigates factors influencing childhood bereavement at both individual and environmental levels, including the expression of emotions, coping strategies, access to environmental support and the network of caregivers.<sup>15</sup> Nonetheless, this scope review only outlines the factors related to bereavement due to the death of a parent.

Therefore, research gaps were evident in three ways. First, most previous studies on young people narrowed the scope to the short-term effects.<sup>12 28</sup> Little is known



**Figure 1** Preferred Reporting Items for Systematic Review and Meta-Analysis 2020 flow diagram for updated systematic reviews, which included searches of databases, registers and other sources.

about the long-lasting impacts of bereavement on individuals and their response to bereavement from a lifespan perspective. It might be particularly pivotal to comprehend the bereavement adaptation of younger populations (ie, children and adolescents), considering the long-lasting and cumulative influences of these adverse experiences. Second, despite a tiny group of studies assessing the profound influences of bereavement on individuals,<sup>29–31</sup> the examination of these associated factors was absent in prior review articles elaborating on bereavement adaptation. The pathways of those factors to individual grief responses and adaptation to bereavement have rarely been laid out, not to mention those clarifying long-term impacts in particular. Third, prior studies typically limited their focus to a single type of bereavement or a specific factor affecting bereavement adaptation.<sup>15 27</sup> The underlying variations across individual bereavement adaptation due to different types of loss (eg, parental death and sibling death) and related factors have not been adequately explored. Consequently, a more thorough and coherent review that specifies all risk and protective factors would be highly valuable.

In light of these literature gaps, this review investigates the risk and protective factors affecting how individuals adapt to the grief experienced during childhood or adolescence. This review and meta-analysis will focus on factors for both positive and problematic functions. The outcomes will be evaluated within the four-domain framework that Hoppe *et al* established,<sup>15</sup> including mental health, grief, developmental competence and others. The effects of these associated factors will be examined based on how they change these outcomes. Instead of focusing solely on short-term coping strategies, the review will extend its scope to include the associated factors for the long-term process of adapting to bereavement and how various risk and protective factors impact individuals in multiple dimensions over their lifetime. The effects of these factors on bereavement adaptation will be assessed across multiple life stages, including childhood, adolescence, adulthood and old age. This review will adhere to the guidelines for conducting a systematic review in every aspect, including formulating questions, data synthesis and data reporting.

### Research questions

- What are the risk and protective factors for children and adolescents' adaptation to bereavement after the death of family member(s)?
- What are the effects of the different risk and protective factors on individual adaptation to the bereavement experienced during childhood and adolescence?

### Objectives

This review aims to identify the risk and protective factors that affect the bereavement adaptation of children and adolescents in their later stages through an analysis of bereavement outcomes. The outcomes will be categorised as mental health, grief, developmental competence

and others. We will also examine the effect of various risk and protective factors on individual adaptation to bereavement after the death of a loved one in early life stages.

### METHODS AND ANALYSIS

Following the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols,<sup>32 33</sup> this protocol reports the strategies for conducting a systematic review and meta-analysis of risk and protective factors for individual bereavement adaptation during childhood and adolescence. For the review, we will strictly adhere to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA),<sup>34</sup> using the adapted three-phase PRISMA flow diagram (see figure 1, PRISMA 2020 flow diagram). In accordance with the guidelines, this systematic review and meta-analysis was registered with the International Prospective Register of Systematic Reviews (PROSPERO) on 24 February 2025 (registration number: CRD420250641709). If there were any modifications to this protocol, details and explanations would be justified in the final review of this study.

### Eligibility criteria

#### Inclusion criteria

1. The study subjects should be human.
2. The study should include subjects who have experienced the death of a family member prior to age 18 years.
3. The study should include the factors associated with individuals' responses to bereavement.
4. The study should investigate the mechanism of influence of risk and protective factors on individual response to bereavement.
5. The study should be empirical, including qualitative and mixed-method research for the systematic review.
6. The studies should be observational studies, including retrospective, prospective, cross-sectional, longitudinal and cohort studies.
7. The study should be published in peer-reviewed journal articles.
8. The language of the study is English.

#### Exclusion criteria

1. All subjects in the study do not suffer bereavement under the age of 18.
2. The study does not include the factors associated with how individuals adapt to bereavement.
3. Book chapters, review papers, conference papers and any types of grey literature will be excluded.

The eligibility criteria of this review are framed according to the PICOS framework (Population, Intervention, Comparator, Outcome, Study),<sup>35</sup> aiming to provide a more comprehensive systematic review and meta-analysis grounded in existing quantitative and qualitative research.

## Type of populations

This review will examine the factors that include bereavement adaptation since childhood or adolescence. The participants of the included studies should be individuals who have lost their family members at a young age. We will exclude studies if participants did not experience the death of a family member under the age of 18.

## Type of intervention/exposure

The main exposure is the death of a significant family member during childhood and adolescence. This study will examine bereavement outcomes related to the death of all family members, as the relationship between the bereaved individual and the deceased may significantly influence these outcomes.<sup>36</sup> This would include, but not be limited to, the death of a parent, grandparent or sibling. The type of exposure might be associated with various factors that positively or negatively affect the grief response of bereaved children and adolescents, such as age, environment and interventions that they have received.

## Type of comparator

A comparator is not required for this review. This review seeks to clarify and contrast the effects of grief and the factors influencing individual bereavement adaptation that have been demonstrated in present studies. This review will include studies that focus exclusively on bereaved individuals or samples that involve both those who have experienced grief and those who have not. Consequently, studies with or without comparators will qualify for inclusion in this review. We will include all studies examining factors related to individual bereavement adaptation rather than choosing research based on the inclusion of a comparator.

## Type of outcomes

The studies must include the risk and protective factors for individual bereavement adaptation during childhood and adolescence, such as mental health, developmental competencies, grief and others.<sup>15</sup> The selected studies should also include an analysis of the mechanisms or pathways that determine how the risk and protective factors shape positive and negative functioning in individual grief responses. The effects of multiple risk and protective factors will be examined by comparing the changes in outcomes over time.

## Type of study

The systematic review and meta-analysis will cover empirical studies of qualitative, quantitative and mixed-method research.

## Timing and setting

There are no restrictions on the timing or setting of the interventions for the studies in this review.

## Information sources

The literature search will be performed in six electronic databases: PsycINFO via ProQuest (1806-), PubMed,

Web of Science via Clarivate, EMBASE via Ovid (1947-), MEDLINE via Ovid (1946-) and Scopus.

## Search strategy

To identify the relevant articles as comprehensively as possible, we outlined the proposed key terms for this review after team meetings. We will use a combination of search terms. (1) bereavement or bereave or grief or death; (2) child or children or adolescent or youth or young people or childhood or adolescence; (3) family or parent or sibling or grandparent or relative; (4) effect or affect or impact or influence or outcome or experience or consequence; and (5) risk or protective or associated or association or predict or predictor or mediator or adapt or adaptation or cope.

The literature search starts from February 2025 and is expected to end in October 2025. Following the PRISMA flow shown in figure 1, we will search these key terms in the titles and abstracts to identify and screen articles. Titles and abstracts will be screened in the first round. For example, the first search will be conducted on PsycINFO using the keywords below. The keywords will be searched in the other five databases with proper adjustments according to the specific search requirements of different databases. Additional searches will be conducted using Medical Subject Headings terms for the keywords outlined above (eg, bereavement, grief, child and adolescent) if appropriate. These searches will help improve accuracy and comprehensiveness by targeting articles more precisely and including more related articles.<sup>37</sup> The final review will provide a complete list of full search terms with details.

### Tiab=Title AND Abstract

The search terms: (tiab(bereavement OR bereave OR death OR grief) AND tiab (child OR children OR adolescent OR youth OR young people OR child hood or adolescence) AND tiab(family OR parent OR sibling OR grandparent OR relative) AND tiab(effect OR affect OR impact OR influence OR outcome OR experience OR consequence) AND tiab(risk OR protective OR associated OR association OR predict OR predictor OR mediator OR mediator OR adapt OR adaptation OR cope))

## Study records

### Data management

The data management for this review will be carried out on the website, Covidence. All articles selected and exported from six databases will be imported into the Covidence website for screening. The affiliation of the first two reviewers has the institutional license to use Covidence, and Covidence is one of the most widely used and suitable software tools for screening in a systematic review.<sup>38</sup> A standardised template created by the first two reviewers based on team meetings will then be used to extract data in Microsoft Excel. A third reviewer will

conduct a meta-analysis using the information from the Excel spreadsheets.

### Selection process

Two rounds of screening on the Covidence website will adhere to the specific inclusion and exclusion criteria. In the first round, two reviewers will screen the titles and abstracts independently. All imported studies will be categorised into three types: potentially relevant (Yes), irrelevant (No) and awaiting classification (Maybe). We will specify the reasons for classifying those studies as irrelevant by adding notes on Covidence. For those articles identified as different categories by two reviewers, a second round of screening for titles and abstracts will be conducted separately. Reviewers will include studies with different categories in the full-text review if they cannot reach a consensus after two rounds of voting based on screening titles and abstracts of the studies.

In the second round of screening, the full texts of the studies in the groups of potentially relevant and awaiting classification will be further screened by the first two independent reviewers. Additionally, we will contact the corresponding authors if the articles lack essential information, like sample size or if the supplemental information needed for the analysis is not accessible. Following the full-text screening, two reviewers will discuss the uncertainties regarding the studies identified as awaiting classification. The reasons for excluding the imported studies during the full-text screening will be indicated in a PRISMA flow chart generated on Covidence.

In addition to the studies included in the search results in six databases, two independent reviewers will check the bibliographies, which would help find additional studies to complement the prior electronic search.<sup>39</sup> The citation search will end when no additional relevant studies have been found. Citation search will be adopted as another supplementary search method to locate further important references<sup>40</sup> and add value for evidence retrieval.<sup>41</sup> For those articles that meet the inclusion criteria, we will track citations in Web of Science or Scopus to broaden the scope of the included studies.<sup>42</sup> Any other studies that might be potentially relevant to the research question but have not been included according to the prior search will be imported for screening on the Covidence website. We will then follow the two-round screening procedure introduced above to decide whether they should be included in the review.

### Data collection process

The first two reviewers will perform the data extraction. A data extraction template created on Covidence will be employed based on the discussions of the first two independent reviewers. The information collected during the extraction process is in accordance with the core elements of eligibility, and it will be extracted and encoded into a standardised format. Subsequently, a third reviewer will review the template developed by the first two reviewers to ensure that the data extracted will provide adequate details

in addressing the research questions. Further discussions to modify the data extraction template will be held among three reviewers if there are any discrepancies. For the meta-analysis, the extracted data will be further entered into Excel or other compatible software for organisation and preparation for analysis in Stata software.

### Data items

The data extracted from the included studies will encompass the items below. A summary of these data items will be displayed in a table in the final review.

- ▶ Study characteristics: author(s), year of population year, sample size and country of the study.
- ▶ Types of study design: qualitative, quantitative or mixed-method studies; retrospective, prospective, cross-sectional, longitudinal or cohort studies.
- ▶ Participant characteristics: age, gender and specific bereavement context (eg, the relationship with the deceased family member).
- ▶ Characteristics of the study subjects, which may include information pertinent to the death of a family member, such as age or the individual's life stage and the gender of the bereavement individual.
- ▶ Details of bereavement outcomes for children and adolescents, such as mental health, grief, developmental competencies or others, will be specified. The standardised measurement tools or metrics used to evaluate bereavement adaptation in the studies will also be specified.
- ▶ Details of risk and protective factors associated with the individual's adaptation to bereavement and underlying mechanisms of the adaptation, if any, will be extracted and encoded. Factors identified as potential predictors, such as socioeconomic status and social support, will also be extracted and encoded.

### Outcomes and prioritisation

#### Main outcome

The primary outcome of this review is the risk and protective factors impacting bereavement adaptation in children and adolescents. It includes factors at the individual, family, school or cultural levels<sup>14</sup> and covers multiple facets regarding mental health, grief, developmental competence and others.<sup>15</sup> We will outline the consequences of bereavement and the changes that have occurred since the death of a significant family member for individuals. The long-term effects of risk and protective factors on bereavement adaptation will be examined. In addition, we will categorise these factors as either protective or risk factors in terms of their positive or negative functioning for individual adaptation to bereavement. We will further examine whether and how these factors play a role in the adaptation by assessing the effect size in the meta-analysis.

#### Additional outcome

The additional outcome of this review is the underlying explanations of the risk and protective factors for the bereavement adaptation of children and adolescents,

which will contribute to more appropriate and tailored interventions and support. We will capture the experiences and outcomes of the bereavement of children and adolescents in the selected studies to determine possible explanations for the adaptation process. Moreover, we will review the interpretations of the results and discussions in the selected studies to investigate possible rationales and mechanisms.

### Risk of bias in individual studies

Critical appraisal will be conducted using different tools for quantitative and qualitative evidence.<sup>43</sup> The Risk of Bias (RoB) 2 tool from the Cochrane Collaboration will be used for quantitative evidence from randomised controlled trials. The RoB 2 assesses multiple domains where bias might impact the result, such as the randomisation process, intended interventions, data availability and measurement of outcomes.<sup>44</sup> We will use the Critical Appraisal Skills Programme checklist<sup>45</sup> for the qualitative evidence for quality assessment. We will assess the validation of the results, their details and their values.

Two reviewers will conduct the risk of bias assessment independently. If there is a lack of consensus on certain studies, we will discuss any possible discrepancies. We will then visualise the risk-of-bias assessments in a summary table using the web app robvis.

### Data synthesis

The systematic review will synthesise all empirical studies (quantitative, qualitative and mixed methods). A narrative summary will describe the complex dynamic process.<sup>46</sup> Regarding the risk and protective factors for bereavement adaptation in this review, the types of studies, study subjects, outcomes of bereavement and their changes over time, as well as risk and protective factors for individual responses towards bereavement, will be synthesised in a summary table.

For the meta-analysis, the effect sizes will be calculated for each risk factor using standardised mean differences (SMD) for continuous outcomes and ORs for dichotomous outcomes, along with their 95% CIs. Hedge's g will be applied to adjust for small sample sizes when calculating SMD. A random-effects model will be employed to account for variability among studies due to differences in populations, settings and methodologies. Heterogeneity across studies will be assessed using Cochran's Q statistic to test for heterogeneity. For the  $I^2$  statistic with thresholds interpreted as low (0–25%), moderate (26–50%) and high (>50%) to quantify the degree of heterogeneity, if high heterogeneity is observed ( $I^2>50\%$ ), potential sources will be explored using subgroup analyses or meta-regression. The above results will be presented in forest plots to visually display the pooled effect sizes and heterogeneity metrics; all the analyses will be conducted in Stata V.17.0.

Specifically, subgroup analyses will be performed based on key characteristics such as age group (eg, children, adolescents, adults), type of bereavement (eg, parental loss, sibling loss), geographical region or cultural context.

Furthermore, sensitivity analyses will be conducted to evaluate the robustness of the results by excluding studies with a high risk of bias and removing potential outliers that may unduly influence the results.

### Meta-bias(es)

This review aims to examine the risk and protective factors of individual adaptation to bereavement during childhood and adolescence. Appropriate graphical methods (eg, funnel plots) and statistical methods (eg, Egger's test) will be used to address publication bias.<sup>32</sup> If asymmetry is detected, the trim-and-fill method will be adopted to adjust for potential bias.

### Confidence in cumulative evidence

The strength of evidence in this systematic review and meta-analysis will be assessed by the Grading of Recommendations Assessment, Development and Evaluation tool.<sup>47</sup> This review will follow the introduction summarised by Prasad<sup>48</sup> to upgrade or downgrade the certainty of evidence. For example, for the rating down, we will examine a combination of key factors, including the risk of bias, inconsistency (heterogeneity), indirectness, imprecision and publication bias.

### ETHICS AND DISSEMINATION

This systematic review and meta-analysis will not require ethical approval since the analysis will be based on published journal articles. This review will be limited to studies that obtained ethical approval.

The results will be published in a peer-reviewed journal and presented at academic conferences as part of our dissemination strategy. The results will be disseminated by being presented at academic conferences and published in a peer-reviewed journal.

### DISCUSSION

This systematic review and meta-analysis will examine the risk and protective factors influencing how individuals adapt to bereavement during childhood and adolescence. To the best of our knowledge, this review innovatively provides a unique perspective on how young people respond to the death of family members and the resulting changes from a lifespan perspective, thereby facilitating the analysis of their long-term bereavement outcomes and grieving reactions. This review also seeks to contribute to the future provision of tailored and evidence-guided interventions for bereaved children and adolescents, considering the potential mechanisms of risk and protective factors on bereavement adaptation throughout the lifespan.

This review will address three critical research gaps by drawing on relevant existing studies. The first one relates to the novel perspectives on the long-term and cross-life course consequences of bereavement encountered during childhood and adolescence.<sup>29 30</sup> The second

one is to evaluate the effect of multiple risk and protective factors of bereavement adaptation based on a meta-analysis.<sup>14-15</sup> The last one serves as a foundation for the long-term prediction of bereavement outcomes in individuals by examining the risk and protective factors of their bereavement adaptation. These results would be crucial for future research and practice regarding interventions and support for bereaved individuals.

However, this systematic review and meta-analysis protocol may have limitations. It will only include publications published in English, which may exclude important insights related to bereavement adaptation found in articles written in other languages that reflect unique societal contexts.

**Contributors** Under the supervision of YC, JZ, WSH and MC are the first, second and third reviewers. YC, JZ and WSH contributed to the conception and design of the protocol. MC contributed to the meta-analysis part. JZ and WSH wrote the first draft of the main body of the manuscript, and MC drafted those parts regarding meta-analysis. The manuscript was critically reviewed by JZ, WSH, MC and YC. JZ revised subsequent versions of the manuscript. YC is the guarantor.

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