Review Article

# A systematic review on the protective factors that reduce suicidality following childhood exposure to external cause parental death, including suicide 

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## A R T I C L E I N F O

## Keywords:

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External cause parental death
Suicide
Suicidal behaviour
Exposure
Childhood


#### Abstract

Background: Exposure to parental death in childhood has been associated with increased suicide risk among offspring, although few studies have examined protective factors that reduce suicide risk in this cohort. This systematic literature review aimed to synthesise primary studies on the protective factors that reduce suicidality following childhood exposure to external cause parental death, including suicide. These factors are also regarded as having 'buffering' effects that may promote posttraumatic growth and resilience. Methods: A systematic literature review was conducted in accordance with guidelines from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement. Ovid MEDLINE, Cochrane Library, Ovid PsycINFO, Web of Science, CINAHL via EbscoHost and Ovid EMBASE were searched. Two researchers independently screened the articles, performed data extraction and assessed quality of evidence. Results: Of the 1976 studies identified, 23 were included for review. Most studies provided evidence of individual, interpersonal and environmental-level factors which lower an individual's risk of subsequent suicidality following parental death, including suicide. Five studies made specific reference to resilience and gave evidence that bereaved offspring were well-adjusted and showed normative development. Two studies examined posttraumatic growth suggesting some offspring can develop more prosocial traits through the bereavement process. Limitations: There were limited studies mentioning posttraumatic growth which did not allow researchers to study its development and how it differs or complements the development of resilience. Most studies also had limited sample sizes. Conclusions: Bereaved children have the capacity to adapt to parental death as they transition to adulthood although further research is needed to differentiate individuals who demonstrate resilience from those who exhibit posttraumatic growth.


## 1. Background

### 1.1. Rationale

Suicide, defined as an intentional and self-inflicted death, remains a global public health issue with around 800 thousand deaths per year worldwide (World Health Organisation, WHO, 2018). Globally, an estimated 804,000 deaths per annum are attributed to suicide and suicide is estimated to account for almost three-quarters of violent deaths among females and half of all violent deaths among males (WHO, 2018). These figures are alarming given the plethora of studies which have explored adverse outcomes for individuals bereaved by suicide includ-
ing depression, anxiety and increased risk of suicide ideation and behaviours (Abrutyn and Mueller, 2019; Pitman et al., 2014; Maple et al., 2017). To improve early intervention and prevention efforts, much attention has been focused on identifying antecedents and risk factors for suicidal behaviours such as depression, previous suicide attempts and substance abuse (Cherpitel et al., 2004; Fried et al., 2013).

In addition to Adverse Childhood Events (ACEs) such as abuse, neglect or parental criminality, exposure to parental death in childhood has consistently been identified as a strong risk factor for subsequent suicidal behaviour in adulthood (Agerbo et al., 2002; Cheng et al., 2014; Gravseth et al., 2009; Guldin et al., 2015b; Jakobsen and Christiansen, 2011; Jeon et al., 2013; Kuramoto et al., 2010; MittendorferRutz et al., 2012a; Niederkrotenthaler et al., 2012a; Wilcox et al., 2010).

[^0]It has also been shown that parental death from external causes (which includes suicide), compared with natural causes, may be linked with a greater suicide risk due to the often violent, unexpected and traumatic nature of the death and complex grief experiences for bereaved offspring (Agerbo et al., 2002; Bowlby, 1982).

Childhood exposure to parental suicide in particular may be a significant risk factor for future suicidal behaviour in offspring. This may be somewhat explained by genetic vulnerabilities associated with familial transmission of suicide and psychosocial maladjustment following parental bereavement (Brent and Melhem, 2008; Pitman et al., 2014; Sørensen et al., 2009). Life course epidemiological theories including the critical period hypothesis and life course approach describe childhood as a critical stage of development associated with increased sensitivity to exposures such as the loss of a family member since it may lead to higher immediate stress levels though with fewer coping strategies acquired (Ben-Shlomo and Kuh, 2002; Merlevede et al., 2004). Similarly, adolescence is a developmental period marked by increases in psychiatric disorders and risk of death by suicide, partly due to biologically based changes in brain structures responsible for risk-taking behaviours and sensation-seeking (Oppenheimer et al., 2018).

However, the common focus on predominantly risk-based research has primarily sought to identify precursors for suicide rather than protective factors that reduce suicidality. Hence, they fail to explain why many who are exposed to parental death in childhood may not experience suicidal ideation or attempts throughout adulthood and most individuals who attempt suicide do not die by suicide (Bolton et al., 2008; Johnson et al., 2008). In further support of these heterogeneous outcomes following parental suicide, Cerel et al. (2014) constructed a continuum model of exposure to suicide. This model, which remains untested, depicts the effects of exposure to suicide on a continuum that graduate from the largest group exposure (corresponding with the least severe affect), through to those affected by the suicide death and finally to individuals bereaved in the short or long term (corresponding with the greatest impact of the death). This model illustrated that many people can be exposed to suicide deaths although only a subset of these individuals (the bereaved group) will report adverse effects that may result in suicide risk. Some bereaved individuals may maintain a state of wellbeing and report psychological recovery or resilience which acts as a buffer against the secondary losses, transitions and stressors that accompany parental death (Cheavens et al., 2016). Resilience in this context refers to a return to pre-loss functioning as an individual adapts to significant sources of stress or trauma associated with the death (Bogopolskaya, 2019; Windle, 2011). Beyond resilience, PTG has also been reported in the life pathways of individuals who have been bereaved by suicide (Smith et al., 2011; Tedeschi and Calhoun, 2004), leading to a richer understanding of the self and appreciation of life.

Özer and Buldukoğlu (2020) recently published a systematic review which examined evidence of posttraumatic growth (PTG) among parentally bereaved children and adolescents. The authors found six studies which collectively suggested that parentally bereaved children and adolescents were capable of posttraumatic growth although it was dependent on multiple circumstances including the participants' age, parent's cause of death, closeness of the deceased person and the time that passed after the loss. This review was an important step towards a closer examination of parental death as a specific trauma type during childhood, a critical developmental stage. However, it also highlighted the deficiency in studies examining PTG among children and adolescents and which specific behaviours, cognitions and emotions lead to PTG following the death of a parent through external cause.

### 1.2. Objective

Several existing reviews have provided insight into the increased risk for suicidal behaviours and affective disorders following parental be-
reavement (Andriessen et al., 2016; Geulayov et al., 2012; Hung and Rabin, 2009; Kristensen et al., 2012; Kuramoto et al., 2009; Pitman et al., 2014). No reviews to date have investigated the factors which reduce the risk of suicidal behaviours in adulthood following exposure to external cause parental death in childhood. The current study aims to expand on the review by Özer and Buldukoğlu (2020). This will be done by synthesising and assessing studies which have examined protective factors which specifically reduce suicidal behaviours following childhood exposure to external cause parental deaths, including suicide. The review will also include studies which report on outcomes such as PTG and resilience following external cause parental death if they report on protective factors that reduce suicide risk.

## 2. Methods

### 2.1. Protocol and registration

The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Liberati et al., 2009; Moher et al., 2009) which provides a detailed guideline on the conduct and reporting style for Systematic Reviews and Meta-Analyses. The protocol for this review was registered with PROSPERO 2018 CRD42020158330.

### 2.2. Eligibility criteria

### 2.2.1. Inclusion criteria

Studies that met the following criteria were included in the review:
i primary research studies with full text available;
ii published in peer reviewed English language journals and human studies;
iii qualitative, quantitative or mixed methods research;
iv published within or after 2008; and
v studies which examine protective factors that reduce the likelihood of suicidal behaviours in adulthood following exposure to external cause parental death in childhood, including suicide.

For the purpose of this review, 'exposure' referred to anyone knowing and/or identifying with a parent who died by external causes (Crosby and Sacks, 2002). This included 'intergenerational transmission' and 'parental history' of suicide deaths.

External causes were traditionally defined by Haddon's energyexchange model as: a) the energy delivered in excess of human tolerance (for example mechanical energy in motor vehicle crashes); and b) interference with energy use in normal metabolic functions (for example as occurs in drowning) (Kraus and Robertson, 1992). The model is operationalised in codes Y85-Y84 within the International Classification of Diseases, $10^{\text {th }}$ revision (ICD-10). The categories of external causes of morbidity and mortality include: 1) transport accidents, 2) other external causes of accidental injury, 3) intentional self-harm, 4) assault, 5) event of undetermined intent, 6) legal intervention and operations of war, and 7) complications of medical and surgical care.

In this review, 'childhood exposure' referred to exposure up to age 18, including adolescence, in alignment with several previous studies (Berg et al., 2016; Rostila et al., 2016).

The primary outcome of this review was absence of suicide deaths (lethal suicide attempts) or suicidal behaviours (attempts and ideation) among bereaved individuals. A suicide attempt occurs when an individual deliberately causes harm to him or herself with at least some intent to die (this also includes self-inflicted poisoning or injury-suicide attempted, as defined by the ICD-10). Suicide attempts exclude nonsuicidal self-injury which refers to self-injurious behaviour in the absence of suicidal intent (Miller et al., 2013). Suicidal ideation is defined as thoughts about engaging in behaviours intended to end one's life and can vary from fleeting thoughts about death to plans for suicide (Vander Stoep et al., 2009).

Table 1
Search strategy used in Ovid MEDLINE.

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Database: Ovid Medline
Search strategy:
    1. maternal deprivation/ or paternal deprivation/ or parental death/
    2. (suicid*.tw. or parasuicide*.tw. or homicid*.tw. or murder*.tw. or death*.tw. or loss*.tw. or bereave*.tw. or deprivation.tw. or unintentional injur*.tw. or
        "unexpected death".tw. or "unnatural death".tw.) adj3 (parent*.tw. or maternal.tw. or paternal.tw. or mother*.tw. or father*.tw. or caregiver*.tw. or
        care-giver*.tw. or "significant other*" or "family member*")suicide/ or suicidal ideation/ or suicide, attempted/ or self-injurious behavior/
    3. suicid*.tw. or parasuicide*.tw. or (attempt* adj1 suicid*).tw. or (suicid* adj1 ideation).tw. or (suicid* adj1 behavior*).tw. or self-harm*.tw. or self-poisoning.tw.
    4. "psychological adaptation" OR "psychological support" OR "social support" OR "protective factor*" OR "problem solving"
    5. "resilien*" OR "coping" OR "posttraumatic growth" OR "post-traumatic growth"
    6. positive adj2 (thinking or self-appraisal or protective factor*)
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Secondary outcomes of this review included evidence of successful adaptation to external cause parental bereavement, specifically resilience and posttraumatic growth which have been most commonly studied (Tuazon, 2018). Resilience was defined as an individual's ability to return to normal levels of functioning following adversity (Brewer and Sparkes, 2011). PTG was defined according to the definition by Tedeschi and Calhoun (1996) as a concept referring to personal growth from traumatic events within five major domains: a) greater appreciation of life and changed priorities; b) warmer, more intimate, and meaningful relationships with others; c) increased sense of personal strength; d) recognition of new possibilities for one's life, d) and spiritual development.

### 2.2.2. Exclusion criteria

Studies were excluded from the review according to the following a priori criteria:
i nonprimary empirical research (e.g. reviews, abstracts, editorials, letters, unpublished reports, grey literature);
ii non-human studies and non-English studies;
iii studies published prior to 2008;
iv studies which do not examine protective factors that reduce the likelihood of suicidal behaviours in adulthood following exposure to external cause parental death in childhood, including suicide; and
v studies which focus on euthanasia, assisted suicide or non-suicidal self-harm.

### 2.3. Information sources and search

Three key concepts were identified to guide the development of the search strategy: 1) external cause parental death, 2) suicide and 3) positive outcomes. Search terms (i.e., both indexed [e.g., Medical Subject Headings] and key words) associated with the concepts were derived by and the review team in consultation with a subject matter expert librarian (see example of search strategy in Table 1). As with the review by Hua et al. (2019), an electronic search of databases from the disciplines of medical and health sciences (Ovid MEDLINE, Cochrane Library, Ovid PsycINFO, Web of Science (all databases), EbscoHost CINAHL and Ovid EMBASE) was conducted in February 2020 to locate all available studies. Given the sparse literature on this topic, no limits were imposed on the publication year of studies. In addition, a bibliographic review of included studies and a review of gold set articles was conducted to locate additional studies.

### 2.4. Study selection

Search results were exported into Endnote X8 software and duplicates were removed from the total number of identified records (see Fig. 1). Records were then uploaded to systematic review software Covidence and two reviewers ( $\mathrm{PH}, \mathrm{CH}$ ) independently screened titles and abstracts against the eligibility criteria. Conflicts were resolved by a third reviewer (LB).


Fig 1. Study selection flow diagram.

Two reviewers (PH, CH) then independently applied the eligibility criteria to the full texts of the included articles to select studies for this review. A bibliographic review of included studies, as well as a review of gold set articles was conducted to identify additional relevant studies. Any conflicts between the two reviewers were resolved by a third author (LB).

### 2.5. Data collection process and data items

A full-text review of each included study was conducted by one author ( PH ) and the following data items were extracted into a pretested data extraction sheet: author, country, year, study aim, participant demographics, setting, research design and methodology, outcomes, salient findings and quality assessment rating). A second author (LB) reviewed the data extraction, and disagreements were resolved via consensus.

### 2.6. Quality of evidence

The Joanna Briggs Critical Appraisal Tools (Moola et al., 2015) were used by two reviewers ( $\mathrm{PH}, \mathrm{CH}$ ) to independently assess, in duplicate, the quality of included studies. As the designs of the studies were different from each other, the appropriate critical appraisal tools were used for each study. Conflicts between reviewer's assessments were resolved by a third reviewer (SW). These tools assess the methodological quality of a study and the extent to which the risk of bias was addressed through its design, conduct and analysis. A score of ' 1 ' was applied for each criteria met on the appropriate tool and ' 0 ' assigned where the criteria was not met or it was unclear to the reviewer. The number of criteria met were tallied to form the quality score for each study. The scores calculated for each study were then converted to a final quality rating of 'low', 'moderate' or 'high' quality. The following Joanna Briggs Critical Appraisal Tools and scoring parameters were implemented in this review: Checklist for Analytical Cross-Sectional Studies (score out of 8; Low 0-2, Moderate 3-5, High 6-8); Checklist for Cohort Studies (score out of 9; Low 0-3, Moderate 4-6, High 7-9); Checklist for Case Control (score out of 10 ; Low $0-3$, Moderate 4-7, High 8-10); Checklist for Qualitative Studies (score out of 10; Low 0-3, Moderate 4-7, High 8-10).

## 3. Results

In this section, a synthesis of the results from included studies on protective factors will be presented within a socio-ecological framework. The socio-ecological framework considers individual, interpersonal and environmental-level factors and has been previously applied to understand risk factors for suicide among parentally bereaved youth (Jakobsen et al., 2011).

### 3.1. Study selection

The review process from identification to inclusion of studies is summarised in Fig. 1 using the PRISMA flow chart. The combined searches identified 1976 articles and 601 duplicates which were removed. There were 203 articles identified for full text review and 172 articles were excluded. Following data extraction, upon agreement from all reviewers, 11 studies were further excluded as they were either the wrong publication type ( $n=3$ ), reported the wrong outcomes ( $n=4$ ) or involved the wrong patient population $(n=4)$. Three studies were added based on a bibliographic review of the included studies (Brewer and Sparkes, 2011; Ratnarajah and Schofield, 2008; Wolchik et al., 2009). Altogether, there were 23 studies which met the inclusion criteria and were included in the review.

### 3.2. Study characteristics

There were 14 cohort studies, four case-control studies, one crosssectional studies and six qualitative studies. Details of each of the included studies are summarised in Table 2. The median sample size was 7875 ( $n$ range: 10 to $1,711,186, \mathrm{SD}=581,308$ ) with a median of $49 \%$ women (range of percentages 19-90) and median of $50 \%$ males (range of percentages 10-52). Eleven studies used data from national registers, 10 used self-report methods (four surveys, six interviews), one study
used a range of narrative materials including interviews, memoirs and chat blogs (Hagstrom, 2019) and one study used threads of communication from a website (Hagstrom, 2017).

Studies were conducted in various countries including Australia (Ratnarajah et al., 2014; Ratnarajah and Schofield, 2008), China/Vietnam (Blum et al., 2012), Denmark (Hoeg et al., 2018; Jakobsen et al., 2011), Denmark, Sweden and Finland (Guldin et al., 2015a), Finland (Saarinen et al., 2000), Japan (Kasahara-Kiritani et al., 2017), Norway (Burrell, Mehlum, and Qin, 2017; Gravseth et al., 2010), Sweden (Hagstrom, 2017; Kuramoto et al., 2013; MittendorferRutz et al., 2012b; Niederkrotenthaler et al., 2012b; Rostila et al., 2016; Hagström, 2019), Taiwan (Lee et al., 2018), UK (Brewer and Sparkes, 2011; Carr et al., 2019; Shepherd and Barraclough, 1976) and USA (Demi and Howell, 1991; Goldston et al., 2016; Wolchik et al., 2009).

For many studies, the death-related exposure variable was solely parental suicide (Blum et al., 2012; Demi et al., 1991; Goldston et al., 2016; Gravseth et al., 2010; Hagstrom, 2019, 2017; KasaharaKiritani et al., 2017; Lee et al., 2018; Ratnarajah et al., 2014, 2008; Saarinen et al., 2000; Shepherd and Barraclough, 1976). Others included additional external cause deaths under the ICD-10 (Burrell et al., 2017; Kuramoto et al., 2013). Many studies included exposure to natural deaths in addition to external cause deaths, although only results specific to external causes were included in this review (Brewer et al., 2011; Carr et al., 2019; Guldin et al., 2015; Hoeg et al., 2018; Jakobsen et al., 2011; Mittendorfer-Rutz et al., 2012; Niederkrotenthaler et al., 2012; Rostila et al., 2016; Wolchik et al., 2009).

### 3.2.1. Suicide-related outcomes

Given that the review attempted to study protective factors that reduced suicide risk following external cause bereavement, most studies measured suicide-related outcomes including the presence of suicide ideation or attempts. Seven studies assessed risk of suicide mortality. Risk of suicide attempt was assessed in three studies, both ideation and attempt were assessed in three studies, self-harm was assessed in one study and the remaining 11 studies did not include any specific measures of suicide-related outcomes.

### 3.2.2. Positive outcomes

Primary measures of positive outcomes were the absence of suicide deaths and/or reports of suicidal ideation/attempts. Secondary measures of positive outcomes included reports of resilience and posttraumatic growth. Only one study utilised an instrument to measure these outcomes, which was the 21-item Posttraumatic Growth Inventory (Tedeschi and Calhoun, 1996).

### 3.3. Risk of bias within studies

All included studies were assessed for risk of bias, with quality ratings presented in Table 2 . Of the 12 cohort studies, two were assessed to be of 'moderate' quality and 9 were assessed to be of 'high' quality. The studies with 'moderate' ratings (Saarinen et al., 2000; Wolchik et al., 2009; Shepherd and Barraclough, 1976) all had incomplete follow-up. Of the four case-control studies, all were rated as 'high' quality. The cross-sectional study was rated moderate as no confounding factors were identified and the criteria for inclusion was not clearly defined. Of the six qualitative studies, five were rated high quality while one was considered moderate quality (Kasahira-Kiritani et al., 2017) given that there was no acknowledgement of the researchers' potential cultural or theoretical influence on the data.

### 3.4. Results of studies

Similar to risk factors, the protective factors identified could be classified as individual, interpersonal and environmental level factors. Thus, the authors deemed it appropriate to report the results in the context of


meanings and consequences to offspring at
different developmenta stages. different developmental stages.
survivors experienced parental suicide during the developmental periods in whic the rate of suicide attempt is generally
higher than those who are younger,
survivors who lost a parent during early childhood had the highest cumulative risk
for hospitalisation for suicide attempt over the course of
the 30 -year follow-up.

Fertility Database, the Danish
Cause of Death Register, Population
Statistics, Education
tatistics, and National Patien
Register

In-depth interviews
7/10 (Moderate)
Some participants found it helpful to let
out the emotion and express their guilt, regre, anger, or joy, which effectively Confirming connectedness, such as in conversations or cooking with colleagues,
friends, and family provided a sense of security.
Parental suicide may have different
9/10 (High)
The findings indicated that young people who had lost one biological parent showed a signific
The study showed that high income of the
father was an indicator of protective
factors that mitigated the risk of adolescen
suicide attempt following the death of the
mother.

Cause of Death Register
9/11 (High)
Cause of Death Register
Multi-Generation Register
hospitalisation ${ }_{\text {Registry) }}^{\text {(National Inpatient }}$

To study time at risk to suicice attempt hamong offspring of suicide decedents as
compared with compared w
offspring of unintentional injury decedents by their developmental parental death.
$N=26,096$ offsprin
who experienced
parental suicide; 32,395 offspring of unintentional injury decedents, age not
reported, $52 \%$ male, reported, $52 \%$
$48 \%$ female
experienced parental
suicide and offspring of unintentional injury decedents prior to age 2 years 1973 and 2003
-

Individuals bereaved
from suicide of a
parent, spouse, ged 18 years or
$N=3465$ suicid
attempters, age
$79 \%$ female 69,30
$N=24$, aged 40-60
female

Table 2 (continued)
unintentional injury


Parental suicide and other causes of death (natural causes, unknown)

Quality assessment

Central Population Register
Register of Cause of Death
Household and Family Register and
Population Register
Income Statistics Register, the
Population Education Register, the
National Prescription Registry, the
Central Psychiatric Register

Table 2 (continued)

| Study (author, year, country) | Aim | Study population | Study characteristics ( N , age range, sex distribution) | Study design | Exposure variable | Suicide-related outcomes | Results - protective factors | Measures | Quality assessment score |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lee et al. (2018), Taiwan | Investigate the age at exposure to parental suicide and the risk of subsequent suicide completion in young people The impact of parental and offspring sex was also examined | Children who had experienced maternal suicide, paternal suicide, or the suicide of both parents. Each exposed child was matched to 10 children of the same sex and birth year whose parents were still alive. | $N=40,249$ maternal suicide ( $n=14,431$ ), paternal suicide ( $n=26,887$ ), or the suicide of both parents ( $n=281$ ), 398,081 <br> non-exposed, Mean age was 22.3 years (SD 3.7) at suicide completion, and 21.1 years (SD 4.4) at first registered attempted suicide. $52 \%$ male, 48\% female | Cohort | Parental suicide | Suicide death (National registry) | The risk of suicide seemed to be lower in older male offspring ( $\mathrm{HR}=3.94,95 \%$ $\mathrm{CI}=2.57-6.06$ ), but higher in older female offspring (HR = 5.30, 95\% <br> $\mathrm{CI}=3.05-9.22$ ). Stratified analyses based on parental sex revealed similar patterns as the combined analysis. <br> Grandparents caring for grandchildren is culturally encouraged in Taiwan and may have somehow alleviated the psychological impact of losing a parent to suicide at a young age. | Taiwan <br> Birth Registry (1978-1997), Taiwan <br> Death <br> Registry (1985-2009) | 9/11 (High) |
| Mittendorfer- <br> Rutz et al. (2012), <br> Sweden | Investigate the temporal relationship of parental morbidity and mortality with offspring's suicide attempt and whether any such association was modified by offspring's age at attempt | Individuals in Sweden born 1973-1983 with inpatient care due to suicide attempt ( $15-31$ years of age) and with information on both biological parents. Ten controls were matched to each case. | $N=15,193$, aged 15-31, $36 \%$ male, $64 \%$ female 146,224 matched controls | Case-control | Parental mortality including suicide and 'other causes' | Suicide death (Causes of Death Register) | Particularly for women, most parental markers showed the strongest effect sizes if exposure was short-term (within 2 years after exposure) and related to the mother. The effect of exposure to a further parental marker decreased with age at offspring's suicide attempt, namely the long-term effects of parental inpatient care due to psychiatric diagnoses for young men. | Multi-Generation Register (MGR) <br> Causes of Death Register <br> National Patient Register <br> Register of the Social Insurance <br> Agency <br> The Population and Housing Censuses Longitudinal Integration Database for Health Insurance and Labor Market Studies <br> Register of the Total Population | 8/10 (High) |
| Niederkrotenthaler <br> et al. (2012), <br> Sweden | Explore the effects of age at exposure to parental mortality and markers of morbidity on the risks of suicide and attempted suicide in offspring | Individuals born 1973-1983 who committed suicide or were hospitalised due to an attempted suicide were matched to controls by sex, month and county of birth | $N=1407$ individuals born 1973-1983 who died by suicide, $72 \%$ male, $28 \%$ female 17,159 individuals hospitalised due to attempted suicide, 35\% male, 65\% female Mean age was 22.3 years (SD 3.7) at suicide completion, and 21.1 years (SD 4.4) at first registered attempted suicide. | Case-control | Parental suicide and death due to 'other causes' | Suicide death (Causes of Death Register) | A general pattern of increasing risks of suicide and attempted suicide in offspring with decreasing age at exposure to parental risk factors emerged. Risk of attempted suicide in offspring tends to be lower for offspring who are married or cohabiting. | National Patient Register (NPR) or in the Causes of Death Register <br> Multi-Generation Register <br> The Register of the Social Insurance Agency (RSIA) <br> The Population and Housing Censuses Longitudinal Integration Database for Health Insurance and Labour Market Studies <br> Register of the Total Population | 9/10 (High) |
| Ratnarajah et al. (2014). Australia | Explore the recollections of adults who had experienced the suicide death of a family member at some time in their lives The research question guiding this study was: How do individuals within suicide-bereaved families narrate their experience of loss in the context of familial relationships? | Participants bereaved by the suicidal death of a close family relative | $N=18$ <br> Age/sex not reported but includes adults bereaved in childhood | Qualitative narrative perspective | Suicide of family member (including parents) | None | Shared in the narratives were stories of conditions within the family that may have contributed to vulnerability towards persistent negative feelings about their lives, their family, and their future. The study also identifies the strengths of family culture that led to resilience in the suicide bereaved. Those who were bereaved by suicide as children or young adults and who overcame their trauma and accessed education later in adulthood were agentic, as they actively formed their own future. | Telephone or face-to-face interviews | 8/10 (High) |


| Study (author, year, country) | Aim | Study population | Study characteristics ( N , age range, sex distribution) | Study design | Exposure variable | Suicide-related outcomes | Results - protective factors | Measures | Quality assessment score |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ratnarajah et al. (2008), Australia | Explore the short-term and lifelong impact of parental suicide among 10 adults who, as children or adolescents, had lost a parent through suicide | Adults who, as children or adolescents, had lost a parent through suicide | $N=10$, aged $18+$ $10 \%$ male, $90 \%$ females | Qualitative case series | Parental suicide | None | Resilience was gained through identification with the strengths, virtues and values of grandparents and surviving parents who exhibited resilience. Building resilience after a significant loss or trauma involves supporting the individual, family unit and connections to wider society. Weathering of stressors can be enhanced through linkages to wider community. | Qualitative in-depth narrative interviews | 8/10 (High) |
| Rostila et al. (2016), Sweden | Investigate whether parental death during childhood influences self-inflicted injuries/poisoning in young adulthood | National cohort born during 1973-1982 was followed prospectively in the National Patient Discharge Register from age 18 to 31-40 years Parental deaths were divided into deaths caused by (1) external causes/substance abuse and (2) natural causes. | $N=871,402$ <br> Bereaved group: <br> $N=31,618,63 \%$ <br> male, $37 \%$ female. <br> Non-bereaved group: <br> $N=839,784$. <br> Followed <br> prospectively from <br> age 18 to $31-40$ <br> years. 52\% male, <br> $48 \%$ female. | Cohort | Parental death by suicide and other causes including 1) external causes (accidents, homicides) or substance abuse (any psychiatric or somatic disorder associated with alcohol or illicit drug abuse) or 2) deaths by natural causes | Suicide attempt hospital admission (National Hospital Discharge Register) | Men, but not women, were vulnerable to maternal loss before school age. This finding might indicate that girls are better equipped to deal with stressful life events, such as the death of a mother. Girls/women are more prone to discuss grief experiences and intimate feelings with friends and family compared to boys/men, which may assist in coping with the death of a parent. Such behaviours can promote a faster recovery from the bereavement process and result in relatively better long-term consequences for health for women, compared to men. | Multi-Generation Register <br> Cause of Death Register <br> National Hospital Discharge Register <br> Register of the Total <br> Population <br> Educational Register <br> Income and Enumeration surveys <br> National Patient Discharge Register <br> Register of Court Convictions | 8/11 (High) |
| Saarinen et al. (2000), <br> Finland | Conduct a 10 -year prospective follow-up study in suicide survivors, investigating their life courses and mental health status | Individuals who identify as the next-of-kin following suicide of a close relative or friend | $N=104$ <br> Mean age of those interviewed at follow-up was 56.3 years (SD 11.3 years, range 31 to 87 years). Sex distribution N/A | Cohort | Suicide of significant other, including parent | None | Mental symptoms (including suicidal ideation) were reported to have been common after suicide but they had subsided during three years. Life changes associated with the suicide were common, and they could be unfavourable as well as favourable. At the time of the follow-up study, half of the interviewees felt that baseline interviews had helped them to adjust to the suicide. | Semi-structured telephone interviews Structured questionnaires General Health Questionnaire, Beck Depression Inventory | 4/11 (Moderate) |
| Shepherd et al. (1976), United Kingdom | Observe the consequences of suicide for families, especially at the stability of the family, how the surviving parent handled the immediate consequences of the suicide and the long-term effects on health and on behaviour | Children who lost parents to suicide between the ages of 2 and 17 | $N=36$, aged 2-17, <br> followed up after 5 to <br> 7 years <br> Sex distribution N/A | Cohort | Parental suicide | None | Some children appear to cope with the experience of parental suicide without serious consequences; for a few there was relief from an insupportable situation. Patterns of general practitioner consultation reported show differences between children and adults. Parents' consultation rates increased after the suicide and then declined, but the children's rate showed a steady upward trend over the whole period. | Semi-structured interviews with surviving parents | 6/11 (Moderate) |
| Wolchik et al. (2009), USA | Examine predictors <br> of posttraumatic <br> growth in a sample <br> of adolescents and <br> young adults who <br> had experienced <br> parental death in <br> childhood or <br> adolescence | The eligibility criteria were as follows: a) death of a biological parent or someone who had been in the parenting role for at least two years prior to the death; b) death occurred no sooner than 3 months and no longer than 30 months prior to the start of the program; c) at least one youth in the family was between 8 and 16 years old | $\begin{aligned} & N=50 \text {, aged } 14-22, \\ & 46 \% \text { male, } 54 \% \\ & \text { female } \end{aligned}$ | Cohort | Parental death (including suicide and others: heart disease, cancer, other illness, motor vehicle accident, other accident, homicide/other violence. <br> These causes of death were recategorised into two categories) | None | Controlling for time since death, threat appraisals, active coping, avoidant coping, seeking support from parents or guardians, seeking support from other adults were significant predictors of posttraumatic growth six years later. <br> Higher levels of active coping may make it easier for youth to engage the changes that occur after the death, which may promote active constructive cognitive processing, in turn leading to posttraumatic growth. | Postraumatic growth questionnaires <br> - New Possibilities, Relating to Others, Personal Strengths, Spiritual Changes, and Appreciation of Life | 7/11 (Moderate) |

the socioecological model (Bronfenbrenner and Morris, 1998). Applying this model to the current review shows how risk or resiliency factors for suicide exist at various levels of a person's ecology and these involve the nested roles of family, peer, school, community and national contexts.

### 3.4.1. Individual-level protective factors

Demographic factors: It appears that pre-exposure factors play a role in shaping a child's response to parental death and how they cope with their loss in the long-term (Brown et al., 2008). These factors include their pre-existing relationship with the deceased parent (Van Dongen et al., 1991). Likewise, pre-existing levels of functioning (i.e. grief responses, internalising and externalising problems), coping mechanisms, beliefs about oneself and relationship with others as well as aspects of their family environment (i.e. parenting style, parent mental health problems) likely influence the child's outcomes following parental death and their need for formal services (Brown et al., 2008).

Demographic factors including age, sex and birth order can also serve as protective factors in some circumstances. Lee et al. (2018) found evidence that young children who were exposed to external cause parental death did not have a higher suicide risk compared to exposed adults. The authors suggested one of the reasons is that children who experience the death of a parent at a very young age are not mature enough to fully understand the gravity of their loss or the meaning of suicide stigma. The authors also identified that a higher prevalence of three-generational families in Taiwan, the country where the study was located, provides bereaved children with additional carers including grandparents which may alleviate the psychological impact of parental death in childhood. Gravseth et al. (2010) suggested that children who are firstborn and have enjoyed their mother's undivided attention during the first year(s) of life may be more resilient against suicidal reactions to stressful conditions later in life compared to their siblings. Rostila et al. (2016) found that being female was associated with less vulnerability to maternal loss before school age compared to boys. The authors posited that girls may be better equipped to deal with stressful life events such as the death of a mother because they are more likely to discuss grief experiences and intimate feelings with friends and family compared to boys/men. Blum et al. (2012) found differences in the social support sought by males and females which may further explain disparities in their coping mechanisms after parental death. Males were less likely to seek mental help compared to females but when they did, were more likely to turn to parents and peers while females were more willing to talk to peers and health professionals.

Developmental factors:Developmental factors and lifestage also need to be considered when examining protective factors and likelihood of resilience. Kuramoto et al. (2013) posited that parental suicide conveys different meanings and consequences to offspring at different developmental stages. This may explain the trend observed in the longitudinal study tracking parentally bereaved youth over seven years when they ranged in age from 18 to 26 . Offspring who experienced parental death during adolescence were at greatest risk within one to two years after which the rate of suicide attempts generally decreased across the 30 year follow up period. Earlier youth adjustment problems had faded, further supporting the power of time-after-loss as a protective factor and there were no significant differences between bereaved and non-bereaved youth in terms of self-esteem deficits, substance use, criminal involvements, referrals to mental health services and suicidality. Similar results were reported in other studies (Brewer et al., 2011; Wolchik et al., 2009; Goldston et al., 2016) including Mittendorfer et al. (2012) which found that particularly for women, parental markers showed the strongest effect sizes if exposure was short-term (within two years post-exposure). Likewise, Saarinen et al. (2000) noted that psychiatric symptoms, including suicidal ideation, were reportedly common immediately following suicide exposure but subsided in the following three years. These results may provide evidence of resilience and adaptation to the death as individuals develop greater emotional and behavioural
regulation and/or experience positive changes in their circumstances (Goldston et al., 2016).

Psychological beliefs and attitudes:The bereaved child's attitudes towards grief and how it should be expressed was found to be conducive to their recovery. Demi et al. (1991) found that participants who were open to 'experiencing the pain' and 'healing the pain' rather than 'hiding' it were more likely to report positive outcomes. Hiding the pain tended to interfere with their recovery as it led to unresolved grief and pain throughout adulthood. Similarly, Ratnarajah and Schofield (2008) found that participants who reported self-protectiveness or withdrawal were more likely to report adverse outcomes in adulthood. Active coping, as opposed to avoidant coping was largely linked to posttraumatic growth as it helped individuals respond to the changes that occurred after the death and engage in constructive cognitive processing (Wolchik et al., 2009). They were also more likely to seek and take advantage of new opportunities and possibilities that were presented following a parent's death.

Hagstrom (2019) found that participants who reported a 'meaning searching' approach to suicide loss sought to answer the question of what caused the suicide of their parent, including their internal vulnerabilities and external stressors. Participants who used this approach were more likely to adapt to the loss compared to those who interpreted the suicide according to stigmatising discourses which may elicit feelings of guilt and self-blame.

Changes in the bereaved child's attitude towards life also influenced their recovery in the long-term. Brewer's (2011) qualitative study reported the testimony of a young adult, Will who had experienced the suicide of his mother at age eight. In the interview, Will expressed an appreciation of life, in spite of, or perhaps because of the bereavement he and his brother encountered as children: "When you are happy, you take advantage of that happiness...I think that's the most important thing, you make the most out of life and enjoy it while you've still got it" (Brewer et al., 2011, p 213).

### 3.4.2. Interpersonal-level protective factors

Relationship with deceased:Several studies showed that changes in the bereaved child's pre-death relationship with their deceased parent often impacted on their resilience from suicidal tendencies. Carr et al. (2018) speculated that if the parental suicide was anticipated rather than 'sudden', this may alleviate the adverse impacts on the bereaved offspring. When the suicide is more 'expected', protective measures could have been initiated proactively by significant others or services in the child's life to facilitate adaptive coping mechanisms immediately following bereavement. Likewise, Shepherd and Barraclough (1976) found that the child's relationship with the deceased prior to their death was significantly related to their functioning post-bereavement. There are cases where the deceased parent had contributed to an 'abnormal' home life for the child, for instance as a result of their mental illness and suicidal tendencies. Following their death, some children tended to cope with less serious consequences as the absence of family disruption could provide relief for the offspring.

Relationships with family members and significant others:Multiple studies showed that whether the bereaved child maintained secure attachment with remaining family members and significant others largely shaped their coping mechanisms following parental death. Wolchik et al. (2009) found that bereaved adolescents and young adults who sought support from parents, guardians or other adults were more likely to exhibit PTG six years later as it was linked with attributes they measured such as personal strength, new possibilities and relating to others. In contrast, seeking support from peers or siblings was not related to any dimension of PTG. Guldin et al. (2015) conceded that the psychological health and resilience of the surviving caregiver plays a pivotal role in the child's resources and social networks following bereavement. This was reinforced by Burrell et al. (2017) which found that a strong relationship between the surviving caregiver and bereaved child can enhance the effects of successful bereavement inter-
vention programs. Further, Mittendorfer et al. (2012) emphasised the importance of mothers as critical attachment figures and role models for their offspring, particularly girls. Hence, a strong relationship with a surviving maternal figure serves as a strong protective factor in the long-term recovery from parental loss. However, when communication within families became strained, these conflicts could act as risk factors for suicide (Ratnarajah et al., 2014). Blum et al. (2012) found that bereaved offspring who lived outside the home with relatives or friends were significantly less likely to have suicidal thoughts than those living with parents.

In further support of the critical role families play in a child's recovery post-exposure, Ratnarajah and Schofield (2008) reported accounts of parents and grandparents who reinforced strengths, virtues and values which promoted resilience among bereaved offspring. From their examples, bereaved children may benefit from a phenomenon known as 'cultural identification'. For instance, one participant (Jean) observed that her family line appeared to be 'pioneer stock' who were 'hardworking' and able to survive adversity. Another participant also identified her 'rich cultural heritage' through her parent's actions which ameliorated the effects of her physical deprivation. For instance, they exposed her to a range of literary classics, music, philosophical thought, history, myths and legends. This provided a resource for her following bereavement and guided her own parenting practices. Another participant spoke about the sense of belonging and identity she had with her Irish Catholic family which helped establish her faith from which she drew strength following parental death.

In some situations, there may be signs of posttraumatic growth in the bereaved individual's more distal relationships, for instance, towards others in their community. In Brewer's (2011) qualitative study, a participant mentioned his desire to "help the less fortunate" through the practical skills he'd acquired since his parent's death. The authors perceived this as an example of how the death of a parent in childhood can motivate young people to engage in acts of altruism as they become more acutely concerned about the welfare of others. Similarly, in the qualitative study by Kasahara-Kiritani et al. (2017), one of the participants whose father died by suicide when she was in high school mentioned that sharing the death of her father was a way to communicate and confirm her trust in another person. She revealed, "I shared my secret with someone I trust...because I wanted him/her to understand me and for us to be close to each other. I was telling them, I trust you, without actually saying it in words" (Kasahari-Kiritani et al., 2017, p 451).

Intimate relationships/partnerships: One study (Hoeg et al., 2018) examined the association between parental loss (including by suicide) before age 18 and the formation or separation of marriages and cohabitation in adulthood. The authors found that parental loss was associated with a higher rate of relationship formation for young women, but not men, and higher rates of separation for both men and women. The associations with separation were stronger for persons who lost a parent to suicide compared to other causes. These findings are consistent with other studies which reported that a stable marriage or cohabitation in adulthood and/or having children was a powerful protective factor against suicide in this vulnerable group as a partner can provide resources during difficult times (Burrell et al., 2017; Niederkrotenthaler et al., 2012). However, as with relationships among family members, marriage can also be a situational demand, source of conflict or lack of support. It is noted that the effects found by Hoeg et al. (2018) were relatively small which may be a testimony to the resilience of most children and their capacity to form and maintain intimate relationships in spite of early parental death.

### 3.4.3. Environmental-level protective factors

Access to health services and support groups: Interventions which promote sharing of experiences or public storytelling can serve as strong protective mechanisms. Saarinen et al. (2000) showed that even interview participation including baseline interviews helped participants ad-
just to the suicide as they were referred to appropriate social contacts and were encouraged to avoid social isolation. The authors affirmed that psychological counselling immediately after parental suicide is fundamental to helping survivors adapt. Similarly, Hagstrom (2017) found that platforms such as online forums could be empowering to parentally bereaved individuals as it provided opportunities to reframe their suicide narrative and share and destigmatise lived experiences of bereavement.

Brewer et al. (2011) advocated for the effectiveness of child bereavement services especially in the formative years when bereaved offspring particularly benefited from relationships with peers who they identified with. In addition to attending suicide-bereavement support groups, some individuals expressed their motivation to form support groups to facilitate their own healing as well as to connect with and assist others with similar experiences (Ratnarajah et al., 2014).

Educational and occupational factors:Several studies (Ratnarajah and Schofield 2008; 2014) detailed how individuals who were bereaved by suicide as children and overcame their trauma in adulthood or became 'agentic' typically accessed education to build their own future. One participant spoke about her experience of working full-time whilst studying to gain entrance to tertiary education as an opportunity to learn and grow from her childhood adversity. Several other participants were motivated to undertake tertiary studies in psychology and psychotherapy following their mother's suicide to further understand the factors that lead to suicidal ideation and intent as well as heal the damaging effects the suicide had on their upbringing.

## 4. Discussion

The current review is the first to examine the range of factors that prevent suicidal behaviours and in some instances promote greater perceived resilience and posttraumatic growth among children bereaved by external cause parental death. Most studies reported that bereaved children and adolescents have the capacity to adapt to the external cause death of a parent, including suicide, achieve personal success and cultivate meaningful relationships with others. As with risk factors for suicide, protective factors need to be considered from a biopsychosocial or socio-ecological perspective (Blum et al., 2012) as there are multiple and intersecting individual, interpersonal and environmental characteristics which can prevent suicidal behaviours. It also became apparent that rather than merely presenting with a profile of protective factors, reducing suicide risk is also dependent on the prosocial qualities that emerge from suicide loss. Five studies made specific reference to resilience and gave evidence that bereaved offspring were well-adjusted and showed normative development. Likewise, two studies examined posttraumatic growth, suggesting the development of traits like altruism and greater appreciation of life. The findings from this review can be considered reliable given that a majority of studies were rated as high-quality.

Based on the collective findings, the authors suggested that the extent to which an individual adapts to a parent's suicide can be best understood through a continuum or trajectory model (see Fig. 2 - points of recovery model). This model suggests that individuals may be at low risk of suicide when there are a number of 'protective' factors present however those who develop resilience or posttraumatic growth, which are further along the continuum, are more likely to show long-term adaptation and may even develop more prosocial traits as a result of their loss. Although it is still unclear which behaviours/traits distinguish resilience from PTG, several factors characterised as 'active coping' are known to facilitate progression towards PTG.

As represented in the model, the review identified multiple factors that may lead to positive health outcomes for individuals following parental suicide although some will largely be 'protective' against suicidal ideation/attempts. Other factors will promote resilience and PTG which could have more long-term benefits for individuals. Rather than merely an absence of suicidal tendencies, individuals who develop re-


Fig 2. Recovery points model showing an individual's potential trajectory towards PTG.
silience demonstrate their ability to negotiate, manage and adapt to the loss and return to pre-loss levels of functioning (Windle, 2011). This allows them to meet necessary developmental milestones as they progress through the lifespan. For other individuals, they may not only demonstrate resilience but also derive new learnings and a sense of purpose from acknowledging that their life may have been shattered, but also reconstructed and more meaningful than it would have ever been without their parent's suicide (Moore et al., 2015). It is perhaps this stage of 'recovery' from parental death that is ideal for offspring to reach to ensure long-term protection from suicidal ideation and attempts.

As suggested by the model, a number of demographic characteristics related to the child's age, sex and birth order were considered 'protective' against suicidal thoughts or behaviours. Specifically, older children who were female and the oldest of their siblings showed the lowest risk of suicidality and in support of these findings, the reverse (being a younger, male offspring who is not the first-born) had been identified as risk factors in a previous review (Hua et al., 2019). It appears that the underlying mechanism distinguishing the demographic populations is their coping style. For instance, females are more likely to discuss grief experiences compared to males and seek social support or positive reappraisal which are conducive to recovery (Rostila et al., 2016). However, the mere presence of these demographic factors may not be enough to sustain the child's recovery as there are many confounding situational factors. For instance, although being first born has been distinguished as a 'protective' factor, Guldin et al. (2015) found that a number of firstborn children must assume a parental role for their younger siblings after the death of a parent which could increase their levels of distress. Some children classified as 'first-born' may also the only child in their family and could be more vulnerable to social isolation following parental loss. Additionally, several studies found that pre-existing parent-child relationships were paramount to bereavement outcomes, independent of demographic variables - a turbulent relationship or situations where the death was anticipated tended to alleviate grief responses (Carr et al., 2018; Shepherd and Barraclough, 1976). Likewise, deaths that were 'expected' as opposed to sudden were likely to mitigate the grief response and in some cases provide relief for bereaved offspring. This further confirms that parental suicide should not be seen as a sudden isolated incident, but a major event in a series of stressors for the bereaved child that can culminate in grief but in some cases, the possibility of less burden. All in all, any study of an individual's outcomes following parental death must acknowledge that individual children have distinct biolog-
ical, cognitive and psychological characteristics and unique family and socioeconomic backgrounds that will impact on their capacity to cope with parental death.

Both resilience and PTG can be demonstrated through accounts of individuals who were considered to be well-adjusted and fulfilled educational or occupational commitments as they transitioned from childhood to adolescence (Levi-Belz et al., 2016). Evidence that was specific to 'resilience' were typically signs of normative development and low risk of maladaptive behaviours or health outcomes (Ratnarajah and Schofield, 2008, 2014). However, the studies suggest that for PTG to develop, individuals must be given the opportunity to confront and make sense of their parent's suicide as well as their own response to the loss. It is this interpretation of the loss but also the individual's expression of their bereavement experience that ultimately affects their long-term recovery. A desire to 'heal' the pain and engage in 'meaningmaking', or 'reconstruction' were repeatedly cited (Demi et al., 1991; Hagstrom, 2019) and suggested that how the individual perceives their parent's death and works through grief-related emotions such as guilt and shame largely differentiates offspring who merely return to pre-loss functioning from those who recognise the opportunities for growth in their new circumstances. Their willingness to seek answers to questions of 'why' the suicide occurred also improved their understanding of their parent's vulnerabilities and stressors which suggested the suicide was more 'involuntary' and the parent did not have the capacity to foresee the consequences of their suicide (Hagstrom, 2019). On the contrary, individuals who continued to interpret the suicide according to stigmatising discourses were more likely to report unresolved feelings of guilt and self-blame. Rather than the mere absence of suicidal tendencies, individuals who demonstrated PTG also showed prosocial attributes such as altruism and newfound appreciation of life (Brewer et al., 2011). Altruism was also reflected among bereaved individuals who pursued further study or work opportunities, for instance psychotherapy, that gave them opportunities to understand their grief and facilitate the same growth and healing processes in others (Ratnarajah and Schofield, 2008, 2014).

Open expression of bereavement, rather than 'holding in the pain' created new opportunities for reconstruction of grief. It's crucial to note that expression of grief or self-disclosure did not merely refer to oral storytelling which is commonly observed in therapeutic settings. There are various alternative storytelling platforms (i.e. performance, music and art forms) which still gave participants a positive outlet through which they can channel potentially destructive emotions and narrate


Fig 3. Concentric circles representing an individual's levels of social support.
their grief experience. It remains inconclusive which factors specifically lead to resilience and which may be more conducive to PTG hence the continuum model does not account for this. Future studies in this domain can clarify the factors isolating resilience from PTG and further adapt the existing model.

Social support and integration appears to be relevant at all levels of the continuum of recovery although the extent to which individuals benefit from social support may depend on the nature and strength of the relationships they build and the emotions, behaviours and values that are shared. We can further conceptualise this finding using a model of concentric circles (see Fig. 3) representing the relationships within the bereaved individual's 'inner circle' and the ones they tend to prioritise when seeking support for their bereavement. The model is reinforced by several studies suggesting that PTG is not contingent on just any social support or a large number of social supports. For instance, bereaved individuals may be more reliant on their surviving parents/guardians rather than peers when they wish to disclose painful feelings and receive validation of their grief and guidance on how to make sense of the death (Wolchik et al., 2009). Likewise, surviving parents/guardians are more likely to be seen as 'models' for bereaved offspring and how they portray strength and growth after grief can facilitate the same qualities in their children (Ratnarajah and Schofield, 2008, 2014). The importance of close family ties is also reflected in the findings (Hoeg et al., 2018; Ratnarajah and Schofield, 2008) which exposed the high rate of relationship formation for young women who had endured parental loss in childhood, suggesting their desire to 'replace' the intimate familial relationships they had lost. Further from the individual's inner circle are informal supports and peer relationships which were more frequently cited than formal supports such as mental health services and therapeutic interventions or training programs (Saarinen et al., 2000). It is clear that the bereaved individual may need to have a strong sense of identification with the people they seek support from regarding their suicide loss. This was evident in the studies which suggested that 'cultural identification' with the virtues and values within their family line (Ratnarajah and Schofield, 2008) or a sense of solidarity shared with other suicide survivors in child bereavement services promoted similar prosocial attitudes and behaviours among bereaved offspring.

In evaluating the continuum of protection and how bereaved individuals have progressed, it is important to consider the passage of time that has elapsed since the parent's suicide as well as the developmental stage the child is in. Longer time since parental death and increased un-
derstanding of suicide and its causes, as individuals accelerate through the developmental stages, tends to reduce the risk of suicide (Kuramoto et al., 2013; Mittendorfer et al., 2012; Feigelman et al., 2016). This further highlights the need for a bereavement framework or model that is interpreted in the context of developmental considerations rather than purely bereavement or suicide-related factors. That being said, the quality of an individual's social support may be more important than the mere passage of time after bereavement. This was particularly prominent in Wolchik's (2009) study which showed that time since death was not significantly associated with four of the five dimensions of PTG. In contrast, social support from parent/guardians was associated with PTG.

### 4.1. Strengths and limitations

There were several strengths of this review including the relative consistency in results and robust quality assessment tools used. Most studies relied on large population-based registers and longitudinal cohort designs which increased the statistical power of analyses and representativeness of samples (Burrell et al., 2017; Carr et al., 2019). Nevertheless, for studies that relied on retrospective self-report methods, recall bias could not be avoided, particularly with respect to aspects of parental suicidality (Goldston et al., 2016; Demi et al., 1991).

The review is also limited by small sample sizes in most qualitative studies where researchers had the opportunity to derive evidence of resilience or posttraumatic growth (Ratnarajah and Schofield, 2008, 2014; Kasahira-Kiritani et al., 2017; Brewer et al., 2011). Several of the studies also used highly selective samples including members of support groups (Kasahira-Kiritani et al., 2017) or those attending a bereavement intervention (Brewer et al., 2011) and it is unclear whether the findings regarding PTG apply to bereaved individuals who have not sought similar support services. Large suicide registers used in studies such as Hoeg et al. (2018), variables that are relevant to understanding resilience or PTG such as the quality of parenting care after the death and an individual's relationship with the surviving parent were omitted. As only a few studies examined PTG as a key variable (Wolchik et al., 2009; Brewer et al., 2011), it remains unclear which factors specifically contribute to resilience and which are more conducive to PTG. Further indepth studies using both self-reports and objective assessments of these variables (i.e. ratings by family/friends or significant others) could clarify this distinction (Wolchik et al., 2009). It must also be acknowledged that there is great heterogeneity in the studies identified, particularly in
relation to sample sizes. This is a common limitation in suicide research (Hua et al., 2019), given the sparse literature on this topic and lack of consistency in research designs used.

Although the review included studies that examined all external cause deaths, results on parental suicide tended to be emphasised given the stronger association between exposure to parental suicide and subsequent suicidality. In the interests of developing more targeted interventions, it would be beneficial to address whether there are long-term differences in protective factors for suicide risk between offspring exposed to different modes of parental death. Although suicide, homicide and unintentional injury share some common features (including suddenness and trauma), there are unique stressors that may influence subsequent suicidal outcomes (Kristensen et al., 2012). For instance, homicide involves contact with criminal justice system and often the media which could explain the increased levels of post-traumatic stress disorder compared to unintentional injury or suicide (Currier et al., 2006; Murphy et al., 2003).

### 4.1.1. Implications for practice and future research

The current review identifies the possibility of resilience and PTG after parental suicide which has important implications for theoretical development within this field. As identified in a previous scoping review (Hua et al., 2020), there is a lack of theoretical models of response to traumatic events that includes positive as well as negative outcomes. The current review's findings address biopsychosocial factors that could be used to adapt existing theories of suicide bereavement (Wolchik et al., 2009).

In general, we can consider that there is heterogeneity among individuals who are suicidal and their outcomes overtime and not all individuals will be at greater risk of suicide (Goldston, 2016). The findings also advocate for a narrative orientation in therapeutic interventions for bereaved offspring to encourage individuals to interpret the suicide as a potential result of the deceased parent's internal vulnerabilities and external stressors rather than an outcome of their own existence (i.e. failing in their role as a son/daughter) (Hagstrom, 2017). This can also counteract societal stigma towards suicide by regarding it as a 'spur of the moment' or desperate act without evaluating potential consequences for the grieving family. Practitioners can also adopt strategies described by Tedeschi and Calhoun (2004) in their approach to therapy to promote PTG.

However, by acknowledging an individual's capacity for growth in the face of adversity, and regarding it as a therapeutic goal, clinicians must also be careful that they do not minimise the extreme pain that young people may experience following a parent's death or force onto clients an alternative narrative of their parent's suicide (Carr et al., 2018; Hagstrom, 2017). Rather, the idea is to help bereaved individuals recognise that in their struggle with trauma, there is the possibility of new meanings and positive outcomes. This recognition in itself can initiate healthier coping mechanisms and a brighter outlook on their prospects. Practitioners will also need to consider the influence of time of PTG - in the immediate aftermath of parental death, individuals may be unlikely to conceive any real value in their loss but the intensity of their grief and their recognition of positive changes following bereavement could change overtime (Brewer et al., 2011).

Consistent with previous reviews on risk factors for suicide, a collaborative approach between health and social services in addition to criminal justice agencies is needed to not only manage the elevated risk of adverse health outcomes but also criminal activity as bereaved individuals transition from adolescence to adulthood. Given the importance of familial relationships following parental death, interventions for whole families would be beneficial to maintain open communication and unity. Intimate peer support groups also help normalise young people's grief and loss and seek solace in the similar experiences of other youths. However, it has also become evident that not all young people are comfortable talking about their loss in traditional ways (i.e. in therapeutic settings or support groups). Thus, alternatives to oral storytelling
such as theatre/film performances or writing (memoirs, diary notes, letters to the deceased parent, poetry, music and lyrics, chat forums) and other art forms (painting) can be crucial means of expression of grief that aid growth and healing (Hagstrom, 2017).

## 5. Conclusion

The findings from this review have advanced our understanding of suicide-bereaved individuals and in particular, young people in the earlier stages of development. When considering traditional explanations of suicide bereavement, children are typically considered a 'vulnerable' subgroup who are more sensitive to stressors like parental loss. This is further supported by primarily medical models of suicide such as familial transmission and attachment theory which emphasise the role of genetic vulnerabilities and early separation. However, the review has challenged these theories by showing the capacity for bereaved children to adapt to external cause parental death, particularly in the presence of biopsychosocial protective factors that are conducive to prosocial traits including resilience and PTG. As PTG is known to lead to longer-term recovery from parental bereavement and perhaps provide stronger protection against suicidal thoughts and behaviours, more in-depth research is needed into the dimensions of PTG and its possibility within the vulnerable subgroup of children bereaved by external-cause parental death.

## Declaration of Competing Interest

The authors declare no conflicts of interest.

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