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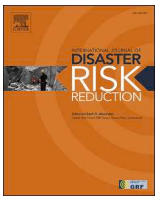

Children and young people's perspectives on disasters – Mental health, agency and vulnerability: A scoping review

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ABSTRACT

Disasters such as flooding, earthquakes and hurricanes can have devastating impacts on children and young people's lives, with evidence highlighting significant social and mental health consequences lasting many years. Yet other research highlights how children and young people actively contribute to disaster responses, supporting their families and communities to manage and overcome such impacts. Despite this evidence, very little research has been conducted directly with children and young people to explore their own perspectives on disasters, including the impacts on their social and emotional wellbeing, as well as their priorities for disaster planning programmes. This paper reports findings from a scoping review that examined the extant evidence base on research conducted directly with children investigating children and young people's (0–18 years) perspectives on disasters. The review identified thirty five relevant papers that were included for further analysis. Review findings highlighted children and young people's fears and anxieties related to their experience of a disaster, with many studies foregrounding negative outcomes and children's 'vulnerability'. In contrast, a limited number of studies focused on children's knowledge, strengths and contributions to disaster responses. Our review highlights how such approaches underscore the importance of harnessing children and young people's perspectives within the development of disaster resilience programmes to support their socio-emotional and mental health.

1. Introduction

Changes to global climates has increased the frequency of catastrophic disasters (e.g., earthquakes, flooding and hurricanes) [1], with significant and lasting socio-economic and health effects on communities and countries [2]. Children and young people are often reported as being especially vulnerable and at risk of adverse outcomes from disasters, with evidence of negative impacts on their mental health, including PostTraumatic Stress Disorder (PTSD), depression and anxiety [3,4,5]. Without denying the documented and devastating effects on children and young people's mental health, rather limited attention has been directed to how children and young people actively respond to disasters and their resilience in such contexts (some exceptions include [6–8]). Indeed, little research exists that has sought to capture their own perspectives on, and experiences of, disasters [4,8]. The Sendai Framework for Disaster Risk Reduction (SFDRR) (UN 2015) and the Child-Centred Disaster Risk Reduction (CC-DRR) underscore the importance of building children's resilience in response to disasters. The latter emphasises the need to promote children and young people's agency and contribution to disaster planning programmes [8–11] and thereby enhance their mental wellbeing in the face of adversity.

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Against this background, we conducted a scoping review to explore the extant evidence base on children and young people's perspectives on disasters and consider the implications for enhancing their mental wellbeing and resilience in response to future disasters. Before detailing our review methods and findings, we provide an overview of recent research that focuses on children and young people and 'natural' disasters – including the reported impacts on their mental health. Although much of the literature continues to refer to 'natural disasters', we acknowledge recent debates about the 'naturalness' of disasters and because of the complex interplay of socio-ecological and political and economic factors that contribute to extreme events [12]. Our review, however, does focus on children and young people's perspectives on ecological and environmental disasters – reflecting the literature to date. Our concluding discussion highlights the significant gaps in the evidence-base and the tendency for much published research to foreground children and young people's inherent 'vulnerability', despite often calling for their agency.

1.1. Disasters and the documented impacts on children and young people

Evidence highlights the profound and lasting social, educational and health impacts a disaster can have on children and young people – including the significant disruption and loses they experience [12], [8,13]), with those from lower socio-economic communities disproportionally affected [6,14]. A large part of the literature examines the negative mental health consequences for children and young people including significant trauma, PTSD, depression and anxiety [15–17], with evidence highlighting the increased prevalence of poor physical and mental health outcomes [18,19]. Research by Gil-Rivas and Kilmer [16], for example, examined children's psychological adjustment following their experience of hurricane Katrina in the USA. This study highlighted how parents' stress levels, and their relationships with their children, can exacerbate symptoms of PTSD for children. Other research highlights behaviour changes such as aggression and irritability [20,21] and a decline in school behaviour and attainment [22]. Arguably, evidence of this kind attests to the pressing need to identify new ways to support children and young people at risk of negative health outcomes from disasters.

Some research has sought to identify how school and community level factors influence children and young people's psychological wellbeing – examining both positive and negative factors [23,24]. Felix et al. [23] found an increased risk of psychopathy for young people aged 11–17 years following the experience of a hurricane, which was associated with their previous exposures to school and community violence. Much of the available evidence has asked adults (most usually parents) to complete assessments and measures of children's wellbeing. For example, research typically asks parents and other adults (e.g., teachers) about the impacts of disasters on their children [25], or uses standardised measures to assess the degree of symptoms and psychopathology [26,27]. Whilst offering important insights into some of the (negative) consequences reported by adults on children's lives, this area of research fails to engage directly with how children and young people report and view the impacts to their own lives.

In part, the paucity of research conducted with children and young people may be a consequence of tricky methodological issues tied to access and recruitment, as well as the ethical sensitivities and concerns about (re)traumatising children by asking them to share their experiences of disasters or because some children may be deemed too young to complete assessments and measures. For example, engaging children in research can mean working closely with 'gatekeepers' (e.g., parents, teachers) who may have their own views about how research with children should be conducted, along with decisions about the 'best' methods to capture their perspectives (see Ref. [28]). The relatively limited engagement of children and young people in disaster research also reflects the broader tendencies to downplay or neglect children and young people's views. However, some (counter) evidence [6,29,30] highlights how children can sensitively and effectively engage in difficult research topics, such as the trauma associated with disasters – highlighting the importance of ensuring children and young people's perspectives are included in events and actions that shape their lives. Indeed, failure to engage with children and young people's own perspectives may mean that disaster resilience programmes remain adult-informed and led, and thus potentially detached from children's own experiences and priorities for their wellbeing.

2. Materials and methods

As our review did not seek to answer a specific question, but rather set out to scope the body of extant literature on children and young people's experiences and perspectives of disasters, we chose to undertake a scoping, rather than a systematic, review [31]. Scoping reviews are considered appropriate when the literature may be 'complex' and where there have not been any comprehensive searches undertaken in the area [32]. We conducted a scoping review using the five-stage approach described by Arksey and O'Malley [32]. This involves, 1) identifying the research topic; 2) identifying relevant studies; 3) study selection; 4) charting the data and 5) collating, summarising and reporting the findings.

2.1. Search strategy

The search strategy (see Table 1) was developed in collaboration with a university liaison librarian who has extensive expertise in undertaking literature searches. In February 2023, we searched three key databases: Web of Science, Scopus, and APA PsycINFO. Key words included *natural disaster* OR earthquake* OR tsunami* OR hurricane* OR flood* OR tornado* OR wildfire* OR cyclone* OR volcanic eruption* AND children AND experiences*. Alternative terms were included with the Boolean operator OR and a proximity operator was used between *children AND experiences* to improve the relevance of results. For example, for the term 'children' we also included OR 'child', OR 'teen', OR 'youth', OR 'adolescent', OR 'young people', OR 'girls' or 'boys'. We searched by title, abstract and keyword.

We used the United Nation's (UN) definition of a child as everyone up to and including the age of 18 years. Eligible studies included those that had been undertaken directly with children and young people (0–18 years) and which report on their perspectives and experiences of disasters. To ensure that we included the most recent literature, we included all primary research published in

Table 1
Search strategies.

Web of Science	Scopus	APA PsycINFO via Ovid
natural disaster* OR earthquake* OR tsunami* OR hurricane* OR flood* OR tornado* OR "wild fire*" OR "wildfire*" OR "bush fire*" OR "bushfire*" OR cyclone* OR "volcanic eruption*" (Topic) and (child* OR schoolchildren OR "young people" OR adolescent* OR teen* OR youth* OR girls OR boys) NEAR/4 (experience* OR perspective* OR perception* OR histor* OR view* OR attitude* OR opinion* OR feel* OR emotion*) (Topic) and qualitative OR interview* OR "focus group*" OR narrative* OR questionnaire* OR survey* OR ethnograph* OR grounded OR thematic OR themes OR "action research" OR phenomenol* OR "mixed method*" (Topic) and Preprint Citation Index (Exclude – Database) and 2023 or 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 (Publication Years) and Patent (Exclude – Document Types)	(TITLE-ABS-KEY (natural disaster* OR earthquake* OR tsunami* OR hurricane* OR flood* OR tornado* OR "wild fire*" OR "wildfire*" OR "bush fire*" OR "bushfire*" OR cyclone* OR "volcanic eruption*") AND TITLE-ABS-KEY ((child* OR schoolchildren OR "young people" OR adolescent* OR teen* OR youth* OR girls OR boys) W/4 (experience* OR perspective* OR perception* OR histor* OR view* OR attitude* OR opinion* OR feel* OR emotion*)) AND TITLE-ABS-KEY (qualitative OR interview* OR "focus group*" OR narrative* OR questionnaire* OR survey* OR ethnograph* OR grounded OR thematic OR themes OR "action research" OR phenomenol* OR "mixed method*")) AND PUBYEAR > 2013 AND PUBYEAR < 2023	1. exp Natural Disasters/2. (natural disaster* or earthquake* or tsunami* or hurricane* or flood* or tornado* or wildfire* or wildfire* or bush fire* or bushfire* or cyclone* or volcanic eruption*).mp. 3. 1 or 2 4. exp Child Attitudes/5. exp Life Experiences/6. (child* or schoolchildren or young people or adolescent* or teen* or youth* or girls or boys).mp. [mp = title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word] 7. 5 and 6 8. ((child* or schoolchildren or young people or adolescent* or teen* or youth* or girls or boys) adj4 (experience* or perspective* or perception* or histor* or view* or attitude* or opinion* or feel* or emotion*)).mp. 9. 4 or 7 or 8 10. 3 and 9 11. exp Qualitative Methods/12. (qualitative or interview* or focus group* or narrative* or questionnaire* or survey* or ethnograph* or grounded or thematic or themes or action research or phenomenol* or mixed method*).mp. 13. 11 or 12 14. 10 and 13 15. limit 14 to yr = "2013 - Current"

peer-reviewed journals from 2013 to the first quarter of 2023 (when the search was undertaken) [33]. Book chapters and conference papers were excluded because it was unclear if these outputs had been peer reviewed and lacked specific details about sampling and methods to ascertain full and accurate details about children's involvement. We acknowledge the limitations of our exclusion criteria in our final discussion. Specific inclusion and exclusion criteria are listed in Table 2.

Table 2
Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Studies undertaken directly with children and young people.	Studies reporting on behalf of children and young people but not undertaken with them.
Children and young people up to and including the age of 18 years.	Participants over the age of 18 years.
Studies reporting on children and young people's experiences and perspectives of disasters.	Studies measuring children and young people's health status.
Published peer reviewed literature using qualitative, quantitative, or mixed methods.	Grey literature Conference papers Book chapters
Studies published in English language	Non-English language

2.2. Screening

The database searches retrieved 507 results after duplicates had been removed. An initial relevancy screening of titles and abstracts was undertaken by both authors to remove all papers that were unrelated to the review objective and inclusion criteria. 407 papers were excluded during this process. The remaining 100 papers were assessed at full-text level by both authors. Following this process, 70 papers were excluded. The primary reasons for exclusion included the ages of the participants not fitting our inclusion criteria, papers not reporting on children and young people's perspectives, papers focussing on an assessment of PTSD or psychological factors and papers that reported on the assessment of an intervention. We undertook citation searches of the remaining 30 papers and identified one additional paper to be included in the review. Four further papers were identified through independent reviewers. Thirty five papers were included in the final qualitative synthesis and review (see Fig. 1 below).

2.3. Critical appraisal

Both authors undertook independent critical appraisal of the included papers drawing on the Mixed Method Appraisal Tool (MMAT) [35]. This tool was chosen as it enables concurrent appraisal of quantitative, qualitative and mixed methods empirical studies. Following independent critical appraisal, the authors discussed the papers and amalgamated their comments. As this was a scoping study, no studies were excluded due to their quality, but comments on study quality are included in the final section of the paper. For example, we noted there was great variance in the quality of included studies, particularly in terms of the methodological reporting and the level of detail when reporting children and young people's perspectives.

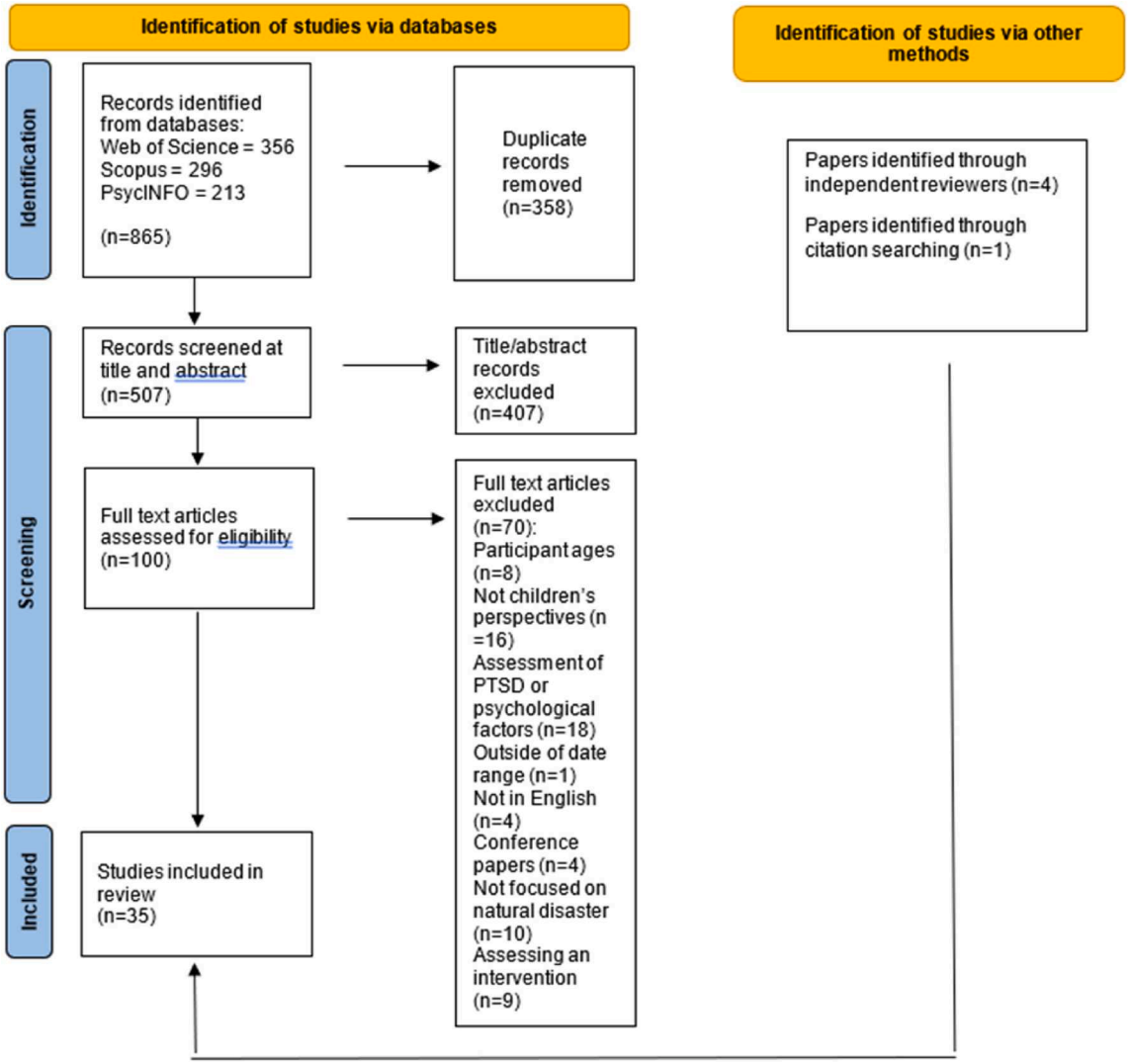

Fig. 1. Preferred reporting items for systematic review and meta-analysis (PRISMA) [34].

2.4. Data charting and thematic review

Data charting is the process of 'synthesizing and interpreting qualitative data by sifting, charting and sorting material according to key issues and themes' ([32], p.26). We devised a table comprising of methodology and methods, participants' ages and gender, type of disaster and geographical location/country, and key findings; and extracted and ordered the data from the 35 papers accordingly (see Table 3 below). The key findings from the papers were then thematically analysed by both authors using the thematic framework approach described by Richie and Spencer [36] to identify key themes in relation to children and young people's experiences and perspectives on disasters.

3. Results

3.1. Types of studies

Of the 35 included papers, 23 reported qualitative studies, six used mixed methods, and six took quantitative approaches to data collection. Methods utilised within the qualitative studies included interviews and focus groups, draw and write techniques, and mapping exercises. Quantitative studies included surveys and structured interviews, with closed questions. The latter arguably setting limits to the possibilities for how children and young people can respond – a point we return to in our final discussion. Mixed methods studies used a combination of surveys, structured interviews, and semi-structured interviews. In these studies, there was often quite limited reporting of children and young people's own perspectives, with studies primarily drawing on small amounts of qualitative data with children and young people to support quantitative findings from adults. Studies included children and young people aged 5–18 years. Most studies reported that they had sought to include similar numbers of boys and girls. However, ten studies did not report gender; two studies reported incomplete gender data and one study did not present gender data in an accessible format. No papers reported on different gender identities beyond that of boys and girls.

Studies were conducted in a range of countries including Nepal (n = 1), Turkey (n = 4), Italy (n = 1), Iran (n = 1), New Zealand (n = 6), Australia (n = 3), USA (n = 3), Canada (n = 2), UK (n = 2), Portugal (n = 2), Indonesia (n = 2), Mexico (n = 1), Pakistan (n = 1), India (n = 1), Bangladesh (n = 1), Zimbabwe (n = 2) Korea (n = 1), Chile (n = 1) and South East Asia (n = 1). The majority of studies focused on earthquakes (n = 14) or flooding (n = 10). Other studies reported children's perspectives on wildfires or bushfires (n = 7), tornados (n = 3) and two papers on tsunamis (n = 2).

3.2. Key themes

Despite the different geographical regions and types of disasters reported, and the different ways in which children and young people's perspectives were elicited and reported, our analysis did identify four broad themes across the studies as follows:

1. Children and young people's emotional responses to disasters;
2. The importance of family;
3. Children and young people's active contributions to disaster responses; and
4. Preparing for future disasters – protective factors and disaster response plans.

3.2.1. Children and young people's emotional responses to disasters

Seventeen papers reported children and young people's emotional responses to disasters, including children's reports of fear, anxiety and worrying about their families. In an arts-based study with 25 children in Portugal, children depicted their emotions in response to wildfires through drawings [57,56]. Children's narratives in relation to their drawings emphasised their fears and the significant concerns for their safety and that of others, such as family members (see also [41,42]). These children also expressed their sadness at the damage to the environment, but also their anger towards adults as they, 'suddenly felt as if they had become part of the adult world, playing an active role in saving lives' (2021: 9). Utilising a similar method with children in Iran, Sadeghloo and Mikhak [58] also reported the significant emotional distress experienced by children as they described feeling terrified, disappointed and 'very sad', witnessing the destruction caused by flooding. Seeing adults upset by the disaster also distressed these children. Varghese et al. [62] reported how children's emotional responses were tied to the degree of loss they experienced following the disaster – in this case, flooding. Children in this study reported losing study materials and pets, the effects of lost school days and the damage to their homes, all of which made it difficult for these children to concentrate. Akhter et al. [37] likewise highlighted children's sense of fear and helplessness during flooding and a tropical cyclone in Bangladesh, with children recalling difficult stories of drowning and death.

Gender differences in children and young people's emotional responses were noted in some studies. Santos-Reyes et al. [60], for example, found that boys expressed less fear than girls did in relation to earthquakes. Similarly, Bedriye [39] reported that girls were more likely to report difficulties with sleeping and showed a reluctance to attend school following an earthquake in Turkey, whilst boys were more likely to report difficulties concentrating in school and showed a reluctance to communicate with people. However, as noted, most included studies did not analyse the effects of gender or did not report samples by gender making it difficult to tease out how the experiences may vary across genders.

In contrast to a focus on the negative emotional impacts, Salawali et al. [59] reported how experiencing an earthquake in Indonesia gave children a sense of purpose and meaning in life. Children reported changing some behaviours to help others after experiencing an earthquake and ultimately sought ways to live a better life – believing that God had given them a second chance. Taylor and Peace [4] also demonstrated evidence of the importance of religion to children and young people's emotional responses. These studies point to some potentially different starting points for the development of support programmes. Indeed, children and young people's emotional responses were found to affect the effectiveness of disaster education programmes in a Korean study by Yeon et al. [63] –

Table 3
Included studies.

Author(s), year	Methodology and methods	Participants (Number, age & gender)	Type of disaster and location
[37]	Qualitative: Phenomenological Interviews, drawing.	n = 17, 5–10 years. No information on gender	Flood, cyclone, water logging, Bangladesh.
[38]	Mixed methods: Parent/child dyad interviews, individual recollections Co-reminiscing exercise.	n = 49, 8–12 years, 49 % girls, 51 % boys.	Tornado, USA.
[39]	Quantitative: Survey.	n = 420, 6–12 years, 49 % girls, 51 % boys.	Earthquake, Turkey.
[40]	Qualitative: Interviews.	n = 94, 5–18 years, 51 girls, 43 boys.	Earthquake, New Zealand.
[41]	Qualitative: Mobile Interviews.	n = 7. No information on ages and gender.	Bushfire, Australia.
[42]	Qualitative: Visual mapping, interviews.	n = 13, 10 years. No information on gender.	Bushfire, Australia.
[43]	Qualitative: Individual and dyad interviews with female caregiver. Data part of larger longitudinal study	n = 122, 12–17 years, 34 % girls, 66 % boys.	Tornado, USA.
[44]	Qualitative: Interviews.	n = 56, 6–18 years, 36 girls, 20 boys.	Tsunami, SE Asia.
[45]	Qualitative: Focus groups.	n = 30, 9–10 years, 18 girls, 12 boys.	Earthquake, New Zealand.
MacDonald-Harker et al., 2021	Mixed methods: The Child & Youth Resilience measure and semi structured interviews utilising arts-based methods.	n = 100, 5–18 years, 55 girls, 45 boys.	Wildfire, Canada.
[46]	Qualitative: Phenomenological interviews.	n = 15, 12–17 years, 8 girls, 7 boys.	Hurricane, storm & tornado, USA.
[47]	Qualitative: Phenomenological interviews.	n = 32, 5–16 years, 16 girls, 16 boys.	Earthquake, New Zealand.
[48]	Qualitative: Phenomenological interviews.	n = 32, 5–16 years, 16 girls, 16 boys.	Earthquake, New Zealand.
[49]	Qualitative: Ethnographic, participatory arts.	n = 30, 6–12 years. No information on gender.	Floods, UK.
[50]	Qualitative: Ethnographic, participatory arts.	n = 30, 6–12 years. No information on gender.	Floods, UK.
Muszenda-Mudavanhu et al., 2016	Qualitative: Focus groups and individual interviews.	n = 40, 8–18 years. Incomplete gender information.	Floods and droughts, Zimbabwe.
[51]	Mixed methods: Questionnaire, focus groups and observations.	Questionnaire n = 480, 9–18 years. No information on gender Five focus groups of 10, 9–18 years (5 girls, 5 boys in each).	Floods, Zimbabwe.
[52]	Qualitative: Focus groups.	n = 31, 16–18 years, 18 girls, 13 boys.	Earthquake, New Zealand.
[53]	Qualitative: Focus groups.	n = 28, 16–18 years, 15 girls, 13 boys.	Earthquake, New Zealand.
[54]	Qualitative: Family interviews.	n = 26, 9–12 years, 16 girls, 10 boys.	Wildfire, Canada.
[55]	Mixed methods cross-sectional: Semi-structured interviews and standardised measures.	n = 127, 7 and 10-years. Gender reported inconsistently.	Earthquake, Italy.
[56]	Qualitative: draw and write technique.	n = 25, 6–11 years. No information on gender.	Wildfire, Portugal.
[57]	Qualitative: draw and write technique.	n = 25, 6–11 years. No information on gender.	Wildfire, Portugal.
[58]	Qualitative: Interviews and drawing/paintings.	n = 34, 6–11 years, 14 girls, 20 boys.	Floods, Iran.
[59]	Qualitative: Interviews.	n = 16, 14–18 years, 13 girls, 3 boys.	Earthquake, Indonesia.
[60]	Quantitative: Survey.	n = 817, 7–14 years, 416 girls, 401 boys.	Earthquake, Mexico.
[1]	Quantitative: Survey.	n = 100, 5–9 years. No information on gender.	Floods, Pakistan.
[4]	Qualitative: Interviews and focus groups, drawings, priority listing, short questionnaires, designing flood plans.	n = 32, 9–13 years. No information on gender.	Floods, Indonesia.
[61]	Qualitative: Focus groups.	n = 87, 8–12 years, 47 girls, 40 boys.	Wildfire, Australia.
[62]	Quantitative: Survey.	n = 670, mean age 16.03 ± 0.73 years, 362 girls, 308 boys.	Floods, India.
[63]	Quantitative: Survey.	n = 3316, 2263 girls, 1053 boys. Middle and high school students. Specific ages not stated.	Earthquake, Korea.
[64]	Mixed method: Questionnaire, PRISM approach, interviews.	n = 809, 11–14 years. 421 girls, 388 boys, 100 children from sample interviewed.	Earthquake, Turkey.
[65]	Mixed method: Questionnaire, PRISM approach, interviews.	n = 425, 11–14 years. 234 girls, 191 boys. 58 children from sample interviewed.	Floods, Turkey.
[66]	Quantitative: Survey.	n = 1335, 11–14 years, 684 girls, 651 boys.	Earthquakes, floods, storms, wildfires. Nepal and Turkey.

(*continued on next page*)

Table 3 (*continued*)

Author(s), year	Methodology and methods	Participants (Number, age & gender)	Type of disaster and location
[67]	Qualitative: Focus groups and individual mapping exercises.	n = 31, 11–18 years. No information on gender.	Evacuation plans in relation to disasters (mainly earthquakes and tsunami), Chile.

with expressions of fear and surprise demonstrating greater effectiveness. Raccanello et al. [55] also reported how exposure to earthquake enriched children's representation of earthquakes, both in terms of knowledge and associated emotions.

3.2.2. The importance of family

Closely tied to children and young people's emotional responses was evidence documenting children's concerns about the safety and wellbeing of their family. The family was found to be important to how children and young people responded in the event of a disaster [67], but also the level of preparedness, risk perception and fear experienced by children [56,42,44,64,68]. In a phenomenological study of children's experiences of a cyclone and flooding in Bangladesh, Akhter et al. [37] highlighted children's felt sense of responsibility for saving their siblings from drowning, triggering feelings of helplessness and fear.

Two related studies explored family factors affecting Post Traumatic Stress Syndrome (PTSS) following exposure to a tornado in the USA [43,38]. Hendrickson et al. [43] explored caregiver-adolescent co-reminiscence following the tornado and concluded that parents' emotional socialisation behaviour, and their abilities to engage in 'child-centred emotional coaching', directly affected their child's experiences and duration of PTSS. Likewise, Abel et al. [38] suggested that the ways in which mothers discussed (or not) disaster experiences with their child had a direct impact on the level of PTSS experienced by the child. This study found that maternal responses to, and validation of, their child's expressions of emotions directly correlated with the level of post-disaster psychological trauma. Family functioning has thus been found to be important in terms of children and young people's responses. For example, Pujadas Botey and Kulig [54] studied family functioning following wildfires in the USA. Their findings from 19 family interviews suggested that children remained relatively apathetic to changes in their routine and social circumstances following the wildfires, which saw many families displaced along with widespread school closures. However, the authors also acknowledged that children might have been reluctant to disclose their fears in the context of a family interview and in order to 'protect' their parents from additional stress.

Protecting family members featured in other studies that focused on children and young people's responses to safety and evacuation plans. In a qualitative study using focus groups and individual mapping exercises, Vasquez et al. [67] reported on the importance of understanding children's responses at school in the context of their families. They found that children often wanted to be with, and protect, their family, which may mean not following school safety plans. Indeed, children's identification of safe zones usually meant being with family, rather than a designated geographical safe space. In a UK based study, Mort et al. [50] highlighted how displacement from the family home affected children's experiences and socio-emotional wellbeing and in particular, the loss of a familiar place. Perhaps unsurprisingly, the family has also been found to impact children's risk perception of disasters and level of preparedness, with some studies reporting low levels of family awareness and disaster planning [56,64]. Other children highlighted how their parents had advised them to take certain action in the event of an earthquake [67].

3.2.3. Children and young people's active contribution to disaster responses

Although much research to date has focused on children and young people's vulnerability to disasters and measures the negative impacts on their mental health, some included studies in this review highlighted children and young people's active responses to a disaster – often supporting community efforts in the aftermath and ensuring the safety and wellbeing of others [41,42,42,53]. Taylor and Peace [4] used a combination of qualitative methods, including focus groups, individual interviews, drawing and priority listing activities to investigate how Indonesian children actively supported local flood responses. In this study, and others [57,56,42,53], children displayed their agency by contributing to clean-up efforts in their school and community. Cultural practices and religion were found to be important in understanding children's contributions, highlighting the role of local government that supported children's inclusion and contribution. Similarly, Sadeghloo and Mikhak [58] found that children actively helped in the response to the floods, protecting others, themselves, and the environment.

In a longitudinal cross-sectional study with children and young people following an earthquake in New Zealand, Pine et al. [53,52], found that volunteering in the local community efforts post disaster enabled children to display their agency. Volunteering was seen as one way to reduce children's negative thoughts and gave them a sense of purpose and control within their communities. Although only a few studies focused on children's agency, these papers do highlight the importance of harnessing children and young people's participation in the development of disaster response plans, including the ways children themselves may prepare themselves (and others) for future disasters.

3.2.4. Preparing for future disasters – protective factors and disaster response plans

Eleven studies focused on how children and young people are, or might be, prepared for a disaster and their thoughts on disaster response plans. Shah et al. [1], for example, examined children's perceptions and knowledge of flood disaster risk management plans in Pakistan. A questionnaire was conducted with 100 primary school children to assess their perceived risk of flooding and the action to be taken in such an event. Although the majority of children had experienced flooding, the study reported that few children seemed to be prepared for future disasters – a finding echoed in the study by Yildiz et al. [65], which highlighted the need to better prepare children. Indeed, children who had participated in earthquake education programmes in Turkey were found to be better prepared,

but once again family communication and information-sharing influenced children's awareness [64], as well as broader socio-economic factors [66]. Similarly, in a study with 87 children in Australia, Towers [61] reported how children's knowledge of bushfires was enhanced when they had been involved in bushfire planning and education programmes (see also [42]). Indeed, misconceptions emerged in children's understandings of fires and safety when they had not been exposed to bushfire education and safety planning. These findings underscored the importance of children and young people's families to school evacuation plans in the event of an earthquake or bushfire, and how children's responses followed their concerns for the family – even if this meant acting against the plan. These studies also highlight the importance of including children and young people in education and awareness of disasters, including how they might prepare for any such event.

Similarly, Muzenda-Mudavanhu et al. [69] found that whilst children's awareness of disasters (e.g., flooding and droughts) was high, their preparedness and coping strategies were low and constrained by the availability of social support and resources within their communities. Mort et al. [50] a [49] explored the experiences of flood-affected children in the United Kingdom. Through a programme of participatory arts-based research with young people, the authors found that children lacked preparedness for flooding, were confused over flood warning systems and evacuation processes, which heightened their sense of fear and vulnerability. The authors suggest that the children were keen to be involved in developing flood prevention and awareness strategies within their communities. Active involvement in future flood preparation was found to be a cathartic process for children impacted by the flood, importantly reframing young people as, 'flood actors rather than flood victims' ([49]: 423).

Six studies reported on protective factors for recovery and minimization of PTSS and, in doing so, aid understanding of ways to support children and young people positively prepare for, and respond to, disasters. For example, in their study of children and young people's coping strategies following the Canterbury earthquake in New Zealand, Mooney et al. [49] found that positive peer relationships were an important protective factor for children and young people, particularly in the school context. Peers were found to provide ongoing mutual support following the earthquake. Similarly, McDonald-Harker et al. [68] reported that peer support is a key determinant of disaster resilience amongst young people. Exploring young people's experiences of wildfire in Canada, the authors reported that peers provided important support during and post disaster through communicating and discussing their experiences together, but also by providing a distraction from the experience of the wildfire by engaging in playful activities with friends. These studies highlighted the importance of community-based responses that include peers and families to support children and young people during and following a disaster.

4. Discussion

This scoping review has aimed to examine the extant international evidence base on children and young people's perspectives and experiences of disasters. Despite widespread emphasis on the importance of eliciting children and young people's views and their rights to participate in matters affecting them [70], our review has revealed the paucity of research conducted directly with children and young people. The limited available research may be a consequence of the assumed ethical and methodological complexities of undertaking research with children and young people on a highly sensitive, potentially traumatic, topic area. Indeed, much of the broader research reporting the impacts of disasters on children takes a focus on PTSD, anxiety and depression and uses standardised instruments measuring psychological distress or is conducted with adults, such as parents, as a proxy measure for understanding the impacts on children. Much of this research has a tendency to foreground and position children and young people as being 'vulnerable' and in need of protection. Whilst offering important knowledge on the prevalence of PTSD and psychological distress, this body of research tells us very little about how children and young people respond to, and experience, disasters within the context of their everyday lives. Such gaps not only leave questions about the best ways to support children and young people, but also how children may take up (or not) key messages from disaster management plans. Evidence reported here suggests that children and young people's reactions are less centred on their own safety and wellbeing, but rather are directed towards their concern for others, especially family members [56,42,44,64,68,67].

The studies reported in this scoping review highlighted the range of children and young people's affective responses and emotions experienced following a disaster. Evidence of children's fears and feelings of loss and sadness highlight the urgency of developing programmes that support their mental health and wellbeing. Crucially, such programmes should be developed within the family context as evidence reported here attests to the significant emotions children and young people experience as a consequence of fears and worries about their family's safety and wellbeing [41,42,44,67]. Indeed, the intensity of such emotions directly shaped children's actions post-disaster with children and young people reporting how they would abort school safety plans to be with their family [67] or how children would act to protect their siblings [37]. These findings suggest that the development of disaster responses and wellbeing interventions outside of the family context may be problematic or less effective, but also point to the active role children and young people can and do take following a disaster to support their families and indeed wider communities (see Ref. [10]).

Perspectives on childhood increasingly foreground the importance of enhancing children's agency [71] and some evidence here has sought to examine how children actively contribute to community-based efforts following a disaster, despite experiencing significant emotions. Such research counters dominant perspectives that have a tendency to define and position children as vulnerable, at risk and in need of protection. Indeed, as discussed, much of the evidence base and related policies describes children and young people as being vulnerable and at heightened risk of negative outcomes following a disaster [72]. The dangers of such framing is that children's assumed inherent vulnerabilities may limit the range of possible resilience programmes that could be developed with children and young people, and which fail to acknowledge how children and young people's socio-cultural positions may undermine their opportunities to act and support community responses [6,73]. Furthermore, such approaches fail to engage with what adults might learn from children and young people and how children's volunteerism contributes positively to disaster responses [72,73] and

thereby neglect a relational analysis of children and young people's agency [7]. Evidence of children's contributions to their families and communities following a disaster highlights the importance of including children and young people in disaster planning, all the while acknowledging the significant emotions children may be experiencing at such a time [10]. A careful balance is thus needed to ensure children's agency is harnessed without inadvertently burdening them with 'adult' responsibilities and making children feel suddenly, 'as if they had become part of the adult world, playing an active role in saving lives' ([56]: 9) at a very difficult and distressing time for children and young people.

4.1. Limitations

Despite offering some important insights into children and young people's perspectives, some caution is offered here with the scope of the literature search and the quality of the evidence base.

First, we recognise some potential limitations with our search strategy. To ensure that we included the most contemporary literature, we did not include any literature beyond our ten-year time span. However, this may have resulted in the exclusion of some potentially relevant literature. Further, conference abstracts (and some book chapters) did not always include the necessary detail to assess their relevance and it was not clear whether book chapters had been peer reviewed and thus, we decided to exclude these sources, which again may have limited our search strategy. Although we did not calculate the agreement between the reviewers, consensus was achieved on all papers screened and included and excluded.

Second, as highlighted, there was wide variation in the quality of the included literature. Some of the papers lacked detail in their methodology and rigour and thus, it was often difficult to ascertain children's ages, genders and if data had been generated directly *with* children and young people, or on behalf of children. Where interviews had been undertaken as part of a parent/child dyad, there was a tendency to more readily report on the adult's perspectives, with children's data offered as an 'add on' to substantiate parents' views (see for example, Pujadas Botey and Kulig [54], Akhter et al. [37]). Further, in terms of reporting children's ages, we made a decision to include studies that had worked with children and young people up to and including the age of 18 years, in line with the UN definition. However, other studies included up to 19 years or used a definition of youth and thus, included those aged up to 24 years or even 35 years. In these cases, many papers were excluded from our review, as it was not possible to disaggregate findings that were directly related to those under the age of 18 years.

5. Conclusion

This paper reports findings from a scoping review detailing evidence of children and young people's perspectives on disasters. Limited good quality research conducted directly with children and young people on their views exists, highlighting the need for further investigation of children and young people's perspectives and experiences. Investigating children and young people's perspectives is a necessary first step towards identifying relevant forms of mental health and wellbeing support that aids children's own abilities to respond to disasters. Evidence reported here highlights the significant emotions children and young people experience in the event of a disaster and their concerns for the safety and wellbeing of their family. Approaches that build children and young people's resilience and support their agency, rather than a focus on their assumed vulnerability, are needed. Crucially, such approaches need to align better with children and young people's own perspectives and experiences.

CRediT authorship contribution statement

Grace Spencer: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Jill Thompson:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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