



This is a repository copy of *What is the effect of intergenerational activities on the wellbeing and mental health of children and young people?: A systematic review.*

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/216263/>

Version: Published Version

---

**Article:**

Campbell, F., Whear, R., Rogers, M. [orcid.org/0000-0002-6039-238X](https://orcid.org/0000-0002-6039-238X) et al. (6 more authors) (2024) What is the effect of intergenerational activities on the wellbeing and mental health of children and young people?: A systematic review. *Campbell Systematic Reviews*, 20 (3). e1429. ISSN 1891-1803

<https://doi.org/10.1002/cl2.1429>

---

**Reuse**

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:

<https://creativecommons.org/licenses/>

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.



[eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk)  
<https://eprints.whiterose.ac.uk/>

## SYSTEMATIC REVIEWS

Children and young persons wellbeing

# What is the effect of intergenerational activities on the wellbeing and mental health of children and young people?: A systematic review

Fiona Campbell<sup>1</sup> | Rebecca Whear<sup>2</sup> | Morwenna Rogers<sup>3</sup>  | Anthea Sutton<sup>4</sup> | Jane Barlow<sup>5</sup> | Andrew Booth<sup>4</sup> | Andrew Tattersall<sup>4</sup> | Louise Wolstenholme<sup>6</sup> | Joanna Thompson-Coon<sup>7</sup>

<sup>1</sup>Institute of Population Health Sciences, Newcastle University, Newcastle, UK

<sup>2</sup>NIHR CLAHRC South West Peninsula (PenCLAHRC), University of Exeter Medical School, Exeter, UK

<sup>3</sup>NIHR ARC South West Peninsula (PenARC) University of Exeter Medical School, University of Exeter, Exeter, UK

<sup>4</sup>School of Health and Related Research, SCHARR, University of Sheffield, Sheffield, UK

<sup>5</sup>Department of Social Policy and Intervention, University of Oxford, Oxford, UK

<sup>6</sup>0-19 Services, Sheffield Childrens NHS FT, Sheffield, UK

<sup>7</sup>Evidence Synthesis Centre, Exeter University, Exeter, UK

**Correspondence**

Fiona Campbell, School of Health and Related Research, The University of Sheffield, Sheffield, UK.

Email: [Fiona.Campbell1@newcastle.ac.uk](mailto:Fiona.Campbell1@newcastle.ac.uk)

**Funding information**

National Institute for Health and Care Research, Grant/Award Numbers: 133097, 133172

**Abstract**

**Background:** Societal changes have led to greater isolation and higher levels of loneliness particularly for older generations. Loneliness is a significant public health challenge leading to increased levels of poor mental health. Depression and anxiety are also increasing in prevalence amongst children and young people. Intergenerational activities are interventions designed to bring together older and younger generations with the purpose of allowing participants to utilise their experiences and skills, and to give participants a chance to experience the pleasure and excitement that occurs with the transmission of knowledge and skills from one generation to another. Intergenerational activities are therefore potential interventions that can address the growing problems associated with loneliness and lack of wellbeing.

**Objectives:** This systematic review aims to examine the impact of intergenerational interventions on the wellbeing and mental health in children and adolescents, and potential harmful effects. It also aims to identify areas for future research as well as key messages for service commissioners.

**Search Methods:** We searched an evidence and gap map published in 2022 (comprehensive searches conducted July 2021 and updated June 2023) to identify randomised controlled trials of intergenerational interventions that report mental health and wellbeing outcomes for children and young people.

**Selection Criteria:** Randomised controlled trials of intergenerational interventions that involved unrelated younger and older people with at least one skipped generation between them and reported mental health or wellbeing outcomes for children and young people were included in this review.

**Data Collection and Analysis:** We used standard methodological procedures expected by The Campbell Collaboration. We conducted data extraction and Cochrane risk of bias assessments in EPPI reviewer.

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2024 The Author(s). *Campbell Systematic Reviews* published by John Wiley & Sons Ltd on behalf of The Campbell Collaboration.

**Main Results:** While we identified 500 evaluations of intergenerational interventions, where the impact on participating children and/or young people was evaluated this was most often limited to assessing their impact on attitudes to aging. We identified five studies evaluating five different types of intergenerational interventions which included one-off sessions to ones that spanned a year measuring their impact on the mental health and wellbeing of children and/or young people. The purposes of the interventions differed, which included promoting social skills, preventing harmful behaviour and promoting learning. The ages of children also varied across the five studies, with one targeting younger children, two targeting younger teenagers and two targeting older teenagers. One study included socioeconomically disadvantaged children, and in the other studies the socioeconomic backgrounds of the children and young people were not described. The outcome measures used to evaluate the interventions varied with none of the studies measuring the same outcomes. One study showed improvements in wellbeing measures, and this was an intervention delivered to children in deprived neighbourhoods, where the intervention duration was for a year allowing the development of a greater depth of relationship between the younger and older participants. Four studies found no..... The included studies were at high risk of bias therefore raising uncertainty in the reliability of the findings. Underpinning theories that supported the development of the interventions and explained the mechanisms of effect were poorly described.

**Authors' Conclusions:** The evidence for the effectiveness of intergenerational interventions on the mental health and wellbeing of children and young people is limited and inconclusive. Few evaluations have sought to measure how intergenerational interventions impact children and young people and where this impact is measured the focus is usually limited to attitudes to aging. The evidence that has been collected is too heterogenous to allow synthesis of the findings. The underpinning theories to support their development are poorly described with no follow-up data to ascertain if benefits are maintained. Intergenerational interventions show promise but researchers have failed to measure how they impact on the mental health and wellbeing of children and young people. This is a serious limitation of the evidence base that needs to be addressed in robust and rigorous evaluations.

#### KEYWORDS

children, intergenerational, interventions, older people, systematic review

## 1 | PLAIN LANGUAGE SUMMARY

### 1.1 | Limited evidence and limited effects of intergenerational activities impact on the wellbeing and mental health of children and young people

#### 1.2 | The review in brief

Only five studies have evaluated the impact of intergenerational interventions on the wellbeing and mental health of children and young people, despite these types of interventions intending to have

benefits for both younger participants, as well as older age participants. There is insufficient and inconclusive evidence to demonstrate that these interventions benefit children and young people. Evaluations need to improve the measurement of the impact of intergenerational interventions on children and young people.

#### 1.3 | What is this review about?

The number of older people experiencing isolation and loneliness has increased in many societies. Loneliness can lead to poor mental and

physical health. Children and young people are experiencing increasing levels of anxiety and poor mental health. Intergenerational interventions aim to bring both older and younger people in purposeful shared activities. Intergenerational in this context means a generation is skipped between the older and younger participants. These have potential to reduce the growth in loneliness and decline in wellbeing for both older and young people. The impact of these types of interventions, and what elements contribute to their effectiveness are important to understand to inform practice and policy decisions.

## 1.4 | What is the aim of this review?

This systematic review aims to identify and summarise all of the existing research that has been designed to explore how intergenerational activities affect the mental health and wellbeing of children and young people.

## 1.5 | What are the main findings of this review?

This review includes only five studies that evaluate the effects of intergenerational activities on the mental health and wellbeing of children and young people. Three studies were undertaken in the USA and two in Europe. The duration of the interventions ranged from 1 day to 1 year. Their purposes also differed including; supporting learning, promoting positive behaviours and reducing harmful behaviours. They targeted different ages of children from younger children to teenagers. None of the studies evaluated the same outcomes so it was difficult to make comparisons between them. One study showed improvements in wellbeing measures, and this was an intervention delivered to children in deprived neighbourhoods, where the intervention duration was for a year allowing the development of a greater depth of relationship between the younger and older participants. Overall, evaluations of intergenerational interventions often fail to measure outcomes in children and young people, and there is not a consistent approach to measuring mental wellbeing outcomes that allows comparison or synthesis of the studies.

## 1.6 | What do the findings of this review mean?

Although intergenerational interventions appear to have promise in improving mental wellbeing of children and younger people, existing evidence is very limited and is inconclusive. Future evaluations should seek to measure the impact on the mental health and wellbeing of children and young people to inform decision making.

## 1.7 | How up-to-date is this review?

State here when the review authors searched for the included studies: 'The review authors' searched for studies up to 2021.

## 2 | BACKGROUND

### 2.1 | The problem, condition or issue

#### 2.1.1 | Description of the condition

Opportunities for social connection between generations in the UK have diminished over recent decades as a result of changes in the way that we live and work (Kingman, 2016; United for all Ages, 2017). Housing and economic changes have seen many younger people move to live in city centres whilst the older generation often live in towns and rural areas. A report published by the Intergenerational Foundation in 2016 (Kingman, 2016) suggests that in the 25 biggest cities within the UK only 5% of people who live in the same neighbourhood as someone under the age of 18 are over 65. Furthermore, even when people from different age groups do live in the same area, the decline in spaces such as libraries, youth clubs and community centres mean fewer opportunities to meet and mix socially with other generations outside their own families. Increased working hours, digital innovations that have excluded older generations, changes in family patterns, relationship breakdowns within families and migration are also believed to be contributory factors to generation segregation (Together, 2020).

There are many potential economic, social and political impacts of generations living separate and parallel lives, for example, higher health and social care costs, an undermining of trust between generations (Brown, 2014; Vitman, 2014), reduced social capital (Laurence, 2016) and a reliance on the media to form understanding of others' viewpoints (Edström, 2018; Vasil, 1993) and higher levels of anxiety and loneliness. Loneliness is a public health concern because of its detrimental impact on health, and in the UK, has led to the appointment of a Minister for Loneliness, to raise awareness of loneliness and help people to build connections and lead happier and healthier lives. Loneliness particularly affects young and older age groups. In the Office for National Statistics Community Life Survey, 2016 to 2017 (Office, 2018), 5% of adults in the UK felt lonely often or always and compared with all other age groups except the 25 to 34 years group those aged 16 to 24 were significantly more likely to report feeling lonely often or always. Social isolation and loneliness are strongly associated with depression, anxiety, self-harm and suicide attempts across the lifespan (John, 2018; Turecki, 2019).

Within this context, intergenerational activities offer important potential benefits for both younger and older people that cannot be underestimated. Intergenerational programmes bring together older and younger people for the purpose of allowing participants to utilise their experiences and skills, and to give participants a chance to experience the pleasure and excitement that occurs with the transmission of knowledge and skills from one generation to another (Radford, 2018).

Intergenerational interventions encompass diverse models of working, involving different populations of older and younger people, for different purposes. The intervention might, for example, offer shared activities with the aim of improving cognitive, health and

social outcomes in older adults with dementia, learning in a community or online setting to promote reading in younger children, and exchange programmes between adolescents and elders to improve intergenerational understanding and attitudes.

Emerging evidence on the economic and social impact of the coronavirus (COVID-19) pandemic shows that young people aged 12–24 years constitute one of the worst-affected groups particularly in terms of the labour market and mental health outcomes (Leavey, 2020). Furthermore, young people are losing their ability to accumulate the assets needed for a smooth transition into adulthood with long term implications for their health and wellbeing throughout the life course (Leavey, 2020).

Mental wellbeing is intrinsically linked to enabling a child to achieve their full potential. Socio-ecological influences influencing the world of the child, and the environment surrounding them is a complex and dynamic interplay of risk and protective factors (United, 2017). For young children, in particular vulnerable young children, the disruption caused by the pandemic has been especially damaging, compounding existing inequalities (Ballard, 2020; Pierce, 2020). Nearly 800,000 children live with domestic abuse and 1.6 million live with parents with severe mental health conditions (Longfield, 2020). These numbers have increased significantly, as a result of secondary impacts of the pandemic on disadvantaged families in particular in terms of loss of income, and increased intimate partner violence (Anne, 2020). In addition, children's education has been disrupted, and a widening attainment gap is emerging between children from disadvantaged or vulnerable backgrounds and their peers (Longfield, 2020; Sinha, 2020). Intergenerational interventions have been shown to reduce anxiety and improve self-worth in children, and also to improve classroom behaviours and foster pro-social behaviours (Park, 2015).

Intergenerational interventions, and interventions that might improve social and mental wellbeing of children and young people have been identified as priority policy areas. The All Party Parliamentary Group on Social Integration in an interim report published in May 2019 (All Party Parliamentary Group on Social Integration, 2019), highlights four main policy areas through which stronger generational connections and communities could be fostered – community projects and initiatives, public services, housing and planning and technology.

Research questions related to intergenerational activities and connections identified in a research gap analysis, conducted by Public Health England and published in August 2020 (Public Health England, 2020), include 'What is the impact of different intergenerational interactions at different stages of the life-course?'

Interventions that ameliorate the impact of adverse childhood experiences (ACEs) have been identified as priority areas for research during priority setting exercises for Sheffield, Greater Manchester and the Scottish Government as members of the SIPHER consortium (System-science Informed Public Health and Economic Research for Non-communicable Disease prevention) (MRC/SO37578/1). The James Lind Alliance prioritisation process has highlighted the need to identify effective early interventions or strategies for supporting children and young people to improve mental resilience.

A stakeholder group who were informed by findings from our own Evidence Gap Map (EGM) and mapping review (Campbell, 2023) identified the subsequent review question as both a priority knowledge gap and a priority question for commissioners and representatives of children and young people.

Searches of PROSPERO and of the Cochrane and Campbell Libraries were unable to identify either ongoing systematic reviews or EGMs intended for publication that would address this question.

## 2.2 | The intervention

We use the definition of intergenerational practice developed by the Beth Johnson Foundation (<http://www.ageingwellinwales.com/Libraries/Documents/Guide-to-Intergenerational-Practice.pdf>).

'Intergenerational practice aims to bring people together in purposeful, mutually beneficial activities which promote greater understanding and respect between generations and contributes to building more cohesive communities. Intergenerational practice is inclusive, building on the positive resources that the young and old have to offer each other and those around them' Beth Johnson Foundation.

Intergenerational programmes and activities are as such interventions that can address some of the needs of both older people and children and young people. These interventions take many formats and are delivered in diverse settings, often by third sector organisations. Evidence suggests that such intergenerational activity can have a positive impact on participants (e.g., reducing loneliness and exclusion – for both older people and children and young people; improving mental health; increasing mutual understanding and tackling important issues such as ageism, housing and care).

## 2.3 | How the intervention might work

Intergenerational programmes often develop organically and vary in many of their features, including differences in terms of the populations targeted, their purpose, settings in which they are delivered and duration.

Intergenerational interventions are rarely accompanied by programme evaluations and use of theory in intergenerational research is also limited (Kuehne, 2003).

As such while developmental and educational theories underpin arguments in favour of developing such intergenerational programmes (e.g., generativity as the developmental challenge of late adulthood) they are less apparent in terms of the programme mechanisms. Caspi (1984) first applied contact theory (Allport, 1954), which was developed in reference to interracial contact, to the intergenerational setting when he used it to shape an elderly volunteer programme at an elementary school. Contact theory proves a useful guide for intergenerational practitioners because its application fosters positive intergroup interaction, which is the goal of quality intergenerational programmes.

There are four original tenets of contact theory (Allport, 1954) with a fifth tenet specified by Pettigrew in 1998 (Pettigrew, 1998).

When achieved, these tenets promote positive contact between members of disparate groups; in the intergenerational field, age is the key dimension of disparity. The five tenets include: support from authority, common goal, cooperation, equal group status, and opportunity for friendship. However, these theoretical principles are less helpful in explaining how intergenerational programmes might work to improve the mental health and wellbeing of children and younger people.

The Disengagement Theory of Aging (Cumming, 1961) is also helpful in understanding the mechanisms that might lead to social isolation and how intergenerational interventions can mitigate against them. Aging, leads to an inevitable reduction in one's abilities to come into contact with friends, and relations. Older people gradually lose ties with others in their society and become physically inactive and more lonely when compared to their younger counterparts. Social and economic conditions can influence the environments in which people age, where those with greater resources can access recreation and social activities that promote social engagement and maintain physical and mental wellbeing.

We have developed a logic model (Figure 1) to illustrate our understanding of how intergenerational activities might work to improve the mental health and wellbeing of children and adolescents. The logic model is based on discussions with the stakeholder group during the construction of the evidence EGM (Campbell, 2023) and previously published literature (Ronzi, 2018). The logic model shows how intergenerational interventions can lead to a sense of being valued, of belonging, paving the way for greater self esteem, social connection and wellbeing. The mechanisms and impact may vary for different age groups of children and also for children experiencing very different life circumstances.

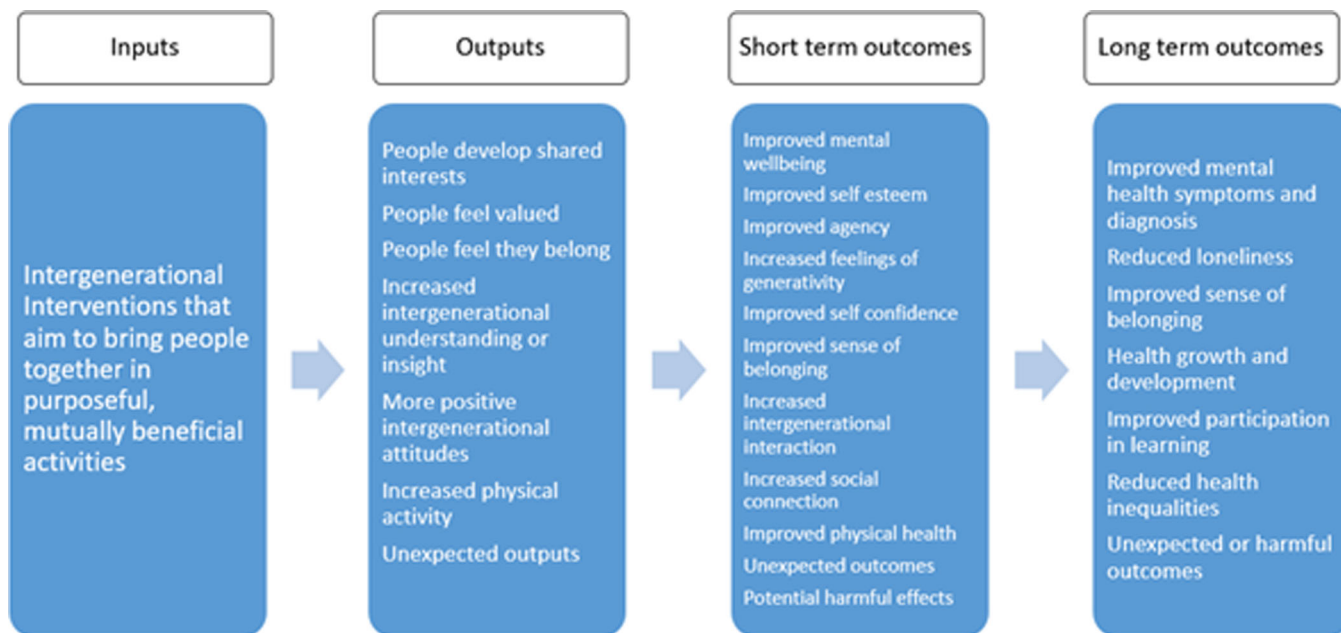
## 2.4 | Why it is important to do this review

The state of the UK's generational divide is described in the All Party Parliamentary Group on Social Integration. Healing the generational divide – Interim report on intergenerational connection (APPG, 2019). This report offers a range of recommendations to alleviate the generational divide and intergenerational interventions form a significant part of this.

If intergenerational interventions could also make a difference to mental health and wellbeing – something that has really suffered across the generations particularly over the pandemic then their role in society and each community could be far greater. 'A New Social Contract for a mentally healthier society' a report written by Mind (MIND, 2020) in partnership with over 50 voluntary organisations advocates for communities, organisations, agencies and the government to work together to respond to the mental health and wellbeing needs of the nation, evidence based intergenerational interventions may have a substantial role to play in this.

Other UK National Government policies such as the NHS Long Term Plan (NHS, 2019) and the NHS Personalised Care agenda (NHS, 2020) also advocate for sustainable interventions that can appeal to all ages in a whole population approach to personalised care for both mental and physical wellbeing.

Many local authorities have signed up to Public Health England prevention concordat for better mental health (England, 2020) which aims to bring a prevention-focused approach to improving public mental health. The concordat promotes evidence-based planning and commissioning to increase the impact on reducing health inequalities using sustainable and cost-effective interventions that impact on the wider determinants of mental health and wellbeing.



**FIGURE 1** Logic model to illustrate how intergenerational activities might work to improve the mental health and wellbeing of children and young people.

Local governments are also interested in ways to enable or secure positive intergenerational communities and to help generations and multiple agencies work together to improve mental health and wellbeing ('Generations working together'), and local health and wellbeing board strategies. Globally, there are organisations committed to developing intergenerational programmes, with the purpose of improving the lives of children, youth and older adults (generations united <https://www.gu.org/who-we-are/>, Australian Institute for International Practice <https://aiip.net.au/>). This review will contribute to informing practice, and to promoting research to address gaps in knowledge.

Having conducted an EGM on intergenerational interventions we were able to identify areas where reviews have and have not already been conducted and areas where research was more or less prolific. We have identified reviews registered on PROSPERO that cover related areas such as meaningful engagement between adolescents and older people in a residential care setting (Bridget et al., 2020) the design and best practice for intergenerational exchange programmes also between adolescents and older people (Webster, 2019) and features of intergenerational programmes and attitude changes between adolescents and older people (Forbes, 2021).

### 3 | OBJECTIVES

This systematic review examines the impact of intergenerational interventions on the wellbeing and mental health in children and adolescents and identifies areas for future research as well as key messages for service commissioners.

We sought to answer the following research questions:

1. Are intergenerational activities effective in improving the wellbeing and mental health of children and adolescents?
2. What characteristics of intergenerational activities are associated with a positive impact on the wellbeing and mental health of children and adolescents?
3. What are the underlying theories for the effectiveness of intergenerational activities in children and adolescents?

## 4 | METHODS

### 4.1 | Criteria for considering studies for this review

#### 4.1.1 | Types of studies

We included randomised control trials (RCTs) only. This decision was informed by the results of the EGM (Campbell, 2023), which identified eligible RCTs and provide the most reliable source of evidence to address questions of effectiveness. Randomised controlled trials have particular value when questions of

effectiveness are being asked, using methods that ensure the effects evaluated can be attributed to the intervention.

#### 4.1.2 | Types of participants

We included studies that include older adults and children and young people.

No age boundary restrictions were applied. We included studies that suggest there is at least one skipped generation between older and younger participants. Studies in which participants were related by family or marriage were excluded. No age cut-offs were defined and eligibility was based on criteria used by the included studies of 'older people' and 'young people'.

#### 4.1.3 | Types of interventions

Any intervention that brings older and younger people together intentionally with the purpose of achieving positive health and/or social and/or educational outcomes. These include reminiscence programmes, buddysystems, storytelling, school-based interventions and arts based interventions. We used the Depth of Intergenerational Engagement Scale (Kaplan, 2004) as the framework for the interventions. The Depth of Intergenerational Engagement Scale places programmes and activities on a continuum, with points that correspond to different levels of intergenerational engagement, ranging from initiatives that provide no direct contact between age groups (point 1) to those that promote intensive contact and ongoing opportunities for intimacy (point 7).

Interventions at levels 1 and 2 were not included in this review as they do not involve bringing people together, but simply information giving (Table 1).

Programmes fitting into all points on this continuum provide positive experiences for interacting with persons in other age groups. However, if the aim is ambitious, such as changing attitudes about other age groups, building a sense of community, enhancing self-esteem, or establishing nurturing intimate relationships, a commissioner should focus on programmes that fit into levels 4–7 on the scale. Programmes would take place over an extended period of time, would last anywhere from a few months to many years, and would provide extensive interaction opportunities.

#### 4.1.4 | Types of outcome measures

##### *Primary outcomes*

The primary outcomes for this review are the wellbeing and mental health of children and young people. Well-being is a concept that is not defined consistently within the literature (Amerijckx & Humblet, 2014). For the purposes of this review, we regard well-being in children and young people as a

**TABLE 1** Examples of intergenerational initiatives fitting into each point on the scale are described below.

Depth of Engagement Scale	Example of intergenerational intervention
Level 1: Learning about other age groups	Participants learn about the lives of persons in other age groups, although there is no direct or indirect contact. Example: 'Learning about Aging' programmes designed to teach youth about aspect(s) of the aging process.
Level 2: Seeing the other age group at a distance	These initiatives facilitate an indirect exchange between individuals of two or more age groups. Participants might exchange videos, write letters, or share artwork with each other, but never actually meet in person. Example: A pen-pal programme in which youth in an after-school club exchange letters with residents of a nursing home.
Level 3: Meeting each other	Initiatives culminate in a meeting between the young participants and older adults, generally planned as a one-time experience. Example: A class of students plan for and visit a local senior centre in which all engage in activities during a July 4th picnic.
Level 4: Annual or periodic activities	Often tied to established community events or organisational celebrations, intergenerational activities occur on a regular basis. Although infrequent, these activities might symbolise intergenerational and community unity and influence attitudes and openness toward additional or ongoing activities. Examples: Intergenerational activities at a school on Grandparent's Day, an annual community dance in which youth and older adults are actively involved, and Christmas carolling at assisted-living homes.
Level 5: Demonstration projects	Demonstration projects generally involve ongoing intergenerational activities over a defined period of time. Depending on project goals and objectives, the intergenerational exchange and learning can be quite intensive. These initiatives are often implemented on an experimental or trial basis, and frequently depend on external funding. Example: A 6-month pilot programme, sponsored by an agency that provides teen parenthood support services. Senior adults who have successfully raised children are enlisted to mentor and provide support for pregnant and parenting teens.
Level 6: Ongoing intergenerational programmes	Programmes from the previous category that have been deemed successful and valuable from the perspective of the participating organisations and the clientele are incorporated as an integral part of their operation. This extends to programme and staff development such as preparing individuals to work with populations of various age groups. Example: Based on a partnership forged between a senior centre, a community youth centre, and an environmental education centre, senior adults and youth plan and execute the town's environmental improvement campaign. Systems are established to organise numerous projects, train and assign participants, and provide continuing support and recognition.
Level 7: Ongoing, natural intergenerational sharing, support, and communication	There are times when the intergenerational reconnection theme transcends a distinct programme or intervention. This is evident when the social norms, institutional policies and priorities of a particular site, community, or society reflect values of intergenerational reciprocity and interdependence. Intergenerational engagement takes place as a function of the way community settings are planned and established. In this context, opportunities for meaningful intergenerational engagement are abundant and embedded in local tradition. Example: A YMCA facility houses a senior citizen centre. Older adults and youth participate in a variety of age-integrated activities.

multi-dimensional concept including subjective sense of well-being, material well-being, health and safety, education, peer and family relationships, behaviours and risks (Adamson & Bradshaw, 2007). Many tools are available to assess mental health and wellbeing in children and young people. We included all outcomes reported using a standardised measure to assess mental health and wellbeing in children and young people.

#### Secondary outcomes

To address Research Question 1 our secondary outcomes included other indicators of mental health and wellbeing such as assessments of behaviour, physical growth, development and educational

outcomes. We also extracted data on any reported adverse outcomes, such as development of negative attitudes, or the effects on children who have experienced ACES where the older person may inadvertently repeat an earlier relationship deficit that the child experienced.

We excluded studies where no outcomes related to child wellbeing or mental health were reported.

#### 4.1.5 | Types of settings

Studies undertaken in any setting or context were included.



## 4.2 | Search methods for identification of studies

Searches were conducted to populate the EGM (Campbell, 2023) from which this review originates. We have set up automated alerts to identify additional relevant literature which we will use to update the map as the project progresses; any studies identified during this process will be screened for eligibility in the review. We undertook an update search before submission of this review.

### 4.2.1 | Electronic searches

We searched MEDLINE (via OvidSp), EMBASE (via OvidSp), PsycINFO (via OvidSp), CINAHL (via EBSCOHost, Social Policy and Practice (via OvidSp), Health Management Information Consortium (via OvidSp), Ageline (via EBSCOhost), ASSIA (via ProQuest), Social Science Citations Index (via Web of Science), ERIC (via EBSCOhost), Community Care Inform Children, Research in Practice for Children, ChildData (via Social Policy and Practice), the Campbell Library, the Cochrane Database of Systematic Reviews and the CENTRAL database to populate the EGM in July 2021 and updated in July 2023 using terms for intergenerational practices. We were seeking to identify the richest possible evidence base, therefore we did not place any language or date restrictions on the searches. The process of searching and populating the EGM was the source of RCTs included in this review. Our search strategies for the EGM are available in Supporting Information: Appendix 1.

### 4.2.2 | Searching other resources

We also searched for grey literature via relevant organisation websites (Age UK, Age International, the Centre for Ageing Better, Barnado's, Children's Commission, UNICEF, Generations Working Together, the Intergenerational Foundation, Linking Generations, Generations united and The Beth Johnson Foundation), conference abstracts via the Conference Proceedings Citation database, and dissertations via ProQuest Dissertations and Theses Global.

To find any published literature not captured by the databases we reviewed the included studies within relevant systematic reviews and hand searched the Journal of Intergenerational Relationships.

## 4.3 | Data collection and analysis

### 4.3.1 | Selection of studies

Studies were identified from the relevant domains of our evidence and gap map (Campbell, 2023) and screened against the eligibility criteria independently by two reviewers. Methods for study selection used to populate the evidence and gap map can be found in the protocol (Campbell, 2023).

### 4.3.2 | Data extraction and management

Once relevant studies had been identified data extraction was undertaken by one reviewer and checked by a second with discrepancies being resolved by discussion and arbitration by a third reviewer were necessary. Data extraction sheets were developed in EPPI-Reviewer and piloted by two reviewers on a sample of papers. We extracted the following data: Publication details, study design, sample size, population details, intervention and comparator details including type of activities undertaken, setting, duration, intensity, timing and mode of delivery, outcome measures, and outcome data. We also extracted details of the underlying theory of change as described by the authors.

### 4.3.3 | Assessment of equity in included studies

We used the PROGRESS Plus framework (O'Neill, 2014) to guide and structure data extraction to describe the socio-demographic characteristics of eligible populations in the included studies. We used this information to describe and assess categories of disadvantage. We also extracted contextual information relevant to potential categories of disadvantage, where available.

### 4.3.4 | Description of interventions used in included studies

We used the TIDieR checklist (Hoffmann, 2014) to describe the interventions used in included studies. The TIDieR checklist contains 12 items that cover the information required to comprehensively describe an intervention. Using the checklist we extracted data on: the name of the intervention, the rationale, what materials and procedures were used, who delivered the intervention, how, where, when and how much, any tailoring or modifications used and any measures of adherence or fidelity.

### 4.3.5 | Assessment of risk of bias in included studies

One reviewer performed the critical appraisal which was then checked by a second reviewer, with discrepancies resolved through discussion. We used the Cochrane risk of bias tool to appraise randomised controlled trials (Higgins, 2019).

### 4.3.6 | Measures of treatment effect

In our protocol we planned to undertake a meta-analysis if appropriate. We planned to calculate Hedges *g* from means and standard deviations in the first instance.

Given the expected variation across studies, we anticipated using the random effects model and reporting the estimate of chi-squared and the prediction interval for the overall mean effect size.

If studies had multiple arms, where different types of inter-generational intervention were compared with a control, we would have considered pooling the two interventions groups.

#### 4.3.7 | Unit of analysis issues

If the included RCTs had used cluster randomisation, we would have undertaken a sensitivity analysis to explore the effects of these studies on the review conclusions. Where included cluster randomised studies failed to report using an appropriate multilevel model to take into account clustering design, we would have sought to undertake an approximate analysis of the cluster-randomised trial using the intraclass correlation coefficient (ICC). If the ICC was not available in the published report, we would have identified external estimates drawn from similar studies (Higgins, 2022). If an ICC was used, only similar studies with similar outcomes would have been included.

#### 4.3.8 | Criteria for determination of independent findings

Where there are multiple reports of a single study, these will be reported and linked in the review. Each will have full data collection. Where there are multiple conceptually similar outcomes, the one that is most frequently used across the included studies will be used for the meta-analyses (López-López, 2018). All of the outcomes relating to mental health and wellbeing will also be reported narratively.

#### 4.3.9 | Dealing with missing data

If the data was not available within the published papers, we planned to contact study authors to request missing information. No authors needed to be contacted to provide missing data.

#### 4.3.10 | Assessment of heterogeneity

If there had been sufficient similarity in the type of interventions and populations being studied, meta-analyses would have been undertaken.

Effect size heterogeneity would be examined using the  $I^2$  statistic. Where there is substantial heterogeneity (>50%), random effects meta-analyses would have been used. Heterogeneity would also be explored using sub-group analysis based on the level of level of intervention.

#### 4.3.11 | Assessment of reporting biases

The small number of included studies means that tests for funnel plot asymmetry cannot be used to determine potential reporting bias in this review (Sterne et al., 2011).

#### 4.3.12 | Data synthesis

Our approach to undertaking and reporting the methods used for data synthesis was guided by the Synthesis Without Meta-analysis (SWiM) reporting guidance (Campbell, 2020). Meta-analysis was not possible due to the heterogeneity of the interventions, populations and outcomes that were measured.

- Studies were tabulated and grouped according to, population and intervention characteristics and outcomes, using the logic model to inform decisions on groupings where appropriate. Tables will be used to describe the heterogeneity within the included ei.
- Where possible, standard metrics for each type of outcome measure were determined.

#### 4.3.13 | Sensitivity analysis

We did not undertake a sensitivity analysis in this review.

#### 4.3.14 | Treatment of qualitative research

None will be included.

#### 4.3.15 | Summary of findings and assessment of the certainty of the evidence

We did not include Summary of findings and assessment of the certainty of the evidence.

## 5 | RESULTS

### 5.1 | Description of studies

#### 5.1.1 | Results of the search

Using the EGM created in Spring 2022 and updated in July 2023 (Campbell, 2023) we identified 5 RCTs for inclusion. A further 11 studies were excluded as they did not report outcomes for CYP (Cardona, 2002; Chippendale, 2015; George, 2011; Rook, 2003; Shkilnyk, 1984; Gruenewald, 2016; Low, 2015; Giglio, 2006; Dawson, 2017; Shkilnyk, 1984; Thornton, 2017) (see Figure 2).

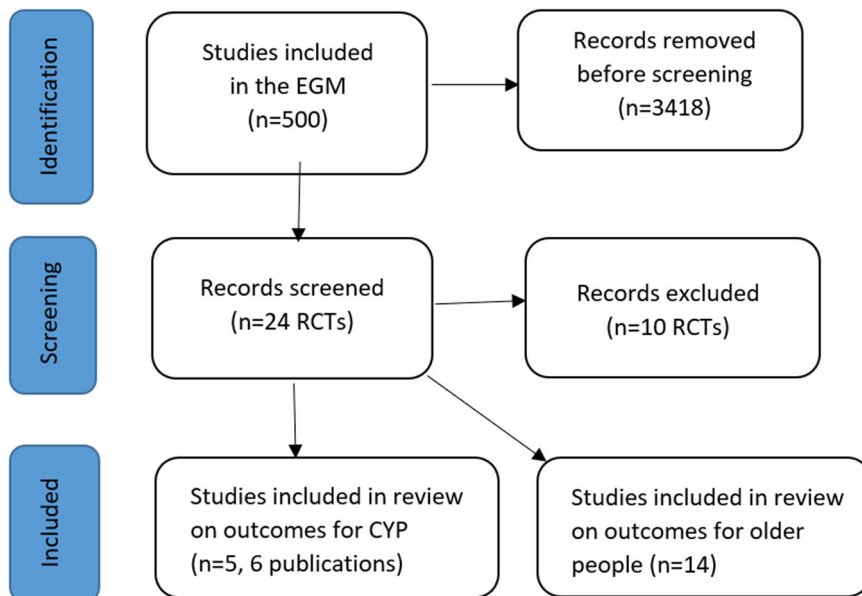


FIGURE 2 PRISMA flow diagram.

### 5.1.2 | Included studies

Only 5 studies (Carcavilla, 2020; Detmer, 2020; Kessler, 2007; LoSciuto, 1996; Sipsas-Herrmann, 2000) (6 publications (Kessler, 2007; LoSciuto, 1996; Sipsas-Herrmann, 2000; Taylor, 1999; Carcavilla, 2020; Detmer, 2020)) met our inclusion criteria. Two publications reported the results of the same study (LoSciuto, 1996; Taylor, 1999). Three studies (Sipsas-Herrmann, 2000; Carcavilla, 2020; Detmer, 2020) measured and reported mental health and wellbeing outcomes for both older people and CYP and therefore are included in this review and in our accompanying review of the impact of interventions in older people (Whear, 2023). The 5 studies evaluated 5 different intergenerational interventions. Four were based in school settings (LoSciuto, 1996; Taylor, 1999; Sipsas-Herrmann, 2000; Kessler, 2007; Carcavilla, 2020), with two interventions (LoSciuto, 1996; Taylor, 1999; Sipsas-Herrmann, 2000) aimed to prevent negative behaviours (drug use and aggression), one intervention (Carcavilla, 2020) involving the use of on-line conversations to support language learning between secondary school students and older people in care home settings, and another (Kessler & Staudinger, 2007) involving young people and older people working on a project together. One intervention (Detmer, 2020) involved younger, preschool children and utilised music to promote positive interactions. Three studies (Detmer, 2020; LoSciuto, 1996; Sipsas-Herrmann, 2000; Taylor, 1999) were conducted in the USA, one (Carcavilla, 2020) in Italy and Spain and one (Kessler, 2007) in Germany.

#### Participants

The five included studies (Carcavilla, 2020; Detmer, 2020; Kessler, 2007; LoSciuto, 1996; Sipsas-Herrmann, 2000; Taylor, 1999)

varied widely in the numbers of participants recruited (Table 2) with numbers ranging from 32 to 729 CYP, and 15 to 90 older people. In one study (LoSciuto, 1996; Taylor, 1999) the number of older people was not reported. One study (Detmer, 2020) included children in preschool (aged 3–4 years), two (LoSciuto, 1996; Sipsas-Herrmann, 2000; Taylor, 1999) included young adolescents (11–12 year) and two (Carcavilla, 2020; Kessler, 2007) included young people in their mid-teens. In two studies (Carcavilla, 2020; Kessler, 2007) all of the CYP were female, in two (LoSciuto, 1996; Sipsas-Herrmann, 2000; Taylor, 1999) the proportion of male and female participants was nearly equal and in one (Detmer, 2020) gender was not reported.

In one study (LoSciuto, 1996; Taylor, 1999) the intervention was delivered in a school, within an area with a high proportion of people with low socioeconomic status from minority groups. Otherwise, no interventions specifically targeted children experiencing adversity, evaluating the effects on CYP's mental health and wellbeing.

The ages of the older participants ranged from 60 to 98 years across the five studies. In one study (Kessler, 2007) all of the older people were female, and in two (Carcavilla, 2020; Sipsas-Herrmann, 2000) where the gender of older people was reported, there was a higher proportion of female participants. In two studies (Carcavilla, 2020; Detmer, 2020) the older people were frail or experiencing age-related decline in their physical and cognitive functioning. In both of these studies the older people were living in either a care home or sheltered housing.

#### Interventions

The interventions were very different in their purpose, methods of delivery, duration and components. Table 3 summarises the interventions.

**TABLE 2** Stakeholder engagement.

Study	Intervention	n (I:C)	Age of young people	Gender	Recruitment setting	Pre-existing needs	n (SD)	Age of older people	Gender	Place of residence	Pre-existing need	Country
Carcavilla (2020)	Smile Connect LEVEL 5	48 (24:24)	16.3 (SD)	100% F	Secondary school	Language learning (Spanish)	46 (21:25)	82.6 years (SD)	61% female	Care home		
Detmer (2020)	Intergenerational music therapy LEVEL 5	32 (16:16)	3–4 years	NR	Child care setting	None	15	72–98 years	NR	Senior living unit		
Kessler et al. (2007) CYP only	Social Interaction LEVEL 5	90	14–15 years	100% F	School	None	90	70–74 years	100% F	NR		
LoSciuto et al. (1996) and Taylor et al. (1999) CYP only	Across ages – mentoring approach to drug prevention LEVEL 6	729 (562 completed)	6th grade	53% F 47% M	School	Low socio-economic status and minority group	NR	65–75 years	NR	Own home		
Sipsas-Herrmann (2000)	SCARE (Student Created Aggression Replacement Education) LEVEL 6	194 (172 in final analysis)	11–12 years	52.6% F (53.5% F in final analysis)	School	None	36	60–81 years	72% F	Community senior centre		

Abbreviations: C, control group; F, female; I, intervention group; M, male; NR, not reported; SD, standard deviation.

TABLE 3 Participants.

Study	Intervention	Goal	Setting	Duration	Components	Procedures
Carcavilla (2020)	Smile Connect Videoconferencing programme	To help students to practice and improve their Spanish language skills to increase positive emotions and reduce negative ones among older and young adults	On-line Care homes and schools	6 weeks 2 lessons per week 30 min per lesson	Language learning and reminiscence therapy. Older person in role as expert.	Older adult participated in a workshop to prepare them for role as language teachers
Detmer (2020)	Intergenerational music therapy	To identify the effects of an intergenerational music therapy programme on children's literacy, older adults' physical functioning and self-worth, and interactions between the two age groups.	Each session co-led by two music therapists and took place at the childcare facility The older adults travelled together via bus for each session.	<b>Experimental group 22, 30-min music therapy sessions over the course of 12 weeks, control group began, shorter programme for 4 weeks.</b>	Materials for this study included video/photography equipment, musical instruments, craft items, visuals/props, child and adult chairs, accelerometers, and storybooks.	Informed consent was obtained from parents
Kessler et al. (2007)	Social Interaction LEVEL 3	Increase the adolescents' prosocial behaviour and communion goals of adolescents.	Group and individual Face to face In research setting	One session 90-minute duration.	Participants collaborated on one of two tasks (life problem, or media problem). The task was preceded by a 10-min warm up task.  Focus: problem solving	Intervention delivered by two women aged 28 and 30 years
LoSciuto et al. (1996) and Taylor et al. (1999) CYP only	Across ages – mentoring approach to drug prevention LEVEL 6	To decrease the incidence of alcohol, tobacco, and other drug (ATOD) use and to build resistance to drug abuse in youth by: increasing knowledge of health/substance abuse issues and fostering healthy attitudes.	Group and individual. Community settings and school Focus: Art and craft Environmental activities Playing games Mentoring in school Visits to care homes	One year Includes environmental project 1 h a week for 8 weeks. Promotion of a social competence in youths programme – taught twice a week for 45 min per sessions. Total of 26 lessons and it takes from 15–25 weeks to complete the programme.	One older person is matched with one to two students. <ul style="list-style-type: none"> <li>2 community service experiences. Students, make biweekly 1 h visits, accompanied by their mentors, to frail, elderly residents in nearby nursing homes.</li> <li>Environmental project that benefits the larger community</li> <li>Materials include handouts.</li> <li>Parental support and family involvement – opportunities are given</li> <li>Workshops and activities are held each month in a community centre or church near the schools.</li> </ul>	<ul style="list-style-type: none"> <li>Older people</li> <li>rigorous selection process,</li> <li>clearance on criminal and child-abuse background checks,</li> <li>Preservice training,</li> <li>Constant supervision and support from project staff,</li> <li>Monthly in-service meetings</li> <li>Stipend of \$60 a month</li> <li>Teachers and mentors taught the PYDC programme (promotion of social competence in youths.</li> </ul> <b>Students</b> <ul style="list-style-type: none"> <li>Receive 6 h (1.5 h per week for 4 weeks) of training in aging and lifespan development issues.</li> </ul>

TABLE 3 (Continued)

Study	Intervention	Goal	Setting	Duration	Components	Procedures
Sipsas-Herrmann (2000)	SCARE (Student Created Aggression Replacement Education)	To reduce student anger and aggression and the psychosocial development of youth to make good decisions in response to provocative situations.	School Setting Group based	16 sessions Each session 45 min Senior citizen population were trainers. Eighteen trainers were assigned to teach the SCARE programme (experimental group) and 18 were assigned to teach the Enter Here curriculum (control group).	SCARE (Student Created Aggression Replacement Education) programme is a multimodal aggression replacement and anger management package developed for use with early adolescents and young adults Two trainers were assigned to each group of 8 to 12 students.	Senior citizen trainers completed two 4 h training workshops. Written training protocols were provided. Half way through the intervention a third training session was given. The investigator was present on the school campus for the first week of the intervention to ensure all groups were running as intended. Throughout the 8 week intervention periodic random spot checks of the groups were held.

Two studies (Carcavilla, 2020; Detmer, 2020) were designed to improve learning and also promote mutually beneficial interactions, and three to promote pro-social behaviour or reduce negative behaviours. LoSciuto (1996) and Taylor (1999) evaluated a programme (Across Ages) designed to reduce drug abuse among youth at risk due to the environment in which they lived. Another project (SCARE) was designed to equip young adults with skills to better manage anger and aggression (Sipsas-Herrmann, 2000).

The duration of the programmes varied from a one off event (Kessler, 2007), to 6 weeks (Carcavilla, 2020), 8 weeks (Sipsas-Herrmann, 2000), 12 weeks (Detmer, 2020) and 56 weeks (LoSciuto, 1996; Taylor, 1999). Aside from the one off event, the frequency of contact was once or twice weekly. Where specified, the duration of the contact sessions ranged from 30 min to 90 min.

We have classified the types of intergenerational activity using The Depth of Intergenerational Engagement Scale (see Table 1) which places programmes and activities on a continuum, with points that correspond to different levels of intergenerational engagement, ranging from initiatives that provide minimal contact, one-off event (point 3) to those that promote intensive contact and ongoing opportunities for intimacy (point 7) (Kaplan, 2004).

Of the included studies, one (Kessler, 2007) was classified as a level 3 where older and younger people meet each other, as part of a one-time experience. Three (Carcavilla, 2020; Detmer, 2020; Sipsas-Herrmann, 2000) were classified as level 5 demonstration projects. This is where an intergenerational activity is delivered over a defined period of time. Depending on project goals and objectives, the intergenerational exchange and learning can be intensive. These initiatives are often implemented on an experimental or trial basis, and frequently depend on external funding. One (LoSciuto, 1996; Taylor, 1999) was classified to be a level 6 intervention which are ongoing intergenerational programmes, that is, programmes from the previous category that have been deemed successful and valuable from the perspective of the participating organisations and the clientele are incorporated as an integral part of their operation. This extends to programme and staff development such as preparing individuals to work with populations of various age groups.

The content of the included programmes was as follows:

*Smile Connect* Carcavilla (2020) (Italy/Spain) evaluated a programme that linked older frail people in nursing homes in Spain, with secondary school adolescents in Italy who were learning Spanish. The students and older people used video conferencing as the medium and the programme was designed to help students practice and improve their Spanish language skills, reduce negative stereotypes of older people. The older people were given training to prepare them for their roles as language teachers.

*Intergenerational Music Therapy* Detmer (2020) (USA) included a music therapy session, led by music therapists in a group setting. The children were aged 4–5 years and older people supported the activities in the session.

The intervention was designed to improve young children's literacy and older peoples physical functioning and self worth.

*Social Interaction* Kessler (2007) (Germany) This programme was run as single events that brought older people and teenagers together to work in group and one to one on a problem solving task.

*Across Ages* LoSciuto (1996); Taylor (1999) (USA) This mentoring programme, matched older people to one or two students. They met with them in both group and one to one settings with the purpose of helping to build their resistance to drug abuse, and to build their skills to deal with challenges encountered in the urban poor environment in which they lived. The activities included working together on art and craft activities, playing games, working on environmental projects, and visiting care homes. The older people were rigorously selected and given regular training and a payment each month.

*SCARE (Student Created Aggression Replacement Education)* Sipsas-Herrmann (2000) (USA) The objective of this programme was to provide early adolescents with life skills to manage emotions, particularly anger and aggression. Older people were trained to deliver the intervention and were assigned to work with groups of 8–12 students in pairs. Ongoing support and training was provided to the older people delivering the intervention.

#### Comparator groups

Comparison groups also differed across the studies. One study (Detmer, 2020) used a wait-list control group, that commenced the intervention after the intervention group had completed the intervention. The wait-list group received a shortened version of the intervention. In the other studies the control group received an alternative intervention, or one that did not include working with older people. One study (LoSciuto, 1996) included three arms, two groups received the intervention but only one which included mentoring by an older adult. The control group received no intervention. Two studies (Carcavilla, 2020; Sipsas-Herrmann, 2000) used an alternative intervention as the control group (Table 3 for a summary of the interventions).

#### Theoretical support for interventions and how they might work

All of the included interventions are underpinned by theory ('reason-giving') that informs the format of the intervention and the expected outcomes (Davidoff, 2015). For example, the theory that ageist attitudes in young people can be challenged and thus altered, by positive interactions with older people underpins many of the designs of intergenerational interventions (Table 4).

The five included studies each adopted different approaches to positively influencing children and young people's wellbeing and mental health. In two studies (Kessler, 2007; Carcavilla, 2020) the young people gain a sense of value and wellbeing, through engaging with and/or providing emotional support and empathy to an older adult. In one study the benefits for the young person comes from their improved learning (literacy) (Detmer et al., 2020). In two the benefits for young people come through both learning and developing social skills through the formation of a relationship and mentoring, with older people acting as both a support and an example to the young person. There was no consistency in the theoretical approaches cited by the authors to support the programme.

## 5.2 | Risk of bias in included studies

The overall risk of bias in the included studies was high with only one small study (32 children) describing adequate methods of randomisation, and blinding at outcome assessment (see Figure 1).

In three studies (LoSciuto, 1996; Taylor, 1999; Kessler, 2007; Carcavilla, 2020) although the method of allocation to groups was described as randomised, the methods were not described. In one (Sipsas-Herrmann, 2000) the process was not randomised for all of the participants. Only one study (Detmer, 2020) was considered at low risk of bias for randomisation, describing using a randomisation table to undertake randomisation.

None of the studies described efforts to ensure adequate allocation concealment. Only one study (Detmer, 2020) included blinding of outcome assessment.

Attrition of study participants was described in one study (Sipsas-Herrmann, 2000), however it is unclear if there was an intention to treat analysis. In another, it was not clear which groups lost participants in the follow-up, and there was no intention to treat analysis (LoSciuto, 1996).

Overall, the quality of the included studies means that we can have limited confidence in the findings reported and introduces a risk of bias.

## 5.3 | Effects of interventions

*Note:* 'Effects of interventions' heading will be removed at publication stage.

### 5.3.1 | Synthesis of results

The focus of this review is the impact of intergenerational interventions on the mental health and wellbeing of young people. We included diverse measures of wellbeing, including measurement of positive behaviours, education, subjective well-being, peer and family relationships and material well-being reflecting the multi-dimensional nature of well-being (Adamson & Bradshaw, 2007). We excluded studies that only evaluated changes in attitudes to aging amongst the children and young people.

None of the studies used a common measure to evaluate the outcome of the intervention on the younger participants. The heterogeneity between the interventions, and the outcomes used to measure their impact prevented pooling of study outcomes. The variety of wellbeing attributes and the measures used are shown in Table 5. The included studies used validated measures such as the PANAS (Positive and Negative Affect Scale) (Carcavilla, 2020), RAND (Measure of Health Related Quality of Life) (LoSciuto, 1996; Taylor, 1999), STAXI (State-Trait Anger Expression Inventory), AGVQ (Attitude Towards Guns and Violence Questionnaire) (Sipsas-Herrmann, 2000), PPVT (Peabody Picture vocabulary Scale) and also tools designed for the study such as letter name and sound

**TABLE 4** Summary of theoretical frameworks.

	Purpose	Theory or mechanism	Citations
Carcavilla (2020) 'Smile connect'	To use an intergenerational videoconferencing programme 'Smile Connect', to improve the emotional affect of older adults living in care homes, as well as change the negative stereotypes about ageing among young adults.	Young people acquire values, achieve emotional growth, motivation to learn, and gain a sense of their value by creating happiness in others. This leads to improved social skills such as cooperation, communication, tolerance, and the ability to provide emotional support and empathy Contact with older adults reduces ageism in young people.	Ayalon and Tesch-Romer (2017) Teater and Chonody (2017) Iversen et al. (2009) Levy (2003) Kotter-Gruhen and Hess (2012)
Detmer (2020)	To identify the effects of an intergenerational music therapy programme on children's literacy, older adults' physical functioning and self-worth and interactions between the two age groups.	Intentional use of music can improve the literacy skills of children. Enhancing literacy skills using music can support children's development in all developmental domains while strengthening family bonds in a playful way.	Humpal (2018) Millett (2016) Lonigan et al. (2008) Snow et al. (1998)
Kessler (2007)	To investigate the effects of intergenerational interaction on psychological function of both older people and adolescents.	Intergenerational interactions have the potential to facilitate psychological functioning both in adolescence and old age. by accelerating social development in adolescence (i.e.) prosocial behaviour and communion goals). Generativity-identity contexts stimulate interest in and attention for the older person on the basis of their search for information about the self and the world.	Diehl et al. (2004) Midlarsky and Hannah (1989)
LoSciuto (1996) Taylor (1999) 'Across Ages'	To increase the resiliency and protective factors of the participating youth	Multifaceted interventions result in more positive changes in student knowledge, attitudes and behaviour concerning substance abuse and related life skills. Designed to increase the resiliency and protective factors within youth in 5 domains: the individual, family, school, peer group and the community/neighbourhood. Mentoring, as a prevention strategy, has positive effects on young lives. Mentors can help youth overcome personal and social barriers, expose them to new relationships and opportunities and assist in the development of problem-solving and decision making skills.	Freedman (1988)
Sipsas-Herrmann (2000) 'SCARE programme'	To teach middle school youth how to reduce their anger and control aggression in themselves and others. To use, senior citizens as trainers, often underutilized, mature, experienced, and with time.	Operant conditioning programmes, social skills training and cognitively based treatments for aggression. Operant conditioning programmes involve behavioural strategies that either attempt to increase the frequency of nonaggressive behaviours or decrease the frequency of aggressive behaviours. Social skills training works to decrease aggressive behaviour indirectly by improving children's social skills. The premise behind this technique is that poor social skills that result in social isolation and unpopularity in childhood have been found to be risk factors for future delinquency, school dropout and conduct problems.	Kazdin (1991) Hartup (1970) Roff et al. (1972)

recognition (Detmer, 2020). Another study used willingness to volunteer as a measure of pro-social behaviour (Kessler, 2007).

#### *Learning and school outcomes (Table 6)*

One study that evaluated the effectiveness of the *Intergenerational Music Therapy* (Detmer, 2020) which was led by music therapist in a

group setting with children aged 4–5 years and older people supported the activities in the session, reported on *three learning outcomes* – the Peabody Picture Vocabulary Test – III (PPVT); letter name (LN) and letter sound (LS) – and found that although there were some improvement in terms of changes from baseline in one of the two intervention groups (involving younger children where older



**TABLE 5** Outcomes measured in each included study.

	Pro-social behaviour	Affect	Wellbeing	Problem solving efficacy	Aggressive attitudes and anger management	Vocabulary skills and alphabet knowledge
Carcavilla (2020)		PANAS scale				
Detmer (2020)						PPVT Letter name and sound recognition
Kessler (2007)	Volunteering					
LoSciuto (1996)	Attitudes to school, future and elderly		RAND wellbeing scale	Reactions to situations involving drugs		
Sipsas-Herrmann (2000)					STAXI AGVQ	

**Note:** **RAND Wellbeing Scale** (Veit & Ware, 1983) Health-related quality of life survey instrument comprising of 36 items. **PPVT:** Peabody Picture Vocabulary Test – III, which is a norm-referenced test for vocabulary and designed for children ages 2–6. The PPVT begins with four practice items followed by 204 test items, counting as one point each for a maximum score of 204. The test items consist of four black and white illustrations and are arranged in 17 sets of 12 and increase in difficulty with each set (PPVT-III; Dunn & Dunn, 1965). **Letter Name/Sound:** Alphabet knowledge was measured pre/Posttest by giving the names and sounds of all 26 letters of the alphabet, which were displayed in random order. Both uppercase and lowercase of each letter were printed on 26 separate cards in 72-point sans serif font. The order of presentation of Letter Name knowledge versus Letter Sound knowledge was counterbalanced. A tool designed for this study specifically. **PANAS:** Positive and negative affect: The Positive Affect Scale (PAS) consists of 10 questions related to positive feelings, such as enthusiasm, interest, and determination. The Negative Affect Scale (NAS) consists of 10 questions related to 'negative' feelings, such as fear, sadness, anxiety, and hostility. Average score of nonclinical Australian adults is: PAS 26.48 (8.1) NAS 14.80 (5.49). **STAXI** (Spielberger, 1996a) is a self-report measure assessing the experience and expression of anger, which is conceptualised as having two major components: State and Trait Anger. The overall STAXI consists of 44 items, which form six specific scales. Raw scores for the various STAXI subscales are converted to standard scores, with higher scores generally reflecting more intense anger expressions or experience (with the exception of the Anger Control scale, with higher scores reflecting greater control of anger). **AGVQ** (<https://www.wpspublish.com/agvq-attitudes-toward-guns-and-violence-questionnaire>) Attitudes Toward Guns and Violence Questionnaire. The AGVQ measures the attitudes of young people, ages 6 to 29, toward guns, physical aggression, and interpersonal conflict (Shapiro et al., 2000).

people supported young children with literacy learning) for one outcome only, there was no evidence of a difference between groups for any outcome.

A further study that examined the effectiveness of the *Across Ages*<sup>44</sup> mentoring programme, which matched older people to one or two students, found no impact on *attitudes toward school* (NS).

#### Positive emotions/prosocial behaviour

One study evaluating the *Smile Connect* (Carcavilla, 2020) programme that linked older frail people in nursing homes in Spain, with secondary school adolescents in Italy who were learning Spanish to control aggression in themselves found no significant impact on positive (NS) or negative (NS) emotions.

A year long, school based programme (SCARE) (Sipsas-Herrmann, 2000), designed to help young people reduce their anger and control aggression in themselves and that used the STAXI measures of *Trait Anger and Anger Control* found some improvements from baseline measures but there was no significant difference between the two groups in outcome scores (NS). There was, however, an improvement in the AGVQ (*Attitudes Toward Guns and Violence Questionnaire*) between the intervention group (IG) and (C) ( $p = 0.038$ ) and the two different versions of the intervention (IGa and IGb) ( $p = 0.002$ ).

An evaluation of the Social Interaction (Kessler, 2007) programme, which was run as single events that brought older people and teenagers together to work in group and one to one on a problem solving task, found a significant impact on *prosocial behaviour* in terms of willingness to volunteer ( $p, 0.001$ ).

One study that examined the effectiveness of the *Across Ages* (LoSciuto, 1996; Taylor, 1999) mentoring programme, which matched older people to one or two students, found a trend favouring the intervention group in, *mental wellbeing* ( $p = 0.58$ ) and a significant improvement in *attitudes toward substance misuse* ( $p = 0.042$ ).

## 6 | DISCUSSION

### 6.1 | Summary of main results

Five randomised controlled trials met the inclusion criteria, despite a large body of evidence located and included in the mapping review and EGM (Campbell, 2023). This review focuses on the impact of intergenerational interventions on the mental health and wellbeing of children and young people, and this outcome was infrequently measured in the young participants. We found that the types of interventions ranged from one-off sessions to ones that spanned

TABLE 6 Summary of outcomes.

Study	Test	Group	Baseline/pre-test	Follow-up 1	Follow-up 2	Difference from baseline	Difference between groups at FU	
Carcavilla (2020)	PAS			2 weeks after Intervention				
		IG	29.88 (4.18) <i>n</i> = 24	30.5(4.98) <i>n</i> = 24	NA	NS	NS	
		CG (AP)	32.50 (3.62) <i>n</i> = 24	31.21 (4.07) <i>n</i> = 24	NA			
	NAS			2 weeks after Intervention				
IG		16.21 (4.51) <i>n</i> = 24	15.3 (4.60) <i>n</i> = 24	NA	NS	NS		
		CG (AP9)	17.67 (4.68) <i>n</i> = 24	17.75 (4.90) <i>n</i> = 24	NA			
Detmer (2020)	PPVT			1 week after intervention				
		IG	100 (14) <i>n</i> = 16	107 (21) <i>n</i> = 15	NA	NS	NS	
		CG	112 (14) <i>n</i> = 16	111 (20) <i>n</i> = 15	NA	NS		
	Letter Name							
		IG	2 (9) <i>n</i> = 16	5 (17) <i>n</i> = 15	NA	<i>p</i> value < 0.1	NS	
		CG	15 (22) <i>n</i> = 16	14 (23) <i>n</i> = 15	NA	<i>p</i> value < 0.1		
Letter Sound								
	IC	1 (2) <i>n</i> = 16	1 (5) <i>n</i> = 15	NA	NS	NS		
	CG	2 (8) <i>n</i> = 16	1 (8) <i>n</i> = 16	NA	NS			
Kessler (2007)	Prosocial behaviour agreed to volunteer			Post event test				
		IG (YP-LP)	NA	24/30 (80%)	NA	NA	<i>p</i> < 0.001	
		CG (OO-LP)	NA	10/30 (33.3%)	NA	NA		
LoSciuto (1996); Taylor (1999)	Attitudes toward school, future, and elders			Measured at the end of the academic year				
		IGa	2.96 (0.52) <i>n</i> = 180	3.02 (SD NR) <i>n</i> = 180	NA	0.06	IGa vs. C <i>p</i> = 0.038	
		IGb	2.96 (0.52) <i>n</i> = 193	2.87 (SD NR) <i>n</i> = 193	NA	-0.09	IGa vs. IGb <i>p</i> = 0.002	
		CG (no I)	2.96 (0.52) <i>n</i> = 189	2.92 (SD NR) <i>n</i> = 189	NA	-0.04		
	RAND				Measured at the end of the academic year			
		IGa	2.51 (0.66) <i>n</i> = 180	2.47 (SD NR) <i>n</i> = 180	NA	-0.04	IGa vs. C <i>p</i> = 0.058	
IGb		2.51 (0.66) <i>n</i> = 193	2.35 (SD NR) <i>n</i> = 193	NA	-0.04	IGa vs. IGb <i>p</i> = NR		
	CG (no I)	2.51 (0.66) <i>n</i> = 189	2.35 (SD NR) <i>n</i> = 189	NA	-0.16			

(Continues)

TABLE 6 (Continued)

Study	Test	Group	Baseline/pre-test	Follow-up 1	Follow-up 2	Difference from baseline	Difference between groups at FU
	Reactions to situations involving drug use			Measured at the end of the academic year			
		IGa	6.76 (1.75) <i>n</i> = 180	7.15 (SD NR) <i>n</i> = 180	NA	0.39	IGa vs. C <i>p</i> = 0.042
		IGb	6.76 (1.75) <i>n</i> = 193	6.87 (SD NR) <i>n</i> = 193	NA	0.11	IGa vs. IGb <i>p</i> = NR
		CG (no I)	6.76 (1.75) <i>n</i> = 189	6.82 (SD NR) <i>n</i> = 189	NA	0.06	
Sipsas-Herrmann (2000)	STAXI State Anger		Pre-test	Posttest at end of 8 week intervention	8 weeks after posttest		
		IG	52.24 (6.63) <i>n</i> = 104	50.13 (5.71) <i>n</i> = 88	51.10 (6.80) <i>n</i> = 81	NS	NS
		CG (AP)	51.16 (6.54) <i>n</i> = 90	50.31 (5.37) <i>n</i> = 88	50.86 (7.00) <i>n</i> = 87	NS	
	STAXI Trait Anger						
		IG	41.90 (11.13) <i>n</i> = 104	38.74 (11.20) <i>n</i> = 87	39.53 (11.62) <i>n</i> = 81	<i>p</i> < 0.01 FU1	NS
		CG (AP)	41.37 (12.63) <i>n</i> = 90	39.66 (11.09) <i>n</i> = 88	38.84 (9.59) <i>n</i> = 87	NS	
	STAXI Anger control						
		IG	52.73 (10.29) <i>n</i> = 104	56.38 (11.66) <i>n</i> = 88	54.21 (13.89) <i>n</i> = 81	<i>p</i> < 0.005 FU2	NS
		CG (AP)	55.47 (10.86) <i>n</i> = 90	56.01 (11.99) <i>n</i> = 88	53.92 (10.10) <i>n</i> = 87	NS	
	AGVQ						
		IG	4.86 (4.37) <i>n</i> = 101	3.05 (3.59) <i>n</i> = 86	2.91 (3.09) <i>n</i> = 82	NS	<i>p</i> < 0.01
		CG (AP)	3.52 (3.91) <i>n</i> = 90	3.34 (3.74) <i>n</i> = 87	3.32 (3.65) <i>n</i> = 81	NS	<i>p</i> < 0.005

Note: NS: *p* value > 0.05; CG, control group; IG, intervention group.

a year, and where the goals also differed. The goals included promoting social skills, preventing harmful behaviour and promoting learning. The CYP included in the studies also varied, with one targeting younger children and two targeting younger teenagers and two targeting older teenagers. Only one study targeted socioeconomically disadvantaged children, and in the other studies the socioeconomic backgrounds of the children and young people are not described. We also found that the outcome measures used to evaluate the effectiveness of the interventions also varied, with none of the studies measuring the same outcomes making comparisons across studies difficult. Only one study showed improvements in wellbeing measures, and this was an intervention delivered to children in deprived neighbourhoods, where the theory underpinning the intervention included developing resilience and where the intervention duration was for a year allowing the development of a greater depth of relationship between the CYP and older person.

## 6.2 | Overall completeness and applicability of evidence

The evidence for the effectiveness of intergenerational interventions on the mental health and wellbeing of children and young people is limited and inconclusive. Too few evaluations have sought to measure how intergenerational interventions impact children and young people and where this impact is measured the focus is usually limited to attitudes to aging. The evidence that has been collected is too heterogenous to allow synthesis of the findings. The underpinning theories to support their development are poorly described with no follow-up data to ascertain if benefits are maintained.

We used the PROGRESS plus framework to describe which characteristics were captured and/or targeted in the RCT research on intergenerational interventions. Many equity characteristics were not reported. Gender was the most commonly reported characteristic of the CYP involved in the studies. This was not accounted for in the analyses.

We also looked to see if any of these characteristics were specifically targeted by the interventions captured in this review. Only one study (LoSciuto, 1996) targeted CYP in socioeconomically deprived neighbourhoods.

## 6.3 | Quality of the evidence

The heterogeneity in the interventions, and measures, and overall poor quality of the study designs of the included studies means that there is insufficient evidence to demonstrate that interventions improve the wellbeing of children and young people. There is a need for robust evaluations of interventions, and particularly the assessment of these interventions on the mental health and wellbeing of children and young people. Currently the value of these interventions for children and young people, beyond measuring the impact on attitudes to the elderly, is rarely considered, and remains poorly

tested. While there is a perception of potential benefit, this has not been demonstrated in this review.

## 6.4 | Potential biases in the review process

This review only included randomised controlled trials and therefore has not drawn on other sources of evidence that may yield insights into intervention effectiveness. However, by focusing on RCTs as a robust method of demonstrating the effect of intergenerational interventions we have shown that even studies that use an RCT methodology lack rigorous evidence to support their use.

Social care interventions, may evolve and become embedded within a system without formal evaluation. We anticipate that our review may not represent current practice. It does highlight the lack of the strong evidence necessary to support funding and investment. It also demonstrates a need for evaluations that allow useful reflection on which elements support intervention effectiveness.

A further limitation of this review is that we limited our inclusion criteria to studies that reported mental health and well-being outcomes. It is possible that these outcomes were measured but not reported. While this will not change the conclusions of our review, it should be noted that the limited number of included studies may reflect selective reporting of outcomes.

## 6.5 | Agreements and disagreements with other studies or reviews

We identified 26 systematic reviews that were included in the EGM (Campbell, Whear, et al., 2023), very few explored the impact of intergenerational interventions on children and young people's outcomes. Reviews that considered the impact of intergenerational interventions on children and young people, focused on studies that evaluated the impact on attitudes to older people and aging (Gualano et al., 2018). A scoping review (Giraudeau & Bailly, 2019) found that evaluation of intergenerational interventions focused on attitudes, behaviours, confidence and competence in children while focusing on the mental, physical and quality of life impact on older people. Two reviews (Peters et al., 2021) (Jarrott et al., 2021) highlight the lack of evidence to support intergenerational interventions and the need to demonstrate their potential impact on mental and social wellbeing. All current reviews support our finding, that there is a need for rigorous implementation research to further advance evidence based intergenerational practice. Intergenerational practice, has as a central tenet, the need to be mutually beneficial for both generations. It is clear from our review that to date, the measured impact on children and young people has largely focused on assessing attitudes to aging, not on CYP health and wellbeing. If policymakers and practitioners want to advocate for the implementation of intergenerational interventions, the value of these types of interventions for children and young people need to be more effectively sought, measured and demonstrated.

## 7 | AUTHORS' CONCLUSIONS

### 7.1 | Implications for practice and policy

Intergenerational interventions show promise but researchers have failed to measure how they impact on the mental health and wellbeing of children and young people. This is a serious limitation of the evidence base that needs to be addressed in robust and rigorous evaluations. Appropriate tools need to be used in evaluating these types of interventions to ensure the outcomes that matter are measured, and also to build evaluation that observes their longer term effects. Only a limited number of evaluations have been undertaken focusing only upon a small number of the many types of interventions developed. As a result there is little evidence to identify what features of intergenerational interventions contribute to greater effectiveness. The theoretical basis upon which intergenerational interventions are designed are frequently omitted from a description of the intervention. A better understanding of their effectiveness components will facilitate progressive improvements in these interventions. Commissioners and intervention developers should ensure interventions provide sufficient theoretical evidence for the proposed intervention. There is a pressing need to identify outcomes that are important and measurable to assess the impact of these interventions on communities.

### 7.2 | Implications for research

Research on intergenerational interventions needs consistent and agreed measures for reporting outcomes including community outcomes. Study sample sizes need to be larger to understand how interventions impact different members of society differently and how any impact remains for the long term. Research methods would benefit from establishing outcomes for a given population from a variety of perspectives to overcome issues of bias from the lack of blinding of self report measures by self report. Research on intergenerational interventions should measure outcomes for BOTH the older and younger population engaged in the intervention – these may or may not be the same outcomes reflected in both populations. Further research is needed on the longevity of outcomes (whether participants need sustained involvement in an 'intervention' to continue to benefit) and sustainability of interventions beyond the initial funding of the research project – interventions that are initiated for the duration of a research project and then end (usually within a year) are not helpful.

#### ACKNOWLEDGEMENTS

Acknowledge the contribution of people not listed as authors of the review, including any assistance from the Campbell Coordinating Group.

#### CONTRIBUTIONS OF AUTHORS

FC, JTC and AB designed the methods for the review. FC and RW undertook the development of the protocol. LW and JB offered topic

expertise in the preparation of the review protocol. AS, MR provided expertise in the search strategy. AT provided expertise on dissemination plans.

#### DECLARATIONS OF INTEREST

Please declare any potential conflicts of interest. For example, have any of the authors been involved in the development of relevant interventions, primary research, or prior published reviews on the topic?

#### SOURCES OF SUPPORT

##### Internal sources

- No sources of support provided.

##### External sources

- New Source of support, UK.

The systematic review is funded by the National Institute for Health Research (NIHR) Evidence Synthesis Programme NIHR 133097 and NIHR 133172 and supported by the National Institute for Health Research (NIHR) Applied Research Collaboration South West Peninsula. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

#### DIFFERENCES BETWEEN PROTOCOL AND REVIEW

None.

#### ORCID

Morwenna Rogers  <http://orcid.org/0000-0002-6039-238X>

#### REFERENCES

##### REFERENCES TO STUDIES INCLUDED IN THIS REVIEW

###### Ayalon 2017 {published data only}

Ayalon, L., & Tesch-Römer, C. (2017). *Taking a closer look at ageism: Self and other-directed ageist attitudes and discrimination* (pp. 1–4). Springer.

###### Carcavilla 2020 {published data only}

Carcavilla, N., Meilán, J. J. G., Llorente, T. E., Martínez-Nicolás, I., & Tamayo-Mortera, O. (2020). The impact of international videoconferencing among older adults and secondary students. *Gerontology and Geriatrics Education*, 41(3), 352–366. <https://doi.org/10.1080/02701960.2019.1651724>

###### Detmer 2020 {published data only}

Detmer, M., Kern, P., Jacobi-Vessels, J., & King, K. (2020). Intergenerational music therapy: effects on literacy, physical functioning,

self-worth, and interactions: research. *Journal of Intergenerational Relationships*, 18, 175–195.

#### **Diehl 2004 {published data only}**

Diehl, M., Owen, S., & Youngblade, L. (2004). Agency and communion attributes in adults' spontaneous self-representations. *International Journal of Behavioral Development*, 28(1), 1–15.

#### **Dunn 1965 {published data only}**

Dunn, L. M., & Dunn, L. M. (1965). *Peabody picture vocabulary test*.

#### **Freedman 1988 {published data only}**

Freedman, M. (1988). Partners in growth: Elder mentors and at-risk youth.

#### **Giraudeau 2019 {published data only}**

Giraudeau, C., & Bailly, N. (2019). Intergenerational programs: What can school-age children and older people expect from them? A systematic review. *European Journal of Ageing*, 16, 363–376.

#### **Gualano 2018 {published data only}**

Gualano, M. R., Voglino, G., Bert, F., Thomas, Camussi, R., & Siliquini, R. (2018). The impact of intergenerational programs on children and older adults: A review. *International Psychogeriatrics*, 30(4), 451–468.

#### **Hartup 1970 {published data only}**

Hartup, W. W. (1970). Peer interaction and social organization. In P. Mussen (Ed.), *Carmichael's manual of child psychology*. John Wiley & Sons.

#### **Humpal 2018 {published data only}**

Humpal, M. (2018). Early childhood music therapy. In A. Knight GL, & A. Clair (Eds.), *Music therapy an instruction to the profession* (pp. 161–183). The American Music Therapy Association, Inc.

#### **Iversen 2009 {published data only}**

Iversen, T. N., Larsen, L., & Solem, P. E. (2009). A conceptual analysis of ageism. *Nordic Psychology*, 61(3), 4–22.

#### **Jarrott 2021 {published data only}**

Jarrott, S. E., Scrivano, R. M., Park, C., & Mendoza, A. N. (2021). Implementation of evidence-based practices in intergenerational programming: A scoping review. *Research on Aging*, 43(7–8), 283–293.

#### **Kazdin 1991 {published data only}**

Kazdin, A. E. (1991). Aggressive behavior and conduct disorder. In ITRKRM (Ed.), *The practice of child therapy* (2nd ed., pp. 174–221). Allyn and Bacon.

#### **Kessler 2007 {published data only}**

Kessler, E.-M., & Staudinger, U. (2007). Intergenerational potential: effects of social interaction between older adults and adolescents. *Psychology and Aging*, 22, 690–704. <https://doi.org/10.1037/0882-7974.22.4.690>

#### **Kotter-Grühn 2012 {published data only}**

Kotter-Grühn, D., & Hess, T. M. (2012). So you think you look young? Matching older adults' subjective ages with age estimations provided by younger, middle-aged, and older adults. *International Journal of Behavioral Development*, 36(6), 468–475. <https://doi.org/10.1177/0165025412454029>

#### **Levy 2003 {published data only}**

Levy, B. R. (2003). Mind matters: Cognitive and physical effects of aging self-stereotypes. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 58(4), P203–P211.

#### **Lonigan 2008 {published data only}**

Lonigan, C., Schatschneider, C., & Westberg, L. (2008). Results of the national early literacy panel research synthesis: Identification of children's skills and abilities linked to later. *Journal of Intergenerational Relationships*, 55–106.

#### **LoSciuto 1996 {published data only}**

LoSciuto, L., Rajala, A. K., Townsend, T. N., & Taylor, A. S. (1996). An outcome evaluation of across ages: An intergenerational mentoring approach to drug prevention. *Journal of Adolescent Research*, 11(1), 116–129.

#### **Midlarsky 1989 {published data only}**

Midlarsky, E., & Hannah, M. E. (1989). The generous elderly: Naturalistic studies of donations across the life span. *Psychology and Aging*, 4(3), 346.

#### **Millett 2016 {published data only}**

Millett, C. R. (2016). Eight ways music makes a difference. *Imagine*, 3(1), 81.

#### **Peters 2021 {published data only}**

Peters, R., Ee, N., Ward, S. A., Kenning, G., Radford, K., Goldwater, M., Dodge, H. H., Lewis, E., Xu, Y., Kudrna, G., Hamilton, M., Peters, J., Anstey, K. J., Lautenschlager, N. T., Fitzgerald, A., & Rockwood, K.

(2021). Intergenerational programmes bringing together community dwelling non-familial older adults and children: A systematic review. *Archives of Gerontology and Geriatrics*, 94, 104356.

#### **Roff 1972 {published data only}**

Roff, M., Sells, S. B., & Golden, M. M. (1972). *Social adjustment and personality development in children*. University of Minnesota Press.

#### **Shapiro 2000 {published data only}**

Shapiro, J. P., Scale, N. A., & Inventory, P. (2000). *Attitudes toward guns and violence questionnaire (AGVQ)*. Western Psychological Services.

#### **Sipsas-Herrmann 2000 {published data only}**

Sipsas-Herrmann, A. (2000). Student Created Aggression Replacement Education program: Cross-generational application.

#### **Snow 1998 {published data only}**

Snow, C., Burns, M., & Griffin, P. (Eds). (1998). *Preventing reading difficulties in children*. National Academy Press.

#### **Taylor 1999 {published data only}**

Taylor, A., LoSciuto, L., Fox, M., Hilbert, S., & Sonkowsky, M. (1999). The mentoring factor: Evaluation of the across ages' intergenerational approach to drug abuse prevention. *Child & Youth Services*, 20, 77-99. [https://doi.org/10.1300/J024v20n01\\_07](https://doi.org/10.1300/J024v20n01_07)

#### **Teater 2017 {published data only}**

Teater, B., & Chonody, J. (2017). Promoting actively aging: Advancing a framework for social work practice with older adults. *Families in Society*, 98(2), 137-145.

#### **Veit 1983 {published data only}**

Veit, C. T., & Ware, J. E. (1983). The structure of psychological distress and well-being in general populations. *Journal of Consulting and Clinical Psychology*, 51(5), 730.

### **REFERENCES TO STUDIES EXCLUDED FROM THIS REVIEW**

#### **Cardona 2002 {published data only}**

Cardona, R. (2002). Task oriented intergenerational program: The effects on self-esteem and self-efficacy in high school students and self-esteem and depression in older adults (p. 111).

Cumming, E., & Henry, W. (1961). Postulates of disengagement theory of aging. In *Growing old: The process of disengagement*. Basic Books.

#### **Chippendale 2015 {published data only}**

Chippendale, T., & Boltz, M. (2015). Living legends: effectiveness of a program to enhance sense of purpose and meaning in life among Community-Dwelling older adults. *The American Journal of Occupational Therapy*, 69, 6904270010p1-6904270011p1. <https://doi.org/10.5014/ajot.2015.014894>

#### **Dawson 2017 {published data only}**

Dawson Amanda, T. (2017). Intergenerational programming on a multi-generational play park and its impact on older adults (p. 93).

#### **George 2011 {published data only}**

George Daniel, R., & Singer Mendel, E. (2011). Intergenerational volunteering and quality of life for persons with mild to moderate dementia: results from a 5-month intervention study in the United States. *The American Journal of Geriatric Psychiatry*, 19, 392-396. <https://doi.org/10.1097/JGP.0b013e3181f17f20>

#### **Giglio 2006 {published data only}**

Giglio, L. (2006). The effect of a music therapy intergenerational program on cued and spontaneous behaviors of older adults with dementia (p. 185).

#### **Gruenewald 2016 {published data only}**

Gruenewald, T. L., Tanner, E. K., Fried, L. R., Carlson, M. C., Qian-Li, X., Parisi, J. M., Rebok, G. W., Yarnell, L. M., & Seeman, T. E. (2016). The Baltimore experience corps trial: Enhancing generativity via inter-generational activity engagement in later life. *Journals of Gerontology Series B: Psychological Sciences & Social Sciences*, 71, 661-670. <https://doi.org/10.1093/geronb/gbv005>

#### **Low 2015 {published data only}**

Low, L.-F., Russell, F., McDonald, T., & Kauffman, A. (2015). Grandfriends, an intergenerational program for nursing-home residents and preschoolers: A randomized trial. *Journal of Intergenerational Relationships*, 13, 227-240. <https://doi.org/10.1080/15350770.2015.1067130>

#### **Rook 2003 {published data only}**

Rook Karen, S., & Sorkin Dara, H. (2003). Fostering social ties through a volunteer role: Implications for older-adults' psychological health. *International Journal of Aging and Human Development*, 57, 313-337.

#### **Sakurai 2018 {published data only}**

Sakurai, R., Ishii, K., Sakuma, N., Yasunaga, M., Suzuki, H., Murayama, Y., Nishi, M., Uchida, H., Shinkai, S., & Fujiwara, Y. (2018). Preventive effects of an intergenerational program on age-related hippocampal atrophy in older adults: The REPRINTS study. *International Journal of Geriatric Psychiatry*, 33, e264-e272. <https://doi.org/10.1002/gps.4785>

**Shkilnyk 1984 {published data only}**

Shkilnyk Terry, M. (1984). Attitude change in children and satisfaction change in elders as a function of an intergenerational integration program.

**Thornton 2017 {published data only}**

Thornton, C. M. (2017). *Senior change makers pilot study: Improving physical activity environments through intergenerational advocacy*. University of California.

**ADDITIONAL REFERENCES****Achenbach 2001**

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms & profiles: An integrated system of multi-informant assessment Burlington* (Vol. 1617). University of Vermont. Research Center for Children, Youth, & Families.

**Adamson 2007**

Adamson, P., Bradshaw, J., Hoelscher, P., & Richardson, D. (2007). Child poverty in perspective: An overview of child well-being in rich countries. *Innocenti report card* (Vol. 7). Unicef Innocenti Research Centre.

**APPGSI 2019**

All Party Parliamentary Group on Social Integration. (2019). *Healing the generational divide - Interim report on intergenerational connection*.

**Allport 1954**

Allport, G. W., Clark, K., & Pettigrew, T. (1954). The nature of prejudice.

**Amerijckx 2014**

Amerijckx, G., & Humblet, P. C. (2014). Child well-being: What does it mean? *Children & Society*, 28(5), 404–415.

**Anne 2020**

Anne, L. (2020). Childhood in the time of Covid.

**APPG 2019**

APPG. (2019). All party parliamentary group on social integration. In S. Dalton, A. Dixon, & R. Bell (Eds.), *Healing the generational divide - Interim report on intergenerational connection* (Vol. 2019, pp. 1–56). APPG on Social Integration.

**Ballard 2020**

Ballard, C. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science.

**Beck 2005**

Beck Judith, S. (2005). *Beck youth inventories: Manual*. Pearson.

**Berra 2007**

Berra, S., Ravens-Sieberer, U., Erhart, M., Tebé, C., Bisegger, C., Duer, W., von Rueden, U., Herdman, M., Alonso, J., & Rajmil, L. (2007). Methods and representativeness of a European survey in children and adolescents: The KIDSCREEN study. *BMC Public Health*, 7(1), 1–12.

**Bridget 2020**

Bridget, L., Peiyuan, L., & Griffiths, K. (2020). Conceptualising meaningful intergenerational engagement between adolescents and older people in the residential aged care setting: A systematic review.

**Brown 2014**

Brown, C., & Henkin, N. (2014). Building communities for all ages: Lessons learned from an intergenerational community-building initiative. *Journal of Community & Applied Social Psychology*, 24(1), 63–68.

**Campbell 2020**

Campbell, M., McKenzie, J. E., Sowden, A., Katikireddi, S. V., Brennan, S. E., Ellis, S., Hartmann-Boyce, J., Ryan, R., Shepperd, S., Thomas, J., Welch, V., & Thomson, H. (2020). Synthesis without meta-analysis (SWiM) in systematic reviews: Reporting guideline. *BMJ*, 368, l6890.

**Campbell 2023**

Campbell, F., Whear, R., Rogers, M., Sutton, A., Robinson-Carter, E., Barlow, J., Sharpe, R., Cohen, S., Wolstenholme, L., & Thompson-Coon, J. (2023). Non-familial intergenerational interventions and their impact on social and mental wellbeing of both younger and older people—A mapping review and evidence and gap map. *Campbell Systematic Reviews*, 19(1), e1306.

**Carcavilla 2020**

Carcavilla, N., Meilán, J. J. G., Llorente, T. E., Martínez-Nicolás, I., & Tamayo-Mortera, O. (2020). The impact of international videoconferencing among older adults and secondary students. *Gerontology and Geriatrics Education*, 41, 352–366.

**Case 2020**

Case, A., & Deaton, A. (2020). *Deaths of Despair and the Future of Capitalism*. Princeton University Press.

**Caspi 1984**

Caspi, A. (1984). Contact hypothesis and inter-age attitudes: A field study of cross-age contact. *Social Psychology Quarterly*, 47, 74–80.



**Davidoff 2015**

Davidoff, F., Dixon-Woods, M., Leviton, L., & Michie, S. (2015). Demystifying theory and its use in improvement. *BMJ Quality & Safety*, 24(3), 228–238.

**Deighton 2014**

Deighton, J., Croudace, T., Fonagy, P., Brown, J., Patalay, P., & Wolpert, M. (2014). Measuring mental health and wellbeing outcomes for children and adolescents to inform practice and policy: A review of child self-report measures. *Child and Adolescent Psychiatry and Mental Health*, 8(1), 14.

**Detmer 2020**

Detmer, M., Kern, P., Jill, J.-V., & King, K. (2020). Intergenerational music therapy: Effects on literacy, physical functioning, self-worth, and interactions: Research. *Journal of Intergenerational Relationships*, 18, 175–195.

**Dunn 2005**

Dunn, T. W., Burlingame, G. M., Walbridge, M., Smith, J., & Crum, M. J. (2005). Outcome assessment for children and adolescents: Psychometric validation of the youth outcome questionnaire 30.1 (Y-OQ<sup>®</sup>-30.1). *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, 12(5), 388–401.

**Edström 2018**

Edström, M. (2018). Visibility patterns of gendered ageism in the media buzz: A study of the representation of gender and age over three decades. *Feminist Media Studies*, 18(1), 77–93.

**Edwards 2002**

Edwards, T. C., Huebner, C. E., Connell, F. A., & Patrick, D. L. (2002). Adolescent quality of life, part I: conceptual and measurement model. *Journal of Adolescence*, 25(3), 275–286.

**England 2020**

England Public Health. (2020). Prevention concordat for better mental health.

**Epstein 2000**

Epstein, M. H. (2000). The behavioral and emotional rating scale: A strength-based approach to assessment. *Diagnostic*, 25(3), 249–256.

**Flanagan 1995**

Flanagan, R. (1995). A review of the behavior assessment system for children (BASC): Assessment consistent with the requirements of

the individuals with disabilities education act (IDEA). *Journal of School Psychology*, 33(2), 177–186.

**Flanagan 1996**

Flanagan, D. P., Alfonso, V. C., Primavera, L. H., Povall, L., & Higgins, D. (1996). Convergent validity of the BASC and SSRS: Implications for social skills assessment. *Psychology in the Schools*, 33(1), 13–23.

**Forbes 2021**

Forbes, M. H. B. A. H., Pepping, G.-J., Kuys, S., Harrington, R., & Olsen, H. (2021). Features of intergenerational programs and attitude changes between youth and seniors: Systematic review.

**Gadow 1997**

Gadow, K. D., & Sprafkin, J. (1997). Child symptom inventory 4: CSI. Checkmate Plus Stony Brook.

**Gadow 1997a**

Gadow, K. D., & Joyce, S. (1997). Checkmate Plus Stony Brook.

**Gall 2000**

Gall, G., Pagano, M. E., Desmond, M. S., Perrin, J. M., & Murphy, J. M. (2000). Utility of psychosocial screening at a school-based health center. *Journal of School Health*, 70(7), 292–298.

**Garralda 2000**

Garralda, M. E., Yates, P., & Higginson, I. (2000). Child and adolescent mental health service use: HoNOSCA as an outcome measure. *The British Journal of Psychiatry*, 177(1), 52–58.

**Goodman 1998**

Goodman, R., Meltzer, H., & Bailey, V. (1998). The strengths and difficulties questionnaire: A pilot study on the validity of the self-report version. *European Child & Adolescent Psychiatry*, 7(3), 125–130.

**Goodman 2001**

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(11), 1337–1345.

**Gowers 1999**

Gowers, S. G., Harrington, R. C., Whitton, A., Lelliott, P., Beevor, A., Wing, J., & Jezzard, R. (1999). Brief scale for measuring the

outcomes of emotional and behavioural disorders in children: Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA). *The British Journal of Psychiatry*, 174(5), 413–416.

### Gowers 2002

Gowers, S., Levine, W., Sarah, B.-R., Shore, A., & Burhouse, E. (2002). Use of a routine, self-report outcome measure (HoNOSCA-SR) in two adolescent mental health services. *The British Journal of Psychiatry*, 180(3), 266–269.

### Hedges 2010

Hedges, L. V., Tipton, E., & Johnson, M. C. (2010). Robust variance estimation in meta-regression with dependent effect size estimates. *Research Synthesis Methods*, 1(1), 39–65.

### Higgins 2019

Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (2019). *Cochrane handbook for systematic reviews of interventions*. John Wiley & Sons.

### Higgins 2022

Higgins, J. P. T., Eldridge, S., & Li, T. (2022). Chapter 23: Including variants on randomized trials. In J. P. T. Higgins, J. Thomas, J. Chandler, M. Cumpston, T. Li, M. J. Page, & V. A. Welch (Eds.), *Cochrane Handbook for Systematic Reviews of Interventions version 6.3 (updated February 2022)*. Cochrane.

### Hoffmann 2014

Hoffmann, T. C., Glasziou, P. P., Boutron, I., Milne, R., Perera, R., Moher, D., Altman, D. G., Barbour, V., Macdonald, H., Johnston, M., Lamb, S. E., Dixon-Woods, M., McCulloch, P., Wyatt, J. C., Chan, A.-W., & Michie, S. (2014). Better reporting of interventions: Template for intervention description and replication (TIDieR) checklist and guide. *BMJ: British Medical Journal*, 348, g1687.

### Jellinek 1999

Jellinek, M. S., Murphy, J. M., Little, M., Pagano, M. E., Comer, D. M., & Kelleher, K. J. (1999). Use of the Pediatric Symptom Checklist to screen for psychosocial problems in pediatric primary care: A national feasibility study. *Archives of Pediatrics & Adolescent Medicine*, 153(3), 254–260.

### John 2018

John, A., Glendenning, A. C., Marchant, A., Montgomery, P., Stewart, A., Wood, S., Lloyd, K., & Hawton, K. (2018). Self-harm, suicidal behaviours, and cyberbullying in children and young people: Systematic review. *Journal of Medical Internet Research*, 20(4), e129.

### Jones 2011

Jones, R. L. (2011). Imagining old age. In J. Katz, S. Peace, & S. Spurr (Eds.), *Adult lives: A life course perspective* (pp. 18–26). Policy Press.

### Kaplan 2004

Kaplan, M. S. (2004). Toward an intergenerational way of life. *Journal of Family and Consumer Sciences*, 96(2), 5.

### Kingman 2016

Kingman, D. (2016). Generations apart? The growth of age segregation in England and Wales.

### Kuehne 2003

Kuehne, V. S. (2003). The state of our art: Intergenerational program research and evaluation: Part one. *Journal of Intergenerational Relationships*, 1(1), 145–161.

### Laurence 2016

Laurence, J. (2016). Wider-community segregation and the effect of neighbourhood ethnic diversity on social capital: An investigation into intra-neighbourhood trust in Great Britain and London. *Sociology*, 51, 1011–1033.

### Leavey 2020

Leavey, C., Abbs, I., & Marshall, L. (2020). Emerging evidence on health inequalities and COVID-19: July 2020.

### Li 2019

Li, T., Higgins, J. P. T., & Deeks, J. J. (2019). Collecting data. In J. P. T. Higgins, J. Thomas, J. Chandler, M. Cumpston, T. Li, M. J. Page, & V. A. Welch (Eds.), *Cochrane handbook for systematic reviews of interventions version 6.3 (updated February 2022)* (pp. 109–141). Cochrane.

### Longfield 2020

Longfield, A. (2020). Children in institutional settings. *The Lancet Child & Adolescent Health*, 4(8), 563–565.

### López-López 2018

López-López, J. A., Page, M. J., Lipsey, M. W., & Higgins, J. P. T. (2018). Dealing with effect size multiplicity in systematic reviews and meta-analyses. *Research Synthesis Methods*, 9(3), 336–351.

### MIND 2020

MIND. (2020). A New Social Contract for a mentally healthier society.

### Murphy 1989

Murphy, J. M., Jellinek, M., & Milinsky, S. (1989). The Pediatric Symptom Checklist: Validation in the real world of middle school. *Journal of Pediatric Psychology*, 14(4), 629–639.

**NEW REFERENCE 3**

United Nations Children's Fund (UNICEF). (2021). The State of the World's Children 2021: On My Mind – Promoting, protecting and caring for children's mental health. UNICEF.

**NEW REFERENCE 4****NHS 2019**

NHS. (2019). NHS longterm plan.

**NHS 2020**

NHS. (2020). Personalised care agenda.

**O'Neill 2014**

O'Neill, J., Tabish, H., Welch, V., Petticrew, M., Pottie, K., Clarke, M., Evans, T., Pardo Pardo, J., Waters, E., White, H., & Tugwell, P. (2014). Applying an equity lens to interventions: Using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *Journal of Clinical Epidemiology*, *67*(1), 56–64.

**Office 2018**

Office for National Statistics. (2018). Loneliness – What characteristics and circumstances are associated with feeling lonely? Analysis of characteristics and circumstances associated with loneliness in England using the Community Life Survey, 2016 to 2017.

**Park 2015**

Park, A. L. (2015). The effects of intergenerational programmes on children and young people.

**Pettigrew 1998**

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, *49*(1), 65–85.

**Pierce 2020**

Pierce, M., Hope, H., Ford, T., Hatch, S., Hotopf, M., John, A., Kontopantelis, E., Webb, R., Wessely, S., & McManus, S. (2020). Mental health before and during the COVID-pandemic: A longitudinal probability sample survey of the UK population. *The Lancet Psychiatry*, *7*, 883–892.

**Public 2020**

Public Health England. (2020). Research priorities for healthy ageing.

**Raat 2005**

Raat, H., Botterweck, A. M., Landgraf, J. M., Hoogeveen, W. C., & Marie-Louise, E.-B. (2005). Reliability and validity of the short form of the

child health questionnaire for parents (CHQ-PF28) in large random school based and general population samples. *Journal of Epidemiology & Community Health*, *59*(1), 75–82.

**Radford 2018**

Radford, K., Gould, R., Vecchio, N., & Fitzgerald, A. (2018). Unpacking intergenerational (IG) programs for policy implications: A systematic review of the literature. *Journal of Intergenerational Relationships*, *16*(3), 302–329.

**Ravens-Sieberer 2008**

Ravens-Sieberer, U., Gosch, A., Rajmil, L., Erhart, M., Bruil, J., Power, M., Duer, W., Auquier, P., Cloetta, B., & Czemy, L. (2008). The KIDSCREEN-52 quality of life measure for children and adolescents: Psychometric results from a cross-cultural survey in 13 European countries. *Value in Health*, *11*(4), 645–658.

**Ravens-Sieberer 2010**

Ravens-Sieberer, U., Erhart, M., Rajmil, L., Herdman, M., Auquier, P., Bruil, J., Power, M., Duer, W., Abel, T., & Czemy, L. (2010). Reliability, construct and criterion validity of the KIDSCREEN-10 score: A short measure for children and adolescents' well-being and health-related quality of life. *Quality of Life Research*, *19*(10), 1487–1500.

**Reid 2000**

Reid, R., Epstein, M. H., Pastor, D. A., & Ryser, G. R. (2000). Strengths-based assessment differences across students with LD and EBD. *Remedial and Special Education*, *21*(6), 346–355.

**Robitail 2007**

Robitail, S., Ravens-Sieberer, U., Simeoni, M.-C., Rajmil, L., Bruil, J., Power, M., Duer, W., Cloetta, B., Czemy, L., & Mazur, J. (2007). Testing the structural and cross-cultural validity of the KIDSCREEN-27 quality of life questionnaire. *Quality of Life Research*, *16*(8), 1335–1345.

**Ronzi 2018**

Ronzi, S., Orton, L., Pope, D., Valtorta, N. K., & Bruce, N. G. (2018). What is the impact on health and wellbeing of interventions that foster respect and social inclusion in community-residing older adults? A systematic review of quantitative and qualitative studies. *Systematic Reviews*, *7*(1), 1–22.

**Roxby 2020**

Roxby, P. (2020). Covid: What is the mental health cost to the young? *BBC news*.

**Sandoval 1994**

Sandoval, J., & Echandia, A. (1994). Behavior assessment system for children. *Journal of School Psychology*, *32*(4), 419–425.

**Shojania 2007**

Shojania, K. G., Sampson, M., Ansari, M. T., Ji, J., Doucette, S., & Moher, D. (2007). How quickly do systematic reviews go out of date? A survival analysis. *Annals of Internal Medicine*, 147(4), 224–233.

**Sinha 2020**

Sinha, I., Bennett, D., & Taylor-Robinson, D. C. (2020). Children are being sidelined by Covid-19.

**Sterne 2011**

Sterne, J. A., Sutton, A. J., Ioannidis, J. P., Terrin, N., Jones, D. R., Lau, J., Carpenter, J., Rücker, G., Harbord, R. M., Schmid, C. H., Tetzlaff, J., Deeks, J. J., Peters, J., Macaskill, P., Schwarzer, G., Duval, S., Altman, D. G., Moher, D., & Higgins, J. P. T. (2011). Recommendations for examining and interpreting funnel plot asymmetry in meta-analyses of randomised controlled trials. *Bmj*, 343, d4002.

**Sterne 2019**

Sterne, J. A. C., Savović, J., Page, M. J., Elbers, R. G., Blencowe, N. S., Boutron, I., Cates, C. J., Cheng, H. Y., Corbett, M. S., & Eldridge, S. M. (2019). RoB 2: A revised tool for assessing risk of bias in randomised trials. *BMJ*, 366, l4898.

**Sung 2003**

Sung, L., Greenberg, M. L., Doyle, J. J., Young, N. L., Ingber, S., Rubenstein, J., Wong, J., Samanta, T., McLimont, M., & Feldman, B. M. (2003). Construct validation of the Health Utilities Index and the Child Health Questionnaire in children undergoing cancer chemotherapy. *British Journal of Cancer*, 88(8), 1185–1190.

**Thompson-Coon 2022**

Thompson-Coon, J., Campbell, F., Sutton, A., Whear, R., Rogers, M., Barlow, J., Carter, E. R., Sharpe, R., Cohen, S., & Wolstenholme, L. (2022). PROTOCOL: Intergenerational interventions and their effect on social and mental wellbeing of both children and older people—A mapping review and evidence and gap map. *Campbell Systematic Reviews*, 18(2), e1235.

**Together 2020**

Together Generations Working. (2020). Generations Working Together Corporate Plan 2020–2025.

**Turecki 2019**

Turecki, G., Brent, D. A., Gunnell, D., O'Connor, R. C., Oquendo, M. A., Pirkis, J., & Stanley, B. H. (2019). Suicide and suicide risk. *Nature reviews Disease primers*, 5(1), 1–22.

**United 2017**

United for all Ages. (2017). A country for all ages: Ending age apartheid in Brexit Britain.

**Vasil 1993**

Vasil, L., & Wass, H. (1993). Portrayal of the elderly in the media: A literature review and implications for educational gerontologists. *Educational Gerontology: An International Quarterly*, 19(1), 71–85.

**Vitman 2014**

Vitman, A., Iecovich, E., & Alfasi, N. (2014). Ageism and social integration of older adults in their neighborhoods in Israel. *The Gerontologist*, 54(2), 177–189.

**Wasserman 1999**

Wasserman, R. C., Kelleher, K. J., Bocian, A., Baker, A., Childs, G. E., Indacochea, F., Stulp, C., & Gardner, W. P. (1999). Identification of attentional and hyperactivity problems in primary care: A report from pediatric research in office settings and the ambulatory sentinel practice network. *Pediatrics*, 103(3), e38.

**Webster 2019**

Webster, M., Norwood, K., Waterworth, J., & Leavey, G. (2019). Design and best practice for intergenerational exchange programmes between adolescents and elders: A systematic review.

**Whear 2023**

Whear, R., Campbell, F., Rogers, M., Sutton, A., Robinson-Carter, E., Sharpe, R., Cohen, S., Fergy, R., Garside, R., & Kneale, D. (2023). What is the effect of intergenerational activities on the wellbeing and mental health of older people?: A systematic review. *Campbell Systematic Reviews*, 19(4), e1355.

**SUPPORTING INFORMATION**

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Campbell, F., Whear, R., Rogers, M., Sutton, A., Barlow, J., Booth, A., Tattersall, A., Wolstenholme, L., & Thompson-Coon, J. (2024). What is the effect of intergenerational activities on the wellbeing and mental health of children and young people?: A systematic review. *Campbell Systematic Reviews*, 20, e1429.  
<https://doi.org/10.1002/cl2.1429>