

Systematic Review Protocol
**A rapid evidence review of the implementation,
 impact, and effectiveness of virtual and digital
 interventions for children aged 0 to 5 and their
 families**
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**A rapid evidence review of the implementation, impact, and
 effectiveness of virtual and digital interventions for children aged 0 to 5
 and their families**

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Summary

Introduction to the review

The purpose of this rapid evidence review is to identify virtual and digital parenting interventions with evidence of supporting the development of children aged 5 or younger. WWEICSC would like to build the evidence base supporting the effective delivery of Family Hubs and early years services in local areas and synthesising the existing evidence is the first step in this process.

A rapid review is a tool for collating the available research evidence on a certain topic/issue, as comprehensively as possible, within the constraints of a given timetable. This is done by setting parameters around the review to ensure the amount of evidence reviewed is manageable within the timeline.

Aims and Methods

The aim of this review is to address the current gap in knowledge about virtual and digital delivery of interventions for families with a child between conception and age 5 that could be offered by Family Hubs within the 4 priority areas: 1) parenting support, 2) parent–infant relationships and perinatal mental health, 3) support for children's early language and the home learning environment and 4) infant feeding.

As we are undertaking a rapid review, we will be adopting the data collection principles of a systematic review. Namely, we will be conducting a desk-based synthesis of secondary data. We will adopt a purposive sampling strategy given we are utilising a non-probability sampling technique and are looking to select data based on pre-defined characteristics.

We will scan the titles and abstracts of all articles identified through the searches and discard those that immediately appear less relevant to the research questions. Data extraction tables will be used to capture information from key articles (75 initially) including, but not limited to, title, date, study type, sample, mode of delivery, key findings, and evidence quality. We will prioritise articles for inclusion in the rapid evidence review, using the following order of priority:

1. Meta-analyses and systematic reviews
2. Randomised Control Trial (RCT) / Quasi-experimental design (QED) studies
3. Case studies / Reports
4. Editorials, Expert opinion

Using the data extraction table, we will identify the 40 most relevant publications for review. Each resource will be mapped and reported against the research questions and a thematic analysis conducted.

Our proposed approach is based on producing actionable insights within the available resource. Its limitations are that key sources of evidence and interventions may be missed, and we will remind the reader that our findings and conclusions should be read with this in mind.

Key Timelines

The anticipated timeline of the review is March 2023 to September 2023.

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Part 1) Rationale and question formulation

Rationale

WWEICSC would like to build the evidence base supporting effective delivery of Family Hubs and early years services in local areas. The review will underpin guidance for local areas on how to meet the expectations for virtual and digital services set out in the HM Government Family Hubs and Start for Life Programme Guide. The focus of the four funded service areas will provide the basis of our review: 1) Parenting support; 2) Parent-infant relationships and perinatal mental health; 3) Early language and the home learning environment; 4) Infant feeding.

We know that a significant proportion of Family Hub services will be delivered virtually. The sector is rapidly mobilising to allow remote delivery of interventions and as a society we are more reliant than ever on technology to connect to, and access, services.

We recognise the importance and timeliness of this evidence review given the unique needs of this particular group of children and families. There is well documented evidence of the negative impact of the COVID-19 pandemic on under 5's including impacts on their emotional wellbeing, behaviours, ability to socialise and overall development. These negative impacts were also experienced by parents/carers including increased loneliness and effects on their mental health. Although many interventions modified their model for virtual and digital delivery in response to COVID-19 restrictions, the extent to which these models remained effective is still unclear. We are therefore proposing to review the efficacy of these changes (when this knowledge exists) as well as update what is known more generally about effective virtual and digital interventions for families with young children.

Specifically, we will answer the following questions:

Research question(s)

1. To what extent do effective virtual and digital interventions corresponding with the 4 Family Hubs funded areas exist?
2. What is the impact of these interventions on important child outcomes?
3. What do we know about their differential impacts on different groups of families on the basis of sociodemographic factors such as age, race, gender, socioeconomic status?
4. What are the conditions for success, or failure, of these interventions in practice?
5. What is the acceptability / feasibility of these interventions for families in practice?

PICO Model:

<u>P</u> opulation	Within the UK and elsewhere, but relevant to the UK.
<u>I</u> ntervention	Virtual and digital interventions for children aged 0 to 5 and their families only.
<u>C</u> omparison	Studies reviewed that employ a Randomised Control Trial or A quasi-experimental design will include a control group.
<u>O</u> utcome	Developmentally important child outcomes measured with validated instruments. Examples of these outcomes include improved early language development, improved early

self-regulatory skills, improved social/emotional security and increases in breastfeeding initiation, duration, and exclusivity.

Part 2) Identifying relevant work

Search Strategy

Electronic databases	<p>We will search Deepdyve (a literature management software specifically for small-medium enterprises) for articles. PubMed and Google Scholar are simultaneously searched within Deepdyve for relevant academic articles and non-academic articles.</p> <p>All database searches will take place in May 2023.</p>
Other sources	N/A
Key search terms	<p>We will use the search terms outlined below with DeepDyve’s advanced search tool allowing titles and abstracts to be searched for these terms. As previously stated, the focus of the four funded service areas will provide the basis of our review. Each primary search term will be searched in combination with each secondary and tertiary search team (e.g., Early years + Online + Support). In consultation with WWEICSC, we will take a flexible approach, adding to, or removing, terms as the search proceeds and we have more information on the key terms used in the literature.</p> <p>Primary search terms: population <i>Early years; toddlers; babies; infant; child; families; perinatal; parent; 0-5 years</i></p> <p>Secondary search terms: virtual and digital <i>Online; web; internet; digital; virtual; video; app; tablet; computer; smartphone; e-interventions; e-health; e-mentoring; telehealth; SMS; software</i></p> <p>Tertiary search terms: intervention <i>Support; relationships; early language; speech and language; breastfeeding; infant feeding; home learning; therapy; training; programme; service; mental health; perinatal mental health; postpartum mental health; wellbeing; parenting; nutrition; diet</i></p>
Draft search strategy	<p>As this is a rapid evidence review, we will adopt a reasoned approach to these databases. That is, if they do not appear to be providing relevant results in the first 30 articles, we will move on to the next search. We will check the relevance of each article before deciding to include it as part of our bibliography.</p>

Study selection criteria

Inclusion criteria	<p>All searches/studies will use the following inclusion criteria:</p> <ul style="list-style-type: none">• Articles reporting on virtual and digital interventions for children aged 0 to 5 and their families only.• Articles published in English only.• Articles published within the UK and elsewhere, but relevant to the UK.• Articles published within the last five years (earlier publications only if presented with a shortage of good quality articles).• The search will capture both academic and non-academic or grey literature. <p>The following methodology inclusion criteria will be applied for each research question:</p> <p>1. To what extent, and how, do these interventions have any impact for: a. the children; b. their parents/carers; and c. their families?</p> <p><i>Randomised Control Trial (RCT) and Quasi-experimental design (QED) studies only</i></p> <p>2. Are their differential impacts of the interventions for children and families based on sociodemographic factors (age, race, gender, socioeconomic status)?</p> <p><i>Randomised Control Trial (RCT) and Quasi-experimental design (QED) studies related to specific groups and/or subgroup analysis of RCTs/QEDs.</i></p> <p>3. What are the conditions for the success, or failure, of these interventions in practice?</p> <p><i>Meta-analyses, systematic reviews, RCTs, QEDs, and evidence from implementation and process evaluations including case studies, descriptive data, survey data, and qualitative data.</i></p> <p><i>Meta-analyses, systematic reviews, RCTs, QEDs, and evidence from implementation and process evaluations including case studies, descriptive data, survey data, and qualitative data.</i></p> <p><i>We will categorise them by methodology i.e., qualitative, quantitative, or both. One will not be prioritised over the other given the focus on process.</i></p> <ul style="list-style-type: none">• Articles which are available via 'Deepdyve', which gives Cordis Bright access to a selection of journal articles. If articles are considered to be particularly relevant but are not available via Deepdyve we will pay to access them or contact authors directly.
Exclusion criteria	<p>Two researchers (AC and BB) will scan the titles and abstracts of all articles identified through the searches and discard those that</p>

	<p>immediately appear less relevant to the research questions. Any articles that do not meet the inclusion criteria will be excluded.</p> <p>Evaluations will then be further scrutinised against the evidence assessment criteria used to inform inclusion in WWEICSC's Guidebook.</p>
<p>Process of study selection</p>	<p>Duplicates will be removed using Deepdyve.</p> <p>Two researchers (AC and BB) will screen searched papers for eligibility based on inclusion criteria. Due to the time constraints of the project, we will initially include approximately 75 key papers across all returns from the various search combinations. Any disagreements on included papers will be discussed between researchers and where no consensus can be reached, a third party (KL) will resolve. Prioritising articles for inclusion based on study design/methodology, AC and BB will identify approximately 40 key papers to include in the synthesis (in agreement with WWEICSC).</p>

Study records

<p>Data collection</p>	<p>Data extraction tables will be used to capture information from key articles (75 initially) including, but not limited to, title, date, study type, sample, mode of delivery, key findings, and evidence quality. To enhance ease of interpretation we will be codifying the mode of delivery each article relates to.</p> <p>We will prioritise articles for inclusion in the rapid evidence review, using the following order of priority:</p> <ol style="list-style-type: none"> 1. Meta-analyses and systematic reviews; 2. Randomised Control Trial (RCT) / Quasi-experimental design (QED) studies; <p>Using the data extraction table, we will identify the 40 most relevant publications for review (we will share and agree these with WWEICSC). Each resource will be mapped and reported against the research questions and a thematic analysis conducted.</p>
<p>Data management process</p>	<p>Deepdyve has an advanced search tool which will allow us to narrow searches down to our specified timeframe. Equally, the advanced search tool allows multiple keywords to be searched in conjunction ensuring different combinations of our search terms (see above) can be used to guide each search.</p> <p>Deepdyve also has a bookmarking tool that will ensure that any articles that appear relevant will be recorded and filed into our Deepdyve account.</p>
<p>Data items</p>	<p>Data extraction tables will be created in Excel. Anticipated data items will include title, date, study type, sample, mode of delivery, key findings, and evidence quality.</p>

Outcomes and prioritisation	We have not pre-defined primary and secondary outcomes for which data will be sought. Given the relatively recent uptake of virtual and digital interventions with this particular client group, we do not envisage an overly large evidence base. Given that, we will not exclude any articles based on the outcomes reported.
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Part 3) Risk of bias assessment

Risk of bias assessment criteria	WWEICSC evidence standards to assess the quality of the studies and strength of evidence.
Purpose of risk of bias assessment	We will prioritise articles rated as higher quality but will not exclude on that basis. We report all domains from the checklists for transparency around where the strengths/weaknesses lie.

Part 4) Summarising the evidence

Data synthesis	As this is a rapid evidence review, we will conduct a narrative synthesis of both qualitative and quantitative findings. This will provide a basic descriptive summary of studies and their results. These summaries will be structured by the research questions outlined above. Across all research questions, we will detail differences highlighted between sociodemographic groups. We will present conclusions, recommendations, and implications for policy / practice. We will also describe and discuss the potential limitations arising from methodological choices.
Meta-bias(es)	We will descriptively report any selective reporting within studies.
Confidence in cumulative evidence	Our rapid evidence review approach is based on producing actionable insights within the available resource. The limitations of a rapid evidence review are that key sources of evidence and interventions may be missed, and we will remind the reader that our findings and conclusions should be read with this in mind. We will descriptively report on the strength of the body of evidence, but no formal assessment will take place.
Reporting and interpreting findings	Data extraction tables will be created to summarise study characteristics and findings. We will provide a basic descriptive summary of studies and their results. We will present conclusions, recommendations, and implications for policy / practice. We will also describe and discuss the potential limitations arising from methodological choices.

Registration

Ensure the review is registered with the OSF and that the registry is updated with outcomes at the end of the project.

Data protection

Not Applicable

Research Ethics

Not Applicable

Personnel

- Dr Kathryn Lord (KL), Principal Consultant: Kathryn has extensive experience of developing and testing delivery of online interventions in older adults and in conducting and leading rapid, scoping and systematic reviews, with over 30 journal publications. She is also Associate Editor for BMC Health Services Research journal.
- Colin Horswell (CH), Managing Director: Colin led the evaluation for the DfE on home learning environment apps and the rapid evidence assessment (REA) for DWP on parental conflict and substance misuse. He has longstanding experience in relation to early years, child and maternal health, early help and translating evidence into practical action.
- Alex Cahill (AC), Researcher: Alex will be the lead reviewer for the REA. He has a BSc and MSc from the University of Bristol. Research topics include children with complex needs, public health interventions, rape culture in schools, food bank usage and Covid-19 vaccination rates.
- Bonnie Butler (BB), Researcher: Bonnie will contribute to the review and analysis of literature. She has a BSc in Psychology from the University of Swansea and previous experience of working in a primary unit at an SEMH school for 5-11-year-olds which included digital/virtual delivery.

Timeline

Dates	Activity	Staff responsible/leading
05.04.2023-21.04.2023	Write and publish protocol	KL and AC
05.05.2023-24.05.2023	Conduct searches / identify articles for review	KL, AC and BB
16.06.2023-03.07.2023	Analyse articles	KL, AC and BB
03.07.2023-15.09.2023	Write report	KL, AC, BB and CH

References

This protocol template is informed by the following sources:

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