# **BMJ Open** Decision-making regarding accessing paediatric unscheduled healthcare during the COVID-19 pandemic: a mixed methods rapid review and thematic synthesis

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#### ABSTRACT

**Objective** Reductions in paediatric unscheduled healthcare utilisation were seen during the COVID-19 pandemic, with concerns around their impact on children's health. The reasons for these changes are not well described. This review aims to explore the factors reported by parents that influenced their decision-making around accessing paediatric unscheduled healthcare during the COVID-19 pandemic.

Design Mixed methods rapid review and thematic synthesis based on the Enhancing Transparency of Reporting the Synthesis of Qualitative research framework.

Data sources MEDLINE, Embase, Web of Science, PsvcEXTRA. PsvcINFO. Global Health. Global Index Medicus, Dissertations and Theses Global, Google Scholar and OAISter. Studies published from January 2020 to July 2023 were included.

Eligibility criteria for selecting studies Qualitative, guantitative and mixed methods studies that assessed the perspectives of parents on decisions to access or delay or avoid accessing paediatric unscheduled healthcare during the COVID-19 pandemic.

Data extraction and synthesis Nvivo 14.23.0 was used to code results the of the primary studies and develop themes, following a thematic synthesis approach. Results Twelve studies were included, all from highincome settings, mainly in Europe. The studies were conducted across varying times and levels of COVID-19-related restrictions. The principal descriptive themes identified were (i) concerns about COVID-19 infection, (ii) balancing and navigating risks, (iii) perception of healthcare service status and conditions and (iv) perception of information and advice. These were developed into analytic themes to further describe the decision-making process.

**Conclusions** Parents balanced a range of risks, concerns, advice and responsibilities when considering accessing paediatric unscheduled healthcare during the COVID-19 pandemic. External sources of advice and information were important; misconceptions around public health advice may reflect the multitude of information sources and the rapidly changing circumstances of the pandemic. Public health policy and planning should consider parent perspectives when developing measures to ensure

### STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This mixed methods review on unscheduled paediatric healthcare utilisation decision-making directly explored parent perspectives, which are an important but sometimes overlooked consideration.
- $\Rightarrow$  A comprehensive and systematic search strategy was used, but with limitations due to resource constraints, such as limiting to the English language and screening being carried out by a single reviewer.
- $\Rightarrow$  Thematic synthesis was applied, including inductive coding and the use of participant quotes to ensure the findings remained grounded in the context of the primary studies.
- $\Rightarrow$  An explicit quality appraisal process was applied, which included the use of sensitivity analysis. This
- which included the use of sensitivity analysis. This method and its rationale are transparently de-scribed, although the optimal approach in mixed methods or qualitative synthesis is debated. ⇒ This review considered unscheduled healthcare as a whole undivided system, but there was a potential bias in included studies towards the emergency de-partment setting. There was also a bias in included studies towards high-income countries in Europe. equitable access to appropriate paediatric healthcare services. INTRODUCTION Unscheduled healthcare is healthcare that is usually provided with less than 1 day's notice through services such as emergency departments (EDs), general practitioners

departments (EDs), general practitioners (GPs) and out-of-hours clinics.<sup>1 2</sup> During the COVID-19 pandemic, significant reductions in paediatric unscheduled healthcare utilisation were recorded.<sup>3</sup> Children as a group were generally less vulnerable to the direct impacts of COVID-19 but were disproportionately affected by indirect consequences.<sup>45</sup> Important routine healthcare services were impacted; for example, disruptions to

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childhood vaccinations have increased the risk of future vaccine-preventable disease outbreaks.<sup>6</sup> Certain groups, such as children with disabilities and chronic illnesses, faced additional challenges and disruptions to their usual care.<sup>7-10</sup> Regarding children's unscheduled care use, paediatric ED visits dropped significantly across various regions; the average reduction reported in the literature was previously estimated at 64%, with a range of 17–89%.<sup>3</sup> There are concerns that delay or avoidance of acute presentations may have resulted in adverse health impacts for children,<sup>11 12</sup> with paediatricians in multiple countries reporting their experience of delayed presentations contributing to avoidable harm.<sup>13–15</sup> For instance, a survey of 4075 UK and Irish paediatricians in April 2020 estimated that delayed presentation had already contributed to nine deaths.<sup>13</sup> These potentially avoidable harms may relate to issues such as delayed cancer diagnoses,<sup>16</sup> delayed diagnoses of acute conditions such as appendicitis,<sup>17</sup> increased complications for new presentations of chronic diseases such as diabetes<sup>18</sup> and reduced access to acute mental health services.<sup>19</sup>

The factors influencing paediatric healthcare-seeking are complex, involving interactions between individuals and complicated health systems. In studying the reasons for these changes in healthcare utilisation, it is important to understand the decision-making processes of people accessing services. Parents' perspectives are an essential but sometimes overlooked aspect in understanding this process.<sup>1 20</sup> In addition, previous studies have shown that healthcare professionals explain healthcare use in terms of the clinical urgency of the medical issues, whereas patients focus on other practical issues as well, including accessibility, convenience and contextual factors.<sup>20 21</sup> Together, these findings illustrate the importance of including service user perspectives in research on accessing paediatric unscheduled healthcare.

Regarding evidence on parents' decision-making specifically, a systematic review before the pandemic identified several important factors associated with unscheduled care use, such as the perception of the condition's urgency, a need for reassurance, waiting times and the availability of services.<sup>1</sup> In the context of previous pandemics and epidemics, the 2003 severe acute respiratory syndrome (SARS) pandemic and the 2015 Middle East respiratory syndrome (MERS) outbreak were associated with reduced paediatric ED visits.<sup>3</sup> Suggested reasons for the reduction during the SARS epidemic included fear of infection, media influence and public health advice that people with symptoms should stay at home.<sup>3 22–24</sup> In contrast, the 2009 influenza A (H1N1) pandemic was associated with increased paediatric ED use,<sup>3</sup> possibly related to parents' fears and media coverage at the time.<sup>3 25 26</sup>

How parents made these kinds of decisions during the COVID-19 pandemic is not currently clear. Some proposed causes for the reductions include fears around COVID-19 infection when attending hospitals or primary care, changes in infectious disease incidence with reduced social contact and perceptions around

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healthcare availability.<sup>14 27-29</sup> Changes in the provision of hospital care may have also contributed; for example, some services required the redeployment of paediatric staff to adult services, restructuring of EDs and cancelling outpatient care.<sup>30</sup>

We aimed to gain a greater understanding of parent decision-making around accessing paediatric unscheduled healthcare during the COVID-19 pandemic to inform planning for future public health emergencies to ensure safe access to paediatric healthcare services. Our specific objectives were (i) to describe which factors were important to parents in decisions to access paediatric unscheduled healthcare during the pandemic, (ii) to ŝ describe which factors were important to parents in decisions to delay or avoid accessing paediatric unscheduled 8 healthcare during the pandemic and (iii) to describe graphic differences in these results across different geographic graphic regions and country economic classifications. Of note, various terms for parents, caregivers and guardians may be applied in this area. For this review, we use the term 'parent' to include a range of individuals responsible for ٥u care and decision-making for children, including biologfor uses related to ical parents, legal guardians and other primary caregivers.

#### **METHODS**

This mixed methods review and thematic synthesis were conducted and reported based on best practice guidance, adapted from the Joanna Briggs Institute (JBI) recommendations for mixed methods systematic reviews, the Enhancing Transparency of Reporting the Synthesis of Qualitative (ENTREQ) statement and the updated PRISMA statement.<sup>31-35</sup> The mapping of ENTREQ items to specific sections of the report is provided in online supplemental table S1.

#### **Search methods**

ining, Al training, We applied the Sample, Phenomenon of Interest, Design, Evaluation, Research type (SPIDER) tool to the research aims and objectives to develop the research question, identify search concepts and define a comprehensive search strategy.<sup>36</sup> The SPIDER tool was chosen as it is designed specifically for qualitative and mixed methods research.<sup>36</sup> The research question was: 'What factors were reported by parents to influence their decision-making regarding accessing paediatric unscheduled healthcare during the COVID-19 pandemic?' Potential search terms & were initially identified from a previous systematic review **8** on the topic before the COVID-19 pandemic.<sup>1</sup> COVID-19-related terms were identified from the Royal College of Surgeons in Ireland library guide website.<sup>37</sup> Further search terms were identified by examining the title, abstracts and subject indexing of three studies, which were known to be relevant to this review.<sup>21 38 39</sup> Inclusion and exclusion criteria were developed by applying the SPIDER tool to the research question, aim and objectives. These criteria are outlined in table 1. The search

nd exclusion criteria	
Inclusion criteria	Exclusion criteria
Studies that involved the parents of children aged under 18 years	Studies that did not examine and report child and adult data separately (for those studies that included adult data)
Studies that assessed factors associated with paediatric unscheduled healthcare utilisation decisions	Studies that did not examine and report child unscheduled healthcare data separately from other forms of healthcare (for those studies that included different types of healthcare)
Studies published since 31 January 2020	
Primary research, including grey literature	Editorials, reviews and expert opinions
Studies that directly examined parent-reported factors	
Qualitative, quantitative or mixed methods studies	
Available in English	
	Inclusion criteria Inclusion criteria Studies that involved the parents of children aged under 18 years Studies that assessed factors associated with paediatric unscheduled healthcare utilisation decisions Studies published since 31 January 2020 Primary research, including grey literature Studies that directly examined parent-reported factors Qualitative, quantitative or mixed methods studies Available in English

concepts and the strategy for each source are included in online supplemental tables S2 and S3.

The searches were carried out in July 2023, and the sources accessed were MEDLINE, Embase, Web of Science, PsycEXTRA, PsycINFO, Global Health, Global Index Medicus, Dissertations and Theses Global, Google Scholar and OAISter. Forward and backward citation searching was also carried out on included articles using citationchaser.<sup>40</sup> We screened the title and abstract of all studies returned against the above inclusion and exclusion criteria and then examined the full text of any potentially relevant articles for inclusion. A single reviewer carried out the screening.

### **Data extraction**

Initial categories for data extraction were identified based on a previous review and the JBI guidance<sup>1 34</sup> and incorporated into a standardised data collection tool (online supplemental table S4). These categories were chosen primarily to provide background on the study design and context. The results section of all included reports was entered into Nvivo 14.23.0 to facilitate thematic synthesis.

#### Data synthesis and analysis

This review followed a convergent integrated mixed methods design,<sup>34</sup> which has the benefit of producing results that consider the entire range of evidence together and may provide more detailed insights.<sup>41</sup> We applied the thematic synthesis approach outlined by Thomas and Harden.<sup>33 35</sup> Quantitative results were transformed by coding the data into 'textual descriptions', also described as 'qualitising'.<sup>34 41</sup> This approach has been used in several other reviews that applied thematic synthesis to the combined results.42-45

This synthesis process initially involved inductive lineby-line open coding using Nvivo 14.23.0. Relevant text for coding included any text in the 'Results' sections of included studies that described parent-reported factors in decision-making around accessing paediatric unscheduled care during the pandemic. This text could include direct quotes from participants, the authors'

interpretations and the authors' reporting on quantitative results.

Protected by copyright, includi The codes emerging from this process were then organised into descriptive themes. This was done by repeatedly a reviewing the initial codes and the text of the studies and  $\vec{\mathbf{o}}$ associating related codes, thinking deductively about the uses themes occurring in multiple reports.<sup>46</sup> Direct quotes are included where relevant to ensure the original context ſe and meaning are represented.

We then developed analytic themes by examining how the descriptive themes explain the research question. This involved abductive and retroductive reasoning in inferring general conclusions about the results across the included studies.<sup>46</sup> It is important to note the distinction between the descriptive themes and the analytic themes, in that the descriptive themes aim to 'stay close to' the primary studies and use their own terms, whereas the analytic themes seek to 'go beyond' the primary studies in B an attempt to answer the research question.<sup>33</sup> This separa-  $\triangleright$ tion aims to create a synthesis result that includes 'abstract and formal theories', which are still 'empirically faithful' to the primary studies from which they were developed, as described by Sandelowski and cited by Thomas and <u>م</u> Harden.<sup>33 47</sup>

Regarding different regions and economies (Objective (iii)), we categorised studies according to their WHO regional groupings and The World Bank classification.<sup>48 49</sup> echnologies We then compared and contrasted the contribution of studies from different regional groupings and income classifications to different themes and subthemes.

#### Analytical model

We followed a similar approach to that used by Houghton et al to create a model to convey the key analytical findings.<sup>50</sup> The purpose of this model is to provide a simple visual representation of the main analytic and descriptive themes, as opposed to a detailed framework of all potential factors identified. First, considering the research question, we examined the relationships between the descriptive and analytic themes in an iterative process. Then, abductive and retroductive reasoning were again used to organise factors into those that encouraged or discouraged attendance. Following this, we created multiple mind maps to design an optimal way of displaying the core results and then adapted these into a final overarching analytical model. These steps were repeated until it was felt that the model accurately provided a simple visual representation of the main descriptive and analytical themes.

#### Quality appraisal of included studies and sensitivity analysis

We used the Mixed Methods Appraisal Tool (MMAT) to appraise the quality of individual studies, applied by a single reviewer.<sup>51</sup> Regarding incorporating critical appraisal into the results and conclusions, there is a lack of consensus on the best method for qualitative and mixed methods reviews.<sup>52</sup> In addition, the MMAT advises against calculating an overall score, instead recommending that the individual scoring is presented. Consequently, we included all studies in the synthesis and results, presented the full MMAT results for each study and also conducted a sensitivity analysis after synthesis to examine the contribution of potentially lower-quality studies to the results. This process is similar to the approach described by Carroll and Booth, which has previously been applied to qualitative syntheses of mixed methods research.<sup>53 54</sup> For this sensitivity analysis, we selected three criteria from the MMAT that were identified as being particularly relevant for accurately capturing parent perspectives, and studies that did not meet these three criteria (where applicable) were classified as being potentially of lower quality. These three criteria are outlined in online supplemental table S5, along with the rationale for their selection. We then examined the contribution of the potentially lowerquality studies to the results by assessing what themes and subthemes would have remained without the evidence from these studies. This overall quality appraisal and sensitivity analysis process (figure 1) serves to transparently and explicitly examine the impact of potentially lower-quality studies on the results; at the same time, it does not exclude any studies based on criteria



Figure 1 Quality appraisal and sensitivity analysis process.

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that may be considered controversial and unvalidated. Similar approaches have been previously described elsewhere.535

#### Patient and public involvement

This rapid review was conducted without patient or public involvement.

#### RESULTS

A total of 14 reports relating to 12 studies were ultimately included in the review (figure 2, table 2 and online supplemental table S6).<sup>38 39 57-68</sup> This includes studies with potentially lower quality, as described in further detail in g the Methodological quality appraisal and sensitivity analysis section below. The studies were mainly conducted in Europe, and all were in high-income economy countries.<sup>48</sup> The studies were performed over various periods and with various pandemic restrictions, with data collec-, including tion occurring in 2020 for most.

#### **Descriptive themes**

We described four key descriptive themes: (i) concerns about COVID-19 infection, (ii) balancing and navigating risks, (iii) perception of healthcare status and conditions and (iv) perception of information and advice. The contribution of each study to the various themes is demonstrated in table 3.

### Concerns about COVID-19 infection

Concerns about COVID-19 infection were directly described in eight studies.<sup>38 39 57 58 60 62 65 68</sup> This is mainly related to concerns that the child or family would acquire COVID-19 infection while attending healthcare services.

#### Exposure to COVID-19 in healthcare settings

The risk of COVID-19 exposure was a key finding 9 ≥ a number of quantitative surveys and was the in most commonly reported concern for parents in some.<sup>57 58 62 68</sup> Similarly, qualitative studies demonstrated related concerns and expanded on parents' reasoning g and understanding. The hospital environment, including the physical setting and behaviour of others (staff and patients), appeared to influence parents' perceptions of COVID-19 risk. Some parents reported feeling reassured when they noted 'how well everything was managed'60 and specifically due to COVID-19 measures in place including social distancing.<sup>39 60 67</sup> The concept of trust in health professionals and their practices to reduce this risk was apparent; some parents were reassured that they **8** had 'things in place keeping everyone safe'.<sup>39</sup> In contrast, other parents were concerned about being in confined spaces where they witnessed people not following precautions,<sup>39 60</sup> such as in waiting rooms where they noted 'the majority of people not wearing masks and people coughing'.<sup>39</sup> In some studies, this concern of acquiring COVID-19 extended further to exposure while travelling to or from the healthcare setting, particularly with public transport. 39 57 65 67

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Figure 2 Preferred Reporting Items for Systematic Review and Meta-Analysis flow diagram. Adapted from Page et al.<sup>82</sup>

Concern about acquiring COVID-19 was noted to change over time in three studies, with a reduction in concern being the main finding.<sup>39 57 60</sup> Some parents were reassured that healthcare settings would be better adapted to reduce the risk of infection as the pandemic progressed: 'I imagine now that the hospital is so slick'.<sup>60</sup> Others were reassured by their previous experience attending during the pandemic.<sup>39 60</sup>

#### Sources of fears and concerns

Some parents described the media as contributing to their fears,<sup>38,39</sup> such as through 'scaremongering tactics' associated with social or mainstream media and a 'hyper-awareness of mortality' due to media reports.<sup>39</sup> Another stated outright that the media 'gives you the impression that the corona is coming from the hospital'.<sup>38</sup> In one study, reports from parents about fears were felt to reflect comments by the UK Health Secretary at the time, of 'don't kill your gran by catching coronavirus and then passing it on'.<sup>38</sup> In addition to the media, some participants in this study described concern and advice not to attend coming from family members,<sup>38</sup> and others noted the fact that the virus was new and not fully understood as being a cause for concern in itself.<sup>39,60</sup>

#### Balancing and navigating risks

Balancing and navigating risks relates to other themes **G** but was also reported by parents as a process in its own right.<sup>39 59 60 63 68</sup> This could include weighing up COVID-19 concerns, the severity of the child's illness and different responsibilities. Some parents explicitly **d** described this process of weighing up risks, depicting going to the ED as a 'judgement call' based on their assessment of how unwell a child was or after seeing a GP.<sup>39</sup> This weighing up of risks was sometimes described as a challenging process by parents.<sup>60</sup> Some described attending ED when they found it was a difficult decision to make and were uncertain: 'it was a very sort of, "do I take him, do I not"...(but) I would never forgive myself if I didn't take him.'<sup>60</sup>

#### Risk to children versus risk from children

Some parents also explicitly differentiated the infection risk to children versus from children; the risk to children was mainly felt to be 'minimal', whereas passing on COVID-19 to others was a worry.<sup>60</sup> Parents reported concern that children would acquire COVID-19 in the hospital and pass it on to 'vulnerable' people afterwards<sup>39</sup> <sup>60</sup> and concern that children would pass on

Table 2 Summary o	if included studies	~					
Author and year, country	Dates of data collection	Type of healthcare assessed	Research type	Sampling strategy	Data collection and sample size	Data analysis	Results: factors influencing decision- making
Appleby <i>et al</i> 2022 England <sup>39</sup>	November – December 2020	Paediatric ED	Mixed methods	Convenience sample attending paediatric ED or assessment unit	Semi-structured interview (n=2) Survey (n=80) Semi-structured interview and survey (n=18)	Descriptive statistics Thematic analysis Convergent mixed methods analysis	Parents discussed issues around caregiver roles, perceptions of the healthcare system (NHS), understanding and navigating risk (eg, child's health and COVID-19 risk) and sources of information
Berry, 2022 England <sup>59</sup>	Unclear	Paediatric ED	Qualitative	Purposive sample attending paediatric ED	Semi-structured interviews (n=19)	Thematic analysis	Parental anxiety was unchanged, and parents continued to seek medical attention early in the course of illness
Breckons <i>et al</i> 2023 England <sup>60</sup>	May-July 2020	Children's emergency services	Qualitative	Purposive sample recruited through public involvement groups, online forums and social media groups	Semi-structured interviews (telephone) (n=21)	Thematic analysis	The main themes identified involved parents making sense of risks to children and risks posed by children, understanding information and trying to make the right decisions for their children
Davis <i>et al</i> 2021 USA, Canada, Israel, Spain, Switzerland <sup>58</sup>	May-June 2020	Paediatric ED	Quantitative	Convenience sample attending paediatric ED	Survey (online) (n=1543)	Descriptive statistics and logistic regression	18.6% reported delaying attending due to COVID-19 infection concerns
Lim <i>et al</i> 2020 England <sup>61</sup>	April-June 2020	Healthcare services when your child is seriously ill	Quantitative	Convenience sample recruited through social media	Survey (online) (n=171)	Descriptive statistics Inductive content analysis	19.2% used the advice leaflet. Of these, just over 40% changed their behaviour as a result, mainly seeking healthcare when they would not have previously
McCarthy <i>et al</i> 2021 Australia <sup>s2</sup>	October- November 2020	Hospital and oncology care	Quantitative	Unclear. 'Eligible children were identified through the RCH electronic medical records database'	Survey (online) (n=85)	Descriptive statistics Linear regression Content analysis	12% were reluctant to attend the ED; reasons included avoiding swabbing and avoiding COVID-19 exposure
							Continued

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Table 2 Continued							
Author and year, country	Dates of data collection	Type of healthcare assessed	Research type	Sampling strategy	Data collection and sample size	Data analysis	Results: factors influencing decision- making
Nicholson <i>et al 2</i> 020 Ireland <sup>57</sup>	) June 2020	Paediatric unscheduled healthcare	Quantitative	Stratified random sample from Qualtrics <sup>TM</sup> market research panels with representation of all age groups of children	Survey (online) (n=1044)	Descriptive statistics Multinomial and logistic regression	The most commonly reported concern when considering attending healthcare was fear of contracting COVID-19 (n=706, 67%), followed by concern that the service would be busy (n=315, 30%) and belief that others needed the services more (n=263, 25%). Hesitancy was associated with the belief that government messaging meant avoid healthcare
Poppe <i>et al</i> 2021 Portugal <sup>63</sup>	May 2020	ED and routine healthcare services	Quantitative	Convenience sample recruited through social media	Survey (online) (n=12 390)	Descriptive statistics	Of parents who visited the ED, 33.9% would have gone earlier if not for the pandemic. Of parents whose children were ill and did not attend ED, 22.8% would have gone if there had been no pandemic
Sanderson <i>et al</i> 2023 Canada <sup>64</sup>	May 2020 - May 2021	Paediatric virtual care emergency clinic	Qualitative	All patients who had a virtual emergency clinic visit were invited to participate	Survey (n=773)	Content analysis	Parents were satisfied with the virtual emergency clinic and were motivated to use it to avoid the hospital environment during the pandemic
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Tan <i>et al</i> 2023 March 2020- Healthcare for sick Quantitative Virtual snowball Su taly, Spain, May 2022 or injured children sampling through (n= Sweden, the Netherlands, the UK <sup>68</sup>	e for sick Quantitative Vi children sa so c	tual snowball mpling through (	Survey (online) n=598)	Descriptive	
	dical Quantitative Co			statistics Thematic analysis	Parents continued to access healthcare for their children during the pandemic when needed. Fear of COVID-19 infection was noted in all countries, leading some parents to delay attendance
Wagh <i>et al</i> 2022 June–December Acute medical Quantitative Convenience sample Su USA <sup>65</sup> 2020 care, paediatric attending paediatric (n= ED, routine and chronic non-urgent medical care	diatric at e and EI on-urgent are	nvenience sample s tending paediatric ( )	aurvey (online) n=290)	Descriptive statistics	Reasons for not seeking healthcare when a child was ill included concern of COVID-19 infection (43%), media and government advice not to attend (43%), and the illness not being severe enough (29%)
Watson <i>et al</i> 2021 May–June 2020 Paediatric acute Qualitative Convenience sample Se England <sup>38</sup> attending paediatric inte ED ED	acute Qualitative Co ia the ED at EI	onvenience sample tending paediatric o	semi-structured nterviews (n=15)	Thematic content analysis	Delay in deciding to attend was related to fear of infection, which was caused by the media and personal or community experience

Table 3 Contribution of studies to themes

			Impact of	Themes			
Study	WHO region*	World bank income classification <sup>†</sup>	background child and family factors reported	Concerns about COVID-19 infection	Balancing and navigating risks	Perception of healthcare service status and conditions	Perception of information and advice
Appleby <i>et al</i> 2022 <sup>39</sup>	EUR	High income	1	1	1	1	1
Berry, 2022 <sup>59</sup>	EUR	High income			$\checkmark$	$\checkmark$	$\checkmark$
Breckons <i>et al</i> 2023 <sup>60</sup>	EUR	High income		1	1	1	1
Davis <i>et al</i> 2021 <sup>58</sup>	EUR and AMR	High income	1	1			
Lim <i>et al</i> 2020 <sup>61</sup>	EUR	High income					✓
McCarthy <i>et al</i> 2021 <sup>62</sup>	WPR	High income		1			
Nicholson <i>et al</i> 2020 <sup>57</sup>	EUR	High income	1	1		1	
Poppe <i>et al</i> 2021 <sup>63</sup>	EUR	High income			1		
Sanderson <i>et al</i> 2023 <sup>64</sup>	AMR	High income				1	
Tan <i>et al</i> 2023 <sup>66–68</sup>	EUR	High income		✓	1	1	✓
Wagh <i>et al</i> 2022 <sup>65</sup>	AMR	High income	✓	✓	✓	1	$\checkmark$
Watson <i>et al</i> 2021 <sup>38</sup>	EUR	High income	1	1	1	1	1

\*WHO regions.49

†World Bank income classifications for the 2024 fiscal year.48

AMR, Region of the Americas; EUR, European Region; WPR, Western Pacific Region.

COVID-19 to 'vulnerable' people in the hospital while attending.60 62

#### Severity of the child's illness

The severity of the child's illness was another factor in decision-making in several studies.<sup>38</sup> <sup>39</sup> <sup>59</sup> <sup>60</sup> <sup>65</sup> Parents described seeking care when they judged the illness sufficiently severe<sup>38 39 60</sup> and avoiding seeking care when they did not feel it was severe enough.<sup>65</sup> Some tried to manage things at home but sought help when the potential severity of the condition meant it was something they were not confident dealing with themselves, such as a head injury.<sup>60</sup> Others referred to the 'parent's instinct' or their 'gut feeling', which allowed them to decide when help was needed and could outweigh other concerns.<sup>39</sup>

.so you have that instinct, if you think that your son or daughter ... is poorly... You know ... then you don't think of anything else apart from getting them the treatment he needs or she needs.<sup>39</sup>

There was some divergence of opinion among parents regarding changes in the threshold for seeking care during the pandemic. Some described being more cautious in their decision-making around accessing care during the

pandemic and discussed the concept of 'raising the bar' for when to attend in terms of the severity of the illness.<sup>60</sup> Al training, Conversely, others described how they only used services when needed, but that this was the same as before the pandemic<sup>60</sup> or how they continued seeking help early when needed.<sup>59</sup> There was similar divergence in the surveys, with some supporting an unchanged threshold,<sup>68</sup>

and others indicating reduced attendance rates for the same level of illness during the pandemic.<sup>63</sup> *Responsibility*The concept of responsibility was noted in two studies, which both described two contrasting issues: responsibility to their child to get healthcare and a broader gives in the same level of the same social responsibility to follow the rules or guidance.<sup>39 60</sup> Some parents discussed the responsibility to act in the child's best interests, regardless of other factors, and an obligation to protect or negotiate care for one's children.<sup>39 60</sup> Conversely, several parents in both studies reported concern with 'breaking the rules' and feeling responsible for 'following the rules' and acting in a 'socially responsible' way.<sup>39 60</sup> These feelings of social responsibility supported decisions to delay or avoid seeking healthcare. Some parents reported a reluctance to seek healthcare

due to fear of judgement by others, which may have contributed to this concern about social responsibility and following the rules.<sup>39 57</sup> Fear of judgement by professionals was a prominent reason for not attending in one survey.<sup>57</sup> In addition, several parents found the rules and changes to be 'confusing' and 'unfair'.<sup>39</sup> As a result, they did not know what they should be doing and how best to follow the rules and fulfil their social responsibilities. This ultimately 'undermined trust and left participants feeling frustrated'.39

when we were in the initial lockdown there was less confusion and I think that most people were aware of what was happening and then suddenly we're in another lockdown and everything was rushed and nothing was really broadcast very, very well shall we say and... a lot of the time people are unclear as to what they should be doing'3

#### Perception of healthcare service status and conditions

Perception of the status of and conditions in healthcare services was identified as a theme from most studies.<sup>38 39 57 59 60 64 65 68</sup> Parents frequently raised this as a reason for avoiding care, and parents' understanding of whether healthcare services were open influenced their decision-making.

#### Perception of burden or capacity issues

Several studies described the concept of not wanting to attend healthcare to avoid adding to a healthcare system already experiencing a significant 'burden'.<sup>39 57 60 68</sup> Parents discussed in interviews how they 'didn't want to put any extra pressure on the doctors<sup>60</sup> or 'don't want to put additional pressure' on the National Health Service (NHS).<sup>39</sup> Others were advised by friends or family not to attend ED due to the conditions there, sometimes described as 'horrible'.<sup>38</sup>

Some parents were worried that others believed they 'don't deserve an appointment', leaving them in a situation of 'potentially dying or becoming seriously ill with something that could be treated or prevented entirely<sup>39</sup>. In parallel, others described how limited services were likely needed by other patients:

that the doctors was probably, massively overly used at that point because of all this Covid so we were like we're not going to get an appointment or, even if we do, there's probably somebody who needs it more than us.<sup>60</sup>

Survey findings supported both of these concepts: concerns that the service would be busy or that others were in greater need were frequently reported by participants in two studies.<sup>57 67</sup>

#### Perception of whether healthcare was open or accessible

Interpreting government or public health advice as meaning to stay away from all healthcare was described in three studies.<sup>57 60 66</sup> Several parents in an English study described their interpretation of the 'Stay home, Protect the NHS, Save lives' message as meaning people should not use health services: "protect the NHS" had that impact, if there's any worries apart from Covid then stay away, quite a blunt message'.<sup>60</sup> Despite this, most parents in the same study reported that they understood health services were available throughout the pandemic: 'I think there's been enough encouragement that if you've got an unwell child they should be seen. I certainly haven't seen anything to say otherwise'.<sup>60</sup> In addition to this seen anything to say otherwise'.<sup>60</sup> In addition to this divergence in understanding of the meaning of public health advice, other parents were concerned by a lack of clarity about how hospitals were operating during the advice meaning to 'avoid health services'.<sup>57</sup> Some parents interpreting government advice as meaning to 'avoid health services'.<sup>57</sup> Some parents interpreting to say otherwise'.<sup>60</sup> Those who did not seek medical care when their children were sick noting that the government advice.<sup>67</sup> Experiences of virtual or remote structure of the advice, <sup>69</sup> Sof <sup>67</sup> which may be related to the perceived at the government.<sup>68</sup> Conversely, others reported negative experiences with virtual emergency clinics,<sup>60</sup> (BP appointments<sup>67</sup> and text information from GPs.<sup>69</sup> Conversely, others reported negative experiences with virtual emergency clinics,<sup>60</sup> (BP, <sup>69</sup> Conversely, others reported negative experiences with telephone consultations and were concerned that hey were insufficient to diagnose and treat their child's interpret, to listen to his chest. You can't do that over the telephone.<sup>59</sup> Some parents were concerned that hey were insufficient to diagnose and treat their child's one of the top were the telephone.<sup>59</sup> Some parents were concerned that tower the telephone.<sup>50</sup> Some parents were concerned that hey used a more the telephone.<sup>50</sup> Some parents were concerned that they used as the top were the telephone.<sup>50</sup> Some parents were concerned that h

they were insufficient to diagnose and treat their child's illness, resulting in ED attendance: 'I needed someone to look at him properly, to listen to his chest. You can't do that over the telephone'.<sup>59</sup> Some parents were concerned that language barriers would mean they would not be adequately understood over the phone and felt that an in-person review was essential.<sup>38</sup> Perception of information and advice The impact of information and advice on decision-making was apparent across seven studies.<sup>38</sup> <sup>39</sup> 59-61 65 68 Parents commonly sought advice before attending unscheduled care, and their perceptions of the quality of information sources factored into the process. When questioned on whether participants sought advice before attending the ED, most reported that they had, with complementarity between qualitative and quantitative studies; commonly used sources of advice were GPs and NHS 111.<sup>39 59-61</sup> Parents described seeking advice for 'validation' or 'reassurance' that they were doing the right thing in seeking care.<sup>39 66</sup> In addition to healthcare professionals and official sources, some sought advice from friends or family.<sup>38 39</sup> Parents described a range of positive perceptions towards certain kinds of information and information sources.<sup>38 39 61 66</sup> Some sources were identified as reliable by parents, including NHS 111,<sup>38</sup> pharmacies, educators

and medical professionals.<sup>39</sup> This 'trustworthiness' of information sources directly influenced perceptions around COVID-19 and the pandemic.<sup>39</sup> One study specifically examined the impact of an information leaflet for identifying when your child is seriously unwell and found that it increased confidence in recognising severe illness and sometimes caused parents to seek healthcare where they would not have otherwise.<sup>61</sup> Similar to seeking advice for validation or reassurance, some parents described finding information useful because it was reassuring: 'The information was useful since it reassured me, useful tips and information on when to seek medical help (again) were given'.<sup>66</sup>

On the other hand, negative perceptions around information or advice were also reported across several studies.<sup>38 39 60 66 67</sup> These negative perceptions related to misinformation online,<sup>38 60</sup> unclear or confusing information,<sup>67</sup> delays and confusion with NHS 111,<sup>39 59 67</sup> information not being child-specific<sup>66</sup> and a lack of available information.<sup>67</sup> Parents in these studies reported that this contributed to their confusion, upset and uncertainty; in some cases, this led to a decision that they would not consult information sources before attending ED in the future.

#### Analytic themes and analytical model

The studies had various perspectives and focus, and the findings underscore the complexity of this decisionmaking process. The following two overarching analytic themes are intended to summarise the main commonalities across the range of findings when considering the specific research question of this review. The proposed analytical model summarising the key factors identified and their impact is presented in figure 3.

## Parents balance a range of different risks and competing responsibilities

Parents' decision-making depends on their perception of various risks, including COVID-19 acquisition by the child or family, passing on COVID-19 to others, negatively impacting healthcare services or other users by attending and potential harm to the child from not attending. Parents balance and navigate these risks, and this process may be moderated by their perception of different responsibilities related to the parent role: the responsibility to look after their children and a broader social responsibility to follow the rules and behave conscientiously. This process of weighing up different priorities and concerns can be challenging; sometimes, the decision is made based on parents' instincts or gut feelings.

## Parents are amenable to external information and advice influencing their decisions

The impact of external factors was clear from the studies, particularly concerning parents seeking information and advice from trusted sources, with most seeking advice before attending ED. Parents often found this advice reassuring or validating in that it confirmed that they were doing the right thing by deciding to attend when uncertain. On the other hand, many reported issues with some information sources, such as those found online, and with increased fear or uncertainty being driven by the media. Potential misconceptions around official public health advice were common in some studies. Patients' perspectives on risks, roles and responsibilities may also be influenced by external agents and sources of information, including the media, healthcare professionals and the community.



Figure 3 Analytical model.

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#### Methodological guality appraisal and sensitivity analysis

The full methodological quality appraisal results for each study are shown in online supplemental table S7. Considering the pre-selected MMAT criteria for sensitivity analysis, one of the qualitative studies did not meet criterion 1.2.,<sup>64</sup> one of the quantitative studies did not meet criterion 4.3.63 and the quantitative part of the mixed methods study did not meet criterion 4.3.<sup>39</sup> Results from the guantitative part of the mixed methods study and all parts of the other two studies did not significantly contribute to the descriptive themes and subthemes, as shown in table 3 and the results presented above.

#### DISCUSSION **Key findings**

The included studies describe how parents balanced a range of risks, concerns, worries and responsibilities in their decision-making. They also show how external information or advice influenced the decision-making process and outcomes. Parents were concerned about the family acquiring or passing on COVID-19 while attending healthcare, but infection control measures and other experiences reassured some. Some described the contrast between responsibility to their children, related to the severity of illness and a broader social responsibility to follow COVID-19 rules and guidelines. Concern about adding to an already burdened healthcare service was a common theme. It was noteworthy how minimal reference there was to background child and family factors, such as sociodemographic aspects, influencing this process. In addition, most of the studies were carried out in Europe, and all were carried out in high-income settings, limiting comparisons across different geographical regions or economic contexts.

#### **Comparison to other literature**

Parents' perception of the severity of the child's presenting condition and their need for reassurance is evident from studies before the COVID-19 pandemic,<sup>1</sup> and complementarity is seen with some of the results of this review. The concept of understanding and balancing different risks to make the decision has also been described in previous studies<sup>1 60 69</sup>; before the pandemic, these risks are related to the child's health risks from their current illness, whereas this review adds additional risks to children, families and broader society from COVID-19 transmission within healthcare settings. These additional risks weigh into the mix of factors parents must consider and balance when deciding whether to attend unscheduled care with their children.

Interpreting and understanding information influenced decision-making in some studies before the pandemic but was not a prominent theme in a recent systematic review.<sup>1</sup> In our review, however, this was a key theme; parents frequently reported that information and the quality and reliability of information sources directly influenced decision-making. For example, it is

concerning that there was a wide variation in parents' understanding of public health guidance, with many parents understanding official guidance to mean they should stay away from hospitals entirely. This contrast with the systematic review before the pandemic may point to the increasingly important role of trusted information sources today, especially with rapid changes in circumstances, rules and guidance, such as during the COVID-19 pandemic. Parents in included studies raised concerns about the vast amount of information available and about misinformation online, a concept described by others as an 'infodemic' and a significant public health issue to address.<sup>57 70</sup> The critical importance of transparency and trust in risk communication and public health messaging was also apparent during the 2003 SARS.<sup>71</sup> Although not **8** reported in this review, health literacy has previously been shown to impact parental health-seeking behaviour and ED use for children,<sup>172</sup> and it is an essential consideration in public health communications.

In this review, parents frequently highlighted hesitancy in attending due to concern about adding to already burdened healthcare services or due to others being in greater need of limited resources. In contrast, parents did not explicitly report this in the systematic review immediately before the pandemic.<sup>1</sup> This may be related to public health and media reports on the disease burden and strains on healthcare services, which added to some parents' worries.

Finally, in studies conducted before the pandemic, background child and family factors such as race, ethnicity and socioeconomic status were found to be important in influencing parents' healthcare-seeking behaviour in accessing unscheduled care<sup>173-76</sup>; however, this is not **a** evident in the current study. This is likely because the included studies focused on the impact of COVID-19 and, for the most part, did not directly aim to study differences due to background characteristics.

#### **Strengths and limitations**

#### **Review methods**

ing, Al training, and This review took a transparent approach to describing and justifying methodological decisions. We used a conver-S gent integrated approach to combining the different types of research, which is appropriate to this specific research question, as outlined in the JBI guidance.

Thematic synthesis is appropriate to the review question and inductive approach taken and is a thorough method that develops findings that are clearly connected  $\overset{\smile}{\mathbf{a}}$ to the results of the included primary studies.<sup>33</sup> Separating descriptive themes from analytic themes differentiates between the primary studies' data and our more analytical engagement with the evidence to apply it to the research question and develop original conceptualisations of the phenomenon, increasing transparency in the results.

Due to time and resource constraints, we could not consult with experts in the area or pilot the search strategy to ensure its completeness, and screening was

carried out by a single reviewer. While using the SPIDER tool is a strength of this study, in that it is appropriate for the type of research synthesis and research question, we note that it has been found to have a lower sensitivity in searches in some circumstances.<sup>77</sup> Again due to time and resource constraints, we did not conduct independent validation of the inclusion and exclusion criteria with multiple reviewers, which would have added to the reliability of the findings. In addition, only English language studies and the selected data sources were included, and significant studies in other languages or sources may be missed. Further to this, there is a potential for publication bias to have impacted on the findings of this review, and this was not formally assessed.

We have described the contribution of different studies to themes and outlined the strengths and weaknesses of the included studies and the review methods. However, we did not conduct a formal, comprehensive assessment of confidence in the review findings. It has been noted that there is a need for the development of a GRADE approach to assessing confidence in the findings of mixed methods reviews.<sup>78</sup> Quality assessment was carried out by a single reviewer.

Finally, in this study, we conceptualised unscheduled healthcare as one system, as this is thought to reflect how patients view and navigate services more accurately.<sup>1 2 57 79</sup> However, most of the included studies were based on a specific type of service, commonly the ED. Thus, the results may be biased towards ED access decisions instead of unscheduled care in general. We also did not assess how different healthcare systems may have impacted parents' perspectives of what was the most appropriate course of action, outside of that which was explicitly described in the results sections of included studies.

#### Included studies

The included studies were biased towards high-income, European settings; this limits generalisability to other settings. In addition, two studies carried out in similar settings in England contributed heavily to the descriptive themes.<sup>39 60</sup> Participants were mainly recruited in healthcare settings, which may bias the results by excluding people who could not access mainstream healthcare during the pandemic. Most of the included surveys were carried out online or circulated through social media, which again may risk excluding certain vulnerable groups.<sup>80</sup> Only three studies did not meet the prespecified quality criteria; when the contribution of the parts of these studies in question was examined in sensitivity analysis, they did not significantly contribute to the review findings.

As discussed above, background child and family factors were previously found to influence parent decision-making. However, they were not consistently reported in this review, likely due to the focus of the included studies.

#### Implications and future research

In terms of public health communications, this review has demonstrated that different parents may understand the same public health advice differently. Of particular concern was the potential misconception of the 'stayhome' type of advice as meaning not to access healthcare services at all. This finding highlights the importance of research that directly explores parent perceptions, including factors that contribute to the differences in understanding, to inform public health policy.

understanding, to inform public health policy. Furthermore, understanding what parents find reassuring and their perception of risks is important in developing messaging that illustrates how healthcare is safe during times of uncertainty, such as the COVID-19 pandemic. In addition, ensuring that healthcare systems can meet the needs of the populations they serve and that the public understands this capacity exists is necessary to prevent potentially harmful delays or avoidance.

Specific measures that may improve public health communication in this area include involving parents in developing messaging and ensuring a transparent and unified communication approach.<sup>81</sup> Of note, parents identified social responsibility and responsibility to their child as potentially competing aspects in decision-making; this could be an area to further explore in terms of achieving a balance with parents understanding to attend when they are concerned about their child while also taking into account the current public health guidance.

#### CONCLUSION

This mixed methods review and thematic synthesis ő describes the factors influencing parent's decisionmaking when considering accessing paediatric unsched- 3 uled healthcare during the COVID-19 pandemic. Parents balance a range of risks, concerns, advice and responsibilities; this can be a complex process with multiple competing priorities. External sources of advice and a information are important, and parents are amenable ĝ to these influencing their decisions if they are perceived as trustworthy and are correctly understood. Potential misconceptions around public health advice may reflect the multitude of information sources and the rapidly changing circumstances of the pandemic. Public health policy and planning should consider parent perspectives in developing measures to ensure equitable access to safe and appropriate paediatric healthcare services.

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#### REFERENCES

- Nicholson E, McDonnell T, De Brún A, et al. Factors that influence family and parental preferences and decision making for unscheduled paediatric healthcare - systematic review. BMC Health Serv Res 2020;20:663.
- 2 O'Cathain A, Knowles E, Munro J, et al. Exploring the effect of changes to service provision on the use of unscheduled care in England: population surveys. BMC Health Serv Res 2007;7:61.
- 3 Roland D, Gardiner A, Razzaq D, et al. Influence of epidemics and pandemics on paediatric ED use: a systematic review. Arch Dis Child 2023;108:115–22.
- 4 Snape MD, Viner RM. COVID-19 in children and young people. Science 2020;370:286–8.
- 5 Kyeremateng R, Oguda L, Asemota O, *et al*. COVID-19 pandemic: health inequities in children and youth. *Arch Dis Child* 2022;107:297–9.
- 6 Shet A, Carr K, Danovaro-Holliday MC, et al. Impact of the SARS-CoV-2 pandemic on routine immunisation services: evidence of disruption and recovery from 170 countries and territories. Lancet Glob Health 2022;10:e186–94.
- 7 Merrick H, Driver H, Main C, *et al.* Impacts of health care service changes implemented due to COVID-19 on children and young people with long-term disability: a mapping review. *Dev Med Child Neurol* 2023;65:885–99.
- 8 Houtrow A, Harris D, Molinero A, et al. Children with disabilities in the United States and the COVID-19 pandemic. J Pediatr Rehabil Med 2020;13:415–24.
- 9 Lignou S, Greenwood J, Sheehan M, et al. Changes in healthcare provision during COVID-19 and their impact on children with chronic illness: a scoping review. *Inquiry* 2022;59:469580221081445.
- 10 McLoone J, Wakefield CE, Marshall GM, et al. It's made a really hard situation even more difficult: the impact of COVID-19 on families of children with chronic illness. *PLoS One* 2022;17:e0273622.
- 11 Conlon C, McDonnell T, Barrett M, *et al.* The impact of the COVID-19 pandemic on child health and the provision of Care in Paediatric Emergency Departments: a qualitative study of frontline emergency care staff. *BMC Health Serv Res* 2021;21:279.
- 12 Schaffert M, Zimmermann F, Bauer L, et al. Austrian study shows that delays in accessing acute paediatric health care outweighed the risks of COVID-19. Acta Paediatr 2020;109:2309–10.

- 13 Lynn RM, Avis JL, Lenton S, et al. Delayed access to care and late presentations in children during the COVID-19 pandemic: a snapshot survey of 4075 paediatricians in the UK and Ireland. Arch Dis Child 2021;106:e8.
- 14 Lazzerini M, Barbi E, Apicella A, et al. Delayed access or provision of care in Italy resulting from fear of COVID-19. Lancet Child Adolesc Health 2020;4:e10–1.
- 15 Ciacchini B, Tonioli F, Marciano C, et al. Reluctance to seek pediatric care during the COVID-19 pandemic and the risks of delayed diagnosis. *Ital J Pediatr* 2020;46:87.
- 16 Ding Y-Y, Ramakrishna S, Long AH, et al. Delayed cancer diagnoses and high mortality in children during the COVID-19 pandemic. *Pediatr Blood Cancer* 2020;67:e28427.
- 17 Snapiri O, Rosenberg Danziger C, Krause I, et al. Delayed diagnosis of paediatric appendicitis during the COVID-19 pandemic. Acta Paediatr 2020;109:1672–6.
- 18 Kamrath C, Mönkemöller K, Biester T, et al. Ketoacidosis in children and adolescents with newly diagnosed type 1 diabetes during the COVID-19 pandemic in Germany. JAMA 2020;324:801–4.
- 19 Fegert JM, Vitiello B, Plener PL, et al. Challenges and burden of the coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child Adolesc Psychiatry Ment Health* 2020;14:20.
- 20 Durand AC, Palazzolo S, Tanti-Hardouin N, et al. Nonurgent patients in emergency departments: rational or irresponsible consumers? Perceptions of professionals and patients. *BMC Res Notes* 2012;5:525.
- 21 Coster JE, Turner JK, Bradbury D, *et al*. Why do people choose emergency and urgent care services? A rapid review utilizing a systematic literature search and narrative synthesis. *Acad Emerg Med* 2017;24:1137–49.
- 22 Heiber M, Lou WYW. Effect of the SARS outbreak on visits to a community hospital emergency department. *CJEM* 2006;8:323–8.
- 23 Huang HH, Yen DHT, Kao WF, et al. Declining emergency department visits and costs during the severe acute respiratory syndrome (SARS) outbreak. J Formos Med Assoc 2006;105:31–7.
- 24 Boutis K, Stephens D, Lam K, et al. The impact of SARS on a tertiary care pediatric emergency department. CMAJ 2004;171:1353–8.
- 25 Codish S, Novack L, Dreiher J, *et al.* Impact of mass media on public behavior and physicians: an ecological study of the H1N1 influenza pandemic. *Infect Control Hosp Epidemiol* 2014;35:709–16.
- 26 Sills MR, Hall M, Simon HK, et al. Resource burden at children's hospitals experiencing surge volumes during the spring 2009 H1N1 influenza pandemic. Acad Emerg Med 2011;18:158–66.
- 27 Williams TC, MacRae C, Swann OV, et al. Indirect effects of the COVID-19 pandemic on paediatric healthcare use and severe disease: a retrospective national cohort study. Arch Dis Child 2021;106:911–7.
- 28 Krivec U, Kofol Seliger A, Tursic J. COVID-19 lockdown dropped the rate of paediatric asthma admissions. *Arch Dis Child* 2020;105:809–10.
- 29 Roland D, Harwood R, Bishop N, et al. Children's emergency presentations during the COVID-19 pandemic. Lancet Child Adolesc Health 2020;4:e32–3.
- 30 Royal College of Paediatrics and Child Health Workforce Implementation Team. Impact of COVID-19 on child health services between November 2020 and February 2021 – report. London: Royal College of Paediatrics and Child Health, 2021.
- 31 Tong A, Flemming K, McInnes E, et al. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. BMC Med Res Methodol 2012;12:181.
- 32 Page MJ, McKenzie JE, Bossuyt PM, *et al.* The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Syst Rev* 2021;10:89.
- 33 Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol* 2008;8:45.
- 34 Stern C, Lizarondo L, Carrier J, et al. Methodological guidance for the conduct of mixed methods systematic reviews. JBI Evid Synth 2020;18:2108–18.
- 35 Thomas J, O'Mara-Eves A, Harden A, et al. 8. synthesis methods for combining and configuring textual or mixed methods data. In: Gough D, Oliver S, Thomas J, eds. An introduction to systematic reviews. London: Sage, 2017: 181–210.
- 36 Cooke A, Smith D, Booth A. Beyond PICO: the SPIDER tool for qualitative evidence synthesis. Qual Health Res 2012;22:1435–43.
- 37 Smith N, Royal College of Surgeons in Ireland. LibGuides: coronavirus - COVID-19 information resources: search strategy. 2023. Available: https://libguides.rcsi.ie/covid19/searchstrategy

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- 38 Watson G, Pickard L, Williams B, et al. "Do I, don't I?" A qualitative study addressing parental perceptions about seeking healthcare during the COVID-19 pandemic. Arch Dis Child 2021;106:1118–24.
- 39 Appleby G, Papageorgiou V, Horter S, et al. Caregiver perceptions and experiences of paediatric emergency department attendance during the COVID-19 pandemic: a mixed-methods study. PLoS One 2022;17:e0276055.
- 40 Haddaway NR, Grainger MJ, Gray CT. Citationchaser: a tool for transparent and efficient forward and backward citation chasing in systematic searching. *Res Synth Methods* 2022;13:533–45.
- 41 Bazeley P. Integrative analysis strategies for mixed data sources. *Am Behav Sci* 2012;56:814–28.
- 42 Carroll C, Lloyd-Jones M, Cooke J, et al. Reasons for the use and non-use of school sexual health services: a systematic review of young people's views. J Public Health (Oxf) 2012;34:403–10.
- 43 Joseph-Williams N, Elwyn G, Edwards A. Knowledge is not power for patients: a systematic review and thematic synthesis of patientreported barriers and facilitators to shared decision making. *Patient Educ Couns* 2014;94:291–309.
- 44 Adams R, Ryan T, Wood E. Understanding the factors that affect retention within the mental health nursing workforce: a systematic review and thematic synthesis. *Int J Ment Health Nurs* 2021;30:1476–97.
- 45 Juhrmann ML, Vandersman P, Butow PN, *et al.* Paramedics delivering palliative and end-of-life care in community-based settings: a systematic integrative review with thematic synthesis. *Palliat Med* 2022;36:405–21.
- 46 Wiltshire G, Ronkainen N. A realist approach to thematic analysis: making sense of qualitative data through experiential, inferential and dispositional themes. *J Crit Realism* 2021;20:159–80.
- 47 Sandelowski M. Using qualitative research. *Qual Health Res* 2004;14:1366–86.
- 48 World Bank Data Help Desk. The World Bank. World Bank country and lending groups. n.d. Available: https://datahelpdesk.worldbank. org/knowledgebase/articles/906519-world-bank-country-andlending-groups
- 49 World Health Organization. World health statistics 2023: Monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization, 2023. Available: https://www.who.int/ publications-detail-redirect/9789240074323
- 50 Houghton C, Dowling M, Meskell P, et al. Factors that impact on recruitment to randomised trials in health care: a qualitative evidence synthesis. Cochrane Database Syst Rev 2020;10:MR000045.
- 51 Hong QN, Pluye P, Fàbregues S, et al. Mixed methods appraisal tool (MMAT) version 2018 user guide. Regist Copyr 1148552 Can Intellect Prop Off Ind Can [internet]. n.d. Available: http://mixedmethodsappr aisaltoolpublic.pbworks.com/w/file/fetch/127916259/MMAT\_2018\_ criteria-manual\_2018-08-01\_ENG.pdf
- 52 Hong QN, Pluye P. A conceptual framework for critical appraisal in systematic mixed studies reviews. *J Mix Methods Res* 2019;13:446–60.
- 53 Carroll C, Booth A. Quality assessment of qualitative evidence for systematic review and synthesis: is it meaningful, and if so, how should it be performed? *Res Synth Methods* 2015;6:149–54.
- 54 Carroll C, Booth A, Lloyd-Jones M. Should we exclude inadequately reported studies from qualitative systematic reviews? An evaluation of sensitivity analyses in two case study reviews. *Qual Health Res* 2012;22:1425–34.
- 55 Toye F, Seers K, Allcock N, et al. "Trying to pin down jelly" exploring intuitive processes in quality assessment for meta-ethnography. BMC Med Res Methodol 2013;13:46.
- 56 Garside R. Should we appraise the quality of qualitative research reports for systematic reviews, and if so, how? *Innov: The Eur J of Soc Sci Res* 2014;27:67–79.
- 57 Nicholson E, McDonnell T, Conlon C, et al. Parental hesitancy and concerns around accessing paediatric unscheduled healthcare during COVID-19: a cross-sectional survey. Int J Environ Res Public Health 2020;17:9264.
- 58 Davis AL, Sunderji A, Marneni SR, et al. Caregiver-reported delay in presentation to pediatric emergency departments for fear of contracting COVID-19: a multi-national cross-sectional study. Can J Emerg Med 2021;23:778–86.
- 59 Berry R. The paediatric journey to and through the emergency department: The parent's experience [Internet] [D.Prof.]. PQDT -Global. England: University of Salford, 2022. Available: https://www. proquest.com/dissertations-theses/paediatric-journey-throughemergency-department/docview/2827705038/se-2?accountid= 213250

- 60 Breckons M, Thorne S, Walsh R, *et al.* Parental perspectives on emergency health service use during the first wave of the COVID-19 pandemic in the United Kingdom: a qualitative study. *PLoS One* 2023;18:e0285375.
- 61 Lim E, Mistry RD, Battersby A, *et al.* "How to recognize if your child is seriously ill" during COVID-19 lockdown: an evaluation of parents' confidence and health-seeking behaviors. *Front Pediatr* 2020;8:580323.
- 62 McCarthy MC, Beamish J, Bauld CM, *et al.* Parent perceptions of pediatric oncology care during the COVID-19 pandemic: an Australian study. *Pediatr Blood Cancer* 2022;69:e29400.
- 63 Poppe M, Aguiar B, Sousa R, *et al.* The impact of the COVID-19 pandemic on children's health in Portugal: the parental perspective. *Acta Med Port* 2021;34:355–61.
- 64 Sanderson V, Vujcic B, Coulson S, et al. Qualitative analysis of values and motivation reported by families utilizing a paediatric virtual care emergency clinic launched during the SARS-CoV-2 pandemic. Can J Emerg Med 2023;25:529–33.
- 65 Wagh A, Pan S, Gordon S, *et al.* Pediatric health care use during the COVID-19 pandemic: lessons learned from the initial 2020 wave. *JACEP Open* 2022;3.
- 66 Tan CD, Lutgert EK, Neill S, et al. Parents' experiences with a sick or injured child during the COVID-19 lockdown: an online survey in the Netherlands. BMJ Open 2021;11:e055811.
- 67 Neill S, Carter R, Jones R, *et al.* Caring for a sick or injured child during the COVID-19 pandemic lockdown in 2020 in the UK: an online survey of parents' experiences. *Health Expect* 2021;24:2036–46.
- 68 Tan CD, Bressan S, Carter R, et al. Parental help-seeking behaviour for, and care of, a sick or injured child during the COVID-19 pandemic: a European online survey. BMC Health Serv Res 2023;23:397.
- 69 Conlon C, Nicholson E, De Brún A, *et al.* Stuff you think you can handle as a parent and stuff you can't'. Understanding parental health-seeking behaviour when accessing unscheduled care: a qualitative study. *Health Expect* 2021;24:1649–59.
- 70 Zarocostas J. How to fight an infodemic. *Lancet* 2020;395:676.
- 71 Menon KU, Goh KT. Transparency and trust: risk communications and the Singapore experience in managing SARS. *J Commun Manag* 2005;9:375–83.
- 72 Morrison AK, Schapira MM, Gorelick MH, et al. Low caregiver health literacy is associated with higher pediatric emergency department use and nonurgent visits. Acad Pediatr 2014;14:309–14.
- 73 Salami O, Salvador J, Vega R. Reasons for nonurgent pediatric emergency department visits: perceptions of health care providers and caregivers. *Pediatr Emerg Care* 2012;28:43–6.
- 74 Vaughn LM, Jacquez F. Characteristics of newly immigrated, Spanish-speaking Latinos who use the pediatric emergency department: preliminary findings in a secondary migration city. *Pediatr Emerg Care* 2012;28:345–50.
- 75 Cheng TL, Goodman E, Committee on Pediatric Research. Race, ethnicity, and socioeconomic status in research on child health. *Pediatrics* 2015;135:e225–37.
- 76 Ellbrant J, Åkeson J, Eckner J, *et al.* Influence of social characteristics on use of paediatric emergency care in Sweden - a questionnaire based study. *BMC Emerg Med* 2018;18:59.
- 77 Methley AM, Campbell S, Chew-Graham C, et al. PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. *BMC Health Serv Res* 2014;14:579.
- 78 Noyes J, Booth A, Moore G, *et al.* Synthesising quantitative and qualitative evidence to inform guidelines on complex interventions: clarifying the purposes, designs and outlining some methods. *BMJ Glob Health* 2019;4:e000893.
- 79 Pope C, McKenna G, Turnbull J, et al. Navigating and making sense of urgent and emergency care processes and provision. *Health* Expect 2019;22:435–43.
- 80 Dutwin D, Buskirk TD. A deeper dive into the digital divide: reducing coverage bias in internet surveys. *Soc Sci Comput Rev* 2023;41:1902–20.
- 81 Ghio D, Lawes-Wickwar S, Tang MY, et al. What influences people's responses to public health messages for managing risks and preventing infectious diseases? A rapid systematic review of the evidence and recommendations. *BMJ Open* 2021;11:e048750.
- 82 Page MJ, McKenzie JE, Bossuyt PM, et al. The prisma 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71.