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Community Readiness for Children's Oral Health Improvement Across Three Cities in England

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ABSTRACT

Objectives: Childhood caries is a widespread global public health issue, with its prevalence closely reflecting underlying health and social inequalities. Planning effective oral health programmes tailored to the needs of the community is of primary importance. The Community Readiness Model (CRM) provides a methodological approach to quantify the degree to which a community is willing to engage with programmes and thus inform adaptations to maximise engagement and impact. This study aimed to apply the CRM to explore the factors influencing community readiness to improve children's oral health.

Methods: A mixed-methods study was conducted using the CRM across three cities in England. Semi-structured interviews were undertaken with key community stakeholders ($n=27$). Quantitative readiness scores were derived across six domains to classify each city within one of nine readiness stages and allow comparison between localities. Interview transcripts were analysed using framework analysis to contextualise quantitative findings.

Results: Two cities achieved a mean score of five, corresponding to the "Preparation" stage of community readiness, while one city scored three, indicating "Vague awareness". Although oral health programmes were present in all the cities, differences in readiness were related to three key factors: (1) availability of resources and funding, (2) leadership and partnership working, and (3) community engagement. Participants highlighted perceived barriers relating to access to dental services, competing social priorities, and variability in community knowledge.

Conclusions: This study is the first to use the CRM to examine community readiness to address children's oral health and provides a valuable framework for understanding community readiness for oral health improvement that can help direct policymakers and community leaders to maximise the impact of oral health programmes. Findings demonstrated that while oral health need was evident, readiness to act varied across settings and was influenced by contextual and systemic factors. Strengthening availability of resources, communication, leadership, and community engagement is vital to enhance readiness and improve programme effectiveness.

1 | Introduction

Childhood dental caries remains one of the most prevalent global public health problems, with 514 million children experiencing

untreated caries in their primary teeth [1]. In the 2024 National Dental Epidemiology Survey of children's oral health in England, 22.4% of 5-year-old children experienced caries, with an average of 3.5 teeth being affected [2]. Social inequalities in oral health

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remain marked, with children living in deprived areas being twice as likely to experience higher levels of caries than children living in more affluent areas (32.2% and 13.6%, respectively) [2]. These disparities reflect broader social inequalities in health and remain a significant concern for dental public health. The oral health of young children in the north of England is particularly concerning, with nearly 40% of 5-year-old children experiencing caries in some areas [2]. This has a significant impact on the child, their family, and society [3].

Dental caries has wide-ranging consequences for children, including pain, impaired eating, sleep disruption, and reduced quality of life [4–6]. Additionally, children and parents often need to take time off school, nursery or work due to toothache or dental treatment, which has an adverse effect on learning [7, 8]. Caries also places a burden on health services, remaining the most common cause of hospital admission for tooth extraction among children aged 5–9 years old, with £51.2 million spent on decay-related tooth extractions in 0–19-year-olds in England in 2025 [9]. However, caries is potentially preventable with the adoption and maintenance of optimal oral health behaviours (i.e., toothbrushing twice a day with a fluoride toothpaste, limiting the amount and frequency of sugary foods and drinks consumed, and regularly attending the dentist) [10]. Yet, establishing and maintaining optimal oral health behaviours involves a complex interplay of behavioural, environmental, and social factors [11], which makes designing effective public health programmes in this area challenging [12].

Previous research exploring the issue of children's oral health has largely focused on individual-level knowledge, attitudes, and behaviours from a predominantly parental viewpoint rather than identifying solutions for improvement [11], which has had a clear influence on the types of interventions that have been previously developed. For example, a systematic review of home-based toothbrushing programmes for parents of young children found that few targeted the range of barriers at each of the socioecological levels (i.e., individual, interpersonal, community, organisational, environmental) that influence adopting and maintaining optimal oral health behaviours for children [13]. More recently, there has been increasing recognition that effective oral health improvement requires action at multiple levels, including community and system-level engagement. Both national and international guidance has emphasised the importance of community-based approaches and cross-sector collaboration, with a clear aim in England to move care from hospitals to local communities over the next 10 years [14]. With regard to children's oral health specifically, it has been recommended that programmes should utilise the wider workforce in the community, including non-dental staff, to deliver programmes to ensure their sustainability and implementation [10, 15, 16], with community and peer-to-peer support being increasingly encouraged as an effective means of delivering oral health improvement [10, 16, 17]. A series of reviews from the National Institute for Health and Care Excellence (NICE) have provided comprehensive evidence establishing that engaging communities in interventions promoting health outcomes are associated with reduced health inequalities, improved well-being, and community empowerment. As such, effective oral health programmes must be tailored to community needs, yet often health

programmes are implemented without considering whether this is what the community needs and whether the community is ready to change, leading to implementation challenges [16].

Community readiness is a distinct research methodology that differs from other forms of community inclusion or engagement, such as co-production or Patient and Public Involvement and Engagement (PPIE) [18] in that it focuses specifically on assessing the degree to which a community is prepared to act on a particular issue. The successful implementation of any new programme depends on alignment between intervention efforts and the community's level of readiness, which, when well matched, increases the likelihood of acceptance, participation, and sustained uptake [19]. In this sense, readiness is a prerequisite for effective programme delivery.

The Community Readiness Model (CRM), developed by researchers at the Tri-Ethnic Center in Colorado, USA, was originally designed to assess community acceptance of drug and alcohol prevention programmes. Since its inception, it has evolved into a comprehensive and practical toolkit [19] that has been widely applied across diverse settings and topics globally. These include addressing obesity in the United Kingdom [20], domestic violence in South Korea [21], and HIV prevention in Bangladesh [22]. Importantly, the CRM does not assess the existence or severity of a problem; rather, it examines the extent to which a community is prepared to take action. Distinguishing between need (e.g., oral health burden) and readiness is critical for designing effective and sustainable interventions. The model provides a structured and robust methodological framework that not only gauges readiness but also guides the development of appropriate strategies to build capacity and facilitate progression towards action, thus enabling tailored intervention strategies that are responsive to local contexts.

Although the CRM has been successfully applied to a wide range of health, social, and environmental challenges [23], it has never been applied towards assessing community readiness to tackle the issue of children's oral health. Given the persistent burden of oral health inequalities among children, understanding the factors that influence community readiness in this context is critical. This study aimed to apply the CRM to explore the factors influencing community readiness to improve children's oral health across three deprived cities in England, with the goal of informing more effective and context-sensitive intervention strategies.

2 | Method

2.1 | CRM Tool

The CRM is a mixed-methods approach comprising quantitative and qualitative components which respect social and cultural sensitivities [19]. The numerical scores indicate a community's overall readiness for an intervention and are based upon interviews with key community leaders/members. The semi-structured interview includes 36 questions covering six domains of readiness: (1) Community efforts; (2) Community knowledge of the efforts; (3) Leadership; (4) Community

climate; (5) Community knowledge about the issue; and (6) Resources related to the issue. The questions were piloted with members of a local community engagement team to ensure they were comprehensible, acceptable, and appropriate prior to use. Each domain is scored to provide an overall community readiness score from 1 to 9, distinguishing nine stages

of readiness ranging from “No awareness” to “High level of community ownership” (Table 1).

2.2 | Setting

The CRM was applied to three predominantly urban cities in the north of England, although two of the cities also included suburban and rural areas within their wider district. Each city volunteered to take part to help inform their local strategy development, and to ensure anonymity, will be referred to as “City A, B and C”. Cities A and C had an estimated population of over half a million residents, whereas City B had an estimated population of over a quarter of a million residents, although all had a relatively young population on average. The prevalence of caries experience in 5-year-old children in the north of England remains above the national average (calculated average of 26.3% vs. 22.4%), with the included cities having some of the highest averages in the country (28.5%, 34.4%, 37.1%). Dental access varied, with the percentage of child patients being seen by NHS dentists in Cities A and B in 2024 being over 60%, whereas City C was over 55%, although as of 2025 all three were averaging around 60% [24, 25]. The cities were within the 10% most deprived in England. While City A had a steadily growing economy, City B had areas experiencing higher-than-average socioeconomic deprivation, and City C had a mix of highly prosperous areas and severe socioeconomic deprivation. The cities also represented a rich multicultural landscape, ranging from a predominantly White British population to a highly ethnically diverse population.

Across the cities, oral health improvement activity was largely centred on preventing childhood dental caries through early-years and school-based prevention, reinforced by community outreach, workforce training, and targeted work to improve access to dental care and support vulnerable groups. The focus, delivery models, and scale of intervention differed between the cities despite there being overlap in the activities delivered. City A addressed children’s oral health through a blend of large-scale prevention, local government commissioned health promotion, and research-informed initiatives, with a strong focus on meeting families in community settings while addressing barriers to care (e.g., large supervised toothbrushing programme in schools and nurseries; a dedicated Oral Health Promotion Team running city-wide improvement programmes; community events; research-informed resources for dental practices and schools; workforce development sessions and parent/carer resources that promoted healthy routines and inclusive practice for children with Special Educational Needs and/or Disabilities (SEND)). City B combined robust early-years prevention with efforts to improve access to dental care, supported by targeted outreach and intelligence-led prioritisation (e.g., supervised toothbrushing in nurseries and schools; fluoride programmes; public health campaigns; distribution of toothbrush and toothpaste packs to families; prevention-focussed dental service models; and resources and training for early-years and school staff). City C delivered structured, preventive programmes in priority neighbourhoods, reinforced by community-facing engagement and workforce development (e.g., supervised toothbrushing programmes in priority schools and nurseries; fluoride varnish application; campaigns encouraging toothbrushing from infancy; outreach visits and events; and “oral health champion” training for early years professionals).

TABLE 1 | Community readiness model—nine stages of readiness.

Stage	Description
1. No awareness	The issue is not generally recognised by the community or leaders as a problem (or it may truly not be an issue).
2. Denial/resistance	At least some community members recognise that it is a concern, but there is little recognition that it might be occurring locally.
3. Vague awareness	Most feel that there is a local concern, but there is no immediate motivation to do anything about it.
4. Pre-planning	There is clear recognition that something must be done, and there may even be a group addressing it. However, efforts are not focused or detailed.
5. Preparation	Active leaders begin planning in earnest. The community offers modest support of efforts.
6. Initiation	Enough information is available to justify efforts. Activities are underway.
7. Stabilisation	Activities are supported by administrators or community decision-makers. Staff are trained and experienced.
8. Confirmation/expansion	Efforts are in place. Community members feel comfortable using services, and they support expansions. Local data are regularly obtained.
9. High level of community ownership	Detailed and sophisticated knowledge exists about prevalence, causes and consequences. Effective evaluation guides new directions. The model is applied to other issues.

Source: Plested et al., 2006, 9.

2.3 | Ethics

All participants provided written informed consent. The data were pseudo-anonymised to ensure confidentiality, stored securely on university-approved servers, and handled in accordance with data protection regulations. A full risk assessment was undertaken to ensure the safety of researchers and community members within community settings.

2.4 | Participants

A purposive sampling technique was used to identify potential participants via discussion with community engagement workers, community readiness specialists, academic contacts, and through participant recommendations. Potential participants were contacted by email or in person and received an information sheet and consent form. These were translated verbally by a trained community worker or interpreter where necessary.

The CRM stipulates that a minimum of four to six local key community leaders/members with knowledge and understanding of the community must be interviewed to accurately calculate a representative community readiness score [19, 26]. As such, community leaders/members working and/or living in each city representing a range of professions and experiences were recruited. This included policymakers (e.g., local authority commissioner), healthcare providers (e.g., oral health educator, health visitor), early childhood education and care providers (e.g., nursery and school staff), voluntary/non-profit/non-governmental organisations (e.g., charities that support families), patient and public involvement/community engagement organisations (e.g., representatives from different ethnic communities/organisations) and, in recognition of the pivotal role they play in children's oral health, parents. Some community leaders/members crossed over several of these categories with their roles (e.g., prevention workers, parenting programme staff, family/children centre staff) or acted as a bridge between different sectors (e.g., school nurses), and many reflected on their own experiences as parents.

2.5 | Data Collection & Analysis

Interviews were conducted by experienced researchers (KG-B, SB, YE, ZM), either online or in-person in a community location convenient for the participant. Where English was not a participant's first language, an interpreter was employed to facilitate discussion. Interviews lasted between 60 and 90 min and were audio-recorded and transcribed verbatim. A deductive framework analysis [27, 28] based on the guidance and templates available in the CRM handbook was undertaken on the qualitative data. Two trained researchers who had not been involved in the interview process (KK and SE, with training provided by SI, an expert in using this method) first read each interview in its entirety to familiarise themselves with the data. Then each independently assigned a score ranging from one to nine for each of the six dimensions of community readiness. This score was determined using an anchored rating scale for each dimension based on the information available from the interview

transcripts. This was completed for all the dimensions (See Supporting Information 1 for an example of the anchored rating scale). After independently qualitatively coding and quantitatively scoring the interviews for each city, meetings were held between three researchers with expertise in dentistry and mixed-methods research (KK, SE, KG-B) to discuss coding and scoring to ensure consistency and interpretative rigour and to resolve any discrepancies through discussion. The goal was to reach consensus on the scores by discussing items or statements that might have been missed by one scorer, and which may affect the combined or final score. The purpose was not to meet halfway but to consider each other's score and seek an appropriate score based on the transcripts. Once agreement had been reached on the coding and combined score for each interview, combined scores were summed across each of the six dimensions, separately for each city, and divided by the number of interviews undertaken in that city to calculate a mean stage score for each dimension. The mean stage score was then divided by the number of dimensions to provide the overall stage of readiness score. Dimension and overall stage of community readiness scores ranged from one to nine and were rounded down in accordance with CRM guidance [19].

3 | Results

3.1 | Overall CRM Score

The overall community readiness score and coded qualitative data were synthesised across the three cities by one researcher (KG-B) using the six dimensions as a structural framework and are presented under these headings below with exemplary quotes reported verbatim. The qualitative data complement the CRM scores by providing context for the overall community readiness score.

“City A” ($n=11$) and “City B” ($n=9$) both achieved an overall mean CRM score of five, which corresponds with the “Preparation” stage of readiness. Referring to the CRM handbook, this suggests that leaders were actively planning how to improve children's oral health, and the community offers modest support for such efforts. The mean scores for each dimension ranged between three and seven, with both cities displaying the highest levels of readiness for “Community efforts” and the lowest levels of readiness for “Community climate” (Table 2).

“City C” ($n=7$) achieved an overall mean CRM score of three, which corresponds to the “Vague awareness” stage of readiness. The CRM handbook suggests that this means there was local concern about children's oral health, but also other competing priorities to address. The mean scores for each dimension ranged between two and five, suggesting that some dimensions displayed more readiness (“Community efforts”) within the community than others (“Community climate” and “Community knowledge”, Table 2).

3.2 | Community Efforts Towards Oral Health

The highest score in each of the three cities was the “Community efforts” dimension, highlighting programmes and policies that

TABLE 2 | Mean community readiness score for the three cities in England (overall and six dimensions, including the range (r), median (mdn), and standard deviation (SD) per dimension).

Community readiness dimension	Cities		
	City A	City B	City C
1. Community efforts	7 (R = 6.50, Mdn = 7.50, SD = 1.71)	7 (R = 2.00, Mdn = 8.00, SD = 0.88)	5 (R = 5.00, Mdn = 6.75, SD = 2.12)
2. Community knowledge of the efforts	4 (R = 5.00, Mdn = 4.00, SD = 1.42)	5 (R = 2.00, Mdn = 4.50, SD = 0.86)	3 (R = 3.00, Mdn = 4.00, SD = 1.12)
3. Leadership	5 (R = 7.50, Mdn = 6.75, SD = 2.77)	5 (R = 4.50, Mdn = 6.00, SD = 1.64)	3 (R = 4.25, Mdn = 3.00, SD = 1.31)
4. Community climate	3 (R = 3.00, Mdn = 3.75, SD = 0.84)	4 (R = 3.00, Mdn = 3.75, SD = 0.91)	2 (R = 3.00, Mdn = 3.00, SD = 1.25)
5. Community knowledge about the issue	4 (R = 3.00, Mdn = 4.00, SD = 1.13)	5 (R = 2.00, Mdn = 5.00, SD = 0.82)	2 (R = 3.75, Mdn = 3.00, SD = 1.31)
6. Resources related to the issue	5 (R = 6.75, Mdn = 6.50, SD = 1.98)	6 (R = 3.00, Mdn = 6.50, SD = 0.94)	3 (R = 3.00, Mdn = 3.50, SD = 0.98)
Overall mean community readiness score	5	5	3

Note: Each dimension covers the extent to which: (1) there are efforts to address the problem; (2) the community knows about and accesses local efforts; (3) leaders and the community are supportive of tackling the problem; (4) the attitude of the community is one of helplessness or empowerment; (5) the community knows what causes the problem, its consequences and the impact on the community; (6) local resources are available to support efforts.

had been implemented to improve children's oral health. Each city recognised the importance of oral health and the high need within their communities; but, due to the high level of disadvantage in some areas, oral health was considered a low priority.

"A lot of our families have had quite major problems with the children's dental hygiene, leading to, like you say, them having to go to hospital, have a general anaesthetic, have not one or two but several, almost a mouthful in one case that I can think of, teeth removed"
(B009).

Nevertheless, efforts to address oral health within the community had been made. The key difference between the cities related to the investment and sustainability of these efforts. All three cities had well-established programmes that had been sustained over many years, with "Cities A and B" actively discussing how to expand these programmes by investing in steering groups to direct implementation, evaluate programmes and provide training. In contrast, although still actively undertaking programmes, "City C" had clearly been impacted by funding and staffing cuts, leading to siloed working and some programmes being discontinued.

■ *"... the oral health team has vastly shrunk..."*
(C004).

It was consistently reported that it was a struggle to reach everyone within the community, and the cities used numerous creative measures to engage with the community, including providing information in different languages, involving children in workshops with parents, posting out leaflets, and attending community events and groups, such as story sessions and music events. It was highlighted that attending meetings of small community groups made up of local people were often the most successful, whereas other services were sometimes restricted in their efforts due to wider organisational barriers.

■ *"Well the stuff that works in this city is a lot of the smaller projects, again, done by people from the city."*
(C006)

■ *"...we haven't put as much energy and effort into recruiting for the oral health workshop as we would maybe like to, simply for the constraints of our service design."*
(C004)

A key problem was the perceived access to dental services. It was consistently reported that there was difficulty accessing NHS dentists (who provide dental care for free for children), and families could not afford private dental care, with the difficulty accessing a dentist becoming the accepted social norm.

"Many of our communities come from disadvantaged backgrounds, you know, they can't pay for private dental care, and we don't have enough NHS dentists, so we don't have enough spaces for people to access dental surgeries."

(C001)

"And also, because people have heard as well of other people struggling, are perhaps less likely to look for a dentist because they've heard that it's hard to get"

(C004).

Professionals also experienced challenges building partnerships with dental practices and were keen to develop stronger communication channels. In this climate, access was supported via liaising with school nurses or signposting to emergency services. Despite this, there were several dentist-based programmes available, including local dentists visiting schools, open days at dental practices, and financial incentives for dental practices to undertake prevention work. Community leaders expressed the need for expansion of efforts and services within the three cities, namely, to increase their reach to ensure particularly vulnerable groups were being equally supported (e.g., children not within the school system, refugees/asylum seekers, SEND).

3.3 | Community Knowledge of the Efforts

There was variation in the level of awareness and knowledge among parents and the wider community about the various programmes available.

"Again there'll be parents that access everything we've got on offer and do everything they should be doing vs. some that aren't even aware that we exist."

(A004)

The key difference affecting awareness between the cities was the level of engagement with the community. A perceived *"lack of a consistent approach"* was detrimental to efforts, whereas cities that had made oral health *"a priority"* and *"got all services involved"* were more successful. Services made concerted efforts to try to engage parents and the community using a *"drip feed approach"*, including sharing information on social media, attending school open evenings, making connections with dentists, providing *"freebies"* (i.e., free resources, such as toothpaste and toothbrushes), and having teams dedicated to providing education. Such an approach had been so successful that this provision was now the perceived norm and expected by the community.

"...you've got your nurseries, your schools, other voluntary sector, you've got other agencies in the area and I think it is about making sure that you've got your dental practices... so I think the provision is there... it's about that talking to each other to ensure that the community are aware that they can access free dental health and where to access it. And we've even got, we even say to families if you're not sure then come to us, and we can help you access somewhere. So I think, I think generally the community are aware."

(B001)

"I think that is a strength of the efforts that are going on, is the fact that a lot of people aren't aware it's there, because it is so embedded in...in their way of life..."

(B009).

Regardless, it was recognised that there was *"work still to be done"* to engage the community, as reach was limited in certain communities due to language barriers, transiency of community members, and cultural differences. They talked about the importance of building relationships and trust with the community and highlighted that there were key organisations who were good at building rapport and having reach into the community to create a reciprocal relationship.

"...I mean [Children's centre] who we worked with, I mean their outreach and ability to reach into the community was really good, so at that point I think the families that they were engaged with would've all known about it...And it needs that, it needs, I think for our communities it's about building that relationship with them so that they, so they trust you and so that when you tell them about things like that, they trust you enough to actually go and do it."

(C002)

3.4 | Leadership

Across the three cities, a range of people and services from health, education, government, and the wider community were highlighted as leaders in the promotion of children's oral health. Largely, it was felt that children's oral health was a concern to leadership, and they would be willing to support additional efforts to tackle current problems, although this could be influenced by competing priorities and funding.

"We're here to support anything that would help our families"

(B001).

Strong leadership within local authorities/governments who viewed oral health as within their remit was vital. Various teams and committees *"with good representation"* from relevant stakeholders were dedicated to oral health. These teams/committees met regularly, kept relevant parties informed and trained, and undertook evaluation to review and inform their action plans.

As such, there was a strong feeling that they were “trying really hard” to improve children’s health with “a lot of work going in”. This effort was driven by “passionate people that are willing to go the extra mile”, “being aware of what issues are in particular communities”, being “consistent” and adopting a “partnership approach”. Nonetheless, the cities felt there was still “room for improvement” and “still a lot of work that needs to be done”, particularly around building partnerships and developing resource capacity, with leaders being open to “support anything that was new and, you know, anything that could work, that they haven’t tried before”.

3.5 | Community Climate

There was a great deal of variation in the three communities about the importance of children’s oral health, with some communities perceived to be “hard to reach”. Although services were available to support the community, it was recognised that they may not be as widely accessible as believed due to various barriers.

“Although services are universal, it doesn’t mean that it’s easy for everyone to access, cause everyone has their own barriers in place, don’t they, which, yeah, which might inhibit them from accessing those programmes or services.”

(B004)

It was consistently reported that families had “a lot on their plate”, and because of the multiple pressures they were facing, oral health was not viewed as a top priority.

“They’ve got so many other bigger issues to worry about economics, just education, the kids, the city itself. You know, there’s a lot more pressing matters.”

(C006)

All three cities had diverse, multi-cultural communities, which meant cultural and language differences sometimes acted as a barrier to accessing services, and there was recognition that more work was needed with the community to understand their cultures and shape the design of appropriate programmes. In addition, all had areas of deprivation, where “families are living in significant poverty”, and had to make difficult choices on what to prioritise based on what they can afford.

“I think if it comes between the choice of a, a toothbrush for a child and something to eat then obviously a new toothbrush to be replaced or buying them a toothbrush is gonna be last on the list ain’t it.”

(A009)

This was further exacerbated by a lack of knowledge about oral health, particularly regarding “what to do, where to go”, and some parents were wary of professionals and actively kept their children out of the system.

“...there are families whose children don’t go to nursery for whatever reason, or families where they’re reluctant to let, to see the health visitor or let the health visitor come to the house. So yeah, so there are groups, sort of marginalised groups where we, we do struggle.”

(A001)

Many parents had poor oral health themselves, and social norms had developed around losing teeth or having them removed as a child being acceptable, especially as there was a common belief that they were “just milk teeth” and would be replaced soon. It was also reported that parents struggled with children resisting toothbrushing and managing their child’s diet, feeling that preventive measures recommended by professionals were “not achievable”. Still, parents “want the best for their family at the end of the day” and, despite the challenges they faced, welcomed support and were keen and willing to learn, with programmes in nurseries, schools, children’s centres, family support units and the voluntary sector being positively received.

“I think people are very supportive of it, of the initiatives that are in place and where people can help them, I think they want the help.”

(A010)

3.6 | Community Knowledge About the Issue

There was a great deal of variation in each city regarding their respective community’s knowledge about why children’s oral health was important, with some parents being very concerned and “not afraid to ask for information and advice”, others being knowledgeable about the key messages but “there’s something that’s getting in the way”, such as “confidence” in their ability to “act on the messages”, to those “families [who did not] understand well enough the long term impact of not caring for teeth in those early stages”.

In contrast, professionals in the cities informed by training, including local evaluation data, felt knowledgeable about the issue and were keen to disseminate information and support to families within the community. The work being undertaken by health visitors, nurseries, and schools (e.g., supervised toothbrushing programmes) was seen as impactful, particularly as a means of raising awareness among children.

“The nursery is a good vehicle; it’s a trusted place, and they are much more likely to, if you can capture the children, they are a huge resource, a very powerful tool.”

(C005)

“And the number of children that could come up and say to us how long they had to brush their teeth for, how they needed to do it, in a way that I thought when we talked to their mums, their mums couldn’t explain that to us necessarily but the, the children in school could.”

(A003)

A range of methods were used to disseminate information to the public, including face-to-face meetings or telephone calls with health and/or education professionals, social media, websites, leaflets, displays, activities (e.g., groups/workshops), local newspaper and radio, noticeboards, newsletters, and posters. However, it was acknowledged that these efforts were not necessarily extensive enough or undertaken consistently, often reporting limitations in time and the quality of the messages.

"We have not reached enough people; we've not done it frequently enough. We've not maybe translated it in community languages."

(C005)

Similarly, although evaluations of disease prevalence, service provision and previous oral health programmes had been undertaken, this information was not always made available or was easily accessible to the public. City B reported how they were undertaking efforts to try to engage the community to help inform their strategy going forward.

"There is information out there online and things, but I think unless you're looking for it or are told specifically I wouldn't really expect there to be an awareness of quite how bad the problem can be."

(B007)

"... so we do a lot of different ways for people to access it, so we do paper based, electronic links to surveys, we'll do focus groups, consultation... we've just done a bit of a scoping report, a bit of an engagement plan, and we look at every sort of city, population that accesses that service...making sure we're engaging with all ages, different wards of the city, different ethnicities, you know, genders as well, age groups. So we make sure we try and get representatives of the whole population that access that service. Sometimes that's really hard. It's very difficult. But we do try. Yeah, we try."

(B003)

3.7 | Resources Related to the Issue

The primary resource concern was funding. Oral health programmes were *"reliant on funding,"* but all had faced funding cuts and were working with *"very tight budget[s],"* meaning oral health was de-prioritised, and former plans were put *"on the back burner."* Still, there were several programmes funded by local authorities/governments, and some cities had successfully acquired funds and resources through local businesses and charities to provide resources such as toothbrushes and toothpaste or set up toothbrushing clubs. In some instances, nurseries/schools would use their own budgets to support schemes. Even so, there was scepticism about the willingness and motives of local business support, highlighting how their

business could conflict with the oral health messages being promoted.

"They are not gonna help, help community but again, they are local businesses for a reason, you know what I mean. They are gonna say, 'okay what for? What do I get out of it?'"

(C006)

"I'm not sure that the, the local shopkeepers selling the 40p coke would necessarily want to not [laughs] sell that product if you know what I mean."

(A003)

Funding in turn had an impact on capacity, with various organisations reporting having a *"smaller number of staff than there used to be,"* *"high turnover"* and oral health promotion being beyond the remit of currently employed staff. Some of these capacity pressures were eased by using local charities, dental students, and community champions to deliver oral health activities. Training was available to provide oral health advice, but this was not always accessible to all the organisations that may interact with families regarding oral health, with these inadequacies *"put[ting] people off even having a general conversation about it".*

"...what organisations...tend to do is say, 'While your worker is doing this, can they also tell people about this?' Well I'm sorry, no they can't, cause actually they're paid to do X, not Y."

(C002)

"...dental students and dental hygiene and therapy students who do talks and assemblies in schools and health events."

(A001)

4 | Discussion

This is the first study to apply the CRM methodology to gauge readiness in relation to oral health interventions for children's oral health. This has provided a new analytic lens to explore this issue that moves beyond simply knowledge and behaviour of oral health practices to explore readiness to change at a community, rather than individual, level. This methodology also recognises system capacity, thus providing a structured and scalable approach to understanding how communities can mobilise change.

Within the present study, there were varying levels of community readiness across the three cities. Although they were committed to community engagement, dissemination of information and service evaluation, implementation varied due to the nuanced nature of their individual contexts. This emphasises the importance of community activation to generate buy-in before initiating programmes to ensure effectiveness and sustainability. In addition, to achieve successful outcomes, the focus must be on

investment not only in the programmes themselves but also in the supporting infrastructure. This includes building networks and communication channels to integrate with the community and services to reduce siloed working and widen engagement and accessibility.

Before overall efforts can be successful, the CRM handbook recommends that every dimension of readiness should be at the same level; therefore, improving the lowest-scoring dimensions should be initially prioritised [19]. Interestingly, despite the difference in their collective scores, all three cities scored lowest and highest on the same dimensions. The highest score was in the “Community efforts” dimension, with a range of efforts delivered via health, education and social sectors, but this did not necessarily match the level of knowledge and awareness of the issue of children’s oral health itself, nor the services available for the communities. It is important to note that the current study did not measure access to services directly, but measured readiness-related perceptions of access and norms. Nonetheless, a key factor that may have influenced these perceptions was the differences in dental access across the three cities at the time of this research, with roughly 10% fewer patients being seen by an NHS dentist in City C than in Cities A and B [24, 25]. This highlights a key dilemma that, although information and services may be available, this does not necessarily mean they are always accessible. Similar results were found in another study within a deprived city in the UK exploring community readiness around early intervention programmes to promote social and emotional health in children [29]. This issue is by no means unique to the UK, however [30], and links to a wider debate about what access to health care truly means [31]. Numerous frameworks have been developed to conceptualise access, but the most widely applied framework is Petchenky and Thomas’ model of access [32], which defines access as the fit between the users and the system along five interrelated dimensions [1]: Availability [2], Accessibility [3], Accommodation [4], Affordability and [5] Acceptability. Notably, Saurman [33] adapted the framework to also include ‘Awareness’ to reflect people’s capacity to recognise and engage with services via communication, available information, and their level of health literacy. When this framework was applied to oral health [30], albeit in rural areas of high-income countries, the findings reflected similar issues to what was found in the present study, with challenges to access across all dimensions, largely related to wider social determinants of health and the inherent health inequalities they expose. Of note, although it was found that understanding of local context and collaboration with communities was vital to improving access, evaluation of community acceptability and awareness was lacking. It was recommended that future interventions should involve communities in all aspects of intervention design, development and evaluation, reduce siloed working and prioritise prevention—key messages that align with our own recommendations from the present study findings. This yet again emphasises the utility of applying community-based approaches to oral health provision, particularly considering the dimension all three cities scored lowest on in the current study – “Community Climate”.

“Community climate” refers to the prevailing attitude of the community, and whether this is one of helplessness or empowerment over the issue. The cities embraced their vibrant,

multi-culturally diverse communities but expressed real challenges in being able to reach everyone, particularly those most vulnerable and often underserved. Deprivation, language barriers, cultural differences, and the competing pressures and demands of daily life were often cited as leading to the deprioritisation of oral health and barriers to accessing services. These issues were further exacerbated by the COVID-19 pandemic, which had a huge impact on oral health efforts, as highlighted particularly by cities A and B in the current study, with efforts being halted across the country to reduce potential contamination and redirect efforts and resources to handle the crisis [29].

Together, these findings clearly highlight the critical importance of addressing the wider social determinants of oral health. Oral diseases such as dental caries are not randomly distributed, but instead follow pronounced social gradients shaped by factors including income, education, housing, and access to healthcare [34, 35]. As observed across the cities, persistent inequalities continued to influence oral health outcomes despite ongoing local efforts, reinforcing that the issue extended beyond individual behaviours to broader structural conditions. The dental public health literature consistently argues that reducing oral health inequities requires a decisive shift away from ‘downstream’ biomedical and behavioural approaches towards ‘upstream’ action [36]. This involves tackling the root causes of poor oral health through coordinated local, national, and international policy interventions, such as improving living conditions, promoting healthier food environments, and ensuring equitable access to preventive services [35]. Ultimately, without addressing these underlying social determinants, efforts to improve oral health will remain limited, and disparities will persist.

Although all three cities faced substantial challenges, what differentiated the cities were three key factors [1]: availability of resources and funding [2], leadership and partnership working, and [3] community engagement. All the cities had experienced funding issues; however, some had been successful in galvanising local authorities/government and local charities/businesses to finance programmes. Strong leadership and partnership working with other organisations and the community was vital for driving forward efforts in terms of prioritisation, dedicating resources, and evaluating efforts to inform plans and sustain efforts in the long-term. Within each city, the community engagement work had been positive. This had been most successful in raising awareness when this was a continuing effort to truly understand what was important to the community, and oral health had been embedded within key infrastructure (e.g., schools), with, in some cases, these oral health programmes being the expected norm. This speaks to evidence that building successful partnerships with communities not only is more likely to lead to action, but also better-quality outcomes and increased sustainability [37–39]. These factors being important to community readiness reflects evidence from the field of implementation science, with each being recommended as implementation strategies [40], and indeed, work that has applied implementation science frameworks to oral health has highlighted that these can act as both barriers and facilitators to oral health efforts [41–43].

Now is the time for action. Oral health, and particularly the oral health of children, is currently at a real ‘tipping point’ for policy and systems change, particularly in the UK, with a recent

report highlighting a range of 'downstream', 'midstream' and 'upstream' programmes co-produced with communities and key stakeholders [44]. Moreover, there have been key policy changes prioritising the oral health of children [45]. These key policy levers will indeed help to drive change, but ensuring connectivity and engagement across the system will be vital to not only identify problems with oral health but also provide clear, feasible and practical solutions.

4.1 | Strengths and Limitations

A limitation of the current study is that the CRM scores could have been affected by who was recruited, particularly as participation was voluntary. This effect could be more pronounced with this method as it depends on a small sample size of key stakeholders, and as it was not possible to recruit identical roles in each area, it opens up the possibility that key stakeholders in one city may have been more or less informed than their counterparts in the other cities, and this may have led to variable scores when comparing one to another. Furthermore, the emphasis on key expert views means understanding of community readiness may only be a proxy for those individuals who are affected by efforts [20, 29]. However, the current study modified this method to include community voices to garner a broader sense of community readiness. Also, it is important to be mindful that CRM scores are based on perceptions and should not be interpreted as objective measures of service provision or need.

A key strength of the present study is the application of the CRM as a structured, scalable tool for assessing readiness that offers practical insights for policymakers and practitioners seeking to tailor interventions to local contexts. Indeed, the cities that actively opted into this study, as they wanted to improve their oral health provision and hear from and collaborate with their community to achieve the best outcomes, have consequently taken actions to improve their oral health provisions; thus providing a clear demonstration of how the CRM model can be practically applied to have real-world impact. Due to its clear utility, it is unsurprising that the CRM is now experiencing a growth in use and has been used across the globe to assess and address an array of issues beyond its original conception. Evidence from other studies shows harmonising intervention plans with levels of community readiness leads to improved implementation and uptake of these interventions [46]. In addition, this method has been shown to be a useful tool to help address health inequalities, with the CRM being instrumental to the development of a strategy to address health inequities and advocate for co-production [37, 47]. Considering that both health inequalities and implementation challenges are well documented within the field of children's oral health, the CRM offers a new practical way of tackling these issues that is scientifically robust and evidenced to have an impact, while still having the needs of the community at its heart. Additionally, the inclusion of a qualitative component at its foundation not only provides detailed contextual evidence to support the community readiness scoring but also provides rich insight into the specific needs of the community and how these may be addressed [48]. This is important, for

although the CRM serves as a useful practical tool that can help identify where to start by providing quantitative dimension scores, the generic descriptions that describe each level of readiness and the corresponding recommendations provided in the CRM handbook do not necessarily accurately reflect the efforts that are taking place. This further qualitative approach then allows researchers to explore the unique context of the community and tailor strategies accordingly.

5 | Conclusion

This study represents the first application of the CRM approach to explore community readiness to address the problems with children's oral health. While need was evident across all the cities, readiness varied and was influenced by leadership, resources, and community engagement. Although numerous oral health programmes existed, community members often lacked awareness or faced barriers to accessing them. Enhancing communication with the community is therefore essential to improve participation and reach. The CRM serves as a valuable method, yielding important insights that can guide policymakers and local leaders to tailor interventions to the readiness levels of their local community, thus optimising the effectiveness and sustainability of oral health programmes in their areas.

Author Contributions

K.A.G.-B., P.F.D., Z.M., S.I., S.C. and Y.E. contributed to the conception and design of the study. K.A.G.-B., S.C., Y.E., and Z.M. contributed to data collection. K.K., S.E. and K.A.G.-B. contributed to the analysis and interpretation of the study. K.A.G.-B. drafted the manuscript, with all authors critically revising and approving the final manuscript.

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Ethics Statement

Ethical approval for this study was granted by the University of Leeds Dental Research Ethics Committee (101019/SB/287).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Supporting Information 1:** Example anchored rating scale for scoring each dimension of community readiness.