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ORIGINAL ARTICLE

Dimensions of young children's toothbrushing resistance: A qualitative content analysis of discussions on the online parenting forum Mumsnet

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Abstract

Background: Young children's resistant behaviour is a barrier to parental-supervised brushing. Discussions on online parenting forums offer an insight into parental experiences, behaviour and attitudes. Analysing these discussions also demonstrates how dental advice is represented and potentially resisted.

Aim: To analyse how young children's toothbrushing resistance is discussed on an online parenting forum.

Design: Qualitative content analysis of threads on toothbrushing resistance retrieved from the UK parenting forum Mumsnet.

Results: A search was carried out on Mumsnet in April 2022. Overall, 204 relevant threads were identified and analysed. A coding frame was developed. Posters interacted by discussing their experiences of resistance, asking for advice, making suggestions and being both supportive and critical. Thirty-seven strategies for addressing resistance were identified. Discussions reflected attitudes and concerns relating to young children and toothbrushing resistance, including the idea brushing should be 'non-negotiable'. A key issue was the acceptability of physical force or restraint to achieve adequate brushing. Posters invoked dental authority to support their views.

Conclusion: Understanding how toothbrushing resistance is discussed on a parenting forum helps establish what information and advice is shared, and highlights attitudes and concerns that shape how this problem is approached.

KEYWORDS

children, home care, oral health, oral hygiene, parents, social media

1 | INTRODUCTION

Dental caries in children is a serious health problem that can be prevented through appropriate home-based oral health behaviours. Evidence-based advice to parents is

to brush, or supervise the brushing of children's teeth at least twice a day with fluoride toothpaste (i.e., parental-supervised brushing [PSB]).¹ Although the term PSB can be used in different ways, in the context of home care within the UK, it means parents/carers brushing their

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children's teeth until the age of seven. It is a complex, dyadic process that 'entails parents actively brushing their children's teeth and children allowing their teeth to be brushed'.² There are several barriers and facilitators to regular brushing, including resistant behaviour from children.³⁻⁷ In a survey of Australian parents, for example, 53% report regular toothbrushing is somewhat or extremely difficult, and resistant child behaviour is the most important predictor of this.⁸ Compliance with PSB is a key factor in the prevention of caries in young children.⁹ A recent systematic review of facilitators and barriers to PSB in children under 8 years old characterises resistance in two ways: First, when children are uncooperative and un-compliant, thereby actively refusing any brushing, and second, when children specifically resist parental involvement as they want to exert their own independence and brush their own teeth.²

Interview-based studies demonstrate that parents deploy various parenting strategies to cope with resistant behaviour, including positive reinforcement through rewards, making brushing enjoyable, distraction, withholding privileges and physical restraint.^{5,7} Parents may also accept that they are not able to brush their children's teeth, and allow independent brushing.^{5,10} This is a potential problem, as independent toothbrushing sessions are associated with poorer outcomes.¹¹ Research typically explores resistant behaviour as one barrier to PSB, but this is not the analytical focus of the research. There is therefore a lack of discussion on parental experiences of resistant behaviour, what strategies are proposed to address resistance and parental attitudes and concerns about resistance. Although these interview-based studies give some understanding of parental experiences of toothbrushing resistance, further insights can be gained through an in-depth analysis of naturally occurring data that focus on how parents address the problem of toothbrushing resistance.

Outside research interviews and dental visits, parents also discuss their experiences of toothbrushing resistance on online parenting forums. Parenting forums provide virtual social support and an alternative source of information on various aspects of children's health¹² and can be a space where parents reject information provided by health professionals, for example, in relation to a child's weight.¹³ There is a lack of research on the way parents discuss aspects of children's oral health online. One exception is a critical content analysis of parents' online discussions about children's dental caries, demonstrating that parents engage with health professionals but resist their recommendations.¹⁴ For paediatric dentists, discussions on parenting forums offer an insight into reported parental experiences, behaviour and attitudes. Analysing how topics such as toothbrushing resistance are discussed on

Why this paper is important to paediatric dentists

- This research paper gives insights into the way toothbrushing resistance is discussed on an online parenting forum, and the strategies proposed for addressing this problem.
- This paper demonstrates how the use of physical force and/or restraint to achieve toothbrushing is a key issue in these discussions.
- This paper is important to dentists who may be asked to provide advice on toothbrushing resistance to parents of young children, as it sets out attitudes and concerns that may influence how this problem is understood and approached.

parental forums can also demonstrate how dental advice is represented and potentially resisted.

The popular UK parenting forum Mumsnet, with 8 million unique visitors per month,¹⁵ offers a rich source of data on parent's experiences of, and strategies for addressing, the challenge of toothbrushing resistance in young children. Mumsnet was selected as a high-profile public parenting forum that allows for searching of its discussion boards. The tagline 'by parents for parents' indicates that this is an online space that encourages parents to discuss pertinent issues among themselves. Discussions about toothbrushing resistance on Mumsnet are a form of naturally occurring data about an aspect of children's oral health that have not previously been explored.

The aim of this research was to explore how the problem of toothbrushing resistance in young children is discussed on an online parenting forum. There were three research questions:

1. How is the problem of toothbrushing resistance in young children discussed on an online parenting forum?
2. How do parents discuss powered toothbrushes as a solution to toothbrushing resistance on an online parenting forum? And
3. How do parents 'do parenting' in online discussions of toothbrushing resistance?

Findings relating to Questions 2 and 3 will be published elsewhere.¹⁶

For Question 1, the research objectives were as follows:

- to analyse how people posting on an online parenting forum to discuss their experiences of toothbrushing resistance;

- to establish what strategies are proposed to address toothbrushing resistance;
- to identify attitudes and concerns that relate to toothbrushing resistance; and
- to explore how people posting interact within these discussion threads.

This research followed recognised quality guidelines for qualitative research involving methods other than interviews and focus groups, the Standards for Reporting Qualitative Research (Appendix S1).¹⁷

2 | MATERIALS AND METHODS

This study explored dimensions of toothbrushing resistance in online discussions. A version of qualitative content analysis has been used for the initial analysis phase as a descriptive approach suited to summarising what is said about a particular topic.¹⁸ The initial focus of analysis was the manifest content of the discussion threads. This involved categorising discussions about addressing the problem of toothbrushing resistance into a comprehensive coding frame, in order to understand *how* this topic is discussed, rather than determining the frequency of particular strategies. This necessitated an inductive approach to establish the strategies proposed to address resistance and identify attitudes and concerns.

2.1 | Reflexivity

The research was carried out by the first author, JK, a sociologist with experience of qualitative research working in a dental school. JK has young children and has used Mumsnet in a personal capacity. ZM is a qualified dentist and mother of two children with experience of qualitative research including about PSB.

2.2 | Data retrieval

Targeted searching was used to identify discussions related to children's reluctance to engage in toothbrushing. Three sub-forums were selected: behaviour/development, children's health and parenting. Broad search terms were used to identify how many threads on toothbrushing related to the topic of resistance. The following search terms were used: toothbrush; tooth AND brush; teeth AND brush; tooth AND clean; teeth AND clean. All searches were carried out by JK. Threads were excluded for the following reasons: if the original post had been deleted; if there were no responses (as this could not be categorised as a discussion);

if the original post was explicitly a request from someone posting in a non-parental capacity (e.g., for research purposes); if the original post focussed on a child aged eight or over; and if the post did not focus on toothbrushing. Threads were then categorised by topic (resistance to toothbrushing, toothbrushing, toothbrushes and other).

The content of threads included in the analysis was copied from Mumsnet into individual documents, and all usernames, real names and dates were removed prior to saving in a secure folder. Threads and posts were given a reference number. The term 'poster' is used to refer to people posting on Mumsnet.

2.3 | Analysis

This paper reports on the initial stage of the analysis to establish the nature of discussions about toothbrushing resistance. A subsequent analysis that focusses on the use of electric toothbrushes will be reported elsewhere.¹⁶ All threads on toothbrushing resistance were read and summarised in a Microsoft Word document. Characteristics of original posts and responses were noted in terms of the manifest content. For instance, a response could include an account of the same experience (e.g., 'we had the same situation'), suggestions of one or more strategies the original poster could try and a reassuring comment to the original poster, based on an attitude (e.g., 'He'll get better').

An initial coding framework was developed based on six dimensions, which were present in the discussion threads: 'Experiences of Toothbrushing Resistance', 'Context', 'Addressing Toothbrushing Resistance', 'Attitudes', 'Concerns' and 'Interactions'. Manifest content relating to each of these dimensions was noted, and organised into categories and sub-categories in the coding frame. The initial analysis was an iterative process, with the coding frame being revised to group similar ideas into categories and sub-categories and to reflect the content of later posts. Both authors contributed to the finalised coding frame (Appendix S2). The finalised coding frame was applied to the data by JK using Microsoft Excel. The research team used posts as the unit of coding.

3 | RESULTS

A search of thread titles on relevant boards between 1 January 2010 and 31 December 2019 carried out in April 2022 identified 313 unique threads on toothbrushing (Appendix S3). Overall, 22 threads did not meet the inclusion criteria. Of the nine posts that received no responses, five were similar in content to other posts and related to child resistance to toothbrushing; one of these also asked

about unrelated problem. It is not clear from the original post why these threads received no responses, although it may reflect the nature of a busy online public forum and the interests of posters who happened to be online on the days in question. Two original posts would also have been excluded as being posted in a non-parental capacity. Two would have been categorised as a different topic (one was focussed on the purchasing of powered toothbrushes for the family and one asked about a health problem related to toothbrushing). A further 87 threads were defined as being about topics other than young children resisting toothbrushing. The other 204 threads were included in the analysis (comprising 3133 posts).

The characteristics of the children discussed in the original posts are provided in Table 1. Of the original posts/titles, 195 gave an age. Of those characterised as 'other', four used the term 'toddler'. The other five posts did not give an age. These were included in the analysis as respondent posters discussed very young children, and the language of the original post did not suggest a child aged 8 or over. Of the original posts/titles, 202 provided the sex of the child, including one referring to boy/girl twins. No disabilities were mentioned in the original posts.

The results of the analysis are presented below. Throughout this report, we have used anonymised illustrative quotes from posts on Mumsnet. Abbreviations have been clarified where possible; any clarifications are in square brackets, for example, 'YYSWIM [if you see what I mean]' or 'DH [husband]' (the additional D is conventionally used for 'dear' when referring to family relationships). Spelling and grammatical errors on the part of posters are indicated with [sic].

3.1 | Experiences of resistance and context

Original posts referred to current experiences of resistance to PSB (two referred to recent breakthroughs addressing this problem). Accounts of resistance can be vague or specific. For example, some posters simply described children as being a 'nightmare', whereas others explained exactly what happened in behavioural terms. Experiences of resistance included a child shouting and screaming, hitting the parent, shutting their mouth, shaking their head,

running away and throwing the brush. Posts also reported a desire to be independent, with children chewing, biting on and sucking the brush, but resisting parental brushing. Posters noted their own emotional responses to experiences of resistance, including feelings of stress or frustration. There were strong negative emotional responses relating to 'having to' use force and/or restraint to achieve brushing, which could be very upsetting, something posters 'hate' doing and that makes them feel 'awful' as parents. Posters shared current and previous experiences of resistance and noted that a child's resistance could vary, as he or she accepted PSB on some occasions but not on others. Posters focussing on previous experiences of resistance also reported whether this had changed over time, for example, describing subsequent success.

Posters provided further details, for example, on a child's oral health more generally, experiences of dental visits (and whether the child was resistant to this or not) and diet. Posters demonstrated awareness of recommendations for PSB with references to twice-daily brushing and appropriate amounts of fluoride. Some posters proposed possible explanations for resistance, either for their own children or for those of others. Explanations included teething, personality (e.g., being 'stubborn'), developmental stage (in terms of being at a 'rebellious' age, for instance) and sensory responses to an aspect of toothbrushing. These overlapped with attitudes underlying toothbrushing resistance and indicate how posters attempted to make sense of their experiences and justify particular courses of action.

3.2 | Addressing resistance

Posters described particular actions for addressing resistance (i.e., specifically *what* they were doing). These descriptions could be brief (e.g., naming a particular mobile phone app or referring to trying 'songs') or more detailed (e.g., a description of the parent imagining animals in a child's mouth, the lyrics of a made-up song or an explanation of how they hold a child when brushing teeth). Individual actions have been categorised into strategies (i.e., focussing on *how* the parent was trying to address resistance), which could be used individually or in combination. Thirty-seven strategies were identified and are described with examples (Appendix S4).

TABLE 1 Sex and age of children in threads on toothbrushing resistance.

	Under 1 year	1 year old	2 years old	3–7 years old	Other
Age of children	32	109	42	12	9
	Girl	Boy	Both	Not mentioned	
Sex of children	99	102	1	2	

Posters often suggested multiple strategies and shared their own experiences of trying to address toothbrushing resistance (reporting primarily what had been successful, but also reporting some unsuccessful strategies, or an overall lack of success in terms of 'trying everything' and 'nothing works'). The actions described could combine different strategies, for example, letting the child choose a new powered Spiderman toothbrush combines 'using a novel toothbrush', 'using favourites/interests' and 'choosing products'.

Overall, several strategies focussed on engendering cooperation. Strategies such as 'making it fun' and 'involving toys' emphasised enjoyment, whereas others such as 'changing toothpaste' or 'positioning' considered sensation. As some posters were reflecting on previous experiences, the temporality of strategies varied, from strategies that could be used on any given day to those that are about addressing toothbrushing over time (e.g., 'adapting with age', 'building routine' and 'persevering'). Strategies could also involve minimising the impact of resistance ('restricting sugar') or not exacerbating the situation ('keeping calm').

In some posts, parents provided justifications as to *why* they felt particular strategies were successful. One example was to justify a strategy such as 'choosing products' or 'choosing elements of toothbrushing' in terms of the child feeling in control: 'Give her a choice of toothbrushes & toothpaste. It help des [sic] my ds [son] feel he had control, then would concede some & lets us brush'. An action such as letting the child brush the parent's teeth can also involve the parent relinquishing some control. In terms of strategy, this action could be an example of 'distraction: holding/doing' (i.e., the child is doing something, in this case brushing the parent's teeth, while the parent brushes the child's teeth), 'alternating' (i.e., the parent and child take turns, with the child brushing the parent's teeth, and the parent then brushing the child's teeth or vice versa) or potentially 'rewards/bribery' (e.g., 'I used to let my boys brush my teeth as long as they'd let me brush theirs first').

Strategies could be focussed on the importance of toothbrushing and instilling this in children, for example, 'dental reinforcement', 'consequences of not brushing' and aspects of 'positive talk'. Posters, however, may depart from the standards for PSB as a deliberate strategy to manage a difficult situation. Posters may only insist on parental brushing once a day ('compromising') or accept toothbrushing will not always happen ('relaxing'). Other examples are using a flannel to clean teeth rather than brushing ('wiping teeth') or brushing for a few seconds ('quick brushing'). Such strategies can be justified in terms of avoiding the use of force, and related negative associations and parent/child conflict.

Attempts to address toothbrushing resistance occur within a parent/child relationship, which is characterised by an unequal distribution of power. Adults are bigger and

stronger than young children, and posters allude to this by presenting the use of physical strength as a possibility (e.g., holding down or restraining a child in some way, or using physical force). The potential to use physical force to achieve toothbrushing is present throughout these online discussions, although posters frame doing so in a variety of ways: from a purposeful and effective strategy, to a last resort, to something to always avoid. Parents can also impose sanctions, such as withholding bedtime stories, sweets or access to the TV or tablet, and this frames how posters discuss toothbrushing resistance.

3.3 | Attitudes and concerns

Posters set out attitudes and concerns about toothbrushing and toothbrushing resistance (Appendices S5 and S6). Attitudes included views on the importance of toothbrushing, the normality of resistance and whether parental involvement is necessary. Concerns included the poor quality of brushing, negative impacts such as poor oral health and pain, the immediate emotional impact on the child and longer term negative associations. Attitudes such as 'worth persisting with toothbrushing' and 'important to start the habit' could be used to encourage other posters not to give up. Some attitudes reflect standard oral health advice, such as 'parental involvement is necessary'. Nevertheless, in the context of an online parenting forum, posters also expressed attitudes that other parents might find reassuring, even if these undermined official advice (such as 'toothbrushing is less important with primary teeth' and 'toothbrushing doesn't need to be perfect'). Some attitudes were also in conflict, particularly around the use of force, whether this may be necessary or should be avoided, and whether this does or does not have longer term consequences.

3.4 | Interactions

As this research focussed on online discussions, this included how posters interacted with each other in relation to this topic. Of the original posts that used Mumsnet to ask for help with some aspect of toothbrushing resistance, the majority asked specifically for suggestions for achieving brushing. Original posts asked for suggestions for dealing with toothbrushing resistance. In some cases, posters specifically asked about avoiding the use of force or making the experience more enjoyable for the child. Some original posts asked for reassurance about using physical force or about the normality of resistance, and others questioned the necessity of persisting when a child resists PSB. As noted above, two original posts reported recent breakthroughs, and the posters wanted to share their own strategies to help others.

In many cases, subsequent posts appeared to be trying to help the original poster deal with a difficult situation by sharing experiences of successful strategies or making suggestions, as discussed above. Posters recognised that dealing with toothbrushing resistance can be emotionally difficult, for example, if a parent is worried about a child's oral health or about the consequences of using physical force to achieve toothbrushing. Comments in which posters directly engaged with the original poster involved various forms of interaction, including empathising ('Just wanted you to know that your [sic] not the only one who has to force the issue'), encouraging ('Good luck') and reassuring the original poster about their concerns ('It's not a phobia. It's a normal toddler reaction to doing something that's a bit of a pain. You won't create anything other than good oral hygiene [sic] by insisting it;s [sic] done'). Some replies reflected 'tough love'. This is defined as comments that are harsh in tone but appear to be about trying to help in the longer term. These comments refuse to indulge a poster's initial sense of helplessness and emphasise what has to be done:

Sorry, I'm going to be harsh. Toothbrushing twice a day is non-negotiable. You are the parent.

You know the consequences of not brushing. Rotten teeth, smelly breath (bear in mind this leafs [sic] to teasing at school), extractions, terrible pain, a potential lifetime fear of dentists.

This is one of those parenting situations where you just have to grit your teeth and get on with it. To do otherwise is doing a terrible disservice [sic] to your child.

Original posters replied with thanks and appreciation (even for the tough love), and provided updates on attempted strategies.

Nevertheless, not all posts could be categorised as supportive. Some of the discussions about the use of physical force resulted in strong opinions, both for and against the use of force:

I am absolutely horrified and sickened by some of the suggestions on this thread that anyone could do that to a child thinking they were somehow helping them. No force in our family and we all have great teeth.

You have to pin them. None of this gentle approach crap which means teeth decaying out of their heads and having them pulled

because parents don't want to upset their little darlings.

Other posters refuted the premises of such judgements and posted in a more confrontational style within these threads. Another form of interaction was the sharing of teaching experiences and advice from dental professionals, which often worked to support particular strategies. Some posters shared experiences of young children requiring dental treatment in order to emphasise the importance of PSB, and to encourage strategies of restraining children, insisting teeth are brushed or persevering with toothbrushing (for example):

My dd [daughter] (7) had to have 5 teeth extracted last year [...] Honestly having the teeth out was a nightmare - just keep on brushing!

Posters also shared advice from dentists, and occasionally, posted as dental professionals (e.g., 'I'm a dental hygienist - these tips might help'). Reported advice varied, and in relation to the topic of force, there were conflicting examples:

The dentist told me she held down both of her children screaming until they were 4 to scrub their teeth, so I cant [sic] feel too bad about it I suppose.

The last thing I [sic] want to do is force it though and my dentist said also not to force it at this age... [1 year old]

Posters could invoke dental authority to justify how they were addressing toothbrushing or to support a particular attitude.

4 | DISCUSSION

This study aids our understanding of the dimensions of toothbrushing resistance in young children. Threads on an online parenting forum included experiences of resistance, strategies for addressing this, attitudes and concerns, and interactions with specific and generalised others on the forum.

Posters reporting their experiences of resistance commented on child behaviours, their own emotional response and provided further details (the context for the way addressing the problem is discussed). Previous research identifies resistant behaviour such as clamping the mouth shut and crying,⁵ although in focussing on this topic in detail, we have identified more examples, such as shouting, shaking the head and running away. Posters expressed negative emotional responses

that illustrated the impact of toothbrushing resistance. Studies that focus on barriers and facilitators to toothbrushing show how parents want to avoid negative emotional reactions for both themselves and their children.³ This experience of caring for young children can be an emotional and relational challenge, affecting how people feel about themselves as parents. Furthermore, the conflict between responsibly ensuring a child maintains good oral health and caring for how that child experiences toothbrushing played out in discussions around strategies for addressing resistance, particularly the strategy of restraining/using force.

This study identifies 37 strategies that posters discuss and that parents can employ, individually and in combination. Some strategies have been identified elsewhere, for example, making it fun and distraction: watching/listening, positive talk, counting/using timer and rewards/bribery.^{3,5,7} These strategies, and others, are intended to help parents achieve brushing through cooperation, and the discussions on Mumsnet acknowledge some of the complexities of doing this.²

By using data from a parenting forum, this study draws attention to strategies as framed by parents. The strategies of 'compromising' and 'relaxing', for example, may be problematic for dentists but can be encouraging on a parenting forum that focusses on providing emotional support for worried, upset parents. Another important aspect is temporality. Although some suggestions can be enacted immediately, other strategies represent longer term reflection on what works. Most original posts are from a parent of a 1- or 2-year-old child, but responses may be from parents of older children who can look back on this stage of parenting. Clearly, this may impact on recall. The focus here, however, is on the way this issue is discussed, and in this context, parents of older children can offer reassurance on the basis 'it will get better' and 'resistance is a phase'.

Previous studies indicate that strategies are evaluated by researchers, categorising distraction and praise as 'adaptive' behaviours, for example, while positioning bribery, threats, negative remarks and raised voices as less 'adaptive'.¹¹ Adaptive behaviours are those conceptual, social and practical skills that enable people to function in their everyday lives. Although views expressed on Mumsnet are mixed, bribery or withholding/withdrawing treats are recommended by some posters, as are more coercive approaches, in order to achieve PSB. It is important to recognise that self-assessment of the effectiveness of strategies used to achieve PSB may differ from professional and academic assessments. Furthermore, strategies may not have the goal of achieving PSB; for instance, the strategy of 'relaxing' (i.e., accepting toothbrushing will not happen every day) appears to focus on the emotional experience of

the parent and the ongoing parent/child relationship. Acknowledging the wider relational context in which toothbrushing resistance occurs is important for understanding how it is experienced and addressed.

The attitudes and concerns posters express help to frame the discussions and situate the strategies proposed. The sharing of attitudes such as 'toothbrushing is less important in primary teeth' on popular online forums may be a concern to dental professionals. Attitudes also relate to the potential longer term consequences of using force and/or restraint. Previous studies have identified examples of parents associating resistance with subsequent dental fear;³ there is, however, limited research on parental and professional perspectives on the use of force and/or restraint to achieve PSB and the potential consequences of this. Attitudes and concerns relating to longer term negative associations from using restraint to achieving brushing (particularly in terms of dental phobia) are important to understand to contextualise how some parents may approach toothbrushing resistance.

In contrast to other research on parent and child toothbrushing behaviours based on surveys, interviews and observations, in which parents engage with researchers directly, this paper draws on data from an online parenting forum. Posters ask questions about how to address toothbrushing resistance, and these are directed to parents rather than professionals (although some responses are from posters drawing on professional expertise, or at least claiming to). Discussions about this topic are largely supportive, characterised by empathy, encouragement and reassurance. This reflects previous research showing that parenting forums may be used more for reassurance than information¹⁹ and act as a space for parents to share and normalise experiences.¹³ In these discussions, reassuring strategies and attitudes can implicitly give parents the permission to not meet the standards of PSB (e.g., the strategy of 'compromising' or the attitude that 'toothbrushing is less important with primary teeth').

Nevertheless, there was also an emphasis on the strategy of 'insisting' and the attitude 'toothbrushing is non-negotiable', which are associated with 'tough love'. Interactions characterised as 'tough love' may be particularly noticeable on Mumsnet, with its reputation for plain speaking and 'home truths'.²⁰ Paying attention to naturally occurring interactions about toothbrushing resistance provides an insight into the way individuals can 'make a case' for the way they approach the problem, sharing personal motivations, comparisons and teaching examples, as well as invoking dental authority to support an argument. This paper demonstrates how posters on an online parenting forum can engage in debates around the best way to address toothbrushing resistance, and it is important to understand that this can be a contentious issue.

Previous research recognises physical restraint as an option used by parents.⁵ Our study identifies the use of physical force or restraint as a key issue for parents. Posters expressed ideas about the importance of toothbrushing and the notion of making this 'non-negotiable' on parenting forums. There were also concerns about not achieving brushing, or not achieving 'proper' brushing, and consequences in terms of poor oral health, pain and the need for dental work. Therefore, many of the discussions on the topic of toothbrushing resistance considered whether physical force and restraint are justifiable given the importance of toothbrushing and good oral health. As noted above, interactions between posters often reflected emotional support and reassurance. Posters who described 'having to' use restraint or force, and who described their own negative emotional responses to doing so, specifically asked for reassurance that this would not cause longer term problems. It may be that such original posts predominantly attracted responses that were intended to be reassuring (for instance, by normalising the use of physical force and restraint). Further research with parents that looks at *how* parents engage in discussions about toothbrushing resistance would be useful.

These discussions took place on an anonymous online forum. It is not clear how comfortable parents would be discussing these ideas in a different context, such as an in-person focus group, and whether parents would or would not talk about using physical force and restraint in the same terms. Mumsnet has a reputation for entertainment, and terms such as 'bad mother' may be used in a humorous way.^{20,21} Therefore, terms such as 'headlock' and 'pinning down' may be used as exaggerations. Nevertheless, it may be that the attitude that toothbrushing should be 'non-negotiable' would be used by parents to justify using a strategy of restraining, regardless of the context. There is a scope for further research with parents using different methods, specifically looking at the topic of resistance to toothbrushing and attitudes to the use of physical force and restraint. Furthermore, research could also be carried out with dental professionals focussing on this issue. This study has identified examples of dental authority being invoked both for and against the use of force to achieve toothbrushing with young children, which may reflect genuine differences in opinion among dental professionals, which are important to explore further. Discussions about toothbrushing can also relate to broader ideas about the ability of parents to 'control' children.⁵ Future research could take this analysis further, by considering strategies of restraining a child in relation to ideas about what parent/child relationships *should* be, from the perspective of both parents and dental professionals.

The strength of this study is the formulation of a coding frame that can be applied to other data sets relating to toothbrushing resistance. This analysis offers a starting

point for a future project, exploring attitudes expressed by parents in face-to-face interviews and by dental professionals. This research contributes to the literature on online parenting discussions about aspects of children's health, illustrating how parents interact when discussing this topic. Although only one forum was used, this allowed the research team to explore interactions in this particular context and develop a comprehensive coding frame that can be tested in relation to other forms of data.

The limitations of this study relate to the data (existing posts on the online parenting forum Mumsnet). There is no guarantee that posters were parents. Although several of those posting referred to their children, people can misrepresent themselves online. In writing this paper, the nature of the data has been emphasised (using 'posters' rather than 'parents'). This is, however, a valuable source of naturally occurring data, which highlights how toothbrushing resistance (and potential solutions to it) can be a source of conflict. Another limitation is the choice of parenting forum. Mumsnet is recognised as a predominantly middle-class space.²² Thus, these discussions may not reflect the experiences of those living in more deprived circumstances. The choice of sub-forums may have also excluded discussions focussing on children with disabilities, such as autism spectrum disorder, which is associated with difficulties achieving PSB.²³ Further research could usefully focus on this group by searching sub-forums on Mumsnet such as 'SN [special needs] children', and potentially targeting other online forums aimed at parents of children with autism. Finally, there was no opportunity to ask posters for additional context or to discuss the content of the posts.

The aim of this research was to use naturally occurring data to explore experiences of, and proposed strategies for addressing, toothbrushing resistance. We have developed a comprehensive coding frame that can be refined further through additional research. In conclusion, this study helps to understand how people posting on a parenting forum discuss child resistance to toothbrushing. By mapping out the dimensions of these discussions, this study has presented a framework for understanding these experiences of resistance in more depth.

AUTHOR CONTRIBUTIONS

JK conceived the study, retrieved and analysed the data, and wrote the paper. ZM contributed to designing the study, interpreting the findings and revising the paper. Both the authors approved the submitted version of the article.

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Research & Development Senior Director, Medical & Technical Affairs AMA/GC, Personal Health Care at Procter & Gamble prior to the submission of this paper. The research team would like to thank Ian for his support and feedback on the initial report.

CONFLICT OF INTEREST STATEMENT

The authors report no conflict of interest.

DATA AVAILABILITY STATEMENT

The coding frame has been provided as an appendix to this paper. A list of threads analysed in this study is available from the researchers upon request.

ETHICAL APPROVAL

Ethics approval was granted by the University of Sheffield. Mumsnet was contacted to ask for permission to publish findings in peer-reviewed journals, including quotations from posts. Mumsnet approved to use quotations from posts in publications, on the basis of anonymity for posters (including no usernames) and acknowledging Mumsnet as the source.

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SUPPORTING INFORMATION

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

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