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When does childhood dental caries become neglect or abuse: do parents think what we think?

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David Tuthill,[1] **Glesni Guest-Rowlands**[2] and **Emma J. Hingston**[2]

explore and compare parental thresholds for neglect and child protection against those of healthcare professionals.

Abstract

Introduction Poor oral health in children may be a marker for wider neglect and abuse, but there is no universally recognised threshold for social services intervention.

Aim To compare families' thresholds for referral for social services intervention with those of healthcare workers.

Intervention Five standardised vignettes, used previously to investigate the views of healthcare workers on the need for social services intervention, were used to determine the threshold of 250 families for intervention.

Results For an unkempt four-year-old girl with extensive dental caries frequently not brought to appointments, 63.6% families suggested a child in need (CIN) referral, against 9% (3/32) dental professionals ($p < 0.001$) and 38% (38/100) paediatric healthcare professionals (PHCPs) ($p < 0.001$). For a bullied, obese 14-year-old boy with extensive dental caries, similar proportions of families (37%; 93/250) and PHCPs (40%; 40/100) advised a CIN referral (p = ns); significantly fewer dental workers did (15.6%; 5/32; $p = 0.017$). Concerning a four-year-old boy with a bruised ear, over 64% of families and 68% of PHCPs correctly felt engagement with social services was necessary (p = ns) compared to just 12.5% (4/32) of dental practitioners ($p < 0.001$).

Conclusion Many parents felt social services involvement would be helpful in these hypothetical cases, often more frequently than healthcare workers.

Introduction

Wales's oral health promotion programme, Designed to Smile (D2S), has resulted in an improvement in oral health in Wales, with mean decayed, missing, filled teeth (dmft) scores reducing from 2.05 to 0.93 between 2007–2008 and 2015–2016.[1] However, despite these laudable improvements, in 2015–2016, a third (34.2%) of children under the age of five years had a dmft score of ≥1.[1] Dental decay in childhood negatively impacts children by causing prolonged pain, sleepless nights, irritability, school absenteeism and difficulty eating.[2] Long-term issues include altered dental development caused by early loss of primary molar teeth, potentially resulting in space loss in the buccal segments leading to less than ideal arch alignments, reduced arch perimeter length, impaction or ectopic eruption of permanent teeth, centre line discrepancies and crowding in the permanent dentition.[2,3,4]

The Children Act (1989)[5] provides legislation concerning neglect and child protection issues. Children can be referred to social services as a 'child in need' (CIN) (section 17) when the child requires extra support for their care; for example, a child with disabilities.[6] A referral for child protection (section 47) is made when there are suspicions that the child may be at risk of significant harm due to the actions, or lack of them, by their parents.[7] In 2019, 16,421 children in Wales were receiving care and support, of which 2,214 were on the child protection register.[8]

Article 27 of the United Nation's Convention on the Rights of the Child[9] recognises 'the right of every child to a standard of living adequate for mental, spiritual, moral and social development'.

[1]*Department of Child Health, Children's Hospital for Wales, Cardiff, UK;* [2]*University Dental Hospital, Cardiff, UK.*

Parents should be responsible for providing 'the conditions of living necessary for the child's development'.[9] National advice is for parents to brush children's teeth until the age of eight years, which should enable them to visualise obvious dental decay. Therefore, is it neglect when children have large amounts of untreated decay? The British Society of Paediatric Dentistry defines dental neglect as 'the persistent failure to meet a child's basic oral health needs, likely to result in the serious impairment of a child's oral or general health or development'.[10] The General Dental Council expect that all dental care professionals 'must raise any concerns you may have about the possible abuse or neglect of children'.[11] The Royal College of Paediatrics and Child Health child protection reviews (previously known as CORE INFO published by Cardiff University and funded by the NSPCC) reviewed the evidence regarding dental neglect.[12] They state that, given the varying prevalence of caries among young children in western populations, it is impossible to define a precise threshold for dental neglect based on solely this feature. However, a child who is experiencing pain, embarrassment or medical complications as a consequence of caries should be brought for appropriate treatment. Failure to attend appointments when the child is experiencing pain, or failure to adhere to a recommended treatment plan, should prompt investigation. Dentists are encouraged to collaborate with their local safeguarding/child protection teams in order to ensure that prompt and appropriate referrals are made when concerns regarding dental neglect arise. As dentists may see children more frequently than most other health professionals, they have the opportunity to detect dental neglect or other signs of wider abuse and neglect.

In our previous service evaluation, we compared and explored threshold values for neglect or abuse among paediatricians and dentists using childhood scenarios that included dental decay, neglect and child protection issues.[13] Broadly speaking, dentists were more reluctant to consider caries neglectful, while paediatricians' knowledge of basic dental management was less than optimal. We could find no data on families' opinions about thresholds for dental neglect. Thus, we wished to explore parental views using our previous scenarios and compare their threshold standards for neglect and child protection against those of the healthcare professionals (HCPs).

Aim

To obtain the opinions of parents/carers on child dental health and to determine what level of decay they perceive to be 'normal', neglectful or in need of social services involvement.

Materials and methods

This survey used a convenience sample and was modelled on our 2016 work.[13] The same five fictional vignettes with photographs were used, with minor linguistic modifications to optimise parental understanding and simplify the choices. Parents were approached and the survey completed face to face by a single data collector (GGR) during August 2017.

'Given the varying prevalence of caries among young children in western populations, it is impossible to define a precise threshold for dental neglect based on solely this feature.'

After receiving a brief explanation of the difference between 'safeguarding' and 'CIN' referrals, parents were given each of the five vignettes and asked to choose between five possible actions. Multiple dental care answers were allowed, but parents were only able to select one social services action, if they felt referral was necessary – either for support as a CIN, or a child protection referral under safeguarding procedures if they felt the case reached this threshold.

Thus, the action choices were:

1. This child is normal and no further action is needed
2. Oral hygiene and dietary advice is needed
3. Dental care is needed
4. Referral to social services for support as a CIN is required
5. Referral to social services for child protection (safeguarding procedures).

The appropriate answers for each vignette, as determined by the authors (an experienced consultant paediatrician and an experienced consultant paediatric dentist), were as follows:

Q1. 'Shannon': four-year-old girl who appeared unkempt, had extensive dental caries and had frequently not been brought to dental appointments. Optimal answers: Shannon requires dental care. Minimum of CIN referral required

Q2: 'Gemma': six-year-old girl who was attending a routine dental check-up, which revealed she required one filling. Optimal answers: Gemma requires dental care plus oral hygiene and dietary advice. No social services involvement appropriate

Q3: 'Cameron': 14-year-old obese boy who is bullied and has extensive dental caries with evidence of dental erosion (tooth surface loss by acids not produced by bacteria). Optimal answers: Cameron requires dental care plus oral hygiene and dietary advice. Consideration of CIN referral required

Q4: 'Robert': four-year-old boy presenting with bottle caries with two older siblings who both required dental extractions under general anaesthetic. Optimal answers: Robert requires dental care, plus oral hygiene and dietary advice. Consideration of CIN referral required

Q5: 'Joseph': four-year-old boy attending the dentist for a filling, who presents with a bruise on his ear. Optimal answers: Joseph requires dental care plus oral hygiene and dietary advice, alongside a referral to social services for child protection (safeguarding procedures).

Anonymised service user data were recorded: whether their child had a dentist, what dental treatment their child had previously received and whether the family had ever had any involvement from social services results were analysed by Fisher's exact test, taking $p < 0.05$ as statistically significant.

Setting

Outpatient department and wards of the Children's Hospital for Wales, along with the orthodontic and paediatric departments at the University Dental Hospital in Cardiff.

Ethical issues

This survey of parental/carers' opinions was

Table 1 Dental and social care actions chosen by parents/carers. respondents were able to select more than one dental action, but only one social services action if they felt referral was necessary

Question (n = number of respondents)	No action	Oral hygiene and dietary advice	Needs dental treatment	Child in need referral	Child protection referral
Shannon: an unkempt four-year-old girl, frequent-ly not brought to dental appointments with exten-sive dental caries (n = 250)	2	73	178	159	23
Gemma: a healthy six-year-old girl attending dental check-up needing one filling (n = 250)	81	170	103	1	0
Cameron: an obese, bullied, 14-year-old boy, with extensive dental caries and erosion (n = 250)	2	168	191	93	10
Robert: a four-year-old boy with bottle caries, whose two siblings both required dental extrac-tions under GA (n = 246)	2	112	159	138	41
Joseph: a four-year-old boy attending the dentist for a filling, with a markedly bruised ear (n = 238)	17	18	41	67	161

reported that their child had a dentist. Just over half (58%) stated their child had never received dental treatment, but 19 (7.6%) had already undergone extractions under general anaesthesia (GA). Of those that had received dental treatment awake, ten children (4%) had required treatment for dental trauma, 19 (7.6%) had undergone extractions under local anaesthesia; 21 (8.4%) reported 'other treatment not associated with dental decay' and 36 (14.4%) reported a combination of treatments. A small number (10; 4%) had experience of social services involvement, with two (0.4%) respondents having experience of child protection procedures.

Families' answers to the questions are summarised in Table 1. These have been combined with our previous results,[13] from HCPs answering the same questions in Table 2; 32 dentists/dental health practitioners and 100 paediatric HCPs. Fisher's exact test was used to compare the HCPs' opinions to these parental views of when social services involvement was necessary.

Table 2 Social services actions chosen by parents/carers compared to dental and paediatric HCPs from previous survey.[13] Data processed for Fisher's exact test online[17]

Action required	Parents (n = 250)		Dental HCP (n = 32)				Paediatric HCP (n = 100)			
	Child in need referral	Child protection referral	Child in need referral	Fisher's exact test compared to parents	Child protection referral	Fisher's exact test compared to parents	Child in need referral	Fisher's exact test compared to parents	Child protection referral	Fisher's exact test compared to parents
Shannon: four-year-old unkempt girl, frequently not brought to appoint-ments with exten-sive caries	159	23	3	P <0.001	5	P = 0.334	38	P <0.001	14	0.247
Gemma: six-year-old girl attending dental check-up needing one filling	1	0	0	P = ns	0	P = ns	0	0	0	P = ns
Cameron: 14-year-old obese boy, bullied with exten-sive caries	93	10	5	P = 0.017	2	P = 0.633	40	P = 0.628	9	P = 0.0710
Robert: four-year-old boy with bottle caries, two siblings required dental extractions under GA	138	41	5	P <0.001	1	P = 0.061	37	P = 0.003	14	P = 0.629
Joseph: four-year-old boy attending for a filling, with bruised ear	67	161	11	P = 0.403	4	P <0.001	24	P = 0.590	68	P = 0.537

approved by Cardiff and Vale University Health Board.

Results

A total of 386 families were approached; 91 declined and 45 were called away to their child's medical/dental appointment before completing the survey, leaving 250 completed surveys (64.8%). Those called away to their appointments before finishing the survey were sought afterwards, but their answers only included if they had completed at least three vignettes (n = 4 did not complete the last two questions and n = 12 did not complete the last question).

The majority (87.2%) of parents/carers

Question 1

'Shannon': an unkempt four-year-old girl, frequently not brought to dental appointments, with extensive dental caries (n = 250 answers).

Unsurprisingly, most (71.2%) of the family respondents correctly believed that Shannon

required dental treatment. The majority felt that the family needed additional help, with two-thirds 159/250 (63.6%) suggesting a CIN referral, although nearly one in ten (9.2%) believed she needed a child protection referral. Overall, just 3/32 dental professionals had recommended CIN referral, compared to 38/100 paediatric HCPs. Both HCP groups were significantly less likely to refer than parents. Only 5/32 dentists and 14/100 paediatric HCPs had thought child protection necessary, which was not significantly different from the families' viewpoints.

'There was a perceived lack of knowledge regarding dental disease. Most parents/carers did not realise that a dental abscess is often the result of untreated tooth decay.'

Question 2

'Gemma': a healthy six-year-old girl attending dental check-up needing one filling (n = 250 answers).

Two-thirds (68%) of respondents correctly felt that Gemma needed dietary and oral hygiene instruction, but one-third (32.4%) believed this was normal and that no action was needed. Only one respondent (0.4%) felt social services involvement was required – a CIN referral. No HCP thought a social services referral was required, in complete agreement with the parents' viewpoint.

Question 3

'Cameron': an obese, bullied, 14-year boy with extensive dental caries and dental erosion (n = 250 answers).

Most families (76.4%) correctly stated he needed dental treatment, and two-thirds (64.6%) felt that he needed oral hygiene and dietary instruction. Only two outlying respondents felt that Cameron did not require any dental or social care action. Just under a third (93/250) felt Cameron warranted a CIN referral, although ten (4%) thought a child protection referral was required. Significantly fewer dentists (5/32) felt a CIN referral would be advisable, although there was no statistical difference in the comparable low proportion feeling child protection proceedings should be started (2/32). A similar proportion of paediatric HCPs and families felt a CIN referral to support Cameron's family should be made (40%), or child protection referral warranted (9%).

Question 4

'Robert': a four-year-old boy with bottle caries, whose older two siblings had required dental extractions under GA (n = 246 answers).

Most parental respondents (159) recognised that Robert needed dental treatment and either a CIN (138; 55.2%) or child protection referral (41; 16,4%). Many parents said they found it difficult to come to a decision on this case. Significantly fewer dental healthcare workers (just five) felt a CIN referral was warranted, with only one recommending child protection involvement p = ns (probability non significant at 0.05 level). A similar pattern was seen for paediatric healthcare workers, with statistically significantly fewer (37%) feeling a CIN review necessary, but no difference in those thinking child protection was required (14%).

Question 5

'Joseph': a four-year-old boy attending the dentist for a filling, with a markedly bruised ear (n = 238 answers).

Most parents weren't worried about Joseph's teeth, but were concerned about the ear bruising, raising issues of the child being hit; over 90% (228) felt engagement with social services necessary, mostly child protection (161). A minority (just ten) thought that bruising to an ear was normal. Around a third of dental practitioners thought a CIN review appropriate (11/32; p = ns), but just 4/32 (12.5%) recommended the appropriate child protection referral, significantly fewer than the families. A CIN referral was suggested by 24% of paediatric HCPs, with 68% responding appropriately that a child protection referral should be made; neither were significantly different from the families' responses.

Discussion

Wales's oral health promotion programme, D2S, has resulted in an improvement in oral health, with mean dmft scores reducing from 2.05 to 0.93 between 2007–2008 and 2015–2016.[1,14] The 2013 Child Dental Health Survey (CDHS) found that 87% of 12- and 15-year-olds in Wales attend the dentist for regular check-ups, which correlates well with our finding that 87.2% of parents/carers reported that their child had a dentist. On average, 45% of children in Wales had no obvious experience of dental decay when examined by a dentist. In our survey, although not directly comparable, 58% of families stated their children had not required dental treatment.

Our respondents were interested in the survey and keen to know what the 'right' answers were. There was a perceived lack of knowledge regarding dental disease and its management. Most parents/carers did not realise that a dental abscess is often the result of untreated tooth decay. Many respondents found making a decision regarding appropriate social services actions difficult. 'Joseph', who had a bruised ear, was perhaps the most challenging case; several parents/carers wished to ask more questions to clarify how the child had acquired the bruise.

A 2017 study from the Netherlands found that around a quarter of 205 children undergoing dental GA for multiple carious teeth were contemporaneously registered on the 'Veilig Thuis', the Dutch national organisation database for domestic violence and child abuse, at the time of operation. A further 13% were subsequently added to the register.[15] They concluded that there appeared to be a strong association between severe dental caries and child abuse and neglect. Hence, severe dental caries could be regarded as a symptom of child abuse and neglect. A Canadian study demonstrated that abused and neglected young children had higher levels of tooth decay than the general population of five-year-olds in Toronto (30% prevalence, n = 3,185). However, they did not find any difference in early childhood caries prevalence between children with different types of maltreatment. Canadian social service care had a protective effect on children's oral health.[16]

Our study demonstrates some intriguing differences between parental perspectives and that of HCPs. For the healthy six-year-old, there were no significant differences between HCPs and parents. However, for

'Ear bruising is generally perceived now as a sign of a child being maltreated – in Dickensian times, it might have been accepted as an appropriate physical chastisement.'

the indeterminate cases, families often felt more strongly than HCPs that social services involvement was warranted. In the hypothetical case of a four-year-old boy with ear bruising, parents and paediatricians were more likely than dental care workers to correctly suggest child protection involvement, which would normally be seen as standard practice. These differences may be explained by families 'wanting to please' the reviewer and suggesting social care involvement, or that involvement of social services by HCPs may not be as frequent as families expect. Societal views change over time; ear bruising is generally perceived now as a sign of a child being maltreated – in Dickensian times, it might have been accepted as an appropriate physical chastisement. Could dental HCPs have become immune to dental decay because of its sheer frequency, and therefore feel involvement of social services teams heavy-handed and likely to be ineffective in helping the child? Our data raise intriguing questions that are worthy of future research to delineate the causes for these apparent differences.

The limitations of our study are that it was a convenience sample and not a stratified representation of the local children's community. This may have biased the results as those families attending healthcare settings may be more motivated.

Conclusions

Many parents understand the importance of good dental health and are aware that advanced dental decay is not 'normal' and requires treatment. There is increasing recognition of an association between poor dental health and neglect or abuse. Many families said that they felt social services involvement would be helpful in these hypothetical cases, often more frequently than dental or paediatric HCPs. The reasons for families having a lower threshold for referral to social services over child protection or neglect concerns are as yet undetermined.

Ethics declarations

EH – nil. DT – nil. GGR was paid from a paediatric endowment fund supervised by DT to perform this work as a dental student. No commercial funding or influence was received.

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