Oral health knowledge, perceptions and practices among parents, guardians and teachers in South Wales, UK: A qualitative study

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Key points

Stresses that oral health programmes should target groups with greater need.	Identifies that oral health interventions should involve users in the delivery.	Argues that equity in access to dental care needs to be addressed as a priority.	Reasons that oral health professionals' judgemental attitude can increase inequality.

Introduction Oral disease is largely preventable, however, families with low socioeconomic status show the greater burden worldwide and in Britain. **Aims** To explore the perceptions and knowledge, in relation to dental health, risk factors for dental disease and their role in oral health promotion, of teaching staff and parents of children attending primary schools positioned and serving both affluent and deprived populations in South Wales. **Methods** A qualitative approach using a focus group methodology was adopted. NVivo qualitative software was used to facilitate coding and analysis and to develop themes. **Main outcome** The main themes which emerged from the analysis were: responsibility, Designed to Smile, positive role modelling, dental attendance, personal experiences, oral health education messages and school policy. **Conclusions** If improvements in oral health are to be achieved the target population should be the most deprived sub-groups. Equity of access to dental care services in which oral healthcare is delivered according to need should be a priority. Furthermore, equitable and sustainable oral health promotion programmes should engage users in the delivery, address 'victim blaming' attitude and include accurate, consistent, unambiguous oral health messages.

Listen to the author talk about the key findings in this paper in the associated video abstract. Available in the supplementary information online and on the BDJ Youtube channel via http://go.nature.com/bdjyoutube

Introduction

It is widely agreed that oral disease is largely preventable.[1,2] However, almost four billion people worldwide suffer oral health problems with untreated caries being the most common chronic condition experienced.[3] The United Kingdom countries have witnessed an improvement in adult's and children's dental health;[4,5] yet, the social gradient in oral health, closely related to social and economic factors, is still a major public health challenge.[6,7] Families with low socioeconomic status (SES) show the greater burden worldwide and in Britain.[8,9]

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Refereed Paper. Accepted 7 November 2018
DOI: 10.1038/sj.bdj.2018.223

The Black Report in 1980,[10] Sir Donald Acheson's Independent Inquiry in Health Inequalities in 1998[11] and Sir Marmot's review more recently[12] echoed the same concerns. Although the criticism and agreement that oral health disease is avoidable and can be addressed, we are now witnessing increased disparities between the 'better off' and the more deprived.[13] This is also the case for Wales.[14]

Wales is comparatively a small country with an estimated population for 2016 of 3,113,000 people.[15] The Welsh Government (2014) identified geographical units of deprivation defined as lower layer super output areas (LSOAs) in relation to specific domains such as: income; employment; health; education; access to services; community safety; physical environment; and housing, grouping these with a range of indicators for each domain under the umbrella 'Welsh Index of Multiple Deprivation' (WIMD).[16] Blaenau Gwent, a county borough in South Wales, has the highest proportion of LSOAs in the most deprived ten percent and the highest number of LSOAs in the most disadvantaged fifty percent in Wales.[16] The Vale of Glamorgan is, by contrast, less deprived. Although it is recognised as one of the most affluent local authorities in Wales, it also presents pockets of multiple deprivation and inequalities (health, education and employment), next to areas of greater wealth.[17]

The 'Dental Epidemiological Survey of 5 Year Olds 2014/2015'[18] highlighted improvements in oral health in Welsh children without negatively broadening inequalities as identified in previous reports. The data are analysed according to seven local health boards rather than the 22 unitary authorities.

However, between 2007 and 2014 Blaenau Gwent, as a unitary authority, experienced a reduction in mean dmft (decayed, missing, filled, teeth) of children with caries from

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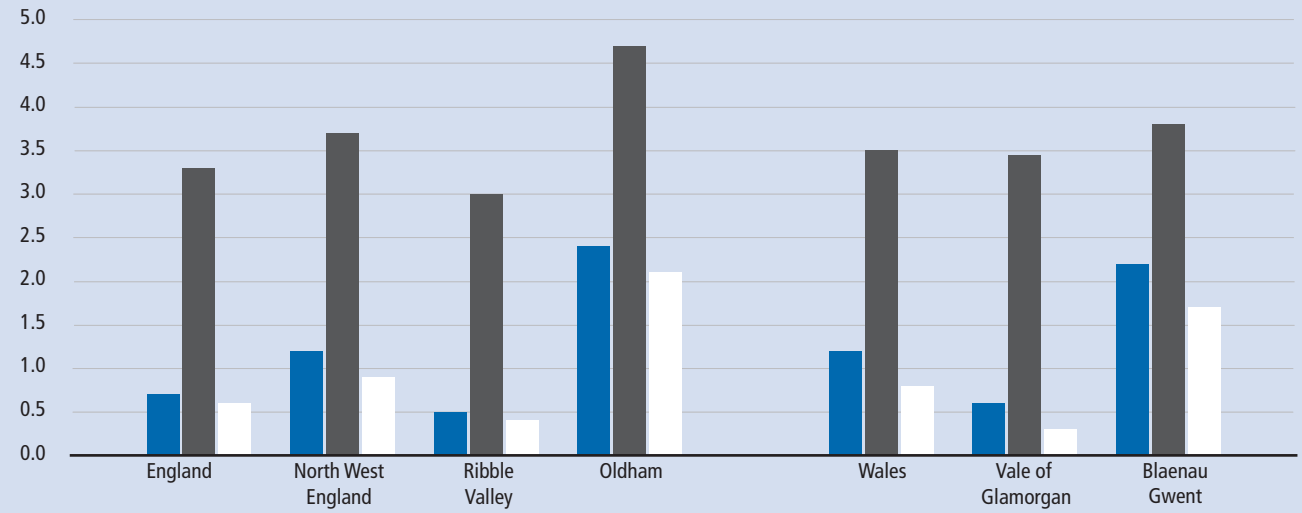
Fig. 1 Key dental caries variables from the survey of 5-year-olds 2014/15 in England and Wales



5.15 to 4.46 with an increased number of caries free children overall. The Vale of Glamorgan, as a unitary authority, showed an increase in number of caries free children: 80% of children were caries free in 2014/15; although 20% presented a relatively high level of caries.[19] The dmft of the 20% with caries increased from 3.25 to 3.45. Figures 1 and 2 show how the distribution of dental caries in Wales is similar to that in English regions that have similar deprivation profiles to Wales.[20]

The distribution of disease indicates that children with no or little caries are prevalent in the most affluent sub-groups while the opposite can be said for the least wealthy.[5] Furthermore, it is reported that deprived sub-groups may require multiple extractions under general anaesthetic.[19] The Welsh Government has responded to caries levels in the community by funding the national programme 'Designed to Smile' (D2S) which aims to improve children's dental health in Wales.[21]

This qualitative study aimed to explore the perceptions and knowledge in relation to dental health, risk factors for dental disease and their role in oral health promotion of teaching staff and parents of children attending primary schools, positioned and serving affluent and deprived populations, as intermediate and end users of oral health promotion services in the Vale of Glamorgan.

The overarching aim of this research platform was to study the perceptions of intermediate and end users of oral health promotion services in relation to dental health, risk factors for dental disease and their role in oral health promotion. Other studies within this platform include dental healthcare professionals and the public[22] and school nurses and health visitors.[23] This study focuses on the perceptions, knowledge and practices of parents and teachers. Other researchers have published in this field and have adopted a similar approach such as Marshman *et al.*[24] However, to the best of our knowledge this is the first study of its kind to include parents and teachers in Wales.

Methodology

A qualitative focus group[25] was adopted primarily as it was the most appropriate way of exploring perceptions, knowledge and practices. It is also the same methodological approach used by the research team in other published work.[23] In this study, face to face interviews of teaching staff were also conducted. This was considered appropriate as both head teachers and teaching staff were involved. Given the different positions of authority, it was important that the teaching staff felt able to speak openly and truthfully. Two primary schools within the Vale of Glamorgan were chosen with each representative of different geographical locations within the Vale as well as different socioeconomic profiles.[16]

School 1 (defined by head teacher)

This is an infant and nursery school in the centre of Barry, Vale of Glamorgan. It has 125 children aged between 3–7 years, 73% white British and with 23% of pupils who speak English as an additional language. Forty-two percent of the families live in a Flying Start area which is defined by the Welsh Index of Multiple Deprivation as families living in the most disadvantageous areas in Wales. Approximately 7% of pupils are entitled to free school meals.

School 2 (defined by head teacher)

This is a junior school in a semi-rural location on the outskirts of Penarth serving families across the eastern Vale of Glamorgan. It has 221 pupils from 3–11 years, 64% white British and 16% of pupils who speak English as an additional language. The pupils are from varied socioeconomic backgrounds with a minority of economically disadvantaged families. Approximately 11% are eligible for free school meals.

Sample

Parents for the focus group, school 1 (deprived area), were recruited via a school letter. Eight attended; the sample size was considered appropriate.[26] The head teacher and reception teacher were interviewed separately. In school 2 (non-deprived area), the same approach was taken and two consecutive notices were placed in the school newsletter but only two parents responded; one agreed to be interviewed. The head teacher and reception teacher of school 2 were also interviewed.

Data collection and analysis

As already described elsewhere[23] the same 12-item interview schedule was used and had been subject to verification by an expert panel.

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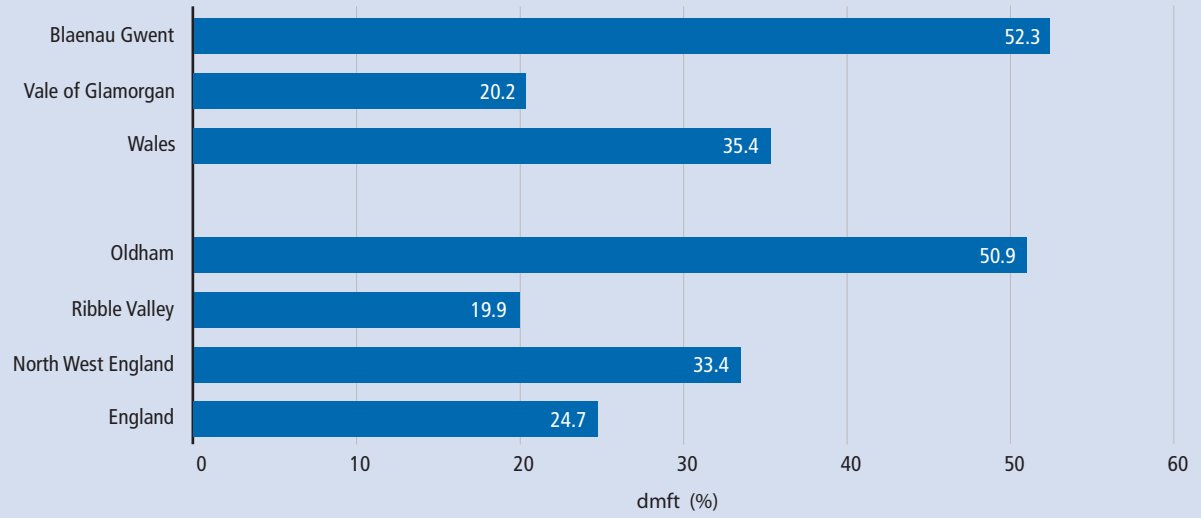
Fig. 2 %dmft >0 of 5-year-olds 2014/15 in England and Wales



The wording of some of the questions was slightly amended only in relation to whether the participant was a teacher or a parent.

Focus groups were undertaken in quiet, well-ventilated rooms away from the teaching areas. In both schools, participants gave their permission to be tape-recorded. A facilitator and a moderator were present. The focus groups took approximately one hour and the individual interviews 30 minutes. The narrative data were transcribed verbatim; NVivo qualitative research software was used in the analysis with nodes and sub-nodes identified. This process was undertaken by each member of the research team independently; furthermore, member checking was established in both head teachers' transcripts which enhanced credibility of the data analysis.[27] Investigator triangulation[28] was then established which allowed the researchers to reach a consensus on the salient themes. This process enhanced the rigour of the analysis.

Ethical approval was granted by the University Faculty Research Programme Committee (FRPC). The main ethical principles of informed consent, confidentiality, anonymity and data protection were maintained. Teachers and parents had been approached in advance of the day of interview and had already given informed consent.

Results

Both schools participated in the study. School 1 included a focus group of eight parents following an invitation letter from the head teacher to parents to take part in the research. The group represented the social mix of the school with parents present from the most deprived areas. The head teacher and a reception teacher gave individual interviews. School 2 included individual interviews with a parent, reception teacher and the head teacher. It is of some interest that despite two consecutive notices placed in the school newsletter, there was little response from the parents to form a focus group. The one parent who did volunteer had worked previously as a teaching assistant in a school positioned in a deprived area of Cardiff. Furthermore, following the interviews, it became clear that School 1 was involved in the Welsh Government scheme 'Designed to Smile' (D2S), which delivers supervised tooth brushing and oral health education within participating schools. School 2 was not involved in the programme.

Seven themes emerged from the analysis of data. These included: 'responsibility' in relation to who should be accountable for the oral health of children; 'positive role modelling' in relation to teachers, parents and peer pressure within the school and 'Designed to Smile', which was viewed positively by both parents and teachers despite taking up valuable curriculum time. The importance of regular 'dental attendance' was identified by both parents and teachers; 'personal experiences' were shared by the parents. The last two themes were 'school policy' relating to healthy snacking and 'oral health education messages' in which reducing sugar intake, brushing and visiting the dentist were the main oral health education messages perceived; some confusion about oral health education messages was experienced by parents and teachers.

Responsibility, Designed to Smile (D2S) and positive role modelling

Focus group participants agreed that responsibility for children's oral health should rest primarily upon parents/guardians:

'*So you know we've got that responsibility and obviously teaching them about brushing their teeth*'. P3

The Welsh Government's programme Designed to Smile (D2S) was praised by parents and teaching staff:

'*I think it has been quite successful in our school, certainly lower down, I am talking about lower foundation phase...em....*' P11

Parents felt that the scheme had helped their children and themselves better understand what influences oral health as well as supporting children's needs:

'*yes, I have been corrected on brushing technique a number of times!*' P4

'[…] *how well they are with disabled children, for me*'. P6

Nevertheless, it was still felt that the government's scheme should not replace parental/guardian responsibilities:

'*I think it's excellent, I think it's lovely for the peer support and the reluctant brusher but I am just worried that there may be a tiny number of parents that, it flashes across their minds, oh it's alright, it'll be done in school*'. P4

However, one parent felt that the government's scheme should take over responsibility for those children whose parents are failing to do so:

'*But I know that, yeah, it was a programme aimed at children in inner cities and they needed it to be fair. Their oral hygiene was not good*'. P9

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Also, teaching staff felt the pressure of delivering the scheme due to curriculum demands and potential criticism from the programme's assessor:

'[…] *it is time consuming for staff. It does eat into curriculum time and that sometimes although this is never been made to. I don't believe the staff have ever been made to feel this way but there would be a possibility that if em, the regular person who doesn't come in to carry out our assessments can sometimes be a little, em … derogatory to staff if they have missed a day*'. P10

Interestingly, peer pressure among children increased the uptake of the D2S scheme as children harassed their parents to sign the consent form to be part of the programme:

'*But once the children see other children doing it, they nag mum, please send the form in*'. P10

Following the interviews it became clear that School 2 was not involved in the scheme. Also, reference was made to the lack of problems with teeth and the appropriateness of the D2S programme for the school.

'[…] *can I just go back, not necessarily not important enough, but that generally parents are already doing a good job with it, therefore I don't think they need our support with that*'. P12

Yet, positive role modelling was evident through the support and encouragement offered to parents by the school staff as well as helping children developing independence and ownership:

'*It's also about not making parents feel that they're doing something wrong or not doing enough sort of thing so it's by positive encouragement …. em, also as well with regards to children taking ownership that they are cleaning their teeth because they do do it quite independently in school*'. P10

Dental attendance and personal experiences

Parents and teachers described regular dental attendance as pivotal in maintaining healthy teeth. They all agreed that children should attend at an early age and that check-ups should be carried out at six monthly intervals. However, access to dental services and cost were issues particularly pertinent to parents in school 1:

'*it's difficult to get into a dentist yeah I found that cos we moved so many times trying to get into a dentist has been horrendous*'. P2

Furthermore, during the focus group parents shared personal experiences and negative feelings like fear, vulnerability, anger, guilt and humiliation. The parents felt that they had been blamed by the dental professionals:

'*but they are all coming through fine now but it's from. em they were saying it was the bad diet but he eats really well. So em* […] *well they were saying that I was feeding him sweets*'. P7

It was also felt that verbal and non-verbal negative responses were received when children were taken to hospital and underwent multiple extractions:

'*Cos she could have been that person who pulled them out, I don't know but it was like she didn't care. You'd think oh, you would think she would say, oh I do apologise, not apologise but say, sorry to tell you but we've had to take out his teeth not go there's your sons teeth and stick them in front of you in a pot*'. P6

Oral health education messages and school policy

Parents and teachers agreed that brushing twice a day and regular visits to the dentist as well as reducing sugar intake were the main oral health education messages. The healthy eating recommendations were supported and monitored within both schools, although, parents did not always adhere to these. Furthermore, some confusion about oral health messages was experienced by parents and teachers, both in the significance of the frequency of sugar intake and in the effective use of fluoride toothpastes:

'*Obviously the amount of fluoride toothpaste has to be restricted for children er, otherwise they can cause staining of the teeth*.' P10

Also, reference was made in relation to fluoride was through the painting of teeth.

'*And I am like I wish every child was offered that* […] *it would be good because just. I know it is a project and you probably get funding for it but those children whose parents work who are too busy to worry about oral health and that fluoride protection seems great I think it should be available to all children and would be quite nice*.' P1

Two important oral health promotion messages, the use of fluoride toothpaste of at least 1000 parts per million and the need for 'no rinsing' following brushing, were significant omissions.

Discussion

Although oral diseases are largely preventable, socio-demographic and economic factors have been associated with an increased risk.[7] Merthyr Tydfil, another deprived unitary authority, showed an increase in the mean dmft between 2007/8 to 2014/15 from 2.56 to 2.59.[18] Risk factors for poor dental health may include socioeconomic deprivation, living in underprivileged areas, living with a family in receipt of income support and social isolation to mention but a few.[29] In this study, two schools from locations and catchments representing two different realities within the most affluent unitary authority in South Wales, were purposefully chosen. The qualitative methodological approach employed offered an in-depth view of parents and teachers as intermediate and end users of oral health promotion services located in school settings positioned in more deprived (school 1) and less deprived (school 2) areas in the Vale of Glamorgan County in South Wales. Although, the outcome cannot be generalised as it reflects parents' and teachers' personal opinions and experiences; it is interesting to note that the parents' engagement was more successful and lively in school 1 which also showed, as observed by the staff, increased oral health problems than in school 2.

Parents and teachers acknowledged that children's oral health responsibility lies in the parents' and guardians' hands. Contrary to the view that low socioeconomic groups show a lack of interest and engagement our parents expressed their opinions and experiences, this was evident in the number attending and the lively discussion (school 1); by contrast, only one parent participated in school 2. Her motivation to participate could be linked to the former teaching assistant role in a school within a deprived area. Bedos *et al.* (2009)[30] also state that contrary to common belief, lower socio-economic groups care about their oral health and appearance.

Parents in school 1 showed an active role and wanted to be involved. They also valued the Welsh Government's scheme 'Designed to Smile' (D2S) which was identified by all as successful and positive in helping parents to make changes in their oral health. However, it was highlighted that it was onerous for the teachers and it seemed to be delivered in a compartmentalised way, creating the 'us (D2S) and them (children, parents, school staff)' division. The need to implement a downstream approach which focuses on lifestyle and behavioural changes may prove of little impact if as identified by Watt[31] oral health promotion programmes are isolated, compartmentalised and uncoordinated. It must be stressed that D2S had resulted in two important behavioural

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changes surrounding 'parenting skills'; firstly the need for parental consent resulted from the child pestering the parent to provide the written consent in order for the 'excluded' child to take part in the classroom tooth brushing event. Secondly, the child who had been a 'non-brusher' for the parent had become a tooth brusher who in turn influenced the parent to comply with similar behaviour.

Parents and teachers agreed on the importance of regular visits to the dentist and that recommended intervals between dental check-ups should be six monthly. However, as reported in other studies,[32] access to NHS dentists was also an issue experienced by the parents (school 1). It could be argued that equity of access to dental care services in which oral healthcare is delivered according to need should be a priority. Furthermore, the evidence supporting the six-monthly check-ups is weak.[33] The suggestion that the frequency of dentist visits should depend on the individual's needs seems more practical, taking into account the availability, or lack of, NHS dentists in some parts of the country.[34] Furthermore, the change of focus of dentists' work from treatment to prevention, as highlighted in the new proposed dental contracts, may be able to support patients who are most in need.[32]

Parents expressed negative feelings like fear, vulnerability, guilt and humiliation; they felt blamed by dental professionals especially when children had to have multiple tooth extractions. There is evidence that healthcare promoters and providers may tend to stereotype people based on culture, behaviour, education, socio-economic background, ethnicity, etc. with the risk of creating an 'us and them' division.[35] It could be argued that 'pointing the finger' at parents without having an understanding of the root of the problem may create a negative response leading to a greater gap between the patient and the carer.[36]

Key oral health education messages were reported in the discussion although some confusion was also expressed. Confusion in oral health promotion literature has been reported elsewhere by Grey-Burrows *et al.*[37] Not only did the parents and teachers not know about the fluoride concentration required for children's toothpaste but they also placed a greater stress on reducing sugar intake while frequency of consumption was not mentioned. This may be a result of the common risk approach and school policy where understandably the focus is to reduce sugar consumption. It was clear that a successful message had been communicated with regard to sugar amount. The easy to follow oral health prevention messages, for example, 'keep your mouth empty' for two hours between food and drink consumption episodes and 'spit not rinse' the toothpaste, are easy to carry out and unambiguous messages.[22] Therefore, the possibility of involving parents and school staff, 'training the trainers' as oral health champions may help not only to reduce the gap but also to engage hard to reach groups and deliver easy to follow and clear oral health promotion messages using the language and attitude appropriate to the audience.

The 'inverse care law' as defined by Hart in 1971, the least availability of healthcare to the ones in most need, is also evident in the literature within the provision in dentistry.[38] This study identified a more socially just allocation of the D2S scheme, though, this could be a coincidental outcome. In school 2 oral disease prevention was not identified as a priority. However, the D2S report (2015) showed that 57% of settings taking part in the scheme in Wales are from the most and second most deprived categories, however, in the Vale of Glamorgan, out of 51 settings taking part, in D2S 15 were in the least deprived while nine were in the most deprived.[39] The non-inclusion of the school in the D2S scheme seems justified while the inclusion of settings in more deprived areas and where the 20% of the children with relatively high levels of caries may be found seem to be the most sensible approach. Trubey *et al.*[40] identified that D2S promoters supported equal involvement in the scheme, not only high needs schools; one parent agreed with this approach. Considering that the high rate of the disease is experienced in more deprived groups, it seems that the focus should be placed on engaging the more reluctant schools and difficult to reach parents. Particularly when it can be argued that time as a resource is more demanding in schools servicing deprived sub-groups.

Conclusion

If improvements in oral health are to be achieved then the target population should be the most deprived sub-groups. The aim should then be to address equity rather than equality with regard to policy development. Equity in accessing dental care with the finite workforce is paramount. There also needs to be equity in health promotion programmes with all involved in the delivery, addressing 'victim blaming' and 'unconscious bias', being aware of modern behavioural modalities and finally the inclusion of clear, accurate, consistent, unambiguous messages. It is only then that it can be said that all barriers will have been removed for oral health.

Acknowledgements

The authors would like to thank all the participants who gave generously their time to share their views and experiences with us.

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