

Oral health and oral health behaviours of five-year-old children in the Charedi Orthodox Jewish Community in North London, UK

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Objective: To report on the oral health status and oral health behaviours of five-year-old Charedi Orthodox Jewish children attending schools in London, UK. **Basic research design:** Cross-sectional survey. **Method:** Clinical examinations mirroring the 2015 National Dental Public Health Epidemiology Programme for England for five-year-olds and a parental questionnaire on oral health behaviours. **Participants:** 137 five-year-olds attending Charedi Orthodox Jewish schools in Hackney, North London. **Main outcome measures:** Prevalence dmft $>$ 0 (%) and severity (mean dmft) of dental caries. **Results:** Of these children 58% had experienced dental caries (95%CI 50,67), the mean number of decayed, missing and filled teeth was 2.38 (95%CI 1.90,2.82) and 23% (95%CI 16,30) had caries affecting their incisors. Only 20% reported that their children had their teeth brushed twice a day and 16% of the children started having their teeth brushed between six months and one year of age. **Conclusions:** The oral health of five-year-old children in the Charedi Orthodox Jewish community is significantly worse than their counterparts across Hackney, London and England. The establishment of robust baseline data supports the local authority plan to develop targeted oral health improvement programmes tailored to address the health needs and cultural sensitivities of this community.

Key words: dental caries, oral health behaviour, dental health survey, inequalities, Charedi Orthodox Jewish, London, UK

Introduction

The Charedi Orthodox Jewish community in Hackney, North London UK is a homogenous subset of the Jewish community, living by a unique value system built upon religious observance. All aspects of daily life, including food, clothing, media, education and leisure are governed by religious and cultural laws.

There are high levels of deprivation in this community with 23% of children living in families where no adult is in employment and children from this community are four times more likely than their counterparts in the general population in Hackney to live in socially rented, overcrowded accommodation (Boyd, 2011; Holman and Holman, 2002). The Charedi Orthodox Jewish community invites few outside influences which detaches it from secular culture. This includes no television, internet or secular newspapers and magazines. The community therefore has limited access to public health media messages. There is little information on the health of the Charedi Orthodox Jewish community; though GP registration, uptake of screening and coverage of routine immunisations is lower in this community than the general local population (Henderson *et al.*, 2008). Additionally, there is evidence that dental utilisation by the Charedi Orthodox Jewish community is lower than in their non-orthodox counterparts (Lazarus *et al.*, 2015). A systematic review of the literature on healthcare behaviours and beliefs of the Charedi Orthodox Jewish community reports on the potential challenges to successfully delivering healthcare

to this community and the culturally sensitive adaptations healthcare practitioners may need to make (Coleman-Brukheimer and Dein *et al.*, 2011).

Dental caries is one of the most prevalent yet preventable chronic diseases of children. Oral conditions can have an impact on the quality of life of children in different ways, not just functionally, but also psychologically and socially. Consequences include severe pain, loss of sleep, time off school and impaired socialisation affecting children's nutritional and physical development and general wellbeing. Parents are also impacted, most frequently by the need to take time off work (Tsakos *et al.*, 2015). There is evidence of an association between deprivation, ethnicity and oral health in children, with deprived and some ethnic groups having poorer oral health (Pitts *et al.*, 2015; Marcenes *et al.*, 2013; Locker 2000).

A study conducted to explore the knowledge, beliefs and practices of mothers reported that specific barriers to oral health and uptake of dental services by Charedi Orthodox Jewish families in this community included organisational issues for those families with large numbers of children, cost, anxiety, cultural misunderstandings and a mistrust of dentists. It also reported a fatalistic view on oral health, poor dental health in children, reliance on health information distributed through family and friends and poor understanding of dietary risk factors (Scrambler *et al.*, 2010).

To date there are no specific data relating to the oral health status or oral health behaviours of young children in the Charedi Orthodox Jewish community

although anecdotally, through reports from primary care dental services, it is reported that dental health of the children in this community is poorer than that of the general population. Of the 25 schools serving this local community only two are local authority maintained. As the majority of children attend independent schools they are not included in national oral health surveys. The true picture of oral health of children in this community is therefore largely unknown. The aims of this study were to provide a baseline understanding of the prevalence and severity of dental caries and oral health behaviours in this community and to compare with local, regional and national dental data. The findings of this study will be used to develop targeted oral health improvement programmes tailored to the cultural sensitivities in this community.

Methods

This dental survey of Charedi Orthodox Jewish children was conducted in parallel with the National Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2015. The sampling frame was made up of 25 Charedi Orthodox Jewish schools of which eight independent schools were sampled using the stratified sampling methodology. To take account of consent rates in the national survey a sample of 183 children was drawn with a view of achieving 120 clinical examinations. Engagement with community leaders and third sector voluntary organisations was followed by an outline of the survey and a copy of the consent form being emailed to head teachers, special educational needs coordinators, and administrative staff in sampled schools. Written positive parental consent for participation in the survey was sought. The consent form followed the national survey consent form content but contained words of support approved by local community leaders.

Dental examinations were carried out on children aged five-years by a single dentist examiner who was trained and calibrated alongside teams that conducted the national dental epidemiology programme survey of five-year-old children. Clinical data were sent to the Public Health England Knowledge and Information Service to be verified, cleaned and analysed alongside the national survey.

A questionnaire was developed and sent to parents of all children examined in the clinical survey. The questions were based on the questionnaire from the Child Dental Health Survey in England, Wales and Northern Ireland 2013 (Tsakos *et al.*, 2015). The key themes in the questionnaire were dental attendance patterns, behaviours relevant to dental health, dental anxiety and satisfaction with dental services. Dental attendance patterns explored the date of the first dental visit, reason for attendance and types of treatment. Behaviours relevant to dentistry included age of commencement of brushing and frequency of tooth brushing. Anxiety about visiting the dentist was assessed using the anxiety scale from the Child Dental Health Survey in England, Wales and Northern Ireland 2013 (Tsakos *et al.*, 2015).

Ethical issues were covered as part of the ethical process for the national dental public health epidemiology programme. Data from the questionnaire survey were coded and analysed using SPSS.

Results

Of the 183 children invited to participate in the survey 137 five-year-olds were examined giving a consent rate of 75%. The parental questionnaire was completed by 24% of parents of the children examined. The results of the questionnaire showed a young parental age profile; 60% of parents were aged 25-34 years, with larger families where 60% of the sample had three to six siblings and 30% had seven or more siblings.

Overall 58% (95%CI 50,67) of the 137 children had experience of dental caries. The mean number of decayed, missing or filled teeth (d_3mft) was 2.38 (95%CI 1.90,2.82). The major component of the $dmft$ index was untreated decay (Figures 1 and 2). The proportion with missing teeth was 7% (95%CI 3,12) and 14.6% (95%CI 8.7,20.5) had filled teeth.

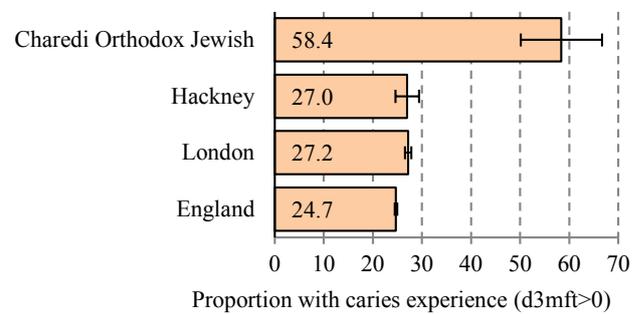


Figure 1. Percentage of children with decay experience ($d_3mft > 0$)

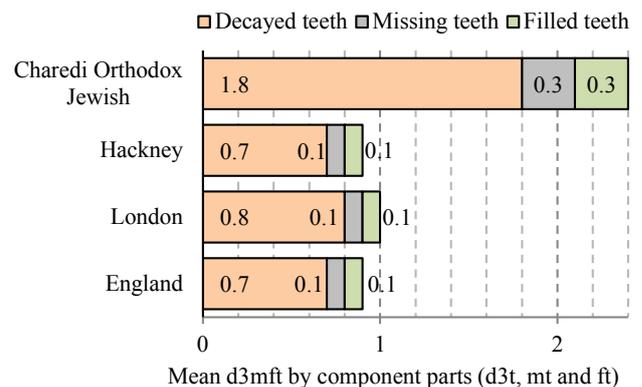


Figure 2. Mean number of decayed, missing and filled teeth (d_3mft)

The prevalence of dental decay affecting incisors in Charedi Orthodox Jewish children aged five years was 23.4% (95%CI 16.3,30.4) (Figure 3). Sepsis was defined in the protocol as the presence of a dental abscess or sinus recorded by visual examination of the soft tissues. The proportion of five-year-old children with sepsis was 2% (95%CI 0,5).

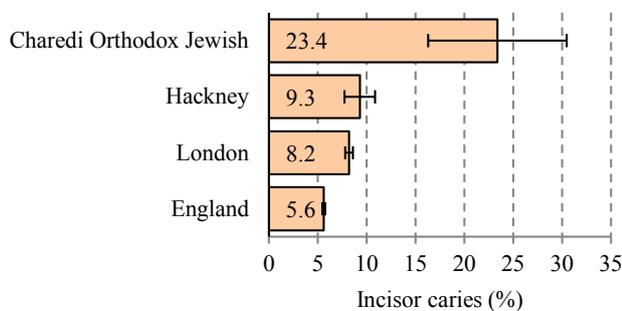


Figure 3. The percentage of children with incisor caries

Only a small proportion of parents (2%) reported taking their child for their first visit to the dentist before the age of two years. Eighty-one percent of parents reported that they had taken their child to a dentist within the previous twelve months and 12% reported that their child had never been to a dentist. When asked whether their child had experienced dental problems in the previous six months 36% reported one or more problem with their child's teeth, gums or mouth. The most commonly reported problem was toothache followed by other pain and bad breath. Appearance of their child's teeth was a reported problem for 16% of parents, 22% reported their child had received fillings and 15% reported receiving preventative advice.

Parents rated their child's anxiety about visiting the dentist on a scale of 1, not anxious at all, to 10 extremely anxious. Responses were categorized as 1, not anxious, 32%; 2-4 low anxiety, 28%; and 5-10 moderate to extreme anxiety, 23%. Most parents, 76%, also reported overall satisfaction with the last dental practice they took their child to.

Some 16% of the parents reported that they started brushing their children's teeth between 6 months and 1 year of age and 20% said their children now brushed twice a day.

Discussion

The survey findings provide the evidence that five-year-olds in the Charedi Orthodox Jewish community in Hackney have significantly poorer oral health than their counterparts in Hackney, in London and in England, with 58% of these children having one or more teeth affected by dental caries, double the levels of the surrounding community.

Decay affecting incisors is a severe form of early childhood caries that affects upper incisors and can be rapid and extensive in attack. It is associated with long term bottle use with sugar-sweetened drinks, especially when these are given overnight or for long periods of the day (O'Mullane and Parnell, 2011). At the age of five-years, nearly all sepsis will be the result of the dental decay process rather than originating from gum problems. The study sample's level of incisor caries is over twice the Hackney level and four times the national level (PHE, 2016a). Previous research has shown an association between ethnicity/race and social status and incisor caries (Psoter *et al.*, 2006). Al-Shalan *et al.* (1997) concluded that incisor caries is a risk factor for future caries. This suggests that if unchecked the permanent teeth of these children could also be at risk of developing high levels of dental caries. Levels of extractions due to dental

caries are also double that of the five-year-olds of Hackney and London (PHE, 2016a). Extraction of multiple teeth at this age often involves admission to hospital and a general anaesthetic, therefore this statistic is of concern.

The high levels of dental caries seen in the Charedi Orthodox Jewish community may be due to a number of reasons. Previous research has shown a link between poor oral health and economic deprivation and cultural differences (Locker, 2000, Marcenes *et al.*, 2013). However, as child poverty rates in the localities where the Charedi Orthodox Jewish communities live are broadly similar to child poverty rates for the borough as a whole (End Child Poverty, 2014) the significant differences in child oral health in this community cannot be explained by poverty alone. The Charedi Orthodox Jewish community in Hackney is exposed to a number of risk factors in addition to managing the challenges of larger families and being insulated from key public health messages being disseminated in schools and through mass media. Charedi Orthodox Jewish communities can also be identified as being at a higher risk of poor oral health and lower utilisation of dental services through poor accessibility and lack of perceived need (Lazarus *et al.*, 2015). Moreover, parental attitudes, knowledge and access to knowledge sit side by side with these risk factors (Scrambler *et al.*, 2010). Secular education within the Charedi Orthodox Jewish community is limited due to the additional religious curriculum. Anecdotally it is reported that children are consuming high sugar snacks and drinks as part of their longer learning hours and that sugary snacks are also often used as a form of reward for achievement. The impact of food choices, with local kosher shops stocking a large number of high sugar snacks and drinks will also be a risk factor for dental caries.

Tooth brushing is a good marker of oral hygiene and guidance has traditionally been that brushing teeth twice daily would facilitate prevention of oral disease. The reported data from this survey relates to self-reported daily frequency of tooth brushing, not the effectiveness of that brushing, or whether fluoridated toothpaste was used. The results suggest that oral health behaviours of this community's children are worse than their counterparts nationally with fewer reportedly brushing twice daily (20% vs. 82%); starting brushing between 6 and 12 months (16% vs. 50%); and making a first dental visit by age two years (2% vs. 30%) (Tsakos *et al.*, 2015). This disparity is in keeping with previous research that Orthodox Jewish families lack contemporary oral health knowledge (Scrambler *et al.*, 2013). Lack of knowledge may contribute to their attendance patterns and behaviour.

An indicator of dental health behaviours is the age at which the child starts having their tooth brushed. Evidence based guidelines recommend starting tooth brushing around six months, at the expected time for initial tooth eruption. The small proportion of parents (2%) reported taking their child to the dentist before age two suggests that current messages on dental attendance may not be reaching the study community. However, Henderson *et al.* (2008) suggest that the Charedi Orthodox Jewish community is only partially insulated from the influences of mass media and external stimuli and public health messages do filter through but take longer, as do perceivable changes to behaviours and attitudes. They state that the resulting implications for clinicians and policy making is that it is important to monitor the views and practices of this community over time as they do not remain static.

Despite their lack of contemporary knowledge on dental attendance a high proportion of parents/carers reported taking their child to a dentist within the previous twelve months, a figure comparable to their counterparts across England (82% vs. 87%) (Tsakos *et al.*, 2015). Previous research on mothers in the Charedi Orthodox Jewish community revealed that families are likely to visit a small number of dentists recommended by family and friends and trusted by the community (Scrambler *et al.*, 2010). Whilst these results support the view that children in this community are attending primary care dental services the clinical findings suggest that they may not be getting appropriate care as untreated dental caries is still high. However, the management of carious primary teeth is a challenge for patients, parents and clinicians and the treatment of dental caries in children is under debate. Studies such as FiCTION have set about to inform practice by seeking evidence on the clinical and cost effectiveness of treating young children (Innes *et al.*, 2013). Possible reasons are that the dentists adopt a watch and wait approach or that the impact of cultural influences on parents/carers may mean that in spite of taking children for check-ups they do not attend for follow up treatment. Competing priorities in these families may lead to the non-prioritisation of oral healthcare within the home including lack of time to supervise their children's toothbrushing, cultural influences on diet, and a perceived lack of control over oral health. Evaluation of service delivery, capacity and skill mix in primary care dental services servicing the community may provide further insights into this.

With increased risk factors for poorer oral health, high prevalence and severity of dental caries, creative ways to approach the challenges of improving oral health and reducing oral health inequalities in children in this community are essential. Health improvements can be achieved when people are fully engaged in their own health and health services and programmes are re-focused towards the promotion of good health and the prevention of illness (Zini *et al.*, 2015). The impact of applying culturally sensitive programmes in addition to following general evidence based preventative approaches is recommended (Marcenes *et al.*, 2013; PHE, 2014a). National guidance recommends that local authorities engage with communities whose economic, social and/or environmental circumstances place them at high risk of poorer oral health or make it difficult for them to access dental services (NICE, 2014).

With such high levels of dental caries at age five-years and poorer oral health behaviours, preventive programmes need to be started at an early age. What happens in pregnancy and early childhood impacts on physical and emotional health all the way through to adulthood emphasising that the early years are so crucial and recommending investment in early years services to support families and give children the foundations of good health (PHE, 2016b).

More research within the Charedi Orthodox Jewish community will be needed to ensure their ever changing perceptions of health and health related behaviours are captured and that health improvement programmes continue to probe and capture the most appropriate way to stimulate behavioural change.

There were a number of challenges in carrying out this survey including access to schools and language barriers. Gaining access to the study schools and getting cooperation from the boys' schools was problematic. Some boys' schools were initially reluctant to give permission for the all-female fieldwork team to conduct examinations but eventually agreed to allow examinations when female staff were on site. Additionally, in Charedi Orthodox Jewish schools, there are two sets of key staff members to engage with and secure their approval: secular and Jewish educational teams. Each tended to wait upon the other's decision before making their own, making it difficult to get a final decision. The language difficulty was a logistical issue as Yiddish is the first language in some boys' schools making communication with the children more challenging. This was overcome by using teachers as translators.

The authors acknowledge that this study is limited by the low response rate to the questionnaire suggesting that the findings of the questionnaire should be interpreted with caution.

Conclusion

The dental health of five-year-old children in the Charedi Orthodox Jewish community is significantly worse than their counterparts across Hackney, London and England. The paper identifies some of the specific challenges of engaging with more hidden communities and exposing some of the significant oral health inequalities that exist but may be missed by local and national level surveys. The establishment of robust baseline data has encouraged the local authority to support a targeted oral health improvement programme tailored to the cultural sensitivities of this community.

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