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1 **Acceptability of the delivery of dietary advice in the dentistry setting to address obesity in**
2 **pre-school children: A case study of the Common Risk Factor Approach**

3

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10

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13

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21

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23

24 **Abstract**

25 *Objective:* The Common Risk Factor Approach (CRFA) proposes that public health efforts can be
26 improved by multiple agencies working together on a shared risk factor. This study aimed to assess
27 the acceptability to parents, dental practice staff and commissioners of the delivery of dietary advice
28 in the dentistry setting in order to address obesity.

29 *Design:* Semi-structured focus groups with dental practice staff, and one-to-one interviews with
30 parents of pre-school children and public health commissioners involved in an oral health
31 promotion initiative delivering dietary advice in dental surgeries. Data were analysed using the
32 Framework Approach.

33 *Setting:* General dental practice surgeries and pre-schools in areas of high deprivation in north-east
34 England.

35 *Subjects:* Parents (n=4), dental practice staff (n=23) and one commissioner.

36 *Results:* All participants found acceptable the concept of delivering public health messages in non-
37 conventional settings. Dental practice staff were concerned about the potential for conflicting
38 messages and deprioritisation of oral health advice, and they identified practical barriers to delivery,
39 such as lack of training. Parents were very apprehensive over the potential of such approaches to
40 stigmatise overweight children, including bullying. Uncertainty over the causes obesity led to
41 confusion about its solutions and the roles of public health and healthcare.

42 *Conclusions:* Major concerns about the implementation of the CRFA were raised by parents and
43 dental practice staff. Specific dietary guidance for both oral health and healthy weights, as well as
44 further research into issues of suitability, feasibility and stigmatisation, are needed.

45

46 **Introduction**

47

48 The use of non-conventional settings for health promotion is currently a topic of great interest in
49 public health. In dentistry specifically, World Health Organization policy advises the use of the
50 Common Risk Factor Approach (CRFA), which aims to address different health problems by
51 focusing on a shared risk factor^(1, 2). There have long been initiatives delivered in the dentistry
52 setting to improve health issues other than oral health, for example the promotion of alcohol and
53 smoking cessation to prevent cancers^(3, 4). More recently, attention has been paid to the relationships
54 between oral health and the obesity related health issues of cardiovascular diseases and diabetes,
55 which share lifestyle related risk factors, such as low physical activity and high sugar diets⁽⁵⁻⁷⁾.

56 The case has been made in support of addressing childhood obesity in the dentistry setting^(8, 9). Diet
57 is the major common risk factor between oral health and obesity, specifically diets with a high
58 content and high frequency of non-milk extrinsic sugars⁽¹⁰⁾. Evidence of a direct association
59 between obesity and dental caries, which would provide clinical justification for the delivery of
60 obesity interventions in the dentistry setting, is mixed⁽¹¹⁾. However, authors of a recent meta-
61 analysis conclude there is a small but significant positive association between child obesity and
62 caries, when systematic and universal measures of both obesity and permanent dentitions are
63 applied to analyses, ⁽¹¹⁾. Early family based interventions are recommended because caries can
64 develop in infancy when young teeth are most susceptible, particularly as a result of improper
65 weaning and dietary practices; and because food preference and eating habits are also developed as
66 early as infancy^(10, 12).

67 If dentistry is to include obesity within its remit, its professional role must be reconsidered.
68 Discussion amongst dental health professionals, primarily in the US, indicates an increasing
69 willingness to play a stronger role in improving dental patients' overall health, including obesity^{(13,}
70 ¹⁴⁾. However, research into views on the role that dentistry should take in terms of obesity
71 interventions is limited. A national survey of US paediatric and general dentists found around 10%
72 offered weight related counselling, and around half identified low patient acceptance of such
73 services as barriers to delivery⁽¹⁵⁾. It is important to understand the acceptability of such
74 interventions to all those affected by them before they are implemented and, if they are considered
75 acceptable, ways of designing the programmes that aim to be not only effective but also sensitive
76 and appropriate, in particular for children.

77 Recent public health policy in the UK recommends approaches to public health similar to the
78 CRFA, referred to as ‘Making Every Contact Count’^(16, 17). In 2012, a Primary Care Trust (PCT) in
79 the north-east of England funded 30 dental surgeries to host a series of visits from pre-schools in
80 order to promote oral health. Amongst these practices, oral health related dietary advice is usually
81 provided by dentists during consultation, and dental nurses sometimes undertake community
82 outreach to promote oral health, including the provision of dietary advice in pre-schools. This study
83 aimed to assess the acceptability to parents, dental practice staff and commissioners of the delivery
84 of dietary advice in the dentistry setting in order to address obesity.

85

86 **Methods**

87 This study formed a part of a wider study on roles and responsibilities in oral health promotion in
88 deprived communities. The methods, including recruitment and data collection, are described in full
89 detail elsewhere⁽¹⁸⁾.

90 *Study design*

91 The design was a case study of individuals involved in the PCT’s oral health promotion initiative to
92 explore in-depth issues of acceptability. Semi-structured focus groups were conducted with dental
93 practice staff, and semi-structured interviews with the parents and public health commissioners.
94 Dental practices were purposefully selected to reflect the variation in practice size, locality and level
95 of participation in the initiative. Parents of children (aged 4-5 years) were interviewed until data
96 reached saturation, that is to say when no new themes emerged from the data⁽¹⁹⁾. Conversation
97 focused on exploring participants’ views about the initiative they were part of and the acceptability
98 of addressing obesity in the dentistry setting. *A priori* concepts of the acceptability of dentistry
99 addressing obesity were used to guide the discussions, which are presented in Table 1. Discussions
100 lasted between 60 and 90 minutes.

101 *Analysis*

102 Professional transcriptions were made of the audio recordings of interviews and focus groups.
103 Transcripts were anonymised and imported into the Nvivo 9 software package. Data were analysed
104 using a descriptive Framework Approach⁽²⁰⁾. This approach was developed for applied policy
105 research, and allows for the exploration of *a priori* concepts and for new themes to emerge.
106 Transcripts were read and reread to gain familiarity with the subject. Initial themes were identified

107 and used to create the coding framework, which was then applied iteratively to all transcripts until
108 the final themes surfaced.

109 *Ethical concerns*

110 This study was conducted according to the guidelines laid down in the Declaration of Helsinki and
111 all procedures involving human participants were approved by the School of Medicine, Pharmacy
112 and Health's ethics sub-committee at Durham University, and the NHS National Research Ethics
113 Service Committee North East. Informed written consent was obtained from all adult participants;
114 informed verbal assent was obtained from all child participants.

115 **Results**

116

117 *Participation*

118 Five practices took part in the study. The postcode for each practice was used to calculate the Index
119 of Multiple Deprivation, a measure of socio-economic status⁽²¹⁾. The average decile for practices
120 was 7, which indicates a moderate to high level of deprivation⁽²¹⁾. Five focus groups were
121 conducted with 23 dental practice staff, which included receptionists (n=3), assistants (n=2), nurses
122 (n=9), hygienists (n=2), dentists (n=5) and practice managers (n=2). Four parents were successfully
123 recruited to interview, all of whom were mothers. The public health commissioner responsible for
124 the initiative was interviewed.

125

126 *Themes*

127 Four main themes emerged from the focus groups and interviews: 'acceptance of the principle of
128 the CRFA'; 'barriers to the delivery of dietary advice'; 'confusion over the causes of
129 obesity/barriers parents face'; and 'stigmatisation of children'.

130

131 *Acceptance of the principle of the Common Risk Factor Approach*

132 There was a general acceptance by dental practice staff of the concept of delivering obesity
133 interventions in the dentistry setting, with an acknowledged link between dietary advice relating
134 oral health and health weights, especially dietary sugar. However, staff also felt contradictions in

135 guidance posed a challenge. Two practices were already adopting the CRFA in relation to obesity.
136 These nurses viewed oral health as interconnected with other health issues.

137 *R1: ...Oral health does affect your overall body...Your mouth is the gateway to your body.'*

138 *R2: Healthy life, healthy mouth. (Oral health promotion nurses, Practice 9)*

139 Some staff believed that people might lack the 'confidence' to approach a health practitioner about
140 their weight issues, so having a practitioner raise the issue may be an appropriate solution. Some
141 practices already adopt the CRFA as related to obesity, for example by promoting healthy diets in
142 weight loss groups.

143 Parents too accepted the concept of delivering obesity interventions in dentistry setting, that it may
144 help to 'reinforce' health messages.

145 *...the dentist is quite a good place to talk about [obesity] ...it's a very neutral place for them*
146 *to talk about it. It's not putting pressure on or picking on any of the kids...And possibly for*
147 *changing their parents' views as well if they're not aware of those things. (Mother 2)*

148 The commissioner believed the CRFA was 'progressive' and 'long overdue'. He thought the CRFA
149 would help to widen access to health care in particular for those in deprived areas:

150 *[Members of the public] don't want to be passed round to different people; they want to be*
151 *able to get the correct advice easily, especially for the more vulnerable people in society.*
152 *(Commissioner)*

153

154 *Barriers to delivery of dietary advice*

155 Although supportive in theory, some dental practice staff felt that in practice the delivery of
156 multiple public health messages may pose a burden greater than its worth. Barriers to delivery they
157 felt they may face include an unwillingness of their patients to listen to health advice; lack of time
158 and funding; lack of sufficient training in public health issues; and the priority of providing
159 treatment over preventative measures.

160 Dental practice staff were wary of the CRFA, as promoting additional health issues may conflict
161 with priorities of promoting oral health, in terms of the narrow window of opportunity they feel

162 they have to promote oral health, and also contradictions in dietary advice between oral health and
163 obesity.

164 *There's a danger that [obesity] could take over from the oral health message, because*
165 *everybody's obviously so worried about the obesity epidemic. But there's still a caries*
166 *epidemic...we've got to put equal importance on their oral health. (Oral health promotion*
167 *nurse, Practice #18)*

168 *There are conflicting messages and you will have patients that have been told certain things*
169 *by their GPs or doctors that conflict with the advice that we give...nutritionists will advise*
170 *frequent small meals...they've been told to do this by their doctor, so it's very difficult....*
171 *(Dentist, Practice #5)*

172 There was greater acceptance of addressing health issues relating to alcohol and tobacco (e.g. oral
173 cancers), but obesity was considered 'tricky' due to the 'emotional' and 'personal' nature of it. The
174 perception was that patients might get 'insulted' and 'upset', or feel 'ashamed' and 'embarrassed'
175 by discussing obesity more so than alcohol or tobacco use due to issues of body image and moral
176 judgement. Transcending that line may compromise dental practice staff's relationship with patients
177 if they are seen to 'break trust' with patients. This led to uncertainty as to the level of involvement
178 they should take in addressing obesity, for example merely signposting patients to services,
179 compared to the delivery of interventions.

180 The commissioner on the other hand believed public support of the concept of CRFA was building,
181 as a collective response for the greater good:

182 *The public as a whole are understanding that, yes, [obesity] is a key issue within our*
183 *society, our society as a whole has to come to a way of tackling it and therefore I'm not*
184 *going to be offended when every health professional I see talks to me about it.*
185 *(Commissioner)*

186 Ultimately, staff felt that in order to implement the CRFA, the policy of delivering non-oral health
187 messages in the dentistry setting would have to be accepted and expected by staff and patients.

188 *As long as it's incorporated, that that's the future of accessibility for all these different*
189 *[health issues] for patients, then it's fine. Whereas if we're just sort of like one unit that*
190 *says...we're gonna talk to you about your weight...then I think it's quite difficult for us to sort*
191 *of stand alone to do it. (Oral health promotion nurse, Practice #12).*

192 Without a joined up approach, practitioners feared the CRFA could lead to conflict if the patient is
193 'confused' and 'shocked' as to why obesity is being discussed by a health provider not
194 conventionally associated with obesity. The commissioner agreed, and suggested that people could
195 be 'reassured' if all services were seen to be 'under the National Health Service banner'.

196 Parents too felt the policy could work as long as people expected dental practice to staff discuss
197 health issues other than oral health, that is was a 'normal' part of the dental experience. The issues
198 of confusing health messages and the extent to which dentistry should become involved in obesity
199 interventions was also raised by parents.

200

201 *Confusion over the causes of obesity/barriers parents face*

202 There was no consensus amongst dental practice staff as to what causes obesity and what families
203 need from public health and healthcare providers. Often there were contradictory, mixed and some
204 stigmatising views. On the one hand, staff believed obesity was a result of poor education and
205 material deprivation, and that parents need support to overcome obesity. On the other hand, some
206 staff believed obesity was due to poor lifestyle management, a lack of discipline and 'bad
207 parenting'.

208 *It's probably the person's fault, because, even though if they aren't educated enough to*
209 *what's healthy for you, you'd notice like chocolate like would make you fat sort of thing. Like*
210 *you'd kind of look in the mirror and be like, I'm getting a bit tubby now. (Oral health*
211 *promotion nurse, Practice #2)*

212 Similarly, there were also contradictions between parents, an also, as demonstrated by the parent's
213 statement below, confusion within individual.

214 *I think it's a lot down to laziness really...[pause]...but people just seem too busy and got*
215 *things to do, don't they? (Mother 4)*

216 It seemed difficult for some to resolve their two beliefs that obesity is caused by a lack of personal
217 willpower but also by external barriers, such as the wider social determinants of health.

218 The commissioner took a clear socio-ecological perspective of obesity, seeing a need for strong
219 leadership from local authorities to support healthy lifestyles through effective environmental
220 changes, and for public health and healthcare to provide practical advice.

221

222 *Stigmatisation of children*

223 All parents expressed very strong concern over the potential of the CRFA to stigmatise children. It
224 was believed that talking about diet and healthy weights generally in a group setting was acceptable,
225 but in terms of discussing an individual's own issues with obesity, including the weighing of
226 children, this should be done discretely. Parents' experiences of the National Child Measurement
227 Programme, which measures height and weight in approximately 95% of English preschool
228 children each year, was used to relate their ideas about the CRFA. Parents felt that even at the pre-
229 school age, children could experience bullying, stigma or low self-esteem if 'singled out' at school
230 or at the dentist's.

231 *Don't promote it to the bairn in front of the other kids because kids are cruel to each other,*
232 *you know? They get picked on and things like that. (Mother 3)*

233 Parents expressed a fear of the repeated messages that are part of the CRFA:

234 *She knows a lot from my diet [with a weight loss group], but I don't want her knowing too*
235 *much, because they're getting it from school and then...the dentist...she might grow up not*
236 *wanting to eat anything. (Mother 1)*

237 It seemed a commonly held belief that if there is an over-emphasis on obesity, children might
238 develop a 'complex' or 'obsess' about their weight and body size. The issue of the potential of
239 stigmatising children was not raised by dental practice staff or the commissioner.

240

241 **Discussion**

242 This study set out to understand the acceptability of addressing obesity in the dentistry setting to
243 people involved in an oral health promotion initiative. It found that dental practice staff and parents
244 both accepted the principle of addressing multiple health issues in a specific setting, such as
245 dentistry, but raised serious concerns relating to the implementation of the policy, such as
246 suitability, feasibility and stigmatisation.

247 These findings contribute to the understanding of the acceptability of obesity interventions in the
248 dentistry setting, and more broadly it provides evidence to inform the use of the CRFA, the
249 'Making Every Contact Count' policy in the UK, and other relevant international public health

250 policies. A further strength of the study is that participants' perspectives are grounded in the
251 experience of having recently been involved in an oral health promotion initiative. With this in-
252 depth study, which is the first to use qualitative methodology on the subject, it is not possible to
253 generalise the findings to the wider population. Rather, what is presented is a case study of twenty-
254 eight participants that provides themes to be explored in future research of acceptability of the
255 CRFA type policies. This study is limited in its perspectives of parents, in particular those of
256 fathers. The design of the PCT's initiative that was studied here did not include early research
257 consultation or involvement of parents, which may have influenced the low participation of parents
258 in the study.

259 There was an acceptance of promoting general health in dentistry, which has been observed
260 elsewhere⁽²²⁻²⁴⁾. However, dental practice staff identified many issues relating to obesity, including
261 practical reasons such as balancing their time and priorities, and also fears that patients would react
262 badly. Similar results were found in a survey of US dentists, who feared offending parents and felt
263 they needed more training⁽¹⁵⁾. Practice staff and parents believed that patients may be receptive if
264 they came to the dentist knowing obesity was a health issue covered in dentistry. Normalisation of
265 health services can be defined as the process by which the service is embedded in to practice by the
266 individuals involved⁽²⁵⁾. The barriers identified by participants in this study align with a range of
267 factors known to hinder normalisation of health services, including sufficient expertise and a shared
268 understanding of the service.

269 Staff perception that parents would react badly was born out by parents' concern over
270 stigmatisation, and the stigmatising views of some staff would seem to validate these fears. Staff
271 and parents' overemphasis on individual blame indicated a fragmented understanding of the well
272 established multifactorial causes of obesity, including genetic, behavioural, environmental and
273 economic factors⁽²⁶⁾. Similar observations have been made amongst other primary care health
274 professionals, such as general practitioners, nurses and dieticians⁽²⁷⁾. Parents' fears that multiple
275 messages about obesity might lead to 'body obsession' amongst the children was a theme that came
276 across strongly even in this small sample. The observation is supported by previous findings in pre-
277 school girls that overweight correlates with low body esteem and low perceived cognitive ability⁽²⁸⁾.
278 Not only do obese children experience high levels of stigma and bullying, but their experience of
279 stigma may lead to behaviours that perpetuate obesity, such as comfort eating⁽²⁹⁾. It is clear public
280 health and healthcare providers must facilitate a non-judgemental environment in which patients
281 may seek support for obesity.

282 Dental practice staff believed obesity specific training and qualification would build confidence in
283 themselves and their patients. Paediatric dental residents trained in managing obese patients report
284 feeling significantly more prepared than those who did not⁽³⁰⁾. This study observed that dental
285 practices that already implemented the CRFA and were comfortable discussing obesity had long
286 been engaged with their local communities. Some guidance for dental clinicians is provided in
287 addressing obesity, including an evidence based curriculum on managing obese patients^(13, 31).
288 However, these do not include specific training on how to address obesity with sensitivity to issues
289 such as stigma. Another issue related to training raised by dental practice staff and parents was to do
290 with potential mixed messages in dietary advice provided through the CRFA. Low confidence
291 levels reported by UK dental students in dietary management of patients indicates a real need to
292 focus on improving dietary training generally in order to then successfully incorporate obesity
293 related advice⁽³²⁾.

294 To deliver effective health promotion initiatives, dental practices must build communicative and
295 trusting relationships with patients, which can be facilitated by public health and health care
296 organisations through community engagement⁽¹⁸⁾. Implementation of the CRFA will require
297 additional training for staff, especially in areas of sensitive issues, as well as education about the
298 aetiology of obesity. Furthermore, the interventions must be supported by evidence to be effective.
299 Dietary recommendations for oral health and healthy weights has been made by the American
300 Academy of Pediatric Dentistry⁽³³⁾. In their independent review, Steele *et al.*³⁴ advise a strong role
301 of public health within UK dental services, including adoption of the CRFA. Perhaps the next step
302 for public health in the UK is the provision of specific dietary guidance for both oral health and
303 healthy weights, as provided in the US, as well as a full consideration of how to effectively reduce
304 obesity related stigma.

305 This study observed a muddled understanding of obesity as a health and social issue by parents and
306 practice staff, leading to uncertainty over how public health and healthcare should address it. This
307 raises important fundamental questions about the roles and responsibilities for health by individuals,
308 public health, healthcare and society at large. Where dentistry falls on the spectrum of involvement
309 in obesity depends on a collective understanding of what is appropriate by those involved in the
310 delivery and use of related services. A pilot study of the provision of motivational interviewing to
311 promote healthy weights in children in the dentistry setting report high levels of parental
312 acceptance, suggesting potential for interventions that focus on individual needs and consider issues
313 of stigma⁽³⁵⁾. Public health and healthcare organisations wishing to have research conducted on

314 related initiatives will need to ensure early planning and collaboration to reduce barriers, better
315 engage parents and recruit sufficient research participants.

316 **Conclusions**

317 Dental practice staff and parents raised major concerns about the implementation of the CRFA
318 policy. Although policy is moving toward the delivery of public health messages in non-
319 conventional settings, such as dietary advice to promote healthy weights in dentistry settings,
320 specific dietary guidance for both oral health and healthy weights, as well as further research into
321 issues of suitability, feasibility and stigmatisation, are needed. The CRFA poses an opportunity to
322 dentistry for community engagement and education about the multifactorial nature of obesity.
323 However, caution is advised in quick implementation of the CRFA without considering, or indeed
324 establishing, the evidence base.

325

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401 Table 1. Interview schedule for patients, practitioners and commissioners

What was your experience of the initiative?
Do you think information about healthy eating provided in dentistry would be enough to help people make changes to their diet?
Do you feel it would be appropriate for dentists to speak with patients about overweight and obesity?
Is the dentist someone patients might approach about concerns about overweight and obesity?
What is your experience in receiving advice on healthy eating practices by any other means, for example your GP or the media? (Patient only)
What other experiences or knowledge do you have on healthy eating practices or obesity in dentistry? (Practitioner/commissioner only)

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