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### What do lunchtime staff think about children's eating habits following a healthy eating intervention?

School lunchtime is an area of nutritional concern and evidence suggests that children do not make healthy choices at lunchtime and that school meals do not meet nutritional requirements (Epstein et al. 2001; Gould et al. 2006; Wood and Harper, 2008). This has important implications for a child's health since for some children, especially those from disadvantaged backgrounds, the school lunch maybe the only substantial meal consumed over the whole day (Colquhoun et al. 2008). Therefore understanding what influences children's consumption in the school meal setting is essential in modifying children's eating habits.

#### **Influence of role models on children's eating behaviours**

In the home environment, parents, particularly mothers, play a crucial role in influencing children's food habits (Longbottom et al. 2002) and a positive relationship exists between parents' attitudes, food preferences, and dietary intake and that of their children (Fisher et al. 2002; Patrick and Nicklas, 2005). This parental influence will, of course, extend to the school; for example, children who are not provided with healthy options at home are less likely to choose healthy options at school (Young, Fors & Hayes, 2004). However, other adult models may also influence children's food choices at school. For example, Hendy and Raudenbush (2000) found that teachers were effective as positive role models when they showed enthusiasm for the fruit or vegetable they were consuming. Furthermore, the influence of strategies such as verbal encouragement and praise by catering staff and lunchtime supervisors has also been noted

(Schwartz, 2007). Lunchtime staff would seem to be especially well placed to shape and sustain children's healthy eating behaviours in the dining hall. However, Moore et al. (2010) found that in primary schools lunchtime staff worked under pressure with little time to encourage children's eating habits. This was particularly true in schools where halls were used for teaching as well as eating, or where limited seating capacity meant that children could not all be seated at once. For example, the typical lunchtime experience for children is to be fed and moved into the playground as quickly as possible so that their place can be reused, or cleared away ready for the hall to be used for afternoon activities.

Recent government policy has targeted school-supplied meals as a way of improving children's nutritional intake (Evans and Harper, 2009). This focus was supported by evidence that school based interventions may be effective in increasing children's consumption of healthy foods such as fruit and vegetables (Wood and Harper 2008). One such intervention is the Food Dudes healthy eating programme, a school based intervention designed for use in primary schools to increase children's consumption of fruit and vegetables. The approach, which uses rewards, positive role models and repeated taste exposure, has shown promising results, particularly in the short-term (Lowe et al, 2004). The intervention describes itself as taking a whole school approach to educating children about healthy eating, i.e. one that requires the involvement of all staff, including teachers, teaching assistants, catering and lunchtime staff (Parsons et al. 1996). Food Dudes recognises the role of lunchtime staff; however, to date, neither the potential

contribution in changing children's food choices in the context of the programme or the possible impact of the intervention on staff attitudes and beliefs have been assessed.

### Study aims

The aim of the present study was to explore the beliefs of lunchtime staff about children's food preferences and eating habits, as well as their own role in encouraging healthy eating in the school dining hall both prior to and following the implementation of the Food Dudes programme.

### Method

A questionnaire survey of lunchtime staff was carried out as part of a larger evaluation of the Food Dudes Programme. Fifteen UK primary schools located in the West Midlands took part in the study: eight schools received the Food Dudes intervention, and seven were matched control schools which received no intervention. The Food Dudes programme consists of an initial 16 day intervention phase during which children watch a series of DVD episodes of the Food Dudes adventures. The Food Dudes are four super-heroes who gain special powers by eating their favourite fruit and vegetables that help them maintain the life force in their quest to defeat General Junk and the Junk Punks. The Dudes encourage children to 'keep the life force strong' by eating fruit and vegetables every day. Class teachers also read letters to the children from the Food Dudes to reinforce the DVD messages (see Lowe et al, 2004) for a full description of the rationale behind the intervention).

### Participants

Questionnaires were completed by 14 lunchtime personnel from intervention schools and 13 from control schools. Within the overall sample, 25.9% were employed only as lunchtime supervisors, 20.4% were cooks and 22.2% were kitchen staff, 3.7% of supervisors were also teachers and 27.8% were also teaching assistants. All respondents were female and a large proportion (80%) were parents of children attending the school at which they worked.

### Measures

Lunchtime staff perceptions of children's eating habits were measured using a purpose

designed self-completed questionnaire. These measures used a 5-point Likert scale (1=strongly agree to 5=strongly disagree) and comprised three sections as follows:

#### Section A: Beliefs about children's food likes and dislikes

Respondents were asked whether or not the children in their school liked a range of foods including fruits, vegetables, and foods high in fat and/or sugar (e.g. chocolate, cakes, biscuits etc.)

#### Section B: Children's willingness to change eating habits

These questions concerned perceptions of the children's willingness to try different fruit and vegetables and make healthy choices.

#### Section C: Encouraging Health Eating Choices

Lunchtime staff were asked to rate the extent to which they encouraged children to make healthy choices, and to choose different fruits and vegetables.

### Procedure

The same procedure was followed in intervention and control schools. All questionnaires were completed on school premises, once the lunchtime service was over. Questionnaires were distributed for self-completion at baseline and 12-month post-intervention. Ethical approval was obtained from the University of Worcester Institute of Health and Society Ethics Committee and informed consent was obtained from all participants. Questionnaire responses were analysed using SPSS version 19.

### Results

#### Lunchtime staff beliefs about children's food likes and dislikes

Lunchtime staff were asked to consider which foods children liked or disliked from a range of fruits, vegetables, and foods high in fat and/or sugar. At baseline 75% of staff in the intervention schools agreed that children liked vegetables, compared to 77.36% in control schools (see Table 1). At 12-month follow-up, 76.2% of staff in the intervention schools agreed that children liked vegetables compared to only 69.2% in the control schools. A similar pattern

can be seen with regard to beliefs about children's liking of fruit. At baseline 78.6% of staff in the intervention schools agreed that children liked fruit, compared to 92.9% control schools (see Table 1). At 12-month follow-up however, 92.3% of staff in the intervention schools agreed that children liked fruit compared to only 76.9% in the control schools. Beliefs about children's liking of fatty and sugary foods however remained consistently high throughout the study both in control and intervention studies.

Table 1: Percentage of lunchtime staff agreeing that children liked fruit, vegetables and foods high in fat and sugar

	Baseline		12-month follow-up	
	Intervention	Control	Intervention	Control
Fresh Fruit	78.6%	92.3%	92.9%	76.9%
Vegetables	75%	77.36%	76.2%	69.2%
High in Fat and/or sugar	100%	100%	95.1%	100%

### Children's willingness to change their eating habits

Lunchtime staff were also asked whether they believed children were willing to make healthy choices at lunchtime, eat fruit and vegetables and try new foods.

At baseline 85.7% of lunchtime staff in the intervention schools agreed that the children were making healthy choices. This decreased to 71.4% at 12-month follow-up. However, in the control group, scores increased from 62.9% at baseline to 100% at 12-month follow-up.

In contrast perceptions of children's willingness to try fruit and vegetables at lunch time decreased from 85.7% at baseline to 78.6% at 12-month follow-up in the intervention schools. A similar pattern was seen in control schools: perceived willingness of children to try fruit and vegetables also decreased between baseline and 12-month follow-up. At baseline 83.3% of lunchtime staff agreed that children were willing to try fruit and vegetables. This decreased to 75% at 12-month follow-up.

Lunchtime staff perceptions of children's willingness to try new foods at lunch time remained constant at baseline and 12-month follow-up (71.4%) for the intervention group. However, in the control group this increased from 62.9% at baseline to 75% at 12-month follow-up.

### Encouraging Health Eating Choices

Lunchtime staff were also asked whether they encouraged the children to make healthy choices at lunchtime, to eat fruit and vegetables and to try new foods. At baseline, 92.9% of lunchtime staff in intervention schools agreed that they encouraged children to make healthy choices and this increased to 100% at 12-month follow-up. In control schools, 100% of lunchtime staff agreed that they encouraged healthy choices at baseline and 12-month follow up.

All lunchtime staff in the intervention schools (100%) agreed that they encouraged children to try new foods at lunch time and this remained constant at baseline and 12-month follow-up. In the control schools, this figure was slightly lower at baseline (92.3%) but this increased to 100% at 12-month follow-up.

All lunchtime staff (100%) in both intervention and control schools agreed that they encouraged children to try fruit and vegetables at lunch time at baseline and 12-month follow-up.

### Discussion

This exploratory study examined lunchtime staff beliefs concerning children's eating habits in the context of the Food Dudes programme. Lunchtime staff were generally positive about children's liking of fruit and vegetables; over three-quarters of respondents in both intervention and control schools believed that children liked vegetables, and this remained at a high level a year later. The majority of staff believed that children liked fruit and this is consistent with what is known about children's food preferences (Edwards and Hartwell, 2002). However, all staff agreed that children liked fatty and sugary foods such as chips, chocolate and cake. Some changes were observed in these beliefs over time. In the intervention schools, an increase was seen in the proportion of staff agreeing that children liked fruit and vegetables, while a decrease was seen in the proportion that believed children liked fatty and sugar foods. In comparison, the proportion of staff in the control schools who believed children liked fruit and vegetables decreased, while beliefs about fatty and sugary foods remained constant at 100%. Although changes were quite small, it is notable that the pattern is

consistent and in line with the aims of the Food Dudes programme, and may suggest the intervention message influenced staff beliefs about children's likes and dislikes.

In contrast, however, the proportion of lunchtime staff who felt children were making healthy choices at lunchtime and eating fruit and vegetables decreased in intervention schools, and no change was seen in perceptions of children's willingness to try new foods. This suggests that, while after the intervention staff were more likely to believe that children liked fruit and vegetables, they had not noticed any change in behaviour. In control schools, the pattern was different. The proportion of staff reporting children making healthy choices and trying new foods increased, yet there was also a decrease in the proportion who believed children were choosing fruit and vegetables. This suggests that, for these supervisors', fruit and vegetable consumption may not be linked to healthy choices and warrants further investigation. There is evidence that although the term 'healthy eating' is well known by children, it is not well understood; for example it is often confused with a low-calorie diet (McKinley et al. 2005). It seems more than likely that this is as true for adults as well as children. Clearly, if lunchtime supervisors do not understand what the term 'healthy eating' means, then they will not be able to guide children appropriately. Thus even though the majority of staff in both intervention and control schools believed they encouraged the children to make healthy choices at lunchtime, exactly what this means needs further investigation.

While this study is limited by the small sample number, subtle differences in intervention and control schools are evident over time. There is some indication that the intervention may have changed staff attitudes, although it is unlikely that this reflected changes in children's behaviour. It is more likely that the programme message - that fruit and vegetables are good - had made an impact on staff. This is not surprising given that the majority of lunchtime staff were also parents of children attending the schools where they worked. Thus it may be that some understanding of the programme and its aims came from parental involvement in the scheme. It is also clear that lunchtime staff do see themselves as able to influence children's eating.

However, the study findings suggest that the term 'healthy eating' may not be fully understood and a more in-depth enquiry using a qualitative methodology is necessary.

## Conclusion

School involvement in the programme seems to have a positive impact on staff beliefs about children's eating choices and it appears that staff already believe that their role includes encouraging healthy eating. This positive finding needs to be built upon. Clarification of supervisors' understanding of healthy eating, using a qualitative approach would be useful to explore this further.

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