Adolescents’ views about a proposed rewards intervention to promote healthy food choice in secondary school canteens

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Abstract

Using rewards may be an effective method to positively influence adolescent eating behaviour, but evidence regarding this approach is limited. The aim of this study was to explore young adolescent views about a proposed reward intervention associated with food choice in school canteens. Focus groups were held in 10 schools located in lower socioeconomic areas within Northern Ireland and involved 90 pupils aged 11–12 years (54 girls, 36 boys). Our findings indicated a high degree of acceptability for a reward scheme but there was major diversity in the type of rewards valued by pupils, largely defined by geographical area and socio-cultural differences. Pupils from rural areas tended to emphasize group-based and longer-term rewards, whereas pupils from urban-city schools tended to suggest individualistic and immediate rewards. The major factors influencing food choice were food price, value for money, taste and visual appearance. Pupils felt that factors outside of their control, such as being assigned to the second lunch sitting placed considerable constraints on their food choice. This research not only indicated a high degree of acceptability for a rewards-based intervention but also highlighted a number of socio-cultural and environmental factors that should be considered by researchers when developing such an intervention.

Introduction

Transition from childhood to adolescence is associated with greater independence and more autonomy over health relevant behaviour, particularly eating behaviour. Eating habits can change significantly from primary to secondary school [1], and habits established during adolescence are difficult to alter in adulthood [2]. Current dietary intake of UK adolescents is sub-optimal, being typically high in fat and sugar, and low in fibre, fruit and vegetables [3]. Furthermore, disparity in food choice and dietary quality according to socio-economic status is well established [4–6]. Adolescents of lower socio-economic status have poorer diets than their higher socio-economic status counterparts, irrespective of age, gender and ethnicity [7]. Thus, there is a need to develop effective and sustainable ways of helping adolescents, particularly those from lower socio-economic groups, to choose a better diet.

The school setting provides an ideal environment to promote healthful eating behaviour among adolescents of diverse cultural and socio-economic backgrounds. Pupils are required to spend a large proportion of their time in school, and they may consume at least one main meal there each day [8]. However, intervention studies conducted in school settings have had limited success in promoting effective dietary behaviour change in adolescent...
pupils [9]. This is likely owing to the heterogeneous nature of study designs and inadequate tailoring of the intervention to the target population [10]. Secondary school systems and meal provision varies between countries, and therefore, further research is required to determine local effective public health approaches to promote healthy eating behaviour among adolescents.

In Northern Ireland (NI), secondary school pupils (11–18 years) can choose to bring a packed lunch into school or to purchase a school meal (or supplementary food items) from the school canteen. School meal menus are not standardized across NI. Catering supervisors within each school are responsible for devising the school menus, usually seasonal monthly menus, in collaboration with the Catering Managers from the relevant Education and Library Board. Some school canteens in NI still operate a cash payment system, but increasingly cashless payment systems are being used. All pupils from low-income families are entitled to receive free lunch in NI secondary school canteens. In 2007, statutory food-based nutritional standards were implemented across NI secondary schools with the aim of improving pupil’s access to healthy food in school. However, the impact of these statutory food-based standards on pupil’s eating behaviour or nutrient intake has not yet been fully evaluated [11]. Although increased access to healthy food in secondary school is a salutary approach to facilitate healthy eating, it does not necessarily mean pupils will make the best nutritional choices in the canteen. Indeed, statutory nutritional standards on their own may not be enough to catalyze dietary behaviour change, with one of the main issues being the fact that adolescents choose a limited variety of foods [12, 13].

There is now a growing literature and considerable academic and policy interest in the potential role for incentives (financial and non-financial) to encourage behaviour change [14–16]. Rewards are generally more effective for behaviour change than punishment, i.e. incentives that use a ‘carrot’ rather than a ‘stick’ approach are likely to be more effective [17, 18]. The health literature generally indicates that even relatively small economic incentives are effective in the short term for simple preventive care and distinct, well-defined, behavioural goals [17]. Rewards have also been demonstrated as an effective method to influence children’s dietary intakes, but robust studies examining their utility in this context have been limited to targeting fruit and vegetable intake in primary school children [19, 20]. The ‘Kids Choice’ [19] and ‘Food Dudes’[20] interventions both used rewards to encourage fruit and vegetable consumption in primary school children; both reported increased consumption in school, and also in the home setting for the latter intervention [20]. There is some evidence that a point-based reward system (where points are exchanged for vouchers or gifts) implemented in a small number of secondary schools in England, promoted uptake of healthier foods but had no effect on intake on unhealthy food choices, such as high-fat meals or chips [21]. On a larger scale, Glasgow City Council has devised a reward scheme called ‘Fuel Zone’ that has been implemented in primary and secondary schools. This scheme also involves school dining hall refurbishments and an increase in healthy options available for purchase, but the impact of the rewards element of this initiative has not been formally evaluated [22].

In general, peer-reviewed evidence regarding the effectiveness of using rewards to encourage dietary behaviour change in adolescents is very sparse and the area requires further research. Incentives or rewards may divert attention to previously neglected behaviours and may act to increase intrinsic motivation, although the precise mechanisms by which incentives influence behaviour are not well established [17] and debate continues regarding their acceptability, feasibility and effectiveness [18], particularly in relation to health behaviours.

In line with the Medical Research Council framework for the development of complex interventions [23], which recommends early involvement of the target population, this article describes qualitative work that was undertaken to inform the design of a reward scheme intervention to promote healthy eating in NI secondary schools. Given existing disparities in food choice and dietary quality according to socio-economic status [4–7], the study aimed to
explore the views of young adolescents from areas of high social disadvantage in NI, about the concept of a points-based reward intervention associated with their food choices in the school canteen.

School pupils (11–12 years old) in the first year of secondary education were chosen as the target group for two reasons. First, at this age, young adolescents can understand and act on connections between eating behaviour and health. Second, adolescents of this age are beginning to take more control of their food selection but are not yet completely autonomous and may benefit from guidance and education about how to look after their own diet as their level of autonomy steadily increases.

**Methods**

Given the aim of the study, a qualitative methodology using focus group discussion was deemed most appropriate. In young adolescents, this approach allows for explicit use of group interaction and stimulation of thought, and so produces rich data that are difficult to obtain from one-to-one interviews [24, 25], and will not disadvantage those with poor literacy skills. Ethical approval was granted by the Research Ethics Committee of Queen’s University Belfast. The study was conducted between January and July 2012.

**Sample selection and recruitment**

The target group was 11- to 12-year-old pupils in first year of secondary education who attended ‘Extended Schools’ in NI. The Extended Schools programme [26] was launched by the NI Department of Education in May 2006 and targeted schools serving areas of highest social disadvantage. They aim to provide a wide range of services or activities outside of the traditional school day to help meet the needs of pupils, their families and the wider community. Extended Schools are identified as the most disadvantaged schools according to the areas in which their pupils live, based on postcode data for individual pupils attending the school. The specific criteria are: 51% or more of pupils living within a Neighbourhood Renewal Area or the 30% most deprived wards/Super Output areas and/or 37% or more of pupils with a free school meal entitlement (in NI, children from low-income households are entitled to free school meals). All extended schools in NI \( n = 71 \) were invited to take part in the study and positive responses were received from 10 of these schools.

All first-year pupils in each of the 10 schools were invited to participate in the study. In all cases, double consent was sought: written informed consent was obtained from both parents/guardians and from each pupil prior to taking part in the study. Nine out of 10 schools reported a high opt-in rate (>75%) from pupils. In each case, a teacher was instructed to randomly select pupils to take part, by selecting eight names from a box. One school reported a low opt-in rate (3%), and in this case all pupils were included in the study. It is unclear why there was a low opt-in rate from pupils in this particular urban-city school, where free-school meal entitlement approached 40%.

**Data collection**

Focus group sessions were held in each extended school with up to eight pupils in each session. Because school-aged boys may be resistant to discussing topics with girls of the same age and vice versa [25], the focus group sessions were homogeneous with regard to gender. It was also anticipated that opinions about rewards may be gender specific.

One trained researcher (C.T.M.) facilitated all focus groups and each session lasted up to 60 min. A structured protocol (shown in supplementary information) was used in all sessions and employed semi-structured open-ended questions to guide the discussion and ensure consistency between the groups. The protocol questions were piloted for length and comprehension with the first group of first-year students, and this data were included in the overall analyses.

The first part of the focus group session was designed to establish rapport between the group and the facilitator and to explore normal food patterns and choice both within and outside school and perceptions of diet-related health. The second part of
the focus group session explored food selection and choice in the context of the school environment and elicited views about the acceptability of a proposed reward scheme to promote healthy eating in the school canteen. In each focus group session, the facilitator encouraged further clarification of issues that emerged during discussion.

The structured protocol was initially reviewed after the first and second focus group to ensure the questions asked were capturing discussion that was relevant to the study aim. In addition, an iterative approach, guided by the opinions and experiences of the study participants, was used to amend the structured protocol and explore themes as they emerged during the data collection period [27]. The protocol was amended after the second focus group discussion to reduce the number of general food/nutrition/health questions and allow more time for wider discussion of the school food environment and the rewards concept.

Data analysis
Each focus group session was audio-recorded and transcribed verbatim. Transcripts were read and compared by three research team members separately (C.T.M., J.L. and M.C.M.) and then discussed within team meetings to agree key findings and themes, both during and after the data collection period. An analytical data coding framework was agreed and developed in view of the main research questions and emerging findings. Transcript data were coded and retrieved using NVivo (QSR NVivo version nine, QSR International). All names used in this study are pseudonyms.

Results

Participant and school characteristics
Ten extended schools participated in this study, which represented 14% of all extended schools in NI. Of these, five schools were located in urban-city, three in urban-town and two in rural areas. First-year pupil enrolment 2011–12 in these extended schools ranged from 42 to 202 pupils. Three schools were single (female) sex schools whereas seven were co-educational. In all, 12 focus groups were conducted involving a total of 90 first-year pupils (54 girls and 36 boys). Table I shows the number of pupils participating in focus group discussions according to gender and the school geographical area.

The focus group findings are described in four sections below in relation to: the pupils’ views about the concept of a reward scheme and types of rewards suggested; factors influencing food choice within the school canteen; pupils’ suggestions for facilitating positive dietary change in the school canteen; and pupils’ general knowledge and awareness of healthy eating.

Pupils’ views about the concept of a rewards scheme and type of rewards suggested
Discussions indicated a high degree of acceptability among pupils for the concept of a reward scheme to encourage healthy eating in the school canteen. Across all groups, pupils held positive beliefs about the potential of a reward scheme to influence their food choice in the school canteen, but indicated that this would depend upon the types of rewards on offer.

I think it’s good because it’s encouraging people to eat healthily

Because they’re like encouraging people who don’t eat that much healthy food to eat more healthily (Girls, FG3)

There was diversity in the type of reward(s) valued by pupils, and this appeared to be largely defined by geographical area and, more broadly,
by socio-cultural differences between groups. Although the vast majority of pupils embraced the concept of a point-based reward scheme, there was diversity between pupils from urban versus rural school regarding the types of reward that they said would incentivize them to choose healthy food options. Rewards such as leisure centre vouchers, home-work passes, free meal/drink items and stationary equipment were highlighted across groups. However, pupils from rural and small urban-town schools tended to emphasize more group-based rewards such as house-points and class school trips with the added element of accumulating points over the course of the school year, whereas pupils from urban-city schools, tended to suggest more individualistic and immediate rewards, for example clothes vouchers, CDs, online music and mobile phone top-up vouchers.

Differences in how much disposable income pupils had and how they wanted to, or were expected to, spend it were also apparent in urban versus rural settings (see Table II for illustrative quotes). Discussions with children from rural/town backgrounds mainly indicated that access to pocket money was limited and had to be earned, often by undertaking household chores or working either on family farms or in family-owned businesses. Children from rural backgrounds appeared to place more value on money than urban pupils and were more accustomed to deferred gratification. For example, among rural pupils, money received or earned was rarely spent on confectionery or food items. Instead, rural children discussed saving for their holidays or sports equipment. All pupils were from schools that served socio-disadvantaged areas in NI; however, analysis of the focus groups suggested that city dwelling children did not have to adhere to the same austerity measures as children from rural/town areas. Pupils from urban-city areas seemed to receive money more readily from parents and money was spent on objects of instant gratification, for example fizzy drinks, sweets, fast-food, CDs, video games and fashion clothing (Table II).

The clear preferences for group-based versus individual rewards valued by rural and urban pupils, respectively, appeared to reflect other notable cultural contrasts between these groups in terms of their social activities and family eating behaviour (illustrative quotes in Table II). Pupils from rural areas reported that they spent much of their spare time on community focused sports activities and with extended family members, whereas pupils from city areas often mentioned ‘hanging out’ with friends but not doing anything in particular. For rural pupils, meals eaten at home tended to be in a commensal manner and often included extended family members. Few rural pupils ate meals alone or while watching TV. These scenarios were more widely evident among city pupils.

Factors influencing food choice within the school canteen

Pupils discussed several factors that influenced their food choice in the school canteen, namely, food-related factors (taste, appearance, price, perceived value for money, food quality, food availability and peer pressure to choose certain foods) and canteen issues (hygiene, availability of menu and pricing information, availability of signposting of healthy options, length of queues, queue jumping and available seating).

Food-related factors. It was clear from discussions in all groups that food price and value for money had a major influence on food choice. This age group appeared to be financially savvy and accustomed to managing their finite lunch budget.

Well, for me like in our primary school, we had to choose all these fruits and vegetables, so I’d say, ‘right, I’d like fruit and vegetables and I’d like something else’, but then at this school like you kind of have to worry about your money and you can’t just go like, ‘I want these fruit and vegetables and I want this steak burger’ (Cathy, FG6).

Pupils also described employing strategies to use their limited funds to purchase food items for optimal satiety value, and these were generally items they perceived to be ‘unhealthy’ choices, such as chips, burgers, sausages, fried foods, cheese, cookies and buns. The perceived satiety value of
Table II. Key differences between pupils from rural and urban backgrounds revealed during focus group discussion

<table>
<thead>
<tr>
<th>Key differences</th>
<th>Typical quote</th>
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<tbody>
<tr>
<td></td>
<td><strong>Rural/town</strong></td>
</tr>
<tr>
<td>1. Pocket money</td>
<td>I fill coal bunkers for my grandda (Jonathan, FG 1)</td>
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<tr>
<td></td>
<td>Aye, Granny and Granda give me money for helping about the farm and stuff (Nathan, FG4)</td>
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<tr>
<td></td>
<td>I have to do chores to get money (Oonah, FG2)</td>
</tr>
<tr>
<td></td>
<td>We don’t really...we get...like our mummy and daddy just pay for like piano and violin...and swimming so then like we don’t really need anything! (Grainne, FG5)</td>
</tr>
<tr>
<td></td>
<td>I help daddy on the farm and he gives me money for it (Patrick, FG4)</td>
</tr>
<tr>
<td>2. Consumer spending</td>
<td>I’m saving up at the minute to put money towards my new room (Cara, FG2)</td>
</tr>
<tr>
<td></td>
<td>I usually save my money and then if I go into town with like my friends or anything I’d buy like new football boots or save up for a new jumper (Ronan, FG4)</td>
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<tr>
<td></td>
<td>I put my money away but then the money I get for my birthdays and all I like go shopping with them and I buy sports stuff and all (Shauna, FG5)</td>
</tr>
<tr>
<td></td>
<td>I’m saving up for football nets now...Save it up for an Xbox game and for a football (boys, FG7)</td>
</tr>
<tr>
<td>3. Social activities</td>
<td>I usually play football and soccer with my friends and then some weekends go like to a pool with my friends... (Dale, FG1)</td>
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<tr>
<td></td>
<td>Watch a movie at night with my family (Gerard, FG7)</td>
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<td></td>
<td>Dance....Disco, hip-hop, freestyle and contemporary (in my spare time) (Kirsty, FG2)</td>
</tr>
<tr>
<td></td>
<td>I go out to my granny’s house every Sunday (Nathan, FG4)</td>
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<tr>
<td></td>
<td>(We) Sit down as a family...we have it (dinner) together... (All boys, FG4)</td>
</tr>
<tr>
<td></td>
<td>Yeah, we all eat together....Round the table (All girls, FG 5)</td>
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foods was often linked to visual portion size. Pupils perceived soup, salad, sandwiches, wraps, fish and pasta to be ‘healthy’ options, but such items were also perceived to be more expensive, less filling and represented poor value for money.

Some of them are way over-priced for what they are. Like, it’s £1.50 for a ham sandwich, it should be like 50p (Ben, FG1)

Because it’s [salad] so little for the price, so it is (Katie, FG2)

The salad doesn’t fill you really (Carla, FG2)

The taste, palatability and visual appeal of foods on offer were also elicited as factors influencing food choice in the canteen. Children said they expected hot, appetizing and good-quality food to be served, but this was not always the case as illustrated by the quotes below:

I know, the burgers are always cold and then the bap’s always sticky and all

Aye, the chips are always freezing. They’re like all the chips are all hard so you can’t eat nothing

They give you ten and five of them’s hard, the other five are... ...cold...cold (Girls, FG3)

From the discussions, it was clear that pupils are unlikely to engage with a reward intervention, if taste or perceived enjoyment of school lunch does not meet their expectation.

...you might be getting your free swim but all the food that’s being cooked and prepared for us is just going to be chucked (Girls, FG2)

External regulations governing the timing of school lunch were described as placing considerable constraints on food choice. Most schools had more than one school lunch session and pupils described having to comply with school policy regarding which lunchtime session they attended. Pupils attending second lunch reported a limited food selection as key meal items consumed during first lunch were not replaced.

See first lunch… see if some people are at first lunch, they have more opportunity to get more food and then see when you’re on second lunch there’s like nothing left (Ethan, FG1)

Pupils also expressed that desire to conform can influence food choice and peer pressure can often have a negative impact upon healthy food choices.

Oh, yeah! It’s like... if they got something like unhealthy and then like you got something healthy they’d be like ‘you’re a weirdo’ and stuff. And they’d make fun of you

People like call you a picky eater and stuff if you eat healthy stuff (Girls, FG10)

But they’d rather go for the fatty food so they don’t look like the odd one out...因为 they might call you names for like taking healthy food (Boys, FG7)

Canteen-related factors. Pupils indicated that they often made food choice decisions based on the length of queue, level of available seating and estimated waiting time to purchase food items. In general, pupils were acutely aware of the limited time they had to choose, pay for and eat their lunch and the need to balance this against having some time to engage in leisure activity before afternoon lessons began. Boys, in particular, voiced the preference to play with their friends at lunchtime rather than waiting in line for school lunch.

And like most of the people go outside to the tennis courts or like outside and play handball before they come in for their dinner because they know the queue’s going to be cut down a bit (Boys, FG 4)

Pupils also talked about disliking being pushed whilst standing in the queues or older children and teachers jumping the queue ahead of them. This factor was also given as a reason by some children.
for rarely using the school canteen and opting to take packed lunch.

Everybody pushes and all. That’s why I stopped getting lunches because everybody’s waiting in line and walking in (Terry, FG11)

The level of cleanliness and hygiene within the school canteen environment was also discussed. Girls, in particular, were able to describe hygiene standards that they considered to be poor and so had a negative impact on their experience of the canteen environment.

They don’t wash the trays so they still have the same gravy...

They still have crumbs and all and you have to wipe them off them

They just do a wipe and then put them back on, they’re disgusting (Girls, FG3)

On a practical level, pupils commented on the lack of menu and pricing information displayed in the canteen. They discussed how they felt that advanced knowledge of both the menu and the pricing structure in the school canteen would help them to pre-plan decisions about their food choice.

They don’t show the price very well...Like you don’t know what you’ve got ‘til you get up to the counter and then when you get to the counter they just like...they don’t tell you how much it was or anything like that, you have to go out and check it by yourself (Nicole, FG8)

It would be better if like they gave you a menu so you’d know what you could have first, you’d have the option of lunch or dinner (Grainne, FG5)

In addition, the limited signposting and inconspicuous display of perceived healthy options in the canteen were signalled as a barrier to making better food choices, with pupils describing how healthy options were often placed out of sight and/or required them to stand in different queues in order to access them.

Your eye always catches the fatty food before the healthy food because the fatty food’s always just sitting there in a big bunch and the healthy ones are sitting there in a wee corner (Darragh, FG7)

...I could just walk past it and not really see it but I would definitely see the sweets and I can definitely see the burgers. But if I didn’t have a good look at it I could probably just pass by thinking there’s no fruit here or vegetables (Sinead, FG6)

Pupils’ suggestions to facilitate adolescent healthy dietary change in the school canteen

During the focus groups, pupils had the opportunity to suggest how they thought healthy eating could be better supported in the school canteen and suggested the following: more pupil involvement in school issues; encouragement from canteen staff and teachers; limiting food choices; better marketing and using taster sessions.

A common suggestion to promote the uptake of healthy options was to remove or reduce ‘unhealthy’ options on sale in the canteen.

Like, just bring more healthy food in and cut down on the more unhealthy food, so you just don’t have as much of a choice to get unhealthy food (Dale, FG1)

And take all the unhealthy things out and just replace the unhealthy things with the healthy things (Cara, FG3)

Less fat foods and less like...make a bigger space for healthier foods. And the people who serve the foods should like tell them to be taking the healthy foods (Dermot, FG7)

As illustrated by the above quote, encouragement and support from teachers and canteen staff and further information and education about healthy eating...
were also verbalized as important to facilitate healthy eating.

Interestingly, pupils described being amenable to challenging ingrained tastes and willing to try different foods. Providing samples or ‘taster days’ in the school canteen were suggested as a way of encouraging pupils to try different foods.

I think there should be like some sort of like stand that encourages you to eat... like there should be like a stand that has fruit and like vegetable meals and like salads and like maybe smoothies and fruit juices on offer (Carla, FG2)

**Pupils’ knowledge and awareness of healthy eating**

In general, the discourse from focus groups indicated that some pupils had an understanding of some of the main messages underpinning the concept of a balanced diet.

It’s healthy to keep a balanced diet

Mm, and when you say a ‘balanced diet’, what do you actually mean? (C.T.M)

Like a mixture between fats, fruit and veg, carbohydrates and all that

You eat enough food with starch and carbohydrate in it

And it’s not healthy to have too much fat

Pick a different variety of foods (Boys, FG7)

However, evidence of dietary misconceptions was also pervasive.

Aye, well cheese is healthy but it depends on which way you have it... If it’s grilled, you know, then it’ll be well fatty but if you have it just like how you get it in a wee cube then that, I would say, would be healthy (Cathy, FG6)

Because, you know, a glass of milk is better than 42 bananas (Nathan, FG4)

Vegetables don’t give you scurvy, it’s fruit that’ll give you scurvy (Dara, FG9)

Furthermore, in most cases, discussion of healthy eating resulted in dichotomization of foods as either ‘healthy’ (fruit, vegetables, pasta, milk, meat, homemade food) or ‘unhealthy’ (burgers, sweets, chocolate, fried/processed food). Pupils were able to discuss negative consequences of an unhealthy diet, although health implications were often related to longer term health consequences such as obesity, heart attacks or diabetes.

McDonald’s... Kebabs... Salt! Salt!

They’re full of salt... they’re high in fat and sugar... they’re fattening...

It can give you a shorter life like because you get heart attacks or you get obese or something if you eat that (Boys, FG1)

**Discussion**

Formative work with the target population is a critical stage in the development of behaviour change interventions [28] but such work is often overlooked. This research was conducted in schools serving deprived areas of NI in order to try to target more socially disadvantaged younger adolescents. The study findings provide evidence that young adolescents were receptive to the concept of a points-based reward scheme based on their food purchases in the school canteen and that they held positive beliefs about its potential to influence their food choice. This qualitative research also revealed important differences in spending patterns and the types of rewards that may incentivize dietary behaviour change between urban and rural young adolescents. In addition, issues related to the canteen environment and general perceptions of healthy eating were highlighted. These findings are discussed in more detail below and are important to inform the next stage of developing a reward scheme intervention to promote healthy eating in NI secondary schools.
Overall, we found that a rewards-based intervention was an acceptable concept to pupils with regard to promoting healthy eating in the school canteen. The universal positivity towards this concept was, however, accompanied by a great deal of discussion about the importance of offering the ‘right’ rewards. In this study, adolescent preferences for rewards appeared to be influenced by geographical area and may reflect differing social norms and values in urban versus rural settings. Rural pupils in NI appeared to appreciate the value of money and often reported saving their money to buy items they really wanted. This conservative spending pattern in rural settings was contrasted with urban pupils who reported that they were given money frequently and generally spent it quickly on items such as confectionary.

The observed contrast in spending patterns was also reflected in preferred rewards, with rural pupils suggesting a mixture of small instant rewards as well as rewards that would commensurate with the concept of ‘saving’ and deferred gratification. Urban pupils almost exclusively suggested a range of instant rewards. There was also a contrast between groups in the types of rewards that were suggested with urban pupils mainly suggesting individualistic rewards compared with rural pupils who suggested both individual and group-based rewards. This may indicate that motivation to obtain particular rewards, and the value placed on rewards will differ between schools. Urban pupils may have higher expectations from a rewards scheme and may be more difficult to engage as they appeared to be more materialistic than rural children. In contrast, rural pupils discussed saving up for things and so may be more receptive towards a rewards scheme, and this is something that would be interesting to examine under intervention conditions.

On the basis of these findings, it is clear that a diverse reward framework is likely to be needed to incentivize young adolescents from different social and cultural backgrounds. It will also be necessary to consult parents and teachers from individual schools regarding the type of rewards offered, as some of the pupils’ suggestions regarding rewards they would value, such as homework passes, may not be acceptable across all schools.

In addition, this research has highlighted that there are a number of issues specific to the school canteen that would need to be addressed in tandem with a rewards scheme in order to maximize the likelihood of initial and sustained engagement. Pupils openly discussed several factors that influenced their food choice in the school canteen, many of which have been reported in previous studies from nearly a decade ago [2, 29–33]. The prevailing factors determining food choice in the canteen across studies included time (waiting in long queues and pupils expressing the desire to maximize leisure time), cost (pricing structure of food served in the canteen alongside managing a budget and perceived value for money), taste (‘unhealthier’ options were perceived to be tastier than ‘healthier’ options) and availability (lack of availability of ‘healthier’ foods, particularly during the second lunch break and lack of signposting of ‘healthier’ options). Hence, there are clear similarities in identified factors affecting adolescent food choice in the United Kingdom and further afield, irrespective of differences in school meal provision. If these factors are adequately addressed, it may provide a real opportunity to positively impact upon adolescent’s food choice in school.

It was clear from discussions that adolescents of this age are just like other consumers in that they weigh up many factors before deciding how to spend their finite lunch budget. In this regard, improvements in the school canteen environment may encourage pupils to visit the canteen more often. The improvements suggested included ensuring that canteen staff adhered to the highest standards of hygiene, displaying menus and pricing information, improving display of food within the canteen and signposting pupils to healthier options. Furthermore, canteen staff and teachers should be aware of other practices that may deter pupils from using the canteen including long queues, queue jumping, less availability of food at second versus first sitting and inadequate seating. The cost, variety, taste and quality of food on offer also deserves regular appraisal by staff, preferably in consultation with...
pupils. Even at this age, pupils are financially savvy when it comes to spending their money and should be viewed as customers who will vote with their feet if the food provided and the canteen environment does not live up to their expectations.

In Glasgow, the ‘Fuel Zone’ [22] reward scheme increased availability of healthy options but also made school dining hall refurbishments. Although, no formal evaluation has been published to date, the preliminary results are promising, with a significant uptake of healthier food in schools. Therefore, development of a reward scheme intervention in NI should consider canteen improvements in order to promote positive dietary behaviour change in pupils. This approach will require future engagement with catering managers, head teachers and senior management teams in NI schools.

During the focus groups, pupils had the opportunity to specifically suggest how they thought healthy eating could be better supported in the school canteen. Alongside paying attention to the factors highlighted above, pupils suggested that they would like to be more involved in school issues. This is consistent with the ethos of the ‘Food for Life Partnership Programme’ in England, which advocates a student-led approach to promote healthy nutrition within schools and has shown benefits in terms of increased fruit and vegetable intake and increased uptake of free school meals in canteens [34].

Pupils said they would also welcome encouragement from canteen staff and teachers regarding making the best food choices. However, this age group are becoming increasingly autonomous and such encouragement and guidance would need to be delivered in a thoughtful and unobtrusive way, as adolescents may not respond well if they feel they are being told what to do [29].

Pupils also suggested limiting food choices in the canteen so that only ‘healthy food’ was available. Such a suggestion requires careful thought. It was evident from discussions that most pupils tended to dichotomize foods as either ‘healthy’ or ‘unhealthy’ and there was very little mention of balance and variety as components of an overall balanced diet. The categorization of foods as either ‘good’ or ‘bad’, ‘healthy’ or ‘unhealthy’ by this age group has been highlighted in other studies [29, 35] and could encourage unhealthy attitudes towards food intake in later life [36]. Implementation of a reward scheme that attaches value to the purchase of a restricted number of ‘healthier’ foods could be counterproductive. It may further embed the dichotomization of food in pupil’s minds and do little to encourage long-term understanding of balanced diet. Therefore, the design of a rewards intervention should take account of adolescents’ knowledge of healthy eating and prevailing attitudes towards the concept of a balanced diet and aim to dispel, or at least not reinforce, this dichotomy.

One interesting suggestion, in line with generally improving marketing of food in the canteen, was to offer taster sessions where pupils get to try a range of different foods from the canteen menu. The concept of risk aversion when shopping has been reported in previous research with parents; parents on a limited budget are unlikely to buy foods that may not be liked just so their kids can try it [37–39]. However, studies of children’s food acceptance have indicated that repeated opportunities to taste unfamiliar foods results in increased liking and consumption, particularly for fruit and vegetables [40]. Because many pupils in secondary school may not have the opportunity to try a wide variety of foods at home, the school environment may be the only place they are encouraged to try new foods and thus ‘taster sessions’ could be very worthwhile.

This research was conducted in NI, and therefore our research findings may not be generalizable to adolescents from other geographical areas or to pupils from more affluent areas. For the majority of schools involved in this research, a teacher was instructed to randomly select pupils to participate, therefore, we cannot exclude the possibility of selection bias in the identification of focus group participants. In addition, the study involved only younger adolescents who at this age may not have complete autonomy over their food choice compared with older adolescents. There is evidence that dietary influences vary with age in adolescence [30], and therefore, it is unclear whether the proposed reward intervention would be of interest, or...
acceptable, to older pupils. It is also uncertain whether the rewards suggested by younger adolescents would have equal value in incentivizing older adolescents to choose healthier food options in the school canteen, and this would need to be explored as part of the intervention development process.

Conclusions

This research indicates a high degree of acceptability for the concept of a rewards scheme based around food choices in the school canteen. Involving the target group at this initial theoretical stage has highlighted a number of important socio-cultural and school canteen issues that otherwise may have been overlooked during the intervention development process. These findings have general relevance for researchers involved in implementing dietary interventions in secondary school settings. On the basis of our findings, future work will focus on developing a rewards intervention in preparation for pilot testing. To this end, the intervention will aim to include a diverse rewards framework to reflect differences in geographical, social and cultural norms among adolescents in NI and will also need to address the main issues students had with the school canteen. Further research is also recommended to explore the acceptance and feasibility of the intervention with older adolescents and other key stakeholders, including teachers, parents and catering personnel.

Supplementary data

Supplementary data are available at HEALED online.

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References

Rewards to promote healthy food choice in school


