Food Research Collaboration

Within Arm's Reach: School Neighbourhoods and Young People's Food Choices

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What factors underpin young people's food and drink purchases in the vicinity of schools, on the way to and from school, and during the school day? There has been much written about school meals and their impact on children's health but in this briefing paper we focus on **the factors that inform food and drink purchasing by young people in the vicinity of school.** We summarise the state of knowledge concerning the school neighbourhood food and drink environment and its potential impact on young people's food and drink choices.

1. Executive Summary

This briefing paper suggests that although intuitively attractive, it seems that evidence of a link between the food and drink environment and young people's food choices is not easy to pin down. Whilst there is a need for further research on the impact of the school neighbourhood environment, and one recent systematic review of the evidence suggests there is moderate evidence of the impact of the food and drink environment on young people's food choices, we argue that interventions such as reducing the numbers of food outlets located close to schools and restrictions on the in-store environment, are unlikely to work on their own. It would seem that young people are willing to travel further afield to get the food they want, and in-store restrictions may address impulse snacking but not trading behaviour (i.e. where young people bring forbidden foods into school to sell to others). We need to recognise and utilise the agency of young people. A strong regulatory environment is necessary but not sufficient. The importance of the dining experience, and predominance of social and hedonic needs have to be taken into account by those involved in an on-going process to improve the young people's food choices in the vicinity of school.

2. Scope

This briefing paper reviews the evidence of the impact of the school neighbourhood food and drink environment on young people's food choices to provide academics and civil society organisation (CSO) representatives with relevant and up to date information to guide actions to improve the UK food system.

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We focus on secondary school pupils aged 11-16 and we refer to them as young people throughout this briefing paper. Young people's interaction with the food and drink environment is affected by the extent to which a young person is capable of and permitted to act autonomously [1]. Primary school children's interaction with the food and drink environment is strongly influenced by parents, and this diminishes once they begin to attend secondary school where the influence of the social environment becomes more important. Thus the food and drink environment immediately surrounding school may be particularly important for the 11-16 year old age group. During this time they are acquiring food preferences that may shape life-long habits, good or bad, which may have lasting health consequences [2]. Healthier eating habits may contribute to preventing diet-related illnesses; and prevention is considered to be a better solution than treatment in relation to problems such as obesity, for example [3].

The food and drink environment may be delineated in terms of four different elements; community (type and location of food outlets); consumer (availability of healthier options, price, promotion and nutritional information); organisational (home, school and workplace); and informational (media and advertising)[4]. In this briefing paper we explore the community and consumer nutrition environment in the context of school neighbourhoods. That is, we are focusing on the range of food choices accessible to young people but excluding those available at home and in-school purchasing and consumption. We also exclude the influence of the media on young people's food choices. Although we have explored some evidence from other countries, our findings focus on the UK context.

3. Why has concern about the school neighbourhood food and drink environment grown?

In recent years there have been concerted attempts to improve the food and drink environment within schools and there is legislation now in place across the UK nations to limit in-school sales of food high in fat, sugar and salt [5]. Perhaps it is not unexpected that as progress is made in terms of increasing the availability of healthier food within schools, attention has turned to the impact of the school neighbourhood on young people's food choices. One study has suggested that food purchased at lunchtime from the neighbourhood around schools represents 23% of young people's daily energy intake [6]. There is a view that restrictions on the availability of some popular but less healthy foods within secondary schools is having unintended consequences, that young people, faced with (to them) unattractive in-school food choices, are turning to food options outside school [7]. A recent study from Scotland [8] suggests that convenience stores and fast food outlets are concentrated around schools, particularly in areas of relative socio-economic deprivation. Studies in other countries found similar patterns of food outlet location around schools [9, 10]. In this context, a Takeaways Toolkit was developed in 2012 to provide London boroughs with the tools to encourage takeaways to provide healthier food [11]. In particular, this toolkit included the policy recommendation of restricting new takeaways to open in areas with many fast food outlets and vulnerable populations such as children, and raised concerns about fast food takeaways near schools and their influence on pupils' nutritional habits during the school day. In addition, the Chartered Institute for Environmental Health London along with other interested parties launched in March 2012 the Healthier Catering Commitment for London to help catering businesses provide healthier options [12].

4. Summarising evidence from recent reviews

4.1 The BMA report on healthy diets for children and young people

An important recent BMA report on promoting healthier diets for children and young people, citing over 500 references, argues for a 'strong regulatory framework … to reduc[e] the burden of diet-related ill health … focused on interventions that

limit commercial influences on people's dietary behaviour…' [13](page 8). As well as making recommendations relating to a range of issues affecting the diets of children and young people, it also asserts that access and availability of food and drink products influence young people's diets and highlights the concentration of fast food outlets around schools and in areas of deprivation. With respect to the school neighbourhood, it argues for better regulation of the in-store retail environment and more power for local authorities to restrict the future clustering of fast food outlets around schools.

4.2 Other reviews of evidence linking the food and drink environment with health outcomes

We examine the evidence from two recent systematic reviews. Systematic reviews summarise the evidence from high quality, well designed studies that adhere to exacting scientific standards. Two on food and drink environments have been published recently. In this section we also consider the evidence from a review of reviews of community based interventions to promote both healthier eating and physical activity.

A 2014 systematic review from the University of Oxford [14] looks at 30 high quality studies on the food and drink environment affecting children. It looks at evidence linking children's exposure to food retailing with their food purchasing, food consumption, and their body weight. Whilst it acknowledges the challenges of defining and measuring environmental determinants of health, which we discuss later in the paper, it concludes that there is little evidence of a clear link between the retail food environment surrounding schools on young people's food purchases and consumption patterns. Its overriding conclusion is that the research conducted to date does not provide evidence that food outlets adversely affect children's food purchasing, consumption or body weight. The authors suggest that better designed studies are required to inform public policy, in particular to explore school children's journeys *through* the retail food environment surrounding school and their interaction within it rather than simply documenting the characteristics of the environment in terms of number and density of various types of food outlets.

A 2014 University of Saskatchewan review [1] examines research on the community food and drink environment, the consumer food and drink environment and their impact on children's diets. Eight of the 26 studies included in this review are also covered in the University of Oxford review discussed above: in other words approximately 30% of the studies examined in this review overlapped with the University of Oxford review. Its conclusions suggest a link between food environment and children's dietary intake. However, the review's conclusions are rather tentative, suggesting there was '*moderate evidence of the relationship between the community and consumer nutrition environments and dietary intake in children up to 18 years of age*' [1]. The authors add the caveat that their conclusions could have been affected by the tendency for published research to over-report positive results and under-report studies where no links between environment and dietary outcomes were found. Like the University of Oxford review, it also comments on the problems of definition and measurement.

A recent review of reviews of community based interventions to promote both healthier eating and physical activity recognises the on-going problem of assessing the impact of a wide variety of interventions on many different community groups[15]. They report some evidence of effectiveness for interventions aimed at primary school children, particularly when the intervention includes a school component. But they do not reach a definitive answer as far as young people are concerned. The authors conclude that there is insufficient evidence of beneficial effects of community-based interventions on young people beyond primary school.

Although intuitively attractive, it seems that evidence of a link between the food and drink environment and young people's food choices is not easy to pin down. It seems it is challenging to design studies that isolate the impact of the environment from a plethora of other influences on heterogeneous populations. Systematic reviews scrutinise studies whose results are statistically generalizable and thus

provide important scientific evidence to guide policy. However, they tend to exclude qualitative studies whose recommendations are contingent and context specific but might nevertheless provide useful insights for those seeking to create healthier food and drink environments. More research is required to gather evidence of the impact of the environment on young people's food choices, if more robust conclusions are to be drawn. The next section explores insights from recent studies, some of which adopt qualitative methods and therefore would not be included in the systematic reviews, to gain insights into the impact of the food and drink environment on young people's food choices.

5. Insights from the FSS 'Beyond the School Gate' Study

The Food Standards Agency in Scotland (now Food Standards Scotland (FSS)) commissioned research to provide insights about the food and drink purchasing practices of secondary school aged pupils who go 'beyond the school gate' at lunchtime [7]. The report attempts to explore how social and individual factors interact with the physical environment to shape young people's food choices. It uses school case studies to gain insights into young people's food and drink purchasing practices beyond the school gate and to explore the factors related to school neighbourhood purchasing, and whether deprivation played a role. It questions whether attempts to control the food and drink environment either within or outside of school are effective. Although the report concludes that the availability of soft drinks in the food and drink environment is a particular concern, it suggests that interventions aimed at restricting secondary school pupils' access to favoured but less healthy foods and efforts to compel pupils to consume healthier foods in schools may rebound, or result in unanticipated consequences; Sinclair and Winkler refer to this as young people being diverted from school because of several forms of alienation [6]. Health is not always a priority for young people when it comes to making food choices. It seems that young people seek out alternatives when the in-school food and drink environment does not meet their more salient social and hedonic needs relating to food. In addition, the study found that the service provided by the retailers is an important factor influencing pupils' choice of place to purchase food. Retailers are adept at using their marketing know-how to build long-lasting relationships with their young customers.

The latter two findings support the importance of the food experience across all groups of young people but in particular it found some differences between deprived and less deprived areas. In areas of higher deprivation pupils are treated by the retailers with respect and some of the retailers try to accommodate their young customers' food needs. Pupils in deprived areas are also more concerned about price and they tend to visit independent food outlets that have low prices and special lunchtime deals. And although the external food environment 'pulls' young people towards food options outside school, the school environment per se was a major factor that 'pushes' students to the external retailers. Therefore, the study concludes that controlling only the retailing environment around schools may have limited impact on pupils' choice if the school environment does not improve as well. Young people are willing to travel further than a ten minute walk to get good value tasty food within a hospitable environment.

The FSS report highlights the importance of designing solutions that fit the unique circumstances of a particular school neighbourhood context, in particular taking into account the views of the young people whose food choices are the focus of concern.

6. The Community Food and Drink Environment

In section 1 above, we noted that the food and drink environment could be delineated in terms of a number of elements. In this section we explore in more

detail issues related to the community food and drink environment (type and location of food outlets), whilst in the following section we address consumer food and drink environment issues which include the availability of healthier options, price, promotion and in-store/on-pack nutritional information.

6.1 What are the links between availability of food outlet types and socio-economic deprivation, and poorer food choices?

Over a number of years several researchers have examined the links between availability of food outlet types and socio-economic deprivation, and poorer food choices in Scotland where there are particular concerns about poverty and poor health outcomes [8], [16], [17]. These studies suggest that there is no clear cut pattern to link food outlets and social deprivation, and they note that all food and drink environments, whether in socially deprived areas or not, often contain many food outlets.

6.2 Is the school neighbourhood food environment associated with poorer food choices?

Burgoine et al [3] question the assumption that the out-of-school nutrition environment is always associated with poor food choices. Their research suggests that eating outside the home is associated with increased vegetable consumption, so perhaps not all out of home consumption is less healthy. In the FSS study [7], the researchers found that local retailers are prepared to introduce healthier options when prompted to by their young customers.

6.3 Why is it difficult to get evidence about the impact of food and drink environments?

A 2009 systematic review of the community food environment suggested at the time that understanding of the impact on health outcomes of the community food and drink environment was at an early stage [18] but a number of years later the evidence of the impact of the community food and drink environment on young people's food and drink choices remains patchy. One problem is that different studies of food and drink environments measure different health-related outcomes. Some studies focus on over-consumption, whereas other studies examine the consumption of certain food types such as fruit and vegetables, or sugary drinks. Some studies focus on certain types of food outlets – fast food outlets and convenience stores for example, whereas other studies examine all food outlets. It is possible, for example, that young people with high BMI also consume more fruit and vegetables, alongside less healthy foods, such as sugary drinks. Supermarket location, for example, may offer both more opportunities to purchase fruit and vegetables and more opportunities to purchase sugary drinks and thus may be related to both positive and negative health outcomes - increased BMI *and* increased consumption of fruit and vegetables, for example.

Burgoine et al. [19] note the problems associated with measuring obesogenic food and drink environments. Fieldwork is time consuming and costly, but sometimes it is difficult to classify food outlets from secondary information alone. Classification tools are being developed to assist researchers [20] but it is clear that challenges remain concerning the impact on the results themselves of the choices researchers make about how – and what - data to gather. The food and drink environment changes as food outlets open up and close down and this presents an additional challenge for those attempting to document the obesogenic features of an environment. Documenting and describing accurately a food and drink environment is challenging enough, but it has been pointed out that an objective description of an environment may not reflect i)young people's perceptions of the food and drink environment or ii) their actual interaction with it.

Food and drink environments and the communities they serve are highly variable, and variables within the environment interact, so it is unlikely that there is a single ideal model. The debate continues, with some studies suggesting the problem is focused on certain *types* of food outlets, others suggesting that adverse health

outcomes was related to density of *all* food outlets in an area whether they offer healthier options or not [21]. Cummins and Macintyre [22] also suggest that even where links between certain features in an environment and food choices have been found the relationship between variables may be complex. The relationships between factors may be dynamic involving positive and/or negative feedback loops. For example they question whether availability or preference is the dependent variable, and whether they reinforce one another over time, making the shift to more healthy patterns particularly challenging.

6.4 Do international comparisons help?

There are various international studies of the food and drink environment around schools. Some North American studies have pointed to the association between poor food and drink choices and the density of fast food outlets and the absence of supermarkets [23] [24] [25], and one New Zealand study found fast food outlets and convenience stores were clustered around schools particularly in deprived areas [10], but studies in other countries have not found such patterns [26]. Townshend and Lake [27] suggest that the unique character of high density urban form in the UK means that the real impact of the food and drink environment on obesity is complex and little understood, although they still conclude that it may be contributing to diet-related problems. Cummins and Macintyre [22] suggest the distinctive economic and social environments of different countries make it difficult to translate findings from one country to another.

7. The Consumer Food and Drink Environment

7.1 Choosing healthier options: are some food outlets offering young people less healthy food and drink than others?

The food on sale in fast food restaurants, convenience stores and independent food outlets is dominated by food high in sugar, salt and saturated fats [28]. Supermarkets offer a wider range of food, with more healthy options, in particular fresh fruit and vegetables and it is thought that a food and drink environment dominated by fast food outlets with few or no supermarkets would be worse than one where the presence of supermarkets ensured access to healthier options. But Winson [29] notes that although supermarkets do offer a range of healthier food choices, their 'foodscape' is in reality dominated by less healthy food options. Likewise, Hawkes [30] suggests that although supermarkets can make a more diverse diet available they also encourage the consumption of highly-processed foods. She concludes that supermarkets encourage consumers to eat more, whatever the food.

7.2 In-store promotion of healthy foods: does pricing and value for money matter?

The BMA report suggests that ideas from consumer marketing could be used to encourage the consumption of healthier food and drink. Supersizing is one promotional tactic that could be adapted to such a use. The Journal of Marketing recently published a study of supersized pricing, that is, the practice of offering a larger sized version of a product at a lower price per unit. Focusing on food purchases for immediate consumption, the authors examine the impact of supersized pricing on the purchase of less healthy snacks (e.g. crisps) as well as on healthier snacks (e.g. carrot batons) [31]. As expected, they find that supersized pricing of less healthy foods leads to increased purchase and actual consumption: people bought and consumed more crisps that were on a supersize promotion. Supersizing the healthier carrot batons also increased purchase and consumption of the carrot batons, in other words increased consumption of vegetable snacks could be achieved with supersized pricing. Furthermore they found that in-store health cues can help mitigate the value for money justification that is a key driver of consumers' purchases of less healthy foods on supersized promotions. The vast impact that marketing has on food choices was also highlighted in the Public Health England recent report on sugar reduction [32]. The report makes recommendations

on reformulation of products to reduce sugar intake, reduction in portion size and price promotions in all retail outlets, removing sugary options from children's menus and limiting marketing of products high in sugar to children to help them make healthier food choices.

7.3 How do the social and hedonic needs of young people shape their food choices?

Perhaps in focusing on objective scrutiny of the food and drink environment and its links to food choices we have overlooked an obvious point: that the food and drink environment is also a social environment. As described in the FSS report mentioned above, the dining experience is important to young people. Young people's desire to hang out and eat together and make a space their own are important reasons for seeking dining experiences outside of the school environment which may have restrictions on where children can eat (for example, packed lunches in one area of a canteen, hot dinners in another). In 2009 Lytle commented that there had been a dearth of research into the impact of the social environment on food decisions [33] but acknowledged that it is a complex task to understand what young people choose to eat and what factors might positively influence their choices. He criticises simplistic study designs that do not incorporate social and individual factors into their models.

Horta [34] suggests that socialisation processes, family and peer interactions, and children's symbolic construction related to food practices and eating contexts are likely to be important in pushing young people towards the out-of-school environment. A study of younger children [35] suggests that social aspects of eating are important. Eating packed lunches is preferred in part due to a pleasant dining environment but also because of positive social aspects including trading behaviour. Another study explores food trading between young people at secondary school. Its findings suggest secondary school students would buy their favourite snacks from other students if they are unavailable from other sources [36]. Supermarket multi-packs can be bought at low cost and sold on as individual snacks, generating a useful source of income, as well as providing the psychological fillip of being part of subversive action. Another study [37] found that the social and symbolic meanings associated with healthy eating are at odds with young people's needs to fit in with their peers; it was not cool to eat healthily. It concludes that as well as improving accessibility and availability of healthy eating, interventions also need to address young people's emotional needs for identity and belonging.

7.4 Are some individuals more sensitive to cues from the food and drink environment?

Young people's perceptions of the food and drink environment may be partial, and they construct meanings attached to particular features. Some individuals may be particularly prone to picking up on certain environmental cues [38]. One study even suggested that consumption of a Western diet itself was linked to increased sensitivity to environmental cues to consume more [2]. The recent Ofsted's Common Inspection Framework recognises the role of school in shaping children food choices and therefore includes that inspectors should assess whether schools help students to make informed healthy food choices by giving them the tools to understand "how to keep themselves healthy, both emotionally and physically, including through exercising and healthy eating" [39] (p.14).

7.5 Are retailers just responding to young people's preferences?

Cummins and Macintyre suggest that availability and preference may exist in a dynamic relationship, reinforcing one another in which case the question of whether availability shaped preferences or vice-versa becomes less relevant [22]. The challenge is to create a positive dynamic for healthier choices so that better informed preferences shape availability, which also provides plenty of opportunity for young people to make better choices.

8. Where do we go from here?

The BMA study [4] on healthier diets for children and young people argues for a 'strong regulatory framework' to restrict 'commercial influences on people's dietary behaviour'. At the local level it argues for better regulation of the in-store retail environment and power for local authorities to restrict the future clustering of fast food outlets. Encouraging food outlets to provide health cues within the in-store environment, say by restricting the visibility of less healthy food promotions or encouraging healthier food promotions, for example, supersizing healthier foods such as fruit or salad, might help young people keep health goals to the fore in their decision making. However, we need to be careful in assuming that the problem is simply a matter of reducing the numbers of fast food outlets, convenience and independent stores that are located close to schools. Fast food outlets and convenience stores may be an issue but supermarkets also provide a wide range of less healthy food options often at attractive prices. Controlling in-store environments may address impulse snack purchasing but may not thwart the efforts of young entrepreneurs intent on buying multi-packs of school-banned foods to trade with their peers [36]. A strong regulatory environment is necessary but not sufficient to address the problems. The FSS study shows that young people were prepared to travel some distance to access their preferred food options, running to and from some food outlets within breaks in the school day, and it also demonstrates the importance of the dining experience and the predominance of social and hedonic needs [7].

Even though the evidence to support interventions to restrict the availability of less healthy food in the school neighbourhood environment is not strong, it could be argued that there may be benefits in signalling that over-consumption of less healthy foods is undesirable. It may be important for local authorities to be *seen* to be restricting the availability of less healthy foods, shifting the norms associated with healthy eating, even if the evidence at the moment does not provide unequivocal support for such interventions.

8.1 Leveraging local pride and marketing know-how

Policy makers should be wary of assuming that simply changing the school neighbourhood food and drink environment will address the issue of less healthy eating patterns amongst young people as the limited evidence to support such action could be used to mount a critique of actions to restrict food outlets. The effectiveness of local interventions may be enhanced if decision makers develop a more nuanced understanding of the underlying motivations that shape young people's food choices. As the FSS study shows, young people are adept at seeking out ways to circumvent restrictions if the school and school neighbourhood fail to meet their complex needs relating to food and drink therefore young people's views need to be taken account of when interventions are planned.

The evidence suggests that out of school food choices do not have to be less healthy than those within the school environment [3]. A strong regulatory framework may provide a backdrop against which local decision makers can engage with local food outlets to improve the quality of the choices available for young people. According to one study, independent food outlets expressed a sense of pride in the food they provided [16] and their marketing know-how means that they will respond to young people's requests for healthier options. So perhaps civic pride, along with signals from the young people themselves asking for healthier options, could be used as a lever to begin to change the dynamic within the school neighbourhood food and drink environment.

8.2 Focus on process

The debate about the impact of the food and drink environment sometimes becomes a question of structure versus agency. As we discussed above, Cummins and Macintyre [22] suggest that it may be an interaction between structure and agency that creates an obesogenic environment. As a way out of the structure or agency debate Lytle urges us to focus on the *process* of generating local solutions:

'…rather than developing a compendium of food-environment tools that can be recommended broadly, we should be developing and promoting a process for how communities or researchers might evaluate aspects of their local food environment.' (page 141) [33]

The California Endowment's Healthy Eating, Active Communities (HEAC) programme mid-term review [40] describes how a number of low-income communities attempted to create a better food and drink environment for young people. The approach adopted is interesting in that it did not only put in place controls on the availability of less healthy food options in the environment, it also sought to elicit support for these changes, from local business people, and from young people themselves. Without a genuine effort to understand young people's practices, and without involving them in the process of generating solutions to the problems related to healthy diets, we may find that interventions are less effective than we would hope them to be.

In addition, the FSS study and also anecdotal evidence from Civil Society Organisations (CSOs) working to improve school food environments suggests that support from head teachers, school catering staff (and the school food contractor providing food for schools) is critical to affect real change to the overall food environment within and beyond schools and this is a point with which we wholeheartedly concur.

9. Recommendations

There are a range of recommendations we could make, based on the evidence reviewed and discussions with a range of stakeholders with an interest in the school neighbourhood food and drink environment (drawing from nutrition, education, school catering, environmental health, public health and CSOs). The following represent the points we feel are most pressing:

- Young people need to have an active voice and be regularly engaged in consultations about the food and drink available to them
- Young people (and their parents and families) need to be engaged as active stakeholders and be enabled to fight for change
- The school food environment needs to be made more attractive to young people i.e. through better marketing of 'tasty' food (rather than 'healthy' food)
- CSOs and small businesses (SMEs) involved in changing the school and school neighbourhood food culture need to be celebrated and supported
- Retailers need to be motivated to provide and promote healthier options and highlight the business sense for making this change

Further research is needed on:

- Food environment metrics – so that firmer conclusions can be drawn
- The role of lunchtime food in young people's overall energy intakes
- Young people's navigation through the foodscape and the longer term impacts of purchases and consumption on young people's diet, health and cultural and social norms

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Food Research Collaboration

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Food Research Collaboration

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