



BMJ Open What are the environmental factors that affect implementation of the Manchester Healthy Schools programme? A qualitative exploration of staff perspectives

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ABSTRACT

Objectives Primary/elementary schools are crucial settings for early weight management interventions but effects on children's weight are small. This may be because the environments in which these schools are situated support unhealthy behaviours that lead to weight gain (obesogenic environments). Staff working in schools have a unique insight into the environmental factors that might affect their efforts to support child health and weight management interventions. The aim of this study is to explore the views of staff in relation to the perceived effects of the environmental context in which they deliver a child health promotion intervention.

Methods Staff from five schools involved in delivering the Manchester Healthy Schools programme were interviewed (N=19). These interviews were transcribed verbatim and analysed thematically.

Results Three themes were produced: opportunities to be healthy; importance of funding, resources and governance; and resources available to households and neighbourhoods.

Conclusion The views of school staff were consistent with themes identified in other relevant literature. Although there were serendipitous opportunities to capitalise on local resources, such as using nearby land and leisure facilities for outdoor physical activities, many barriers relating to local environmental and resource features were reported. Joined up, multi-agency solutions such as place-based approaches might be able to offer schools some resource-based support; however, more research is needed to establish the best way to achieve the best outcomes for children.

INTRODUCTION

Being overweight in childhood is associated with poorer quality of life¹ and excess morbidity and mortality in adulthood.² Research in the UK shows that body mass index (BMI) has been increasing among children entering reception class (aged 4/5) and accelerating through to the last year of primary school (year 6, aged 10/11 years).³

Strengths and limitations of this study

- This study is one of few to explore the perceived effects of environmental factors on the implementation of multicomponent interventions in schools.
- This research is timely as childhood obesity, nutrition and health continues to be a priority for governments and agencies concerned with child health worldwide.
- The findings from this study underscore the need to support the health of the population through public health interventions that facilitate, rather than hinder, health behaviour change; this is particularly important during a pandemic.
- It is possible that the most engaged schools and staff replied to the invitation to take part in the research, therefore the findings reported in this study should be considered within this context.

This suggests that intervention with school-aged children should take place as early as possible at a crucial time in children's development.⁴

There is evidence to suggest that multiple strategy interventions that focus on healthy eating and physical activity, and involve a variety of community and family-based settings are likely to have the most sustained and effective impact on obesity prevention.⁵ Schools are therefore crucial settings for childhood health promotion interventions, including weight management. However, a recent systematic review of systematic reviews have found that effect sizes (BMI, age and sex standardized body mass index (BMI_z) and adiposity) in primary and elementary school children are small ($d < 0.20$).^{5 6}

In developed countries, school-based interventions are often delivered in the context of 'obesogenic environments'; areas with



densely packed fast food outlets and limited opportunities for regular exercise^{7,8} associated with greater levels of childhood obesity.⁹ Obesogenic environments are disproportionately more likely to be found in deprived areas, with socio-economic variables such as neighbourhood safety, food spending capacity, access to supermarkets and leisure facilities combining to produce a negative impact on the health of those living in poorer areas.^{10,11} Interventions delivered by schools situated in obesogenic environments, without support from wider services and organisations (such as legislative bodies covering advertising and selling to children and local authorities and parish councils covering planning of fast food restaurants and maintaining green spaces), are unlikely to have a significant impact on child health.¹² This research is situated in a context of high deprivation: Manchester is a city in the Northwest of England (population 530 300 in 2016). In 2015 25% of the population lived in areas ranked as the 5% most deprived in England¹³ and rates of childhood obesity surpass the national average, with 41% of children in year 6 (aged 10–11 years) reported as overweight or obese in 2017/2018, compared with 20% of same-aged children nationally.¹⁴ The environmental factors explored in the paper relate to those that are considered obesogenic at both macro (national policy and fiscal level factors affecting the behaviour of larger groups, such as taxation on sugary food and drink) and micro (factors affecting the behaviour of individuals or small groups, such as school food policies) level.

The Manchester Healthy Schools (MHS) programme was developed from a legacy intervention: the National Healthy Schools Programme (NHSP), originally a national UK-wide programme that aimed to promote the link between good health, behaviour and achievement through four key areas: healthy eating; physical activity; personal, social and health education; and emotional health and well-being.¹⁵ Schools achieved National Healthy School Status if they met key criteria across these four key themes. The NHSP was launched in 1999 by the Department of Health and Department for Education with the aim of supporting schools to take a whole school approach to promoting the health and well-being of children and young people. The programme's strategic aims were to: support children and young people in developing healthy behaviours; help raise pupil achievement; help reduce health inequalities; and help promote social inclusion.¹⁶ Funding for the NHSP was cut by the coalition government in 2011, however a website containing a toolkit with planning and evaluation guidance was archived and remained available for schools wishing to implement the initiative.¹⁷ Prior to funding cuts, plans had been made to roll out interventions based on lessons learnt from NHSP into other community settings.¹ Manchester Foundation Trust has continued post-2011 to support the NHSP in primary schools (pupils aged 4–11) through their Healthy Schools Team, advocating a whole schools approach and providing a range of resources and help for schools implementing the initiative. The Healthy

Schools Team provides support across five key themes: healthy lifestyles (healthy eating and physical activity), relationship and sex education, mental health, emotional health and drugs and alcohol (the current research focuses on the healthy lifestyles theme of the Healthy Schools Programme within Manchester). This city-wide support is delivered via a combination of assessment, one-to-one training and resources accessible from a website.¹⁸ There is no prescribed way of delivering the Healthy Schools Programme and schools are free to introduce their own policies and strategies based on the training and resources.¹⁹

Recent research has concluded that stakeholders should work together to inform policy, practice and planning concerning child health and obesogenic environments.¹⁸ This study aims to explore the views of school staff, delivering a health-promotion intervention to Manchester children, regarding the perceived effects of the local environmental and resource context. This exploration of the views of relevant stakeholders is timely and unique in its approach. In addition to contributing to the overall evidence base around the challenges of delivering a child health intervention in the context of obesogenic environments, findings may have resonance with other primary/elementary school-based interventions serving similar populations.

METHODS

This paper focuses on important environmental factors the affect implementation according to school staff is the third in a series of three papers submitted to BMJ Open that reports on a wider implementation evaluation of the MHS programme.^{14,15} Our interviews with staff members for the wider implementation study generated data on this topic that was so vast in terms of quality and importance to the success of the programme that it could not feasibly be collapsed into one theme and included in our overall evaluation report that included the views of parents, staff and children.¹⁴

Setting

The schools recruited to the wider evaluation study represented the top 10%–40% of the most deprived neighbourhoods in England, deduced by the Indices of Multiple Deprivation, a measure ranking areas in England from most deprived,¹ to least deprived (32 844). For readers who are interested in more information about the school characteristics in our wider evaluation sample please see our previous BMJ Open paper *What do Children, Parents and Staff Think About a Healthy Lifestyles Intervention Delivered in Primary Schools? A Qualitative Study*.²⁰

Five schools were purposively sampled from the seven schools recruited to the wider evaluation for analysis focusing specifically on environmental factors.²⁰ Table 1 presents the five schools included in this analysis against a number of deprivation and quality indicators and by geographical location across the city.

Table 1 Characteristics of recruited schools against deprivation and quality indicators

| School name* | No. of pupils eligible for free school meals/pupil premium | OFSTED school rating† |
|-------------------|--|-----------------------|
| Enterprise School | 10% | Good |
| Manor School | Twice the national average‡ | Good |
| Park School | Twice the national average‡ | Good |
| City School | Average‡ | Requires improvement |
| Victoria School | Around national average‡ | Outstanding |

*Presented names are pseudonyms.

†Office For Standards in Education, Children's Services and Schools (OFSTED) rates educational organisations for quality based on inspections (outstanding; good; requires improvement and inadequate).

‡2018 national average=13.6%. Source: National Statistics.²⁰

Participants

Staff in key positions within the schools (healthy schools coordinator (typically deputy head or pastoral manager), head teacher, class teachers; school governors, cooks and lunchtime organisers were recruited. Table 2 shows how many staff from which key positions were recruited from each school.

Interview procedure

Interviews were carried out between 1 June 2017 and 31 May 2018. Participants could choose telephone (N=3) or face-to-face (N=14) interviews which took place in a quiet room in the school. Interviews were conducted by a single experienced researcher with qualitative research experience and were semi-structured around a topic guide; lasted between 18 and 66 (mean=37) minutes and were recorded and transcribed. Participants received a £10 gift voucher for taking part.

The topic guide for the interviews (see online supplemental file 1) explored implementation of the MHS programme using semi-structured questions organised around constructs affecting implementation associated with Normalisation Process Theory.^{21 22}

Theoretical stance

Data were collected and analysed taking a 'limited realist' position.²³ Research from this position recognises subjectivity of the researcher as a core aspect of qualitative research and that recognising how the experiences of the

individual affect interpretation of the data are a strength of the analytical process.

Analysis

Thematic analysis was used to identify themes from the transcripts, using a reflexive approach.^{24 25} MV (MSc student) and JG (experienced researcher, PhD) completed the coding inductively, allowing codes to evolve organically alongside the researcher's developing interpretation of the data. Analysis followed stages outlined by Braun and Clarke²⁶: familiarisation; generating initial codes; searching for themes; reviewing themes; defining and naming themes; producing the report. Transcripts were coded across semantic and latent levels and were continually refined throughout the analysis. NVivo V.11 (QSR International) was used to organise the data.

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Trustworthiness

When deciding on the number of participants to include, we considered whether data analysed for this study contained sufficient 'information power' to answer the

Table 2 Participants' role at each school. Summary of staff recruited to the study

| School | Staff (N=29) | Staff roles | | | | | | |
|------------|--------------|-------------|-------|-----|-----|------|----|-----|
| | | Head | HS CO | KS1 | KS2 | Cook | LO | Gov |
| Victoria | 4 | ✓ | ✓ | | | ✓ | ✓ | |
| Park | 5 | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| Manor | 2 | ✓ | | | ✓ | | | |
| Enterprise | 6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| City | 5 | ✓ | | | | ✓ | ✓ | |

Average age=39.68, female/male=6/12.

Cook, school cook; Gov, Governor; Head, head teacher; HS CO, HSM coordinator; KS1, key stage one teacher (children aged 4–7 years); KS2, key stage two teacher (children aged 7–11); LO, lunchtime organisers.

research question.²⁷ Once codes and themes were established, a table of preliminary themes with example quotes was shared with the wider research team.²⁸ Areas of contention were resolved through discussion and themes revised accordingly.

Patient and public involvement

Members of the public, including parents, teachers and children reviewed our research materials (participant information, consent forms and topic guides) prior to use and advised on the research design. Appropriate revisions were made based on their valuable feedback, for example, consulting with teachers was most useful in determining the recruitment pathways and including an option to carry out telephone interviews.

RESULTS

The thematic analysis produced three overarching themes, supported by subthemes:

- ▶ Theme 1: Opportunities to be healthy.
 - Subthemes: Barriers to consuming a healthy diet; opportunities to be physically active.
- ▶ Theme 2: Importance of funding, resources and governance.
 - Subthemes: School finance; staff as an important resource.
- ▶ Theme 3: Resources available to households and neighbourhoods.
 - Subthemes: Limited resources as a barrier to health; schools as a community resource.

Themes and subthemes are described below and quotes support the authors' interpretation and analysis of the data. At the end of each quote, text in brackets indicates the source using the following convention (participant ID number, name of the school (pseudonym), role at the school (see key under [table 2](#)). Please see online supplemental file 2) for more participant characteristics.

Opportunities to be healthy

Opportunities to be healthy relates to features within the local environment that influence the accessibility of engaging in health-related behaviours. The subthemes are *barriers to consuming a healthy diet* and *opportunities to be physically active*.

Barriers to consuming a healthy diet

Staff across several of the schools noted the presence of fast food outlets as a barrier to leading a healthy lifestyle outside of the school. Staff referred to the widespread availability of fast food and junk food as troublesome. One staff member reported that many schools in the area had vehemently opposed the planning for several fast food outlets to be opened next to their school, but despite opposition ultimately they were built:

When they initially said that they had put planning in to put a [fast food outlet] on the corner near our school there was absolute uproar from the few

schools that are around here. Because ...there's numerous fast food outlets already ...near the school. (S033 Enterprise, HS CO)

Staff at the same school reported seeing children in school with food from local outlets, including witnessing children with snacks under their coats. Additional difficulties were reported for two schools due to the presence of a mobile van selling ice cream regularly outside the school. The school had no legislative power to stop or oppose this. Parents often purchased ice creams for their children after school:

In the summer when the weather's hotter, there's an ice cream man who parks down a road local to the school. So sometimes you see a parent coming in with ice lollies or an ice cream or something, and they meet the child with an ice cream after school. (S023 Manor, KS2)

Similarly, staff at Park School noted the success of a specific business, using a children's animated film character as part of its marketing. Staff had heard of it frequently from the children and believed it to be making lots of profit:

Staff: But I keep hearing about [Ogre] Pizza, I know where it is, yeah. They must make a fortune.

Interviewer: You can't miss it can you? It's a big [Ogre].

Staff: Yeah, must be making millions, that place. (S019 HS CO, Park)

Staff noted that it was the accessibility to these outlets that was a large obstacle to healthy eating and represented a significant change in wider eating habits over recent years.

When I was their age there was no place you could go and get fast food, so you came home and you waited for your tea. But now you can get food pretty much anywhere. (S028 Manor, Head)

Opportunities to be physically active

Staff from all schools noted how geographical features within the environment influenced children's opportunities to engage in physical activities, including space available within schools for physical activities, the ease of actively commuting to school and the accessibility of green spaces.

City School resides within a particularly built-up area, with no school field and very limited opportunities for active journeys to and from school. Staff reported that the lack of space within the area meant that the school was one of a very small number of places that provided children with opportunities for physical activity. However, the school itself had limited space, leading to innovations such as the construction of a playground on the roof:

The area doesn't have any provision for leisure facilities or green spaces. Because it's so tightly packed,

the traffic's, you know, quite bad and the roads aren't safe, so parents don't usually let their children out. (S037, City, Head)

All schools were situated in areas of high deprivation, however contrastingly Enterprise School was situated close to high-quality sports facilities. The school was able to capitalise opportunities to use this resource for a variety of activities despite the school building having restricted indoor space:

We used the indoor athletics swimming at [name of place] [...] And we can walk it down, it takes about 30, 40 min to walk down there [...] it's a really good facility because you've got a proper long jump pit, you've got a proper high jump [...], running track. (S031, Enterprise, Head)

Staff at Park School noted the benefits of their proximity to local public green areas for school-based physical activities. Staff reported that the local park was the space where many children would talk about spending their time on weekends, potentially supporting children to become familiar with outdoor spaces and being active outside of school time:

They've got [Place] Park on their doorstep, so I think in the holidays and weekends that is the type of place where they go. (S020, Park, KS2)

Enterprise School was also next-door to some grass-land that they were able to acquire and use as a 'forest school'. This was integrated into the school's curriculum, supporting children to access outside spaces in all weathers and for eco-educational purposes. It was considered a success in that staff felt that behaviour was good during sessions and reported the children enjoying their time outside in this space. Furthermore, spending time outdoors in all weathers was considered an example of developing resilience and a growth mindset:

When we initially started doing forest school, we would have a lot of children who were crying, "I'm cold, I'm this, I don't want to do it", whereas, now they can't wait to get down there. (S033, Enterprise, Head)

Funding, resources and governance

This theme encompasses the degree to which key stakeholders' ability to engage and implement health-related interventions are influenced by the possession or absence of various resources due to funding and the governance structures that allocated funding. Subthemes are *School finances*; *Staff as a valued resource* and *Families' resources and finances*.

School finances

Staff from all schools reported that finances impacted on their ability to implement the MHS. Enterprise School reported that providing novel activities had engaged students who were not typically physically active by paying

professionals to run activity sessions. A staff member at Victoria School identified a sports grant as instrumental in the school's ability to promote physical exercise:

I think because of the sports grant that we have, we do try to promote lots of different types of activities and give children experiences in those that hopefully they can then take and use outside. (S013, Victoria, Head)

The head of Victoria School reported difficulties in securing funding for a successful club to teach parents about health and well-being strategies. These difficulties led the school to consider charging families to maintain the group, but the amounts that they felt were acceptable still would not fully meet the costs of running the service:

Another way is that actually we start charging them for an hourly session, which will prop up, it's not going to pay for it, but it will prop up the resources that we use of electricity and things like that. (S013, Victoria, Head)

Due to restricted space, several schools had invested in outdoor space to increase activities that could be provided. However, refurbishments are costly, and one school had to fund changes through children, families and the local community undertaking fundraising activities:

They've been fundraising for ages. All the children have been focused on any spare coppers they bring in, they've thought of initiatives to raise money [...]. Parents have done like a bake sale. [...] The whole community has pulled in to help it. (S037, City, Head)

All schools reported paying for external services to support many of the MHS policies, such as catering services for nutritionally balanced school meals and food and physical activity workshops delivered by a local football team. Manor School hired a staff member specifically to help vulnerable children who had particular success in engaging reluctant children in physical activities. External staff were essential in running the Forest School due to school-employed staff being busy delivering the national curriculum.

We use that money to buy in the specialists, and it pays off every time. If you've got somebody who's done the training, knows their background, knows their subject really well, then that helps an awful lot. (S017, Park, Gov)

Staff as an important resource

Internal staff were essential to the facilitation of the MHS through their knowledge, experience and relationships with pupils. Consequently, staff felt that the delivery of MHS was influenced by their opinions, values and knowledge. Staff were seen as educators, role models, enforcers and encouragers of MHS policies:

I think we've got really dedicated staff [...]. And they're very enthusiastic in what they do. I saw all the

staff and we make it quite clear that sports isn't just for one gender, sports is for everyone. [...] So I think we're quite an open staff and enthusiastic and we do push sports. (S021 Park, Head)

Staff in non-leadership roles identified the importance of good leadership in promoting healthy lifestyles, with head teachers seen as playing an essential role in leading the successful implementation of MHS. For example, the headteacher of Park School was reported as being particularly successful at promoting engagement in sports; for Enterprise School, the head teacher facilitated the acquisition of land for their Forest School; and for Victoria School, the head was seen as displaying strong leadership around implementing their healthy lunchbox policy, which had initially proved to be unpopular with some parents and staff:

I think because the headteacher was also, "actually, no, this is what we're doing", without her support and her 100 per cent no [...] because obviously I don't have that leadership role so I can't make the final decision. (S009, Victoria, HS CO)

The provision of MHS was limited by staff members' capability and opportunity in regards to their professional expertise and time available. Several staff felt that they did not have the knowledge, skills or capacity to adequately deliver interventions such as MHS. Furthermore, staff faced difficulties finding time to integrate education around healthy lifestyles into the current curriculum:

I do feel that an awful lot of things are being put on schools that actually we don't have the qualifications for, and nor do we have the time to actually fit it into our school day. (S013 Victoria, Head)

Resources available to households and neighbourhoods

This theme is based on responses from participants that articulate the impact of lack of resources available to pupils and their families, both in their private households and in their local communities. The subthemes are: *Limited resources as a barrier to health; schools as a community resource.*

Limited resources as a barrier to health

This subtheme relates to the financial situation of families, and how this affects the ability of poorer households to purchase school dinners, healthy lunches and extra-curricular activities, and also parental time constraints regarding engaging in healthy behaviours. School dinners were perceived as being healthier than the packed lunches that children brought to school and school staff consistently identified the costs of this for key stage two (7–11 year-old) children as prohibitive.

I think the cost is the big bugbear. (S023, Manor, KS2)

Furthermore, staff recognised how parents' and carers' capacity to prepare healthy packed lunches could be limited by the organisation and planning required, which

was seen as often difficult within the context of busy, chaotic or pressured home lives that were associated with poorer households:

I don't know if it's down to parents as well, whether they just think it's easier to just put those things in their lunchbox, rather than... Because I mean to provide healthy eating sometimes it does take a bit of organisation and planning really. (S028, Manor, Head)

Schools as a community resource

Several staff members perceived the school to be the only source of promotion and education for healthy lifestyles in local communities. Children were perceived as a captive audience for the delivery of health promotion:

We've identified the children don't get it anywhere else, so this is where we can provide it. So, from 09:00 until 15:15, during that time they will have something which is quite focused on their life in terms of healthy living, physical education, physical activity. (S037, City, Head)

Many staff perceived families' lack of knowledge of cooking and money for fresh ingredients as a key barrier to healthy diets and that the school is well-placed to provide information to families on these issues:

Because I think the biggest thing in poor areas, if I'm being honest, is the processed food. It's not fresh food. Fresh food's got to be cheaper for parents but it's facilitating that parents know how to cook and they know how to cook using fresh produce which is going to be cheaper for them. (S019 Park, HS CO)

Some staff felt that creating a healthy culture within schools was critical in helping children navigate the market forces prevalent in the local community, and in wider society:

I think in today's society, we've got to recognise that, you know, unhealthy approaches to eating are there, they're everywhere, everywhere you look, and children and parents unless they're educated around it, are not aware of the choices they're making and the impacts that it's having, at all. (S033 Enterprise, HS CO)

Staff felt that reliance on the ubiquitous fast food available in school catchment areas had normalised the consumption of convenience food to the extent that parents were providing packed lunches that needed almost no preparation. This often consisted of food high in sugar and fat:

In relation to their particular child that actually isn't eating healthily and doesn't try to eat anything; and therefore parents are, I suppose, compliant in that they support the child only having Nutella on a piece of bread, or bringing in a KFC for their lunch. (S013, Victoria, Head)

Staff across all schools recognised that organisations within their communities also have the potential to influence the health of children, but felt that there was work to be done to achieve a cohesive approach:

As a whole community, and I think it's got to come from, like, community leaders, as well [...] I think it needs to be coming from all sort of facets of society or community. The mosques could take a role in that, the church could take a role in that. [...] If the message comes from everywhere, from school, from mosques, from the community centres, from youth groups, from the GP. (S037, City, Head)

DISCUSSION

This study aimed to explore the views of staff regarding perceived effects of the environmental context in which they deliver MHS. The findings suggest that school staff perceive factors outside of their control, affect the implementation and efficacy of this primary school-based intervention. This includes issues relating to the local environment, such as the availability of fast food, and a lack of resources available to them and the families of pupils attending the schools.

The themes identified overlap closely with a similar study investigating primary school head teachers' perceptions of barriers and facilitators to a school-based eHealth promotion intervention.²⁹ Staff in our study reported similar barriers, such as the limiting influence of family resources and the ability of external organisations to alleviate schools' lack of capacity, skills and resources.

The findings of this study encompassed by the theme *Opportunities to be healthy* is supported by the findings of a systematic review.⁸ The authors identified the importance of local infrastructure, green spaces and food environments in supporting health promotion interventions. Similarly, a study based in Sheffield, England, found that the prevalence of neighbourhood green space correlated negatively with childhood obesity; areas affording more opportunities to be active outdoors tended to have healthier residents.³⁰ These findings are particularly relevant with figures from the UK showing over £15 million has been cut from the budgets of parks and green spaces between 2016 and 2019.³¹

The staff viewed their colleagues as significant assets to implementing MHS; however, barriers were identified to staff involvement. These included; lack of time to devote to extracurricular activities and insufficient expertise and are supported by other research into school-based health promotion interventions.^{5 32} Outsourcing some services from external organisations, such as school meals and physical education teaching was seen as a solution to this problem. However, accessing these organisations requires adequate funding. Consequently, schools have to make tough budgeting decisions.

Resources and money available to families have consistently been identified as an important predictor of child

health and unequivocally evidence suggests that globally, poorer children are likely to have poorer health than their more affluent peers for a variety of complex reasons.^{11 33} A particular issue of relevance to the context of MHS is that staff report that families cannot afford to purchase school lunches. Evidence suggests that school dinners are consistently lower in calories and of higher nutritional value than packed lunches.^{34 35} The price of school meals therefore has the potential to increase health inequalities. One solution may be the provision of universal school meals. A systematic review found that universal free school meals was associated with improved outcome for children around diet quality, food security and academic performance³⁶ and a UK study using results from a large household survey to model data concluded that universal free school meals may be the only mechanism for consistently providing welfare to all low-income households.³⁷

The WHO and National Institute for Health and Care Excellence have called for a 'whole systems approach' to tackling the obesity pandemic focusing on overhauling and harnessing systemic political, logistical and legislative factors to improve health outcomes associated with the obesogenic environment.^{38 39} However, this calls for the global restructuring of established systems such as food production and distribution, and restrictions on advertising supported by government legislation that is costly and requires government support: change will not come quickly. In the UK, drawing on the WHO's recommendations for strengthening partnerships and focus around joining up health and education in the design and evaluation of interventions to improve child health is essential in terms of improved outcomes and scalability.⁴⁰ NHS England's place-based approaches to reducing health inequalities may also offer a promising approach.⁴¹ Place-based approaches involve focusing on joining up local services, organisations and assets that exist in a specific place or local area to improve health outcomes for local residents through addressing the wider determinants of health.

Strengths and limitations

This study is one of few studies to explore the perceived effects of environmental factors on the implementation of multicomponent interventions in schools. Staff working in schools situated in some of the most deprived areas of England revealed understanding of, and insight into, the local environment, wider socio-political context and intricacies of delivering the MHS programme. It is possible that schools highly engaged with the MHS programme replied to the invitation to take part in the research, therefore the findings reported in this study that relate directly to the MHS programme should be considered within this context.

Implications and future research

This research is timely as childhood obesity, nutrition and health continues to be a priority for governments

and agencies concerned with child health worldwide. This paper was written in England during the COVID-19 restrictions where child health inequalities and concerns that children of poorer families may go hungry during periods of lockdown and school holidays. These issues have been at the forefront of national and international discourse. Child poverty in the UK has been highlighted by celebrities such as the Manchester-raised footballer Marcus Rashford.⁴² Some of the poorest areas of England have been the worst affected by job losses, reduced working hours and restricted opportunities to find new employment. Furthermore, research has found mortality rates to be higher in those with excess weight compared with healthy body weights.⁴³ While causation is unclear, the findings strengthen the need for increased attention to supporting the health of the population; this is particularly important during a pandemic.

CONCLUSION

Schools face numerous barriers to implementing interventions that aim to improve weight outcomes for their pupils. Interventions restricted to individual or clusters of schools are likely to continue to face difficulties eliciting large, sustainable effect sizes. Future interventions and studies are needed to explore the optimum way to implement place-based approaches to support child health.

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Contributors JG conceived and designed the study, collected the data, conducted the analysis and wrote the manuscript. JG is the author responsible for the overall content (the guarantor). MV conducted the analysis and wrote the manuscript. TE assisted with data collection, contributed to the analysis and contributed to the final version of the manuscript. CK assisted with data collection, contributed to the analysis and contributed to the final version of the manuscript. RC contributed to the study design and analysis and provided critical revision of intellectual content for all versions of the manuscript. CA contributed to the study design and analysis and provided critical revision of intellectual content for all versions of the manuscript.

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Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval Ethical approval was given by the University of Manchester Research Ethics Committee, reference 2017-1674-2986. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. We have consent from participants to publish selected quotes only. Selected extracts that provide contextual information for the quotations used are available from the lead author on request; however some data may be removed to protect the anonymity of participants.

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