Original Article

Exploring health inequalities through the lens of an ethnographic study of healthy eating provision in the early years sector

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Abstract

The social determinants of health are increasingly receiving international attention since the publication of the World Health Organization's Commission on the Social Determinants of Health in 2008. How different determinants affect health is much debated. Contrasting suggestions include, for example, a major link with socio-economic inequalities, lack of social status and psychosocial stress or the extent of the welfare state. Others emphasise the need to understand the socio-cultural contexts of specific situations. Diet-related health is a good example of the relationship between poor health outcomes and deprivation. The aim of this paper is to explore the specific conditions and contexts that might reduce or exacerbate the provision of a healthy diet to children under 5 years in a range of nurseries supported by the Sure Start Local Programmes initiative in Liverpool. An ethnographic approach was taken to gather data from six nurseries, combining observation at the nurseries with interviews with owners and or managers (10), cooks (6), staff (12) and parents (2). The findings reveal the complex way different issues work together to support or hinder a nursery to develop a healthy eating culture and how relative inequalities, in general, are outworked. While recognising the importance of social status leading to poor health due to psychosocial stress, the findings tend to emphasise the importance of a strong welfare state and taking an early years of life-course approach in reducing health inequalities.

Keywords: child nutrition, ethnographic methods, health policy, inequalities, life course, nutrition education.

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Introduction

The need to reduce health inequalities has been given greater prominence internationally since the World Health Organization's Commission on the Social Determinants of Health (CSDH) published its final report (CSDH 2008). The report argues that social justice and equity are at the heart of the need to reduce health inequalities and presents a framework for policy interventions. This report has spawned country- and regional-level reviews of health

inequalities policy, including a review of English policy led by Michael Marmot, who has chaired the CSDH.

The causes of health inequalities are multiple and complex (Graham 2000; Forbes & Wainwright 2001; Povall *et al.* 2008; Norheim 2009; Norheim & Asada 2009). Health inequalities are correlated strongly with socio-economic, and particularly income, inequalities. The mechanisms by which these inequalities are linked are much debated in the literature. For example, some authors argue that it is the material

conditions of deprivation that affect health (Lynch *et al.* 2001), while others place emphasis on the psychosocial stress and disrupted social cohesion that result from lower positions in the social hierarchy among the most unequal societies (Wilkinson & Pickett 2010). Yet others point to the role of exogenous factors such as the extent of the involvement of the welfare state and neo-liberal policies (Muntaner & Lynch 1999; Coburn 2000; Coburn 2004). Both the Marmot Review and the earlier Independent Inquiry into Inequalities in Health (Acheson 1998) stress that inequalities result from disadvantage that accumulates and combines across the life course, but in particular childhood (Acheson 1998; Marmot 2010).

Diet-related health is a good example of the relationship between poor health outcomes and deprivation. People living in deprived areas are more likely to have an unhealthy diet (Donkin *et al.* 2000; Dowler 2008). The quality of diet in childhood and, indeed, from the prenatal period has been shown to directly relate to obesity and poor diet-related ill health and chronic conditions in adulthood (Kotani *et al.* 1997; Whitaker *et al.* 1997; Bundred *et al.* 2001; Caballero 2001; Goran 2001; Horta *et al.* 2007; SACN 2008). While there is legislation in place for the provision of a nutritious diet at primary and secondary school levels (DCSF 2005), attention to diet in the early years sector has only gained attention quite recently (Moore *et al.* 2005; HoM 2006; Organix & the Soil Association; Bristow *et al.* 2010; LACORS 2010). Furthermore, while statutory guidance is available in Scotland (Scottish Executive 2006), Wales (Welsh Assembly 2009) and Northern Ireland (Health Promotion Agency 2005), there is still no statutory guidance for healthy eating in the early years sector in

England. This may change now that the Schools Food Trust has established an advisory panel for food and nutrition in early years to assess the need for statutory guidance in this sector (School Food Trust 2010). But this will be dependent on the priority that will be given to it by the current coalition government.

Since the introduction of the Sure Start Local Programmes in 1997 as a strategy to reduce child poverty, there has been a threefold increase in the number of children attending full day care in England (Lewis 2003; Schneider *et al.* 2007). Typically, a child attending full day care can be there for 10 h a day, 5 days a week for 48 weeks per year. Thus, many young children are now receiving the majority of their daily nutrients outside of the home (PLA 2006). This leaves the early years sector in a prime position to address health inequalities associated to diet.

The aim of the ethnographic study was to 'explore nutrition in Liverpool pre-school day care settings, in order to develop a package of interventions, which will promote healthy eating across socioeconomically deprived communities'. The focus of this paper is to examine what the data from the study reveal concerning the conditions through which health inequalities might be reduced or exacerbated. The paper aims to move beyond description to explore how each specific nursery context helps or hinders the provision of a healthy diet within the early years sector (Forbes & Wainwright 2001; Povall *et al.* 2008; Povall *et al.* 2010).

Methodology

An adapted ethnographic assessment was employed to enable sufficient amounts of in-depth qualitative data to be gathered in a relatively short space of time

Key messages

- The majority of research involving healthy eating in the early years sector has used quantitative methods to evaluate nutritional content.
- By taking an adapted ethnographic approach, this study of six nurseries from deprived and affluent areas across Liverpool offers important insights in two key areas: it provides an in-depth account of the daily food-related experiences and practices of the staff and young children; and a critical analysis of differences between nurseries in terms of socio-economic capacity to provide nutritious food.
- It thus contributes to the ongoing debate on the social determinants of health inequalities in relation to young children.

Table 1. Research participants across the six nurseries

Nursery	Index of multiple deprivation (IMD)	No. of NM, DM or O interviewed	Cooks	Nursery staff	Parents	Total
NAp – private	46	1 NM	1	2	2	6
NBp – private	907	1 NM 1 O	1	2	2	7
NCp – private	19 353	1 NM 1 DM	1 1	2 2	2 2	6 7
NDp – private	8 486	2 O				
NEcc – children's centre	9 239	1 NM	1	2	2	6
NFcc	105	1 NM	1	2	2	7
Total		9	6	12	12	39

NM, nursery managers; DM, deputy managers O, owners. IMD ranks 1 = most deprived; 32 482 = least deprived (Liverpool City Council 2009).

(Bentley *et al.* 1988; Lambert & McKeivitt 2002). Thus, while the applied nature of the research required clear public health policy-relevant outcomes, it was possible to use a social constructionist interpretative lens to observe the general and food-related activities of nursery staff and young children in their everyday setting (Walsh 2004; Kuper *et al.* 2008). This paper and the study does not aim to provide a detailed scientific analysis of the nutritional content of the food provided in the nurseries.

Nurseries and the early years sector

The six nurseries selected reflect the public–private mix of the Sure Start Local Programme in Liverpool (see Table 1). Those attached to a children's centre need to be financially sustainable but do not need to make a net profit, only to break even. The management structures for the children's centre nurseries in this study are relatively complex. This is because the actual centres are sited within the local primary school, which means that, while the children's centre coordinator is the nursery manager's line manager, the head teacher is in overall management and budgetary control. Also, the meals for the children centre nurseries are supplied by the kitchen attached to the school. Private nurseries are financed and managed in several different ways. Some need to make a net profit to survive and tend to be owned by individuals. Others are not for profit and are managed by a local organisation, charity, or

community group such as the local churches or by the parents themselves.

All the nurseries, however, have to comply with the relevant environmental health and Office for Standards in Education, Children's Services and Skills (OFSTED) statutory regulations and pass an annual inspection. In terms of the number of children per trained staff member (DCSF 2010), there needs to be one adult member of staff (with a level 3 qualification recognised by the Children's Workforce Development Council) to eight children, and 50% of the other staff must have a level 2 qualification. Over and above charging fees to parents, there are a few other ways that nursery places can be funded. The main source of funding for all types of nurseries whether private or public is through the Nursery Education Grant, which provides 15 h of nursery education to all children over three. In Liverpool, to date, there are two further means of funding: (1) 'childcare for children in need' provides funding for any vulnerable children to attend nurseries attached to Sure Start children's centre nurseries; and (2) a pilot scheme specifically for children aged 2 to attend their local (private or public) nursery (DCSF 2009). Nurseries attached to children's centres are automatically linked into the rest of the services offered by the centres including family support coordinators and health promoters. This enables nurseries to have access to advice and different health promotion strategies such as 'Yum, Yum, Yummy', a healthy eating resource pack and training for nursery staff (SportsLinx 2010).

Sample selection

The nurseries were selected purposively and involved the cooperation and support of the children's centre coordinator, Liverpool City Council and the early years manager, Liverpool children's services. Out of an original 10 nurseries (4 children's centres and 6 privately run), 6 were finally selected – 2 nurseries attached to children's centres (1 in an area of mixed socio-economic level and 1 in a deprived area) and 4 privately run nurseries (2 in serving deprived areas, 1 in a mixed to affluent area and 1 in an affluent area). Table 1 shows the specific Indexes of Multiple Deprivation (IMD). The head teacher from another children's centre (NGcc) in Liverpool was also interviewed as a key informant who could provide important contextual and supplementary information.

All the research participants, including nursery managers, cooks, nursery staff and the parents, from each nursery were selected purposively using both a mixture of specific criteria and convenience sampling (Ritchie *et al.* 2003). This often entailed the nursery manager approaching the staff and parents in the first instance to explain the study and introduce the researcher. The final sample size was guided by the principle of theoretical saturation (Ritchie *et al.* 2003). All the nursery managers and, in some cases, the deputy managers or owners ($n = 10$) (including the head teacher from NGcc) and cooks ($n = 6$) were interviewed along with two nursery staff from each nursery ($n = 12$) and two parents ($n = 12$), a total of 39 participants (see Table 1 for details). The opportunity to interview across all these different groups allowed a range of perspectives and experiences to be noted, adding strength to the research outcomes (Kuper *et al.* 2008).

The research team

The research team included the primary researcher who conducted the ethnography and all the interviews in each nursery, the principal investigator and a steering committee that included managers representing the local government childcare and early years sectors, the Primary Care Trust's infant and child nutrition coordinator and a representative from

the Caroline Walker Trust (child nutrition charity). The primary researcher is a medical anthropologist and community health-worker trainer working in maternal and child health in the United Kingdom and internationally. On the one hand, the researcher's limited direct experience of working in nurseries and in early years nutrition could be seen to reduce insight into the research context and therefore miss crucial evidence. On the other hand, given her extensive experience of ethnography in applied settings, it was felt she might pick up on issues hidden by familiarity to others. Regular meetings with the steering group during the course of the data collection enabled the researcher to present the emerging data, including her opinion of food quality, for critical review and guidance.

Participant observation and direct observation

Participant and direct observation were guided by the topic guide (see Text Box 1) and occurred for between 2 to 4 h a day over five working days in each nursery. This allowed observation of the normal daily routine of each nursery in and around specific meal and snack times and exploration of the general atmosphere. While nutritional content of meals and snacks was not analysed, direct observation allowed the researcher to assess visual quality and quantity of the food presented to the children and therefore draw some valuable comparisons across the nurseries.

Nursery staff were observed conducting a food-related learning activity with the three-plus-year-olds. Through this, it was possible to explore the children's knowledge of different types of food, at least to the extent of their familiarity with what foods are seen as healthy or unhealthy.

As in the majority of qualitative research, the ethnographer is considered to be a part of the research in the sense that their interaction with the participants is a part of the construction of that specific social context (Green & Thorogood 2009). With respect to this, the primary researcher took into consideration the effect of her position on the 'participant observer'/'observer participant' continuum (Ellen 1984). As young children were central to the study, it was decided that the primary researcher was to take a

Text Box 1. Topic guide main themes.

Topic Guide – main themes:

- Explore personal understanding of what healthy eating means
- Explore views on what issues support or hinder provision of healthy food – Explore influences on children themselves in terms of eating a healthy diet – *parental influence/behaviour, fads, influence of other children, etc.*)
- Developing a healthy eating strategy
- Explore methods to encourage children to eat the food provided at mealtime
- Explore what happens when the cook is away/sick, etc. (contingency plans)
- Explore the approaches to encourage learning and enjoyment of eating healthily
- Nursery/parent communication
- Food budget and sourcing
- Explore suggestions for encouraging healthy eating in relation to their ideas about the current barriers (if any)

position near the centre of the continuum, moving between ‘observer’ and ‘participant’ as appropriate, given that the children would not be aware of this distinction, and perhaps expecting all adults to take part in their activities. All participant observation and direct observations were written down in a research diary, which also enabled a record of the movement across the participant/observer continuum. The diary was written up as near as possible to the time the observations were made. This accurate recall method meant that the primary researcher was not sitting obtrusively taking notes, which may have caused some inhibition and increased the Hawthorne Effect (Kuper *et al.* 2008). The primary researcher, who conducted both forms of observation, is a qualified teacher and also has significant experience in the observation of a wide range of learning and training contexts.

Interviews

Semi-structured interviews with the nursery managers/owners, cook, staff members and parents were organised at a time and place convenient for the participants. All the interviews took place in each nursery during the week of the ethnography except for one parent who was interviewed at her place of

work. Agreement to record the interviews was granted by each participant. The interviews lasted for between 20 and 40 min, with their length based on the amount of time individual participants were able to give. A standard set of question topics were used with additional questions asked as appropriate. The topics included participants’ understanding of the term ‘healthy eating’, opinions and perspectives of healthy eating for young children, ways to encourage children to eat and communication with parents/carers. In addition, the managers and/or owners were asked about specific training courses for the staff, menu planning, whether the nursery had its own healthy eating policy and guidelines, and the average weekly cost of the food budget. The cooks were also asked about types of foods and ingredients used, whether food was prepared from scratch or ready-made, method(s) of cooking, amount and type of fat, salt, sugar, etc. used. Parents were asked about their own child’s diet, the type of food the child ate at home, and the level and type of communication that they have with the nursery about their child’s eating.

Ethical approval was granted by the University of Liverpool’s Ethics committee. In order to ensure informed consent, an initial meeting to explain the research was held with either the manager or the owner of each nursery. Information sheets and consent forms were left with each manager/owner so they could inform their staff and parents about the study. These sheets explained that all information gathered from the research would be treated in ways that ensured confidentiality and the anonymity of the respondent. Once consent had been given, interviews were carried out in a suitable private room where there would be no interruptions.

Analysis was an ongoing iterative process where emerging themes were used to direct subsequent interviews and observations. Final analysis employed a qualitative thematic approach (Seale 2004) using QSRNvivo8 software. Data from the observations and interviews were systematically coded, charted and mapped. The analysis sought to identify associations between themes and to carry out an in-depth exploration of the emergent findings. Prior to finalising the analysis, two feedback sessions were held: one

with the participating nursery managers and cooks and the other with local, regional, and national stakeholders. These enabled those present to review and comment on the findings.

Findings

The findings explore the differences between the public and private sectors, types of nurseries found in the private sector and IMD. The themes demonstrating these differences are access to resources such as training, advice and information; the cook's knowledge of and experience in preparing healthy food; knowledge and experience of the early years practitioners (EYPs) in encouraging the children in their care and their parents to eat healthily; financial capacity and time; management structure; and the researcher's assessment of the quality and quantity of the food provided.

Access to resources – training and information

Training

The nursery managers, especially in the private sector, felt that there were few opportunities for cooks and EYPs to attend relevant training courses apart from the compulsory food handling and hygiene courses:

We can't find any, you know. It's not that I haven't looked, . . . but to be honest nothing because we can't afford to send anybody on courses that aren't free, and nothing comes through from the city council . . . (NBp Manager).

Over and above training in menu planning and food preparation for those handling and preparing food for young children, there is a need for the classroom-based EYPs to develop skills in relation to the role of food, eating and mealtimes within the context of wider early years learning and education:

. . . it all encourages doesn't it, you know, and it makes them see food in a different way, doesn't it? And not, maybe, a chore time where you have got to sit and, you know, push all this food into my mouth, you know; it can be a fun time as well, can't it, yes? Yes. Oh we will have to look out for the training definitely (NAp Manager).

In contrast to the private sector, the two nurseries attached to children's centres have access to a range of inputs. One of the staff in NFcc was particularly impressed by Yum, Yum, Yummy sessions:

Did the manager tell you when we had the people from Yum Yum Yummy? They came for 5 weeks, with all their little healthy options; the women (the Yum Yum Yummy trainers) were fantastic . . . (NFcc Staff 2).

Information

The two nurseries attached to the children's centres had access to a wide range of information and advice that they can tap into via their colleagues within the centres, in particular health promotion specialists and family support workers:

I think from the centre's point of view, because we are quite on board through the Sure Start, that, you know, promoting health eating: what is a balanced diet, what we can do to encourage parents to adopt, you know, the same ethos?' (NEcc Manager)

Perhaps one of the clearest issues to arise out of this research was the relative isolation of nurseries in the private sector. In particular, they appear to lack access to information and policy guidelines concerning healthy eating for young children:

[S]o I (NBp Manager) said: "well is there anything that you can point me in the direction of, you know, towards healthy eating and things like that?" and they were like: "well, no" ' (NBp Manager).

The manager at NCp said that they just follow the OFSTED guidelines that mention the need for the provision of a healthy diet but give little in the way of detail:

No. I mean we work on the OFSTED requirements; I mean our whole thing is done really through the OFSTED requirements (NCp Manager).

Knowledge and experience of the cook to prepare healthy food

Four of the cooks (NCp, NDp, NEcc, NFcc) were experienced, having received training through a

catering college or via the local council. However, none had specific training concerning diets for children under 5 years. The cook at NBp had little formal training, being largely self-taught. However, she was one of the most knowledgeable of the cooks and was perhaps doing more than the other cooks to provide a healthy diet for the children:

I have made, you know, the béchamel sauce what goes on the top of lasagne . . . it's not full of . . . well, like all these all like stabilisers and stuff' (NBp Cook).

The cook at NAp also had no formal training but did not seem to have the same level of cookery knowledge as the NBp cook. Nevertheless, she did describe how she had tried to change the food she provided, even though she lacked the knowledge to carry her ideas through:

I even tried, you know, the potato smilies you can buy in a bag; I thought: 'I will make my own', . . . (but) it just wouldn't work, . . . I just didn't know what to do (NAp Cook).

An indication of whether appropriate meals are being served to the children is the extent to which the cooks used fresh or frozen unprocessed ingredients. All six cooks expressed a desire to 'cook from scratch'; certainly none used all processed and/or 'ready-made' products. All used fresh, frozen or tinned vegetables such as sweetcorn and fruit. If tins were used, these were of the low/no salt or fruit juice varieties.

Most cooks did not add salt to their cooking, but some would use a stock cube in stews, etc.

[W]e try to cut out certain foods, particularly salt in their food so we don't put that in the cooking (NCp Cook).

and had reduced their use of fats and oils:

I do have a vegetable oil where I just spray . . . to line my cake tins, that's all. It's the only time I use oil (NCp Cook).

Bottled, packet sauces and gravy granules are used to varying degrees. NAp cook used gravy and curry mixes without noting the salt content and other additives listed on the ingredients labels.

I also mentioned the salt in the curry powder and cheese dip, and that she should consider checking the labels for ingredients (NAp diary).

The NCp cook said everything was cooked from scratch but the monthly shopping list revealed that Bisto (TM) gravy was being used. The NBp cook was trying to move right away from ready-made sauces, etc., but met with resistance from the owner who did the main shopping.

The striking difference between the nurseries in terms of the cooks' knowledge and experience are between nurseries NAp and NBp. Both of these nurseries are in areas that are among the most deprived, 10% of the country, yet NBp has been able to employ a cook who has the capacity to provide healthy food.

Knowledge and experience of the EYPs to support healthy eating habits

The EYPs need to have the knowledge and the skill to be able to support the young children in their care. This can be through creating the right atmosphere and specific strategies to get children to eat their food. One way all the nurseries achieved this was by getting the children to sit together at mealtimes; others included using table cloths and the children being encouraged to serve themselves:

Table cloths are already laid on the tables. . . . All the children are encouraged to serve themselves from a bowl in middle of the table (NFcc diary).

Most of the nurseries used child-sized cutlery and crockery to help the children eat. NBp had sourced sets that were brightly coloured, which the children seemed to particularly enjoy.

In contrast, NAp used adult-sized cutlery, which the children seemed to find difficult to use.

Experience and skill as early years educators

Direct observation of a food-related activity with the children was carried out in five of the nurseries, NAp, NCp, NDp, NEcc and NFcc. While the intention had been to explore the children's knowledge, it revealed

more about the EYPs' knowledge and experience as early years educators to introduce the children to concepts and ideas related to healthy eating. The skill and expertise witnessed ranged across the nurseries; both the children centre nurseries conducted well thought out activities that quickly engaged the children. These were: guessing the healthy and unhealthy foods with 'Charley the Healthy Eating Chef' in NEcc, and a week of food-related learning based on 'Goldilocks and the Three Bears' in NFcc. In the private nurseries, NCp conducted a well thought-through activity that involved the children making pumpkin soup, and NDp played a game of guessing healthy and unhealthy food using children's plastic toy foods. The least well thought through and conducted activity was Pudsey Bear pizza making by the EYP in NAP:

It is a lovely idea but the bread is still frozen and brittle so most of the bears' legs fall off or get eaten early. The pizza is basically the bread, tomato purée, grated cheese and the ham. X does try and ask them questions about the food but hasn't got a lot of confidence in doing this (NAP diary).

Nurseries' role with parents

The level and depth of communication between the EYPs and the parents is important regarding what the child has eaten both at home and at the nursery. This allows both parents and nursery staff a degree of discretion in deciding if a child is not hungry or in fact needs encouragement to eat something. All the nurseries were found to be good at communicating on a one-to-one basis with parents:

I make it my first priority to look (at the menu board) and then my question to the girls is (what has X (child) eaten) . . . I know what he has had, what time did he have it and did he eat it all (NE Parent 2).

Financial capacity and time to provide healthy food

Budget is related to the quality of the ingredients used in terms of what foods are purchased. Certainly, NCp, which is governed by parents, has the financial capacity to provide quality food:

Table 2. Main outlets for food and catering purchases

NAp – ASDA cook or manager buy (deprived)
NBp – Owner buys online from ASDA. Cook would like to buy more locally and use more fresh ingredients – budget is a constraint (deprived)
NCp – Costco, Iceland, Tesco's, local green grocers and butchers (affluent)
NDp – Tesco's – cook buys (medium)
NE cc – Food for Thought catering company – sourcing locally (mixed)
NFcc – Brakes and other contracts via the local council. Cook has little say. Snack food bought at ASDA by nursery manager. (Deprived)

That [budget for food] all comes out of parent fees, but being a parent funded, parent governed nursery . . . they allow us to provide a certain standard of food, because it's their children that they are benefiting (NCp Manager).

It also seems to be related to the time available to shop around and knowledge of what to buy and where. NCp has been in operation for many years and, as can be seen in Table 2, shops in several different outlets compared with the other nurseries.

For example, the cook in NBp knew where to purchase good-quality meat without increasing the cost dramatically, despite the nursery being in a deprived area.

Management structures of the nurseries

How the nurseries are managed has an effect on their provision of healthy food. The main issues for the children's centre nurseries relates to them being attached to the local primary school. This means that the nursery manager has no real control over the food budget and has to go through the children's centre coordinator and head teacher to communicate menu changes with the cook. Both NEcc and NFcc described the challenges they had encountered:

I negotiate it with the school, with the head teacher and the children's centre coordinator. I had a meeting; I had issues with the portions (NEcc Manager).

[T]he school cook basically had her hands tied; there is only so much she can do; she orders for the school, we just have to fit in. It was quite a long, lengthy process but we got there (NFcc Manager).

However, not all children's centres are attached to a primary school. This is the case for NGcc; the children centre's coordinator, who was a key informant for this study, is also the head teacher. This has meant a more streamlined management structure.

The management issues for the private sector nurseries are all different. Both NAp and NCp had management boards. NAp was made up of representatives of the local churches plus a parent and a member of the local council, and NCp's was parent led. It was not possible to ascertain the level of involvement of NAp's board, but NCp's seemed to be actively supportive:

We are actively involved in the management of the nursery, the manager of the nursery reports in to the committee, policies are passed by the committee . . . (NCp Parent 2).

The main challenges appeared to be with the owner-run private for-profit nurseries, NBp and NDP. On the one hand, the owner's regular presence at the nurseries was supportive. On the other hand, they had a significant influence on the level of budget allocated to food, which, as noted earlier, often meant they put economy before quality.

Researcher's assessment of the quality and quantity of the food provided

Most of the nurseries appeared to served well balanced appetizing-looking freshly prepared food for the children's main midday meal. NAp nursery was the only nursery where it was evident that neither the quality of cooking nor the quantity provided was sufficient:

The broccoli has been overcooked, is now greyish-green and mushy. Only three chicken breasts for 17 children. Pudding is fresh fruit but to my mind, very meagre portions: one segment of tangerine, one small slice of banana and one small slice of apple, and seconds being two more small portions (NAp diary).

Multifactorial context of healthy eating provision in the early years sector

While there was a genuine willingness across all the nurseries to provide healthy food, nursery NAp appears to have the greater challenge. To explore why

this might be the case, a matrix was devised to display the different factors that appear to be involved in the provision of healthy food across the six nurseries (Table 3). These factors include: (1) the characteristics displayed in Table 1 – The IMD ranks of the nurseries' catchment areas, socio-economic status (SES) of the parents, type of management structure, profit margins, length of time the nursery has been established, number of children and EYP staff numbers and qualifications; and (2) the remaining factors are derived from the themes presented in the findings including where food is purchased, access to information and training, and knowledge and experience of the managers, EYPs and cooks to provide a supportive context for healthy eating. The penultimate column in the table indicates the researcher's evaluation of the actual quantity and quality of the food. This is given a score in the last column (maximum of three each for the food's quality and quantity). Bringing the factors together in this way demonstrates how they interlink with one another and reveals that the differences between the nurseries in terms of their food provision are multifactorial.

None of the nurseries obtained the top score of six. There does not seem to be one specific variable that has a direct effect on the quality and quantity of food. NAp had the lowest score of two. The reasons could be associated with the nursery being in one of the most deprived areas of Liverpool. However, other factors also appear to play a part: the manager's, EYP staff's and cook's relative lack of knowledge and experience of healthy eating; and lack of involvement of the management board. In contrast, NBp has a score of five despite being located in a deprived area and needing to make a profit. The factors that appeared to outweigh these disadvantages were the enthusiasm and knowledge of the EYPs, especially the managers and cook.

Discussion

This paper sets out to understand inequalities of health through examining the specific contexts and characteristics of a range of privately and publicly funded nurseries in Liverpool that might help or hinder the provision of a healthy diet for children

Table 3. Multifactorial implications of healthy eating provision in nurseries

Nursery	IMD rank	IMD in poorest 10% of England	SES of parents	Management board	Profit margin	Time Est. (years)	No. children in any 1 session	No. & level qualified EYP staff	Access to information & training	Knowledge experience – manager	Knowledge experience – EYP staff	Knowledge experience – cook	Food – quality & quantity	Score
A	46	Yes	Low to mod	Private – representative local churches & community	Break even	25	23	4 level 3	Poor	Mod	Low	Low & mod	Low & low	2
B	907	Yes	Low	Private – 1 owner	Profit	3	45 but only 22 registered	1 degree, 6 level 3, 2 level 2	Poor	V high	High	High & high	Mixed & good	5
C	19 353	No	High	Private – parent governors	Break even	25	102	1 degree, 38 level 3 or above	Poor	Mod	High	High & mod	Mixed & good	5
D	8 486	No	Mod	Private – 2 owners	Profit	3	46	7 level 3, 5 level 2	Poor	High	Mixed	High & high	Mixed & good	5
E	9 239	No	Low to mod	Child centre	Break even	5	62	1 degree, 1 level 5, 10 level 3, 2 level 2	Good	High	Mixed	High & high	Mixed & good	5
F	105	Yes	Low, mod & high	Child centre	Break even	5	45	8 level 3, 4 level 2	Good	V high	High	High & low	High & low	4

IMD, Index of Multiple Deprivation; EYP, early years practitioner.

under 5 years. In relation to healthy food, the findings are largely consistent with other studies conducted in the last few years in the United Kingdom at the national (Organix 2008; LACORS 2010), regional (Moore *et al.* 2005; Shaw & Mindlin 2006; East Sussex Council 2007) and local levels (HoM 2006; Sefton Council 2007; Parker *et al.* 2010). All indicate that early years providers are constrained by their knowledge and experience and financial and managerial capacity to encourage healthy eating. However, the opportunity to conduct an in-depth study of a specific context has revealed the complex way different issues work together to support or hinder a nursery to develop a healthy eating culture, and how relative inequalities in general are out-worked (Forbes & Wainwright 2001). By placing the different factors involved into a matrix, it was possible to identify differences between the nurseries and therefore bring clarity to what interventions might be most appropriate for specific nurseries. Both nurseries NAp and NBp were in deprived areas of Liverpool, but NBp had moved a long way to providing nutritious food to its children. Although NAp's IMD at 46 is lower than NBp's at 907, NBp had to make a profit while NAp could breakeven. However, the key difference was the level of knowledge and experience of the early years staff and especially the cook. Thus, a key area for policy intervention would be in providing appropriate training and access to information.

The matrix also highlights the difference between the private and public sector nurseries. The private sector nurseries were found to be isolated with little access to information or training. In comparison, the nurseries attached to the Sure Start children's centres had direct access to a range of health and social care professionals such as health promoters and family coordinators, as well as access to information and opportunities for training. The main issue for the two children's centre nurseries was their complex management structure, which hindered the nursery manager's decision-making capacity. This might imply that the more autonomous role found in NGcc be considered in the future.

D'Onise *et al.*'s (2010) systematic review of 37, largely US-based studies looking at the role of pre-

schools in improving health outcomes found some evidence for obesity reduction, but in the main, their findings indicate little evidence for long-term health outcomes. Where D'Onise *et al.* did see positive outcomes were when interventions were integrated with wider support services to parents. The study presented here suggests that, within the Sure Start Local Programmes, currently only the nurseries attached to children's centres have the capacity to extend their reach to work with parents.

The findings support the assertions of the Marmot Review that the quality of early years education and childcare are dependent on the process and structure of that provision (Marmot 2010). The different ways in which the nursery staff tried to engage the children with healthy food reflects the process aspects, while the knowledge and skill levels of the staff, the extent to which the management team were involved and the different environments of the nurseries reflect the structural aspects.

The findings also reflect the complex conditions that can impact on access to healthy food, noted by Dowler (2008). Although these conditions were relevant to households, it can be seen that they also apply to the provision of healthy food within nurseries. Factors limiting the provision of healthy food included the finances available, the knowledge and skills of those who purchase the food and the access to food providers.

It would be interesting to explore in more depth the extent to which the different experiences of the nurseries reflect the social conditions of the communities they serve. As Dowler (2008) argues, there is a need to understand better the factors that shape choices in food. That NBp fared much better than NAp reflects the power of committed individuals and the value of supportive environments in generating change (Povall 2006).

The mixed successes of private nursery provision show that private service provision can be variable. The children's centres both performed well in providing nutritious food to the children and in training to their staff. In addition, they offer a varied approach to engaging children with healthy eating, and they can provide extended support to parents. Both of these factors are likely to lead to more successful long-term

changes in the understanding of healthy eating and child development. From these data, the publically provided services offered by the children's centres appear better at addressing the complex needs of deprived communities than private provision based solely on day care. If good quality children's day care is crucial to the reduction of health inequalities, based on these findings, we might expect that the children's centres will provide a better foundation to children from low-income households, helping to reduce health inequalities in the long term. This supports Coburn's observation that nations with stronger welfare states have narrower social and health inequalities (Coburn 2004).

Conclusion

Using ethnographic data in exploring healthy eating provision in six nurseries across Liverpool to reflect on the broad-ranging health inequalities, literature may lack analytical power to draw generalizable conclusions. However, Forbes & Wainwright (2001) argue that it is exactly this type of in-depth context specific research that can shed light on how the many different complexly related factors involved in health inequalities work together. Clearly, there is need for larger ethnographic studies that include an increased number of nurseries and also the home setting, to offer the in-depth reach recommended by Forbes and Wainwright and complement the breadth offered by surveys and randomised controlled trials recommended by D'Onise *et al.* (2010). This paper has raised some important points concerning the way the social determinants of health interact. While recognising the importance of social status leading to poor health due to psychosocial stress (Wilkinson & Pickett 2010), our findings tend to emphasise the importance of a strong welfare state (Muntaner & Lynch 1999; Coburn 2004) and to taking an early years life-course approach (Marmot 2010).

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Contributions

KB carried out the interviews and observations in the nurseries, conducted the research and wrote the paper. SP contributed to the writing and editing of the paper, read all versions of the manuscript and provided detailed revision. SC was a co-investigator, contributing to project delivery, read all versions of the manuscript and provided detailed revision. MM was a co-investigator, contributing to project delivery and read and revised all versions of the manuscript. FL-W conceived, managed and supervised the research project. She also read all versions of the manuscript and provided detailed revision.

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