Healthy Eating in the Early Years: A Qualitative Exploration of Food Provision in the Child-minder Setting

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Abstract

Purpose

A nutritious diet is critical to the health and development of pre-school children. Children in the UK consume much food outside the home yet day-care food provision is unregulated, and informed by disparate and conflicting dietary guidelines. Factors affecting nursery food provision have been much studied, but less is known about food provision in the child-minder setting. This study examined factors influencing child-minders' food provision.

Design/methods

Qualitative methods were employed, combining participant observation with semi-structured interviews. Participants were selected via purposive and convenience sampling. Eight child-minders from a large town in Yorkshire, England were interviewed.

Findings

The food provided by child-minders was not consistent with dietary guidelines for young children, following menu plans was reported to be difficult**,** and knowledge about healthy eating guidelines for young children was various. Child-minders reported limited time for food preparation, and problems catering for fussy children. Some child-minders obtained support through an informal peer network group. Only one child-minder reported availing of professional nutritional advice on healthy food provision. Communication with parents about food was considered important, although there was some evidence of discord between providers and parents in dietary objectives.

The study was small in size and regionally based. Due to the local nature of the study, it is not possible to make generalisations to the wider national context

Practical Implications

Child-minders have a pivotal role to play in the nutritional health and development of young children, and whilst their interest in provision of nutritious food was great, outside support was lacking. Support should include provision of one clear set of authoritative guidelines, practical guidance that accommodates the realities of providing food in the child-minder setting, investment to strengthen support structures at local level and the development of network groups.

Background

The first five years in a child's life represent a critical time for growth and development and good nutrition is vital (Strategic Review of Health Inequalities in England post-2010, 2012). However, studies report that young children's diet do not meet recommended nutritional requirements (Geissler and Singh, 2011; Public Health England, 2012) and more than a fifth of children in England are overweight or obese by the time they reach primary school (The Health and Social Care Information Centre, 2013). Obesity has a plethora of negative health consequences (Ebbeling et al., 2002; Haines et al., 2007; World Cancer Research Fund, 2007). Moreover, there has been a rise in the incidence of rickets (Pearce and Cheetham, 2010) and dental health is poor in many young children (Audit Commission, 2010).

Nutritional health in the early years (1-5 years) has been somewhat neglected in favour of a focus on school-aged children (Audit Commission, 2010). However, intervention during this time period is thought to be critical to reduce health inequalities across the life-course (Strategic Review of Health Inequalities in England post-2010, 2012). Eating habits are ingrained at a young age, so overweight children are likely to become obese adults (Freedman et al., 2004; Scaglioni et al., 2011). Furthermore, dietary patterns in the years before school may impact on later educational attainment and behaviour (Robinson et al., 2004; Wiles et al., 2009).

Increasing numbers of UK pre-school children attend day-care, including nurseries, children's centres and child-minders' homes and many young children receive a large proportion of their daily diet outside the home (Crawley, 2006; Parker et al., 2011). All early years settings are regulated by the Office for Standards in Education Children's Services and Skills (OFSTED) and statutory guidance – the Early Years Foundation Stage (EYFS) – was introduced in 2008 (Department for Education, 2012). Provision of food and drink falls within EYFS guidance, but this guidance is vague: 'where children are provided with meals, snacks and drinks, they must be healthy, balanced and nutritious.' Crucially, no attempt is made to elaborate on what 'healthy, balanced and nutritious' might mean and this combination is simply left open to interpretation. Furthermore, a nutritious diet for a young child is markedly different to that of an older child or adult and indeed the regulations lack mention of any specific dietary requirements of this age group.

In January 2011, under the auspices of government, the Children's Food Trust (CFT) reviewed food provision in early years settings and published food-based guidelines (Children's Food Trust, 2012). However, these guidelines remain voluntary and add to an array of advice from independent bodies and businesses for example Waitrose Ltd, Pre-school Learning Alliance, Dairy Council and First Steps Nutrition Trust. Unsurprisingly, several reviews (Fookes 2008; Children's Food Trust 2012; Department for Education 2012) cite widespread variability in awareness of and use of guidelines within nursery settings; providing healthy food is often viewed as mere common sense, and nursery providers report inadequate training on healthy eating in the early years, with cost and availability cited as key barriers to further training (Moore et al., 2005; Parker et al., 2011). Child-minders in particular are thought to lack awareness of these guidelines (Buttivant and Knai, 2012; Moore et al., 2005), although empirical data are limited.

Unfortunately, reviews indicate problems with diet quality in early years settings (School Food Trust, 2010). Meals provided by nurseries have been reported to lack energy, carbohydrate and essential minerals, such as iron and zinc, and many foods high in salt, sugar and fat that are now banned or restricted in schools are regularly served to children under five (Children's Food Trust, 2012; Fookes, 2008; Lloyd-Williams et al., 2011; Parker et al., 2011; School Food Trust, 2010). Furthermore, there are reports of over-provision of fruit, vegetables and dietary fibre (School Food Trust, 2010).

Whilst the factors underpinning food provision in nurseries have been examined (Lloyd-Williams et al., 2011; Parker et al., 2011), little attention has been given to child-minder settings. There is a recognition that home-based provision differs from centre-based provision (Centre for Research in Early Childhood and Department of Health, 2010) and one study reported child-minders to be operating under a variety of constraints, including tight budgets and the sometimes forceful opinions of parents (Moore et al., 2005). Consequently, the purpose of the current research was to address this gap, namely to examine the factors impacting on current food practices of child-minders.

Methods

The study was conducted in Rotherham, a metropolitan borough of South Yorkshire, UK, between April and August 2013. Rotherham records high levels of social deprivation (Rotherham Metropolitan Borough Council and NHS Rotherham, 2015). In 2008 Rotherham Metropolitan Borough Council (RMBC) introduced a training scheme (Healthy Foundations) for a range of early years care providers. The scheme covers all aspects of healthy child development, including weaning, physical activity and play, and providers are directed to resources on healthy eating (Children's Food Trust, 2012; Crawley, 2006). Notably, the scheme is not mandatory; training is intended for a range of early years' providers, including nurseries, pre-schools and child-minders.

A qualitative research design was employed to gain an in-depth understanding of the child-minder setting. An adapted ethnographic approach was utilised to observe current food practices; due to practical considerations full immersion in the research setting was not achievable. The primary data was thus generated from semi-structured interviews. A reflexive journal was maintained by the researcher throughout the process (Green and Thorogood, 2009). The University Ethics Committee and Rotherham Metropolitan Borough Council (RMBC) Research and Governance Department granted ethics approval.

Sample Recruitment

The selection of the child-minders for the research involved the cooperation of the Early Years and Childcare team at RMBC, which held the names and contact details of all registered child-minders on a secure database. Participants were recruited from this database via purposive sampling in order to explore the current practice and experience of both child-minders involved in the Healthy Foundations training and those not involved in the scheme. Individuals who had not agreed to share their details with RMBC were not included.

In total 26 child-minders received a letter from the Early Years and Childcare Strategy Manager at RMBC, inviting them to take part in the research study. The invitation letter included a description of the aims of the research study, information as to what was involved in taking part, and a consent form. Those who were happy to take part in the study were asked to return the consent form in a pre-paid envelope. Out of the 26 child-minders contacted, just one returned the consent form; subsequently all child-minders were contacted via telephone to see if they would be willing to take part in the research study. Consequently, the sample selection involved both purposive and convenience sampling.

Data Collection

All interviews were conducted face-to-face in child-minders' homes; this allowed for direct observation of current food practices in cases where child-minders were preparing and serving food. Field notes on practices around food provision were then made immediately following leaving the child-minder's home. Details of food provided over a 7-d period were collected if the participant kept a menu plan.

An interview schedule was developed with the support of key stakeholders working within the LA. A pilot interview was carried out with a child-minder external to the study in order to refine the interview schedule. Interviews were semi-structured covering the following areas: participants' current practice around provision of food and drink to children under five years in their care; communication with parents about the food provided; participants' understanding of healthy eating for children under five years; participants' view of their role in providing and promoting a healthy diet; problems participants encounter in providing healthy food; guidance and support available to child-minders around provision of healthy food.

Each interview lasted in the range of 15 to 90 minutes – with an average of approximately 30 minutes. All interviews were arranged at a time convenient for the participant. Before each interview commenced the participant was briefed on the study including research aims and objectives; what the interview would comprise; ethical issues of confidentiality, anonymity and their right to withdraw. Following this, written consent was sought from all participants, if not already received.

The researcher asked open questions throughout to minimise interviewer-bias. However, at times, some closed questions were employed to elicit further detail and probes were utilised to ensure adequate generation of data. All interviews were digitally recorded; yet to check for any reactive effects of the recorder, the researcher continued to 'chat' to respondents when the recorder was switched off to check whether they had anything else to add (Bowling, 2009). The researcher later transcribed all interviews in order to maintain familiarity with the data.

Analysis

Analysis employed a qualitative thematic approach. An initial set of codes were developed from the interview transcripts and field notes; this coding scheme emerged deductively from

pre-existing questions and theory, as well as inductively from the data itself (Seale, 2004). NVivo 10 software was then utilised to map codes and develop themes – identifying any associations between themes and enabling the researcher to discuss the meaning of the data. Analysis was an on-going iterative process, where arising themes were used to direct subsequent interviews and observations. As part of the reflexive process, emerging themes were discussed with other members of the research team.

Results

A total of eight child-minders, registered with RMBC, were interviewed as part of the study.

1. Food and Drink Provision in the Child-minder Setting

Routine of Care and Time Constraints

Whilst five subjects had a menu plan, these varied in level of detail and were not always used. Planning meals in advance was often not practical due to day-to-day variation in routine of care and the resultant variability in demand for provision of meals and snacks. Child-minders sometimes supervised children's consumption of prepared food provided by parents. However, this was not widespread and some child-minders actively discouraged parents from providing food to avoid *"conflict"* between children.

*"*First day she turned up with yoghurt and a packet of crisps – *I says I can't give her the crisps cos I've not got a packet of crisps for everybody else and I don't provide those"*

Where parents provided food this was believed to be because "then *they know exactly what's in there"*, or due to cost. Other reasons for parents providing food were special dietary requirements of children, fussy eaters, or providing for babies.

Many of the child-minders reported that managing the differing schedules of children within their care impacted upon their time available to cook. These participants were the sole provider of care to what could be a large number of children (up to 11) and one child-minder refused to provide the main evening meal, as she felt it would reduce her capacity to look after the children in her care. This child-minder was not alone in her concern:

"Yeah it's (food provision) influenced with time as well, because obviously I can't spend a lot of time in the kitchen when I'm meant to be looking after them…"

There was an acknowledgement that time constraints could negatively impact on food provision – participants reported serving foods such as *"fish-fingers for ease"* However, some child-minders reportedly felt more equipped to cope and often prepared things in advance which just required re-heating – there was clear variability in cooking and/or organisational skills.

What do children want to eat?

Food provision was largely driven by children's "likes and dislikes. The role of children's preferences in provision is exemplified in a quote from a child-minder in the current study:

"I try to mix it up, you know and erm so either fish fingers or cos to be honest I think well yeah you could prepare the most healthy meal in the world and they'll just sit and look at it and think what on earth is *that and they just wouldn't eat it."*

Children refusing to eat, fussy eating, - was encountered by all child-minders, although some voiced concern to a greater extent than others:

"I really struggle with it, she really really is bad with it er to the point where the thing she'll eat the most is tomato soup and she comes three days *... we're very often having that twice a week out of the three days."*

The child referred to in the above quote ate a very limited diet in childcare and reportedly ate "junk all th*e time"* at home; other children too were reported as fussy, although not to such extreme: *"Vegetables. Erm, it's like a nightmare to get him to try and eat a couple of carrots"*. Most child-minders employed tactics to encourage children to eat: hiding vegetables *"so they don't tend to know it's there"*; presenting food in creative ways such as *"salad caterpillars"*; or children were *"encouraged just by saying if they eat their tea they get pudding"*.

The Child-minder as a Provider of Healthy Food

Healthy Eating Knowledge

All participants were asked what they understood as healthy eating for children aged one to five years. Most participants recalled headline messages such as *"f*ive-a-*day"* and *"balanced* diet*"*. There was a good understanding of the need for children less than two years to have full-fat milk and older children to have semi-skimmed. Most child-minders also made reference to *"*portion control*"* and some referred to the need of younger children to eat *"little and often"*. However, only two child-minders made reference to levels of salt and two participants said they did not know how to answer the question.

Child-minders reported that meals were *"mainly cooked from scratch"*, although participants' interpretation of cooking from scratch differed. Meals provided ranged from *"salmon and potatoes and broccoli and carrots"* to more convenience meals, such as chicken balls and oven chips. The primary understanding was *"basically lots of fruit, vegetables"*. Indeed, there appeared to be an over-reliance on fresh and dried fruit for snacks. However, despite the understanding for *"five-*a-*day"*, some child-minders did not consistently provide vegetables as part of the main meal.

Source of Knowledge – Guidelines and Training- Access to Support

Child-minders noted that food did not feature much in guidance: *"*regarding guidelines for *food and things I mean to be fair I don't really see a lot of that in the EYFS, I see nothing in the EYFS regarding food…. I don't actually think it says enough* – I *don't think it really hits* the mark*"*

Half of the participants had not seen any guidelines for healthy eating for children less than five years; of those that had half again did not employ them in their practice and just had a *"quick look"*. Sources of information cited were books, the Internet and Change4Life materials. Worryingly, one child-minder referred to knowledge gained from her experiences of dieting and equated healthy eating with low-fat, high-fibre diets, not suitable for young children. Furthermore, two participants reported using the guidelines for school-aged children, which again are not appropriate for children under five. Most of the child-minders were unaware that there was a local training scheme, which included food: *"I've not seen a* course.*"*

However, a number felt further support and training would be beneficial to know *"you're doing it right"*. Furthermore, menu ideas *"to make it more exciting"* and *"hands*-on training *of food"* were cited as key areas for practical guidance, as was information on appropriate portion sizes. Some child-minders were more apathetic towards further support, although three such participants still said they would like more guidance surrounding feeding babies and providing weaning food.

Child-minders can be quite isolated and one participant reported that since OFSTED had taken over they were more *"adrift"*, although there was an acknowledgement that they could contact the Local Authority for support if necessary. A number of participants reported attending local network groups and receiving support from their peers: *"…you go to network groups and you say I've got one that won't do so and so what did you do about it and ninety* nine per cent of the time someone else will have had exactly th*e same problem. So I've always found support in the groups that I go to…"*

However, the structure of such network groups varied – one participant attended a network group linked with Sure Start and could gain access to dieticians and other health professionals for support, but this was unusual. As one participant explained: "all the onus is on you – the

onus is on you to research it, read up on it, find it, apply it and just basically muddle your *way through it"*.

The Child-minder-Parent Relationship

Partnership – the importance of communication

Child-minders iterated their commitment to working in *"partnership"* with parents. All child-minders operated an induction process, whereby they learnt what food parents wanted them to provide; this also allowed the child-minder to explain any practice policies regarding food provision, for example not allowing sweets. Some child-minders were quite explicit in their approach – *"I have rules and I don't bend them for anybody really*"; but many felt that the ultimate authority and responsibility for providing healthy food rested with the parents:

"…if they really really do not like it and they will not eat it and it's somebody else's child, I think well you know you can't force them to eat it cos it's not your child, but if it's my own I'd treat them a little bit differently."

Child-minders used food diaries (three participants) and displayed menus on a notice board at home or online (five participants) to communicate with parents what children were eating whilst in their care. However, the extent of communication with parents did vary between participants. Child-minders reported increased levels of communication when there was an issue, for example food allergies, or a child refusing to eat or being overweight. Notably, those who had received training felt more empowered to educate parents, and some child-minders did report taking on the role of advising parents.

Discussion

Food preferences are shaped early in life (Birch, 1999; Scaglioni et al., 2011) and children's preferences were to the fore in participants' decisions around food provision. Menu choices were to a large degree constrained by children's "*likes and dislikes"*. This constraint is consistent with work exploring food provision by mothers; women will often provide food, which they deem less nutritious in order to achieve harmony within the home and are mindful not to waste food or spend time preparing meals that children will not eat (Charles and Kerr, 1988; Slater et al., 2012). Fussy eating among children is a well-recognised phenomenon, and can pose as a barrier to the provision of healthy food (Scaglioni et al., 2011); this effect may be exacerbated when care-givers lack the necessary skills and time to deal with food rejection (Buttivant and Knai, 2012). While participants commonly reported using strategies, such as verbal encouragement to eat and use of food as rewards, these may negatively impact on children's food acceptance (Children's Food Trust, 2012; Scaglioni et al., 2011). If child-minders are to be better equipped to deal with fussy eating and provide food consistent with guidelines, they need to be educated as to effective strategies to counteract food refusal and consideration needs to be given as to their time available to employ such strategies.

There was widespread acknowledgement that diversity in children's routines coupled with time constraints could negatively impact on food provision. Indeed, the utility of menu plans as recommended (Children's Food Trust, 2012) can be questioned because of irregular routines of care and limited time for food preparation and cooking. In the latter context, parallels can again be drawn with research exploring the food practices of mothers, which has highlighted a reliance on convenience foods (Slater et al 2012; Hartmann, Dohle & Siegrist 2013). In accordance with this literature, participants reported serving foods such as *"fish-fingers for ease"*. However, some participants seemingly felt more equipped to cope with the time constraints of child-care, and often prepared things in advance that just required re-heating; there was clear variability in cooking and/or organisational skills. There was a general assumption that "cooking from scratch" resulted in provision of superior food; yet many participants were not in fact not "cooking from scratch". This anomaly is congruent with literature in other groups of early years carers; nursery cooks in Liverpool reported using salt-laden stock cubes and pre-made sauces (Lloyd-Williams et al., 2011; Parker et al., 2011). The importance of creating the right atmosphere and the value of eating as a social activity has been highlighted in earlier work exploring food provision in childcare settings (Lloyd-Williams et al., 2011; Moore et al., 2005). Indeed, there is evidence to indicate that the

'family meal' is associated with improved nutritional health among children (Hammons and Fiese, 2011) and peer pressure can be used to encourage fussy eaters (Moore et al., 2005). Participants in the current study acknowledged such effects, and there was recognition that for some children the child-minder setting may be their only opportunity to benefit from such a meal.

Previous work has shown nutritional knowledge to be limited among childcare providers (Lloyd-Williams et al., 2011; Moore et al., 2005; Parker et al., 2011). Consistent with work exploring food practices in nurseries in Liverpool (Lloyd-Williams et al., 2011), participants in the current study had assimilated basic general health eating guidelines, such as five-a-day, and their food provision reflected understandings of such headline messages. Indeed, while participants emphasised the need for fruit and vegetable provision, vegetables were somewhat lacking within main meals. Moreover, as reported in other early year settings there was sometimes over-provision of fruit (School Food Trust, 2010). In contrast there was good awareness of the inappropriateness of reduced-fat milk, which is at odds with a previous report (Buttivant and Knai, 2012).

Few participants reported receiving guidance about appropriate food provision for young children. In agreement with earlier research (Centre for Research in Early Childhood and Department of Health, 2010; Moore et al., 2005), most participants relied heavily on experience and intuition. This gap is consistent with previous studies at local level, which report that private providers in particular receive minimal official literature on feeding young children (Lloyd-Williams et al., 2011; Moore et al., 2005). Child-minders relied on advice in relation to the food and nutritional needs of schoolchildren - this practice that has been reported in an earlier study. Furthermore, lack of available training and difficulty in fitting training around other commitments were cited as key barriers to uptake of training in agreement with other work (Centre for Research in Early Childhood and Department of Health, 2010).

Participants emphasised the benefits of support networks of other child-minders. The potential for network groups to provide support for child-minders has previously been noted (Centre for Research in Early Childhood and Department of Health, 2010).

The relationship between childcare providers and parents is recognised to be of the utmost importance (Buttivant and Knai, 2012; Lloyd-Williams et al., 2011), yet research is mixed

with regards to the effectiveness of communication. In the current study there was some evidence of discord between providers and parents in dietary objectives and lack of coordination in food provision across the day, in line with other evidence (Briley et al., 1999; Moore et al., 2005). Moreover there was evidence that accommodation of parental food preferences could be a source of tension, concurring with an earlier study, where providers reported squabbles between children at meal-times if they had access to different food items from home (Moore et al., 2005).

However, more recent work has indicated child-minders view effective communication with parents as a key element of successful practice (Centre for Research in Early Childhood and Department of Health, 2010) and in the current research many participants expressed the desirability of working in *"partnership"* with parents. It has been suggested that parents feel more comfortable approaching their child-minder rather than a health visitor, nurse or other professional and thus can provide a valuable social support service (Centre for Research in Early Childhood and Department of Health, 2010). Furthermore, it has been recognised that childcare providers could play a potentially pivotal role in educating parents as to the tenets of healthy eating (Buttivant and Knai, 2012; Centre for Research in Early Childhood and Department of Health, 2010) and while child-minders in this study were happy to discuss food habits with parents their understandings of healthy eating were insufficient for this role.

The study has a number of limitations. The timing of the study coincided with OFSTED inspections, as well as a sufficiency audit by RMBC. Recruitment of participants thus proved difficult. Convenience sampling had to be adopted; this may have resulted in selection bias, as interviewees may have different food practices and perspectives from those who declined to be interviewed. The cost of food was notably not reported as a barrier to food provision as previously reported (Moore et al., 2005). A further study of a larger sample, purposefully selected to reflect the broad range of child-minders in the local area would provide a richer source of data, enabling deeper examination and validation of the issues identified and increasing the applicability of the findings to the local context. Moreover, due to the local nature of the study, it is not possible to make generalisations to the wider national context. However, findings are consistent with other regional UK studies of childcare providers (Buttivant and Knai, 2012; Parker et al., 2011).

Conclusion

This study has yielded important information on child-minders' perceptions of healthy eating and the difficulties they encounter in food provision. It has exposed a need for an authoritative set of dietary guidelines for early years children, which are easily accessible to all early years' providers. Practical advice on meal preparation is also necessary, in order to ensure providers are equipped with the skills and knowledge to provide quick and nutritious meals that children will eat. Such education of child-minders would foster an improved exchange with parents around food provision. Network groups can provide an invaluable source of support to child-minders and represent an ideal platform to disseminate professionally based advice on food provision.

References

Audit Commission. (2010), Giving Children a Healthy Start: Health Report, February 2010, London, pp. 1–54.

Birch, L.L. (1999), "Development of Food Preferences", Annual Review of Nutrition, Vol. 19 No. 1, pp. 41–62.

Bowling, A. (2009), Research Methods In Health: Investigating Health and Health Services, McGraw-Hill International, p. 525.

Briley, M.E., Jastrow, S., Vickers, J. and Roberts-Gray, C. (1999), "Dietary intake at child-care centers and away: Are parents and care providers working as partners or at cross-purposes?", Journal of the American Dietetic Association, Vol. 99 No. 8, pp. 950–954.

Buttivant, H. and Knai, C. (2012), "Improving food provision in child care in England: a stakeholder analysis.", Public Health Nutrition, Vol. 15 No. 3, pp. 554–60.

Centre for Research in Early Childhood and Department of Health. (2010), Evidence from childminder focus groups on promotion of healthy living in home-based childcare, South West region, Birmingham.

Charles, N. and Kerr, M. (1988), Women, food and families., Manchester University Press, Manchester, p. 244.

Children's Food Trust. (2012), Eat Better Start Better Voluntary Food and Drink Guidelines for Early Years Settings in England – A Practical Guide, Children's Food Trust: Sheffield pp. 1–78.

Crawley, H. (2006), Eating well for under-5s in child care, Caroline Walker Trust, St Austell

Department for Education. (2012), Statutory framework for the early years foundation stage, Department for Children, Schools and Family: Nottingham.

Ebbeling, C.B., Pawlak, D.B. and Ludwig, D.S. (2002), "Childhood obesity: public-health crisis, common sense cure.", Lancet, Vol. 360 No. 9331, pp. 473–82.

Fookes, C. (2008), Georgie Porgie Pudding and Pie Exposing the truth about nursery food, London, available at: http://www.soilassociation.org/LinkClick.aspx?fileticket=P7%2F0qfiUPe4%3D&tabid=659.

Freedman, D.S., Khan, L.K., Serdula, M.K., Dietz, W.H., Srinivasan, S.R. and Berenson, G.S. (2004), "Inter-relationships among childhood BMI, childhood height, and adult obesity: the Bogalusa Heart Study.", International Journal of Obesity and Related *Metabolic Disorders* : Journal of the International Association for the Study of Obesity, Vol. 28 No. 1, pp. 10–16.

Geissler, C. and Singh, M. (2011), "Iron, meat and health", Nutrients, Vol. 3 No. 3, pp. 283–316.

451 Green, J. and Thorogood, N. (2009), Qualitative Methods in Health Research, 2nd ed., SAGE
452 Publications, London.

453 Haines, L., Wan, K.C., Lynn, R., Barrett, T.G. and Shield, J.P.H. (2007), "Rising incidence of
454 type 2 diabetes in children in the U.K.", Diabetes Care, Vol. 30 No. 5, pp. 1097–1101.

455 Hammons, A.J. and Fiese, B.H. (2011), "Is frequency of shared family meals related to the
456 nutritional health of children and adolescents?", Pediatrics, Vol. 127 No. 6, pp. e1565–
457 e1574.

458 Lloyd-Williams, F., Bristow, K., Capewell, S. and Mwatsama, M. (2011), "Young children's
459 food in Liverpool day-care settings: a qualitative study of pre-school nutrition policy and
460 practice.", Public Health Nutrition, Vol. 14 No. 10, pp. 1858–66.

461 Moore, H., Nelson, P., Marshall, J., Cooper, M., Zambas, H., Brewster, K. and Atkin, K.
462 (2005), "Laying foundations for health: food provision for under 5s in day care.",
463 Appetite, Vol. 44 No. 2, pp. 207–13.

464 Parker, M., Lloyd-Williams, F., Weston, G., Macklin, J. and McFadden, K. (2011), "Nursery
465 nutrition in Liverpool: an exploration of practice and nutritional analysis of food
466 provided.", Public Health Nutrition, Vol. 14 No. 10, pp. 1867–1875.

467 Pearce, S.H.S. and Cheetham, T.D. (2010), "Diagnosis and management of vitamin D
468 deficiency.", BMJ (Clinical research ed.), Vol. 340, No 7738, pp. 142-147.

469 Public Health England. (2012), National Diet and Nutrition Survey Results from Years 1, 2, 3
470 and 4 (combined) of the Rolling Programme (2008/2009 - 2011/2012), Vol. 4, pp. 1–
471 158.

472 Robinson, S.M., Crozier, S.R., Borland, S.E., Hammond, J., Barker, D.J.P. and Inskip, H.M.
473 (2004), "Impact of educational attainment on the quality of young women's diets.",
474 European Journal of Clinical Nutrition, Vol. 58 No. 8, pp. 1174–1180.

475 Rotherham Metropolitan Borough Council and NHS Rotherham. (2015), Rotherham Borough
476 Joint Health and Wellbeing Strategy 2012-2015.

477 Scaglioni, S., Arrizza, C., Vecchi, F. and Tedeschi, S. (2011), "Determinants of children's
478 eating behavior", American Journal of Clinical Nutrition, Vol. 94, p. 2006S–2011S.

479 School Food Trust. (2010), Laying the Table Recommendations for National Food and
480 Nutrition Guidance for Early Years Settings in England Volume 1, Vol. 1. School Food
481 Trust: Sheffield

482 Seale, C. (2004), Researching Society and Culture, 2nd edn., SAGE Publications: London

483 Slater, J., Sevenhuysen, G., Edginton, B. and O'Neil, J. (2012), "'Trying to make it all come
484 together': Structuration and employed mothers' experience of family food provisioning
485 in Canada", Health Promotion International. Vol. 27 No.3, pp. 405-415

Strategic Review of Health Inequalities in England post-2010. (2012), Fair society, healthy lives: The Marmot Review, Public Health, Vol. 126 Suppl, pp. S4–10.

The Health and Social Care Information Centre. (2013), "National Child Measurement Programme: England, 2012/13 school year", The Health and Social Care Information Centre: London.

Wiles, N.J., Northstone, K., Emmett, P. and Lewis, G. (2009), "'Junk food' diet and childhood behavioural problems: results from the ALSPAC cohort.", European Journal of Clinical Nutrition, Vol. 63 No. 4, pp. 491–498.

World Cancer Research Fund. (2007), Food, nutrition, physical activity, and the prevention of cancer: a global perspective., World Cancer Research Fund and American Institute for Cancer Research, American Institute for Cancer, Washington, DC pp. 289–295.

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499