The Development of Primary School Children's Eating Behaviours and Habits: Lunchtime Staff Members Perspectives

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Ellie has had a keen interest in nutrition for several years, commencing her studies around animal nutrition in college. She then discovered that her true passion was around human nutrition, eating behaviours and mental health.

Ellie has been volunteering for Beat an online eating disorder support service for the past 12 months, supporting young people to engage in support for their eating disorder. This led to her questioning the multi factorial influences around human eating and disordered eating. Having studied nutrition for the past 3 years Ellie began to critically consider how eating behaviours develop and the impact of eating behaviours on an individual's mental health and nutritional intake.

For her undergraduate dissertation Ellie explored how children's eating behaviours are influenced through their micro and macro environments. Specifically focusing on the school environment and its influence on children's eating from lunch time staff members perspective an under researched population. This research provides new knowledge for practitioners around early influences on children's eating behaviours and how best the school environment can support healthy eating for children, beyond healthy and nutritionally balanced meal provision.

Abstract

Purpose of the research project- Childhood is a crucial period in the development and modification of eating behaviours and habits. The formation of unhealthy eating behaviours can lead to weight related issues such as obesity and obesity related comorbidities, as well as disordered eating and psychological disorders. The schooling environment is continuously targeted for health promotion and interventions. Although the many factors and pathways responsible for the development of children's eating behaviours and habits have not all been established. Previous research and government policies have often overlooked the perspectives of lunchtime staff; therefore, this research aims to voice lunchtime staffs' views on the development of children's eating behaviours within primary schools.

Methods- A qualitative research design has been used where Microsoft Team interviews were conducted. Four participants were asked open-ended questions and audio and video recordings were produced. The researcher then transcribed the interviews before undergoing thematic analysis.

Results- Three themes emerged from the data: Nutritional knowledge, Influences and Feeding strategies. Subthemes derived from the data and were in vivo such as rewards and encouragement.

Conclusion- The participants provided useful accounts of their time as lunchtime staff and offered a valuable insight into the influences on the development of children's eating behaviours. They recognised peer, staff and parents influence on children's eating behaviours and habits. As well as describing their nutritional knowledge and the feeding strategies they adapt to encourage children to eat. The potential for the role of lunchtime staff to adopt a more

educational role within children's eating behaviours was identified, although the need for the lunchtime staff to undergo further training was highlighted.

Limitations and Recommendations- The main limitations of this study were the small sample size, use of one geographical location and the lack of male representation. Future research should use a larger sample size and include more schools. Additionally, the lunchtime staff and pupil relationship should be investigated from the child's perspective.

1. Introduction

The nutritional behaviour and habits of children have deteriorated significantly over the past two decades, resulting in an increasing prevalence of nutrition-related diseases and deaths (Zemrani *et al*., 2021; Bogin *et al*., 2014; Monteiro *et al*., 2016). In childhood, the overconsumption of foods that are high in saturated fat, high in salt and high in sugar, combined with a lack of physical activity, are strong predictors of overweight and obesity (Raziani and Raziani, 2020; Crino *et al*., 2015; Rauber *et al*., 2015; Popkin, Adair and NG, 2012). Childhood obesity has become increasingly widespread within England, with 14.4 per cent of 4–5-year-olds and 25.5 per cent of 10–11-year-olds reported as obese in 2021 (Baker, 2022). Obesity is associated with physical and psychological risks during childhood (Rankin *et al*., 2016; Sahoo *et al*., 2015) and as childhood obesity is a strong predictor of adult obesity, there are risks of diseases in later life such as diabetes, hypertension and osteoporosis (Sahoo *et al*., 2015; Sanders *et al*., 2015; Simmonds *et al*., 2015). Furthermore, children are becoming obese at younger ages and obesity-related diseases that were once considered rare in childhood, are now becoming more common (Di Cesare, 2019). In addition to obesity, childhood malnutrition can also have serious adverse long-term effects on physical, cognitive and behavioural development (Mwene-Batu *et al*., 2020; De and Chattopadhyay, 2019). Children's nutritional intake has direct implications on the prevention of non-communicable diseases (Russell and Worsley, 2013), correspondingly improving children's diets has the potential to prevent one in every five deaths (The Lancet, 2019).

Polar issues were highlighted during the Covid-19 pandemic, where childhood obesity levels increased owing to reduced physical activity rates due to barriers accessing spaces that facilitate physical activity (Zemrani *et al*., 2021; Workman, 2020). This was emphasised by the increased sales of cheaper calorie-dense foods, occurring alongside financial hardships and the absence

of school meals (Zemrani *et al*., 2021; Workman, 2020; Jenssen *et al*., 2021). Contrastingly, Covid-19 further emphasised the significant role of schools in children's lives to provide a guaranteed balanced meal during term time, particularly to those of lower socioeconomic status who faced food scarcity during the pandemic (Zemrani *et al*., 2021; Ntambara and Chu, 2021). Before the pandemic, 2.4 pupils in each class went to school hungry at least once a week in England and Wales (Hoyland *et al*., 2012). These rates are predicted to be much higher post-pandemic due to increased food insecurity (Bhattacharya and Shepherd, 2020). The current climate highlights the need for school agendas to prioritise improving nutrition to increase children's wellbeing and address health inequalities (Haider *et al*., 2016; Basch, 2011). Schools are often conflicted on providing appropriate nutritionally balanced meals for underfed children who may be facing food poverty or imbalanced meals at home, overfed children and those considered a healthy weight within the 2nd and 91st centile (National Health Service, 2018).

Children's eating behaviours and habits are central concerns when discussing child health and wellbeing (Mitchell *et al*., 2013; Berk, 2015). The terms eating behaviours and habits encompasses food choice, repeat exposure, feeding practices, psychological factors and motives that influence all aspects of eating (LaCaille, 2013; Rachmi *et al*., 2020; Mantzios, 2021). Fundamental eating behaviours developed during childhood tend to persist into adulthood and can become resistant to change (Scaglioni *et al*., 2018; Mahmood *et al*., 2021; Ward *et al*., 2015). Particularly, problematic eating behaviours that start in childhood may lead to weight problems in later life or the development of disordered eating (Robinson *et al*., 2021; Neumark-Sztainer *et al*., 2018). Eating behaviours in childhood are considered the most malleable during this time (Lowe, Morton and Reichelt, 2020; Burnett *et al*., 2020). Therefore, determining the factors that influence children's eating behaviours and habits through further research and interventions should be prioritised in the management and modification of child

nutrition for preventative purposes (Scaglioni et al., 2018). However, changing behaviour and habit is a complex matter that goes much further than providing healthy meals and nutritional information (Mason, 2018). Food is an integral socially embedded aspect of children's everyday lives (Reddy and van Dam, 2020; Toft *et al*., 2018). Nutritional choices are underpinned by social forces and often decisions are intersected by socioeconomic status, eating styles and social interaction (Higgs, 2015; Atkinson, 2021). Consequently, the promotion of healthy eating behaviours for preventative purposes is difficult and requires a much deeper understanding of the development of children eating behaviours (Wood *et al*., 2020; Scaglioni et al., 2018).

Schools play a significant role in the shaping of children's lifelong eating habits, as children spend a noteworthy portion of their lives in education spanning over 7 years from age 4 to 11 (Esposito *et al*., 2022; Naderer *et al*., 2018). Hence, the school environment is continuously recognised within the literature as a vital target for health promotion and the maintenance of health and wellbeing in children (Pulimeno *et al*., 2020). The school setting is considered a pivotal lens into the specific types of foods consumed during this time (Pike, 2010; Earl, 2017), with the environment itself representing space for the regulation of children's weight (Farmer *et al*., 2017; Brazendale *et al*., 2017), owing to the length of time spent there. This space can be referred to as the school food environment, which is defined as all the spaces inside and around the school premises where food is consumed (Pineda, Bascunan and Sassi, 2021; O'Halloran *et al*., 2020). Specifically, school environmental influences, such as exposure to unhealthy food choices, the serving of unpalatable healthy school meals, inadequate time for eating and the mirroring of other children's poor eating behaviours, are some of the factors that contribute to children making unhealthy food choices and/or developing poor eating habits (Kupolati, Gericke and MacIntyre, 2015). Schools as health promotion settings aiming to

improve nutrition can be particularly important to manipulate children's eating practices and address health inequalities (Pulimeno *et al*., 2020; Wang and Stewart, 2013). Furthermore, school staff can be utilised to build on children's knowledge, skills, behaviours and attitudes through their experiences within the school and the delivery of the curriculum (Kupolati, Gericke and MacIntyre, 2015; Moore, Tapper and Murphy, 2010; Moore, Murphy and Moore, 2011).

The literature review will further explore the existing evidence base concerning the school environment as a health promotion setting. Evidence on children's eating behaviours and their influences will also be critically reviewed.

2. Literature Review

The literature is structured into several key themes. These themes were conceptualised from the literature adopting an ecological framework approach (Bronfenbrenner, 1979). Eating behaviour is highly complex and therefore using an ecological framework, which is advantageous to understand the dynamic influences on behaviour, to deduce the multifaceted influences on children's eating habits is seen as useful (Haddad *et al*., 2018; Story *et al*., 2008; Kubik *et al*., 2013; Gubbels, 2020; Ragelienè and Grønhøj, 2020; Fiese and Jones, 2012; Moor, Murphy and Moore, 2011; Van Royen *et al*., 2014). The broader macro-level influences on children's eating behaviours and the school food environment will be critically reviewed. Then the physical environments particularly the home and school-related settings will be analysed. Followed by a critical examination of the social environment, such as family and friends and the individual influence on children's eating behaviours.

2.1 Macro-level Influences

Macro-level factors such as government bodies and health care services play an indirect role on eating behaviours but have a substantial effect on what people eat, particularly within schools (Story *et al*., 2008) The school food environment has a large impact on children's dietary intake as up to two meals and snacks are eaten during school time, highlighting the importance of government school nutrition programmes (Story *et al*., 2008: Kubik *et al*., 2013; Moore, Tapper and Murphy, 2010; Moore, Murphy and Moore, 2011; Tørslev, Nørredam and Vitus, 2017). Gubbels (2020) identified food policies as one of the main predictors of healthy eating. Conflictingly, Haddad *et al*. (2018) identified a weak association between dietary changes and the implementation of healthy eating policies within schools. However, they recognised that their findings could be owing to the lack of examination of other aspects within

the school environment, particularly staff awareness of the school food policy or their knowledge of nutritional guidelines.

According to Moore, Murphy, and Moore (2011); Tørslev, Nørredam and Vitus, (2017), local and school-level policy should reflect national objectives to provide balanced school meals in line with nutritional guidelines and should be explicitly integrated into school education. Kupolati, Gericke and MacIntyre (2015) identified that even with the national curriculum in place, exploration into the effective delivery of nutritional messages by teachers and other staff needs to be established. Current government food and nutrition policies within English primary schools concern food standards, free school meals for those eligible and the teaching of food and nutrition within health education as part of the national curriculum (Ofsted, 2018). Government policy interventions have been linked to the long-term maintenance of their effects (Kupolati, Gericke and MacIntyre, 2015). Other studies have shown the effects to be short-term and only present when the full intervention is implemented (Gubbels, 2020;). Studies that examine the success of school food policies are often subject to bias due to the use of self-reported data (Story *et al*., 2008). For example, Kupolati, Gericke and MacIntyre (2015) recognised that using teachers who are employed by local authorities can lead to teachers holding back or not expressing candid views about policy within research. These conflicting findings suggest more independent research on children's eating would be beneficial.

2.2 Physical Environment Influences

The physical environment includes settings where food is consumed or cooked, such as the home and school environment (Story *et al*., 2008). Specifically, the strongest influential factors within the homing environment are the frequency of family meals and the availability of healthy foods (Haddad *et al*., 2018; Story *et al*., 2008). A healthier home has been found to have a stronger association with healthier eating behaviours and higher physical activity levels

than the influence of the school environment (Haddad *et al*., 2018). However, low participant response rates suggested generalisability of these findings is limited (Lie *et al*., 2019). On the other hand, technology within the home environment can influence children's eating behaviours through eating whilst watching television, which is associated with reduced consumption of fruits and vegetables and lower physical activity levels (Fiese and Jones, 2012; Story *et al*., 2008; Ragelienè and Grønhøj, 2020; Salvy *et al*., 2013). Although, these types of influences are arguably context and family specific (Gubbels, 2020; Fiese and Jones, 2012).

Additionally, within the physical influences, schools are emotional spaces subject to control and regulation that can influence the development of children's eating behaviours (Tørslev, Nørredam and Vitus, 2017; Pike 2010). Evidence suggests nutrition education is an important factor to promote healthy eating (Kupolati, Gericke and MacIntyre, 2015; Tørslev, Nørredam and Vitus, 2017). Tørslev, Nørredam and Vitus (2017), identified schools lack formal health education policies, but do include informal education on healthy food and proper eating. However, this study only includes results from one school which limits the findings' ability to be replicated (Mukherji and Albon, 2018). The school space is described by others as a resource constrained environment with limited time and resources for nutrition education (Kupolati, Gericke and MacIntyre, 2015). There is a particular interest in improving the physical setting of school lunches, with stress on allowing more time for eating and space (Kupolati, Gericke and MacIntyre, 2015; Tørslev, Nørredam and Vitus, 2017).

Within the school environment, nutritionally balanced meals are provided, though there is no guarantee that children will eat their food, thus providing an opportunity for lunchtime staff (LS) to modify children's eating behaviours (Moore, Tapper, and Murphy, 2010; Moore, Murphy and Moore, 2011). Verstraeten *et al*. (2014) acknowledged how school staff are aware

of their role in shaping children's eating behaviours. Despite the recognised role of LS influence on children's eating behaviours, researchers and government led programmes often make little reference to them or overlook them completely (Moore, Murphy, and Moore, 2011; Moore, Tapper and Murphy, 2010). According to Moore, Tapper, and Murphy (2010), the feeding strategies used by primary school LS include encouragement, praise and restriction, with encouragement and praise being advocated as good practice. However, it is important to note that these observations were carried out by one researcher so may be subject to observer bias. Despite purposeful modelling being a well-established strategy to influence children's eating behaviours, this method is commonly absent when observing LS feeding strategies (Kupolati, Gericke and MacIntyre, 2015; Moore, Tapper and Murphy, 2010; Moore, Murphy and Moore, 2011). Highlighting the need for further training to encourage meal staff to utilise appropriate feeding strategies (Moore, Tapper and Murphy, 2010).

2.3 Social Environment and Individual Influences

Other individuals who largely influence children's eating behaviours are found within the social environment. The social eating environment encompasses interactions with family, friends and peers through social norms or mechanisms such as role modelling (Story *et al*., 2008). Particularly, within the family parental knowledge of nutrition and physical activity guidelines had the strongest association with children's diet and physical activity levels (Haddad *et al*., 2018). The trustworthiness of these results is unclear, as a validated questionnaire was not used and the tools' psychometric properties were not tested, meaning the results could be unreliable (Sullivan, 2011). The literature identified common barriers to healthy eating within the home, such as time and convenience (Verstraeten *et al*., 2014). However, time constraints may only apply to working parents (Escoto *et al*., 2013; Pelletier and Laska, 2012). On the other hand, authoritative feeding strategies can be adopted by working and stay at home parents (Story *et al*., 2008). Linked to this style of parenting,

restrictive or overcontrolling feeding strategies have been associated with children developing fussy eating habits (Fiese, Blake and Jones, 2012). Modelling of parents' and siblings' diets is also common within the home environment (Story *et al*., 2008). Ultimately parental influence on children's eating behaviours goes beyond the home setting, with packed lunches being an extension of the home environment and parents considered key gatekeepers to children's eating at school (Verstraeten *et al*., 2014; Gubbels, 2020; Tørslev, Nørredam and Vitus, 2017).

The literature also indicated that friends/peers and individual factors have an influence on eating behaviours (Verstraeten *et al*., 2014; Tørslev, Nørredam and Vitus, 2017; Sharps and Robinson, 2017). For example, children are influenced by other children's vegetable consumption (Sharps and Robinson, 2017). Notably peer influence was considered the strongest determinant of disordered eating, with females found to have the highest prevalence of disordered eating behaviours such as binge eating, fasting and diet pills (Meyer and Gast, 2008; Ragelienė and Gønhøj, 2020). Whilst peer influence was highlighted as the most significant predictor of disordered eating, gender differences were acknowledged in the literature; for females, likeability was the main predictor whereas for males the development of disordered eating was seen mostly as a result of teasing (Meyer and Gast, 2008).

The empirical evidence shows individuals eating behaviours are influenced by identity, habit strength, taste preferences and eating norms (Verstraeten *et al*., 2014). With personal socioeconomic status, culture and religion often interact with these eating behaviours (Tørslev, Nørredam and Vitus, 2017). Similarly, children's eating behaviours are often tailored to their preferred social groups and school standards (Tørslev, Nørredam and Vitus, 2017; Verstraeten *et al*., 2014). Where this does not happen children can be extradited (Verstraeten *et al*., 2014). For example, in a small-scale observation study, ethnic minority pupils and students from low

socioeconomic backgrounds were often seen to be socially excluded from majority groups based on their eating behaviours (Tørslev, Nørredam and Vitus, 2017). Although the use of one case study site means the findings of this study cannot be generalised to the wider population (Mukherji and Albon, 2018). There is therefore a pressure for children to conform to socially acceptable eating behaviours and not stand out as different, owing to social desirability/likeability and the threat of peer pressure or risk of exclusion (Tørslev, Nørredam and Vitus, 2017; Verstraeten *et al*., 2014; Meyer and Gast, 2008).

2.4 Summary, Rationale and Research Aim/Questions

Literature Review Summary

This literature review aimed to explore existing evidence on the complex development of children's eating behaviours, through conceptualising the varying levels of environmental and individual interactions. A reoccurring theme within the literature was the influence of the school environment and the staff and peers' impacts on children's eating behaviours and habits. A gap within the literature was identified in relation to primary school LS influence on children's eating behaviours, which researchers and school agendas often make little reference to (Moore, Murphy and Moore, 2011; Moore, Tapper and Murphy, 2010). Thus, emphasising the importance of future research on the relationship between LS and primary school children's eating habits (Haddad *et al*., 2018).

Rationale

To date researchers and policy stakeholders have explored an abundance of interventions to improve childhood nutrition (Scaglioni *et al*., 2018; Matwiejczyk *et al*., 2018). After Covid-19 lockdowns new evidence emerged around the stark differences in children's eating behaviours and habits, suggesting Covid-19 has exacerbated nutritional issues in childhood (Zemrani *et*

al., 2021; Osendarp *et al*., 2021). Despite these findings there is still a lack of understanding around the development of children's eating habits. Therefore, new approaches need to be adopted to develop knowledge around children's eating. With children spending a significant portion of their lives in school, the school environment could be an ideal location for further research from the perspectives of those who supervise children's eating. As previous policies have often overlooked the role LS and their valuable insight into children's eating behaviours (Moore, Murphy and Moore, 2011; Moore, Tapper and Murphy, 2010), there is a clear need for more empirical research around LS perspectives on the influences of children's eating behaviours.

Research Aim

This research study aimed to establish a deeper understanding of the development of primary school children's eating habits and behaviours from lunchtime staffs' perspectives.

Research Questions

What influences primary school children's eating behaviours and habits?

What are lunchtime staffs' perspectives on children's eating behaviours and habits?

3. Methodology

3.1 Research Approach

A qualitative research approach was selected for this study in order to collect symbolic social research, enabling the researcher to gain a unique insight into LS perspectives of how the lunchtime environment impacts primary school children's eating behaviours and habits (Austin and Sutton, 2014; Aspers and Corte, 2019; Allen, 2022). A qualitative paradigm was chosen to generate deeper and more meaningful data (Lester, Cho and Lochmiller, 2020), as opposed to a quantitative paradigm, which would have produced numerical data, limiting the depth of knowledge produced and inadequately reporting individuals' experiences (Richard, 2013; Lucas, 2014). Whilst quantitative data is generalisable, this study does not require generalisability as it intends to be exploratory, generating a wider understanding of children's behavioural motives and the development of habits, overall interpreting how real-world experiences subjectively affect individuals (Waite, 2011).

Specifically, this study aligns with a constructivist paradigm which adapts an interpretivism theoretical perspective, developing participant guided research in which reality needs to be interpreted (Lauckner, Paterson and Krupa, 2012; Lauridsen and Higginbottom, 2014). As this is an under-researched area, a qualitative design provides scope for further research due to its flexibility making it easily adaptable (Britten, 2011; Malagon-Maldonado, 2014). Qualitative methods have however been criticised for untrustworthiness and researcher bias (Morse, 2015; Cypress, 2017; Yilmaz, 2013; Gunawan, 2015; Smith and McGannon, 2017). Although a reflexivity approach can overcome these common criticisms (Haynes, 2012; Dodgson, 2019; Reid *et al*., 2018) and whilst the researcher has nutritional knowledge, the field of lunchtimes within primary schools and children's eating is novel to them, thus reducing researcher bias through the selection of an unfamiliar setting (Pannucci and Wilkins, 2010). Qualitative

research also has significantly smaller sample sizes than quantitative due to the timely data collection and analysis process (Boddy, 2016; Robinson, 2013; Marshall *et al*., 2015). Conversely, qualitative data is often richer, providing an adequate volume of data despite the relatively small sample sizes (Vasileiou *et al*., 2018; Roy *et al*., 2015). By acknowledging qualitative data's limitations and putting precautionary measures in place, qualitative research was deemed the most fitting research design for this study.

3.2 Ethical Consideration

Ethical approval was granted for this study by the Undergraduate Faculty of Health, Social Care & Medicine Research Ethics SubCommittee. Audio and video consent was obtained at the beginning of each interview from participants. Participants were also informed they could change their minds about taking part in the research at any point during the interview and up to 7 days after the interview at which point the interviews were transcribed and made anonymous. As the interview recordings make participants identifiable, they were stored on the university OneDrive which is password protected and only the researcher and the researcher's supervisor had access to this. Full confidentiality was maintained during the study by protecting participants' identities and replacing names with participant numbers. Although the risk of harm to the researcher and participants was low for this study, a distress protocol was designed to put additional measures in place to protect both the researcher and participants.

3.3 Sampling and Recruitment

Choosing the best sampling strategy for a study is essential to capture the research aim and accurately reflect the population that is being researched (Martínez-Mesa *et al*., 2016). Therefore, to ensure participants had specialised knowledge and experience of primary school lunchtimes, a non-probability convenience sampling strategy was used (Etikan, Musa and Alkassim, 2016; Campbell *et al*., 2020). For the research, a case study school site was selected

based on convenience and an initial email was sent to the school office addressed to the headteacher to gain gatekeeper consent. Information about the study was provided in the form of a poster to recruit eligible members of staff, who then contacted the researcher via email. The inclusion criteria for participation in this study were those aged 18 years and over who had experience assisting during lunchtimes within a primary school. Participants were also required to have access to a technological device that had access to the internet. The exclusion criteria for the study were anyone under the age of 18 years old, those with no experience and those without access to a device with internet.

Once participants had expressed an interest in the study the participant information sheet (PIS) was provided and if the participant still wanted to take part, a convenient time was arranged for the interview. Participants were signposted to mental health and wellbeing services via the participant information sheet if they experienced any distress caused by the study. Participants were also made aware they could contact the researcher with any questions or worries throughout the research. This purposive type of sampling allowed the researcher to make justified theoretical, analytic and logical generalisations (Sharma, 2017; Rai and Thapa, 2015; Mujere, 2016), owing to the specificity of the participant sample which facilitated depth and specificity within the data (Vasileiou *et al*., 2018; Roy *et al*., 2015). Whilst some authors argue that convenience sampling can produce researcher bias when researchers make ill-conceived judgements (Rai and Thapa, 2015; Etikan, Musa and Alkassim, 2016; Mujere, 2016), choosing a topic and setting which was unfamiliar to the researcher helped to limit this bias and supported the true voice of the participant to come through during the interviews (Pannucci and Wilkins, 2010).

Interviews are beneficial to build rapport between the interviewer and respondent, which motivates respondents to provide in-depth honest accounts of their experiences (McGrath, Palmgren and Liljedahl, 2018; Dempsey *et al*., 2016). However, interviews are also commonly criticised for being susceptible to bias as participants may attempt to ingratiate themselves to the researcher (McCreesh *et al*., 2012; Althubaiti, 2016; Szolnoki and Hoffmann, 2013). To combat this issue, within this study, the researcher designed semi-structured open-ended questions with scope for probing questions to seek further clarification, thus providing the opportunity to explore issues that arose naturally (Doody and Noonan, 2013; Harrell and Bradley, 2009; Cachi and Millward, 2011). Caution was applied here, as novice researchers can have difficulty when probing participants' responses efficiently. Therefore, the researcher had to identify the appropriate time during the interview to probe for further investigation, ensuring they did not interrupt the flow of the participant's response (Doody and Noonan, 2013; Turner, 2010; DeJonckheere and Vaughn, 2019).

3.4 Data Collection

As stated above data for this study was collected through semi-structured interviews, which can be time-consuming and costly to arrange and conduct the interviews (Jowett, Peel and Shaw, 2011). To reduce these limitations, the interviews took place online via Microsoft Teams and lasted approximately 20 minutes. The online nature of Microsoft Teams made scheduling interviews easier and generated an audio and video recording of the meeting to capture verbal and non-verbal cues, as well as producing live transcriptions which saved time when transcribing.

Before the interviews, participants were sent the participant information sheet and consulted on convenient times for interviews. Once the time and date was agreed, an online invitation containing the meeting access link was sent. Before commencing each interview, the researcher

checked the audio quality and internet strength to avoid communication difficulties. Consent was sought prior to commencing the interviews, by obtaining verbal consent to interview and record the interview via Microsoft Teams. With permission from the participant, audio and video recording was then started. The interviews were guided by the interview schedule and the recordings were automatically generated and in a university OneDrive file.

3.5 Data Analysis

To support the depth of case-oriented analysis within qualitative research (Dierckx de Casterlé, 2021; Vasileiou *et al*., 2018), thematic analysis was used. Thematic analysis allows the researcher to identify, analyse and report patterns found in qualitative data, which can then be interpreted to construct themes (Castleberry and Nolen, 2018; Braun and Clarke, 2021; Xu and Zammit, 2020; Scharp and Sanders, 2019). A deductive approach was decided upon based on the researcher's pre-existing knowledge and an idea of the kind of themes that would arise (Nowell *et al*., 2017). Additionally, a latent approach was chosen to develop a deeper understanding of what the participant's statements revealed about their assumptions and the social context (Kiger and Varpio, 2020; Clarke, Braun and Hayfield, 2015).

Thematic analysis is flexible to many epistemological directions and many study designs and questions (Kiger and Varpio, 2020; Braun and Clarke, 2021; Noswell *et al*., 2017). Arguably, this flexible nature contributes to perceptions of this method lacking rigour (Kiger and Varpio, 2020). Through following Braun and Clarke's (2006) six-stage framework the research increased the rigour of the study through the application of an evidence informed tool (Nowell *et al*., 2017). First, the researcher became familiar with the data by transcribing the audio and reading the text. Then the data was coded by highlighting phrases or sentences and coding them based on their content. Some of the codes were discarded as they were not relevant enough and the remaining codes were then combined to create broader themes which were then reviewed

to ensure they were useful and an accurate representation of the data. The themes were then named and defined and finally an informative report was produced.

4. Results

Through the use of thematic analysis and a deductive approach (Braun and Clark, 2012), a combination of pre-existing knowledge and the data, determined three main themes: Nutritional Knowledge, Influences and Feeding Strategies. Subthemes derived through reviewing the data and organising the themes into relatable categories. Some of the subthemes identified were in vivo meaning they were derived through the actual words of the participants (Manning, 2017) such as rewards and encouragement. Figure 1 presents the themes and subthemes.

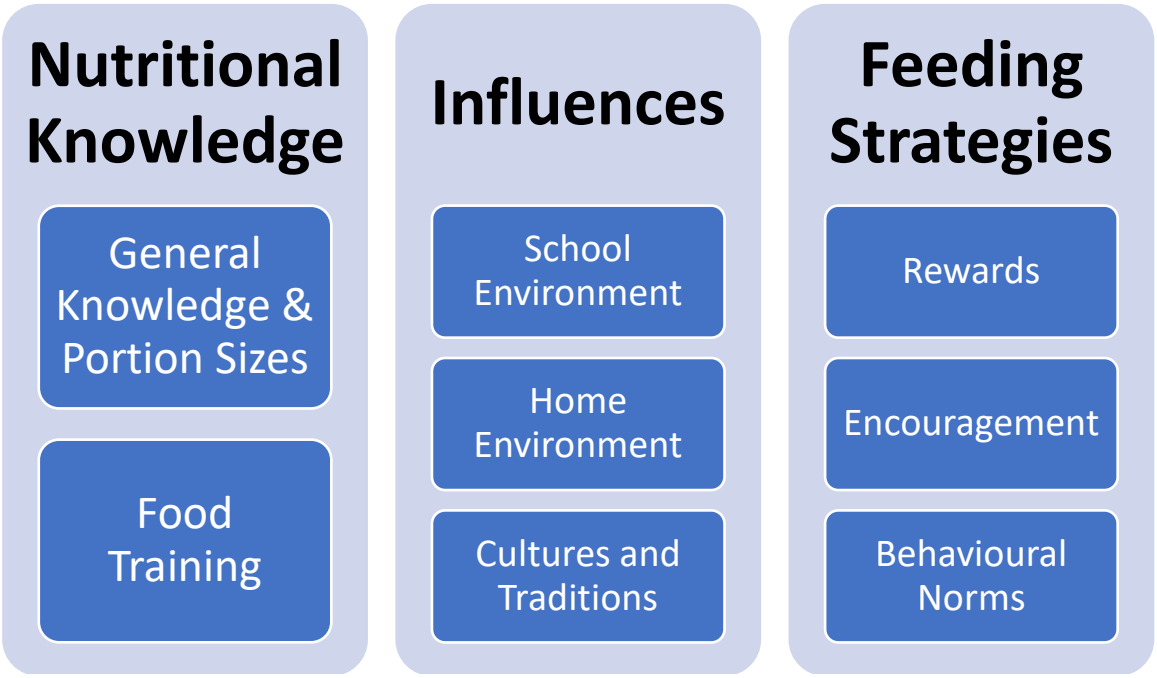

Figure 1- Themes and subthemes

4.1 Nutritional Knowledge

The data in this theme emerged in relation to research question one, two and three.

4.1.a General Knowledge and Portion Sizes

3 out of 4 of the participants described their nutritional knowledge as basic or average.

> *"Erm, I mean, I'd say it's probably quite basic"- P4*

None of the participants could recall any specific knowledge of children's portion sizes.

> *"Umm, I wouldn't say I wouldn't be able to give you sort of like accurate Measurements and things like that."- P3*

These findings suggests that LS nutritional knowledge was limited, with vague accounts of nutritional awareness and no official knowledge of portion sizes.

4.1.b Food Training

2 out of the 4 participants had completed food hygiene courses.

> *"I have done the food hygiene course and we seemed to do that every three years [in pervious early years setting]."-P2*

However, both participants completed food hygiene courses in previous employments not within the primary school setting.

> *"The training courses I had been on were whilst working within the nursery and link club."-P3*

The other 2 participants had not completed any food training courses.

> *"Erm I wouldn't say specific training."-P4*

This highlights that schools are not providing food training to staff that supervise within the school feeding environment.

However, one of the participants highlighted how their role perhaps does not require training.

> *"Cause basically we're just there to make sure the kids are eating really. Yeah, we don't know much."- P1*

Another participant expressed a desire to engage with more training courses but recognised the barriers to these within the schooling system.

> *"During the time I probably would have liked to have done a healthy eating course. But obviously with cutbacks, I'm not sure much is on offer anymore."- P2*

This suggests that LS could be willing to learn more about children's eating.

4.2 Influences

Peers were most commonly identified as the main influence on children's eating along with other factors of the school environment, home environment and cultures and traditions.

4.2.a School Environment

Subtheme 2 emerged as the school environment and the influences within it were identified as the most common influencing factor on children's eating.

All of the participant's suggested peers were a strong influence on children's eating behaviours.

> *"I probably say the friends, to be honest. I mean, just because I think children seem to follow what friends do maybe even more so than parents."- P2*

These findings show a strong relationship between peer influences and children's eating behaviours.

Two of the participants mentioned how LS can also be an influence on children's eating behaviours.

> *"And even the staff as well…I say 'oh, I could just eat that myself 'cause, I am starving'… you have to make a joke with everything to try and encourage them."- P1*

The findings suggest that the majority of the participants felt other individuals can potentially influence children's eating habits.

Two participants also suggested that the school schedule can influence children's eating within the school.

> *"Obviously we also have time constraints where we can't just let them sit and eat for like hours on end… So we do sometimes have to like hurry them along and get them to wrap things up a little bit."- P4*

Both participants indicated that time was a constraining factor on children's eating within the school.

4.2.b Home Environment

Many of the participants identified parents as key influences on children's diets.

> *"Gotta be parents. It's got to come from what they're seeing and how their eating habits are seen at home and things definitely."- P3*

Participants also identified how parents can have a physical influence on children's eating behaviours and habits through providing packed lunches and breakfast.

> *"But some pack lunches can be overpowering as well 'cause some parents can make like, I call is like a teddy bear picnic. You know, they have all sorts chocolate, sweets and all that."- P1*

> *"Erm whether they've had breakfast or not."- P4*

These results indicate parents can have direct and indirect influences on children's eating.

4.2.c Cultures and Traditions

The majority of the participants recognised how traditional British foods were more readily received by the children, possibly owing to familiarity.

> *"On a Friday, for example, in our school, it's chip day. The kids love it they have like fish and chips or like a chicken burger and chips."- P4*

These predominantly British traditions provided a positive influence on children's eating, potentially through familiarity.

One participant discussed how other cultures should also be embraced to positively influence the development of children's eating behaviours.

> *"And staff should have a cultural awareness so if there's different things going on like festivals, they can taste things like on Chinese New Year or birthdays."- P3*

However, one participant demonstrated how unfamiliar foods can negatively affect children's eating.

> *"And I saw on pack lunches, 'cause, we've got a few children from Hong Kong and obviously they come in [with] homemade food and sometimes the looks of it or the smell of it, you know, some children find their food off putting."- P1*

Both participants suggest how behaviour could be altered through exposure to new experiences and traditions.

4.3 Feeding Strategies

All the participants recognised how adapting different feeding strategies can influence children's eating behaviours. Feeding strategies can be defined as…

The main feeding strategies identified were rewards such as stickers or awards, encouragement and use of behavioural norms.

4.3.a Rewards

3 out of 4 of the participants used stickers or other awards as a way to get children to eat their food.

> *"If you finish that then I can give them a reward… You can get a sticker because I have got the Mrs *name of participant* award… and we have also this star of the week thing as well you know if they've been well behaved, and they have eaten their lunch every day."- P1*

These findings highlighted how rewards could be utilised to encourage children to eat.

3 participants used games as a method to get children to try new foods.

> *"You can turn things into a bit of a game where you can have, like, a blindfold test and taste things."- P3*

Here play is identified as a way to encourage certain eating behaviours.

One participant used praise as a feeding strategy.

> *"I think one that works, you know… if one child sees, sees another one getting sorta praise… it can sort of be like, 'well I'm doing it as well, I'm eating it, I'm eating it!'."- P3*

All participants mentioned positive behaviour reward strategies. However, one participant suggested they would result to using pressure to encourage a child to eat if they had to, showing more punitive methods.

> *"Cause, I would not let them leave to play. I would not let them leave if they've not eaten at all... you sometimes you have to push, you have to force them to eat."- P1*

Additionally, another participant would sometimes use deception to get children to eat.

> *"Maybe try and hide the food that they don't want erm and… don't tell them what actually it is."- P2*

Thus, showing pressure and deception are also used as strategies to encourage specific eating behaviours.

4.3.b Encouragement

All 4 of the participants aimed to make food more manageable for children who were struggling to finish their food. Using methods such as separating the food into smaller portions and bargaining with the children.

> *"I tend to encourage them to eat a little bit so sometimes I half the food and erm and I say to them well you eat that bit and then you can leave that bit and then you can eat your pudding."- P1*

The data here reveals negotiation strategies to encourage children to eat a certain way.

Two of the participants used health incentives to encourage children to eat.

> *"But I tend to say to them, you know, carrots… helps you see better and your vegetables…[provide] the vitamins your body needs… it gives you vitamin C… like little soldiers in your body that goes fighting all the baddies."- P1*

Participants shared their knowledge with children to encourage them to eat their food.

4.3.c Behavioural Norms

Most of the participants suggested they used food order norms with both packed lunches and school meals to influence children's eating.

> *"You know, kids will tend to go to for the goodies first like the sweets, you know? So I tend to say no, eat you [your] meat, eat your your sandwich first and then you have that."- P1*

Staff determined eating orders and acceptable eating quantities.

> *"And then usually if they've not eaten very well to try and fill them all, we'll give them a piece of fruit and then we'd give them the pudding."- P2*

According to the data, pudding was still given even when all of the main meal was not consumed.

Two of the participants expressed the importance of table etiquette in the development of children's eating behaviours.

> *"We like set places out for them, so put cutlery out and stuff like that…Mealtimes in school are really important to sit down and have a chat with them... And you often find over food children speak… Erm we send them to wash their hands. Just little things, little routines."- P4*

These findings show a social side to children's eating behaviours, reinforcing expected social behaviour related to food.

5. Discussion

The findings from this study provide a significant insight into the relationship between the home and school environment and children's eating behaviours and habits (Haddad *et al*., 2018; Kubik *et al*., 2013; Gubbels, 2020). The data from this study suggests overall that the schooling environment has a considerable impact on the development of children's eating behaviours and habits, primarily through the impact of other peers eating and the influence of the LS in relation to their knowledge and the feeding strategies they implement. Cognisant with findings from the literature (Moore, Tapper and Murphy, 2010), the use of rewards, encouragement and behavioural norms were identified as key feeding strategies and a new strategy of table etiquette was acknowledged. Additionally, the study further confirmed the preestablished relationship between the home environments influence on children's eating behaviour, particularly parental input even when the child is at school (Verstraeten *et al*., 2014; Gubbels, 2020; Tørslev, Nørredam and Vitus, 2017). These findings further contribute to the current research about the school food environment and its links to children's eating (Farmer *et al*., 2017; Brazendale *et al*., 2017). Furthermore, this study has provided a unique insight from LS perspective, offering evidence to support their contribution in the development of children's eating behaviours and habits.

Staff had some awareness to an extent in relation to healthy eating but lacked nutritional knowledge in some contexts. This is in agreement with the findings of Kupolati, Gericke and MacIntyre (2015). Although there is currently no evidence to confirm the relationship between LS nutritional education and improved eating behaviours in children, previous studies using teachers as the participants have indicated a relationship between an increased level of nutritional education and children having healthier eating habits (Tørslev, Nørredam and Vitus, 2017; Elmas and Arslan, 2020). Healthy eating and nutritional education are areas that could

be informed by many stakeholders within the school, not just teachers (Moore, Tapper and Murphy, 2010; Moore, Murphy and Moore, 2011). Although, if LS are going to be utilised as nutrition educators and role models within the school food environment, then their nutritional knowledge needs improving, as the results of this study highlighted LS currently have basic nutritional knowledge. Subjectively, nutrition experts may be against the idea of adding more nutritional advice stakeholders, due to the amount of unregulated dietary advice already out there (Vijaykumar, McNeill and Simpson, 2021).

In addition to nutritional knowledge, this research shows participants had not received any food training whilst working as LS within primary schools. Currently there are no requirements for nutritional or food training to work with in a primary school unless you work within the kitchen (Hart, 2016). Whilst it is a requirement for staff in other settings (early years) to have food hygiene training when being inspected by governing bodies such as Ofsted (Food Standards Agency, 2020). However, more training would be required if LS were to adapt a more educational role within the school food environment, to ensure a consistent and well-informed healthy eating message is delivered to all children (Moore, Tapper and Murphy, 2010; Vijaykumar, McNeill and Simpson, 2021). Although, participant 2 emphasised the limited availability and resources for training courses, resonating with Kupolati, Gericke and MacIntyre (2015) who described the school setting as a resource constrained environment. Suggesting the cost of training may not be feasible given tight budgets and recent cutbacks (Ladapo *et al*., 2015). Additionally, as highlighted by P1, LS current role is limited to supervising the children at lunchtime, suggesting some staff may be reluctant to undergo further training and take on more responsibility as an educator, without this becoming a compulsory part of the role.

The participants described how the school setting can be a structured and highly regimented space, with time restrictions that can affect children's eating and their ability to finish their meals. Congruently, within the literature the school environment is recognised as a time constrained environment and references to improving the physical setting are made to allow more time for children to eat their lunch (Kupolati, Gericke and MacIntyre, 2015; Tørslev, Nørredam and Vitus, 2017). Allowing children to have more time at lunch could promote healthier eating habits, reduce food waste and help pupils achieve recommended levels of physical activity (Cohen *et al*., 2021). Additionally, extended lunches would provide children with more time to eat, allowing them to eat slower and more mindfully, listening to their satiety cues (Nelson, 2017; Cohen *et al*., 2021). Previous research has documented healthier eating in schools with longer lunches (Cohen *et al*., 2016). However, this study was conducted within a small school district in America indicating the results may not be transferable to other schools (Finfgeld-Connett, 2010). Furthermore, the importance of the school environment was further established by the LS who expressed the importance of routines and table etiquette in the development of children's eating behaviours. Research shows the significance of sitting at a table while eating, through improving social relations, exposure to societal norms and improving table etiquette (Dunbar, 2017). Moreover, table etiquette and meal consumption habits can reveal disordered eating in children (Elran-Barak *et al*., 2014). Thus, stressing the importance of seated meals within primary schools to develop positive social eating behaviours.

In accordance with the findings from the literature review (Sharps and Robinson, 2017; Ragelienė and Gønhøj, 2020), many of the staff believed peer influence had the strongest effect on children's eating behaviours. Thus, demonstrating a shifting view from that of the home environment having the strongest association with the development of children's eating

behaviours (Scaglioni *et al*., 2018; Kininmonth *et al*., 2021) to the school environment having a stronger influence in the majority of the participants opinions. Although, participants did recognise parents strong influence on children's diets within the school environment, considering parents as gatekeepers to children's eating behaviours at school regarding the content of their packed lunches and the child's previous exposure to unfamiliar foods (Verstraeten *et al*., 2014; Gubbels, 2020; Tørslev, Nørredam and Vitus, 2017). Therefore, demonstrating parental partnership in the development of children's healthy eating habits, is still important.

This study has provided further evidence for the presence of socially acceptable and unacceptable eating behaviours within the school food environment. With the literature further highlighting the social and cultural hierarchy enforced by peers within the school food environment in relation to eating socially acceptable foods or face extradition (Verstraeten *et al*., 2014; Tørslev, Nørredam and Vitus, 2017). The results of this study indicated that familiar British foods were well received by the children, but peers made comments on the smell of unfamiliar foods commonly consumed by ethnic minorities. Ethnic minorities may feel peer pressured into moving away from their traditional diets to conform with British norms, owing to social desirability (Tørslev, Nørredam and Vitus, 2017). Although further studies are required to establish this relationship from the child's perspective. The westernisation of ethnic minorities diets, particularly Asian groups, is detrimental to their health due to their increased risk of type 2 diabetes (Gujral *et al*., 2013). Through staff increasing cultural awareness, as suggested by P3, peers can learn to embrace other cultures diets in order to improve and/or maintain their own diets and the diets of others for better health outcomes.

Similar to the findings from the literature review (Moore, Murphy and Moore, 2011; Moore, Tapper and Murphy, 2010; Verstraeten *et al*., 2014), staff were identified as key influences on children's eating in this study. Children often see school staff as significant role models and advocates of health eating behaviours (Kupolati, Gericke and MacIntyre, 2015; Moore, Tapper and Murphy, 2010). The results from this study indicated that staff were keen to control the order children ate their food in, the food quantities and deciding what they deemed appropriate for children to eat or leave. Alarmingly, LS were aware of their limited nutritional knowledge suggesting this area of their role is unclear territory, as they may not have the nutritional knowledge to assist in the making of these decisions as their competence in managing children's eating behaviours are unknown. Even though LS implied their nutritional knowledge was basic in this study, LS later revealed they use health incentives to encourage children to eat (Just and Price, 2013) The use of health incentives suggests LS may have more nutritional knowledge than they originally disclosed. Alternatively, LS could be providing children with incorrect knowledge to encourage them to eat which could misinform them, further influencing bad eating behaviours.

All of the LS believed they encouraged children to make healthier choices in this study, similarly to Moore, Tapper and Murphy (2010) findings. However, more research is required to determine what exactly 'healthier choices' are to LS. The results demonstrated that a common way the participants encouraged children to eat was through bargaining techniques, with LS often using dessert as an incentive to encourage children to eat their main meal. This can lead to an increased dislike of the food that a reward scenario was used for, having negative outcomes on children's eating behaviours (Moore, Tapper and Murphy, 2010). Additionally, rewards were given to children if they finished everything on their plate. Rewarding children can be a useful encouraging feeding strategy (Moore, Murphy and Moore, 2011; Moore,

Tapper and Murphy, 2010). Conversely, rewarding food behaviours with food can lead to the development of unhealthy eating habits (Jansen *et al*., 2020). Also, the use of incentives to encourage children to finish everything on their plate could affect children's ability to recognise when they are full, leading to overeating and further contributing to the increase in childhood obesity (Dev *et al*., 2016). This additionally highlights LS lack specific knowledge of children's portion sizes, therefore reinforcing the need for more training.

6. Conclusion

This research established a deeper insight into the role of lunchtime staff in relation to their nutritional knowledge and opinions on the influences and development of children's eating behaviours and habits. Although lunchtime staffs' nutritional knowledge and level of food training was concluded to be low based on the results from this study, their position within the school food environment provides them with extensive awareness of the school-based influences on children's eating. The participants provided their valuable perceptions of peer influence, staff influence and even parental influence on children's eating habits within the school. The participants suggested peer influence was the most influential within the school food environment, particularly in relation to social norms and the pressure to fit in.

Additionally, lunchtime staffs' ability to influence children's eating was identified and their power to counteract possible negative influences on the development of children's eating behaviours was recognised. Although lunchtime staff have good intentions in regard to improving children's eating, staff are possibly unintentionally contributing to the development of poor eating behaviours in children. Through nutritional education and food training, lunchtime staffs' roles could be transformed into a role supported by deeper nutritional knowledge, possibly taking on more of an educator's role within the school food environment. By transforming the role of lunchtime staff, there is potential for better informed feeding strategies to be adopted by staff, for example through modelling desirable eating behaviours to encourage children to pick up similar habits, improving children's eating behaviours. Furthermore, the influences of other factors within the school environment such as peers could be manipulated by lunchtime staff to have better effects on children's healthy eating habits. This could be achieved through educating children on making healthier food choices and through embracing other cultures traditions and eating norms.

This study unveiled the fundamental role lunchtime staff have in primary school children's eating behaviours. Suggesting that with further research, future school-based nutrition policies and interventions should prioritise lunchtime staff as gatekeepers into the development of children's eating behaviours and habits. Training and nutritional education for lunchtime staff should be prioritised within school budgets, to ensure the nutritional advice they often unknowingly provide to children, is in line with up-to-date food standards and age-appropriate dietary recommendations. Providing further training for lunchtime staff could help staff to identify disordered eating habits and other harmful eating behaviours within the school.

7. Limitations and Recommendations

A number of limitations are associated with this study, the main limitations being the use of a limited sample both geographically and in relation to its size, possibly implicating the studies ability to be transferrable to other areas of the country and other school settings (Finfgeld-Connett, 2010; Cambon *et al*., 2012). Although, in this instance a smaller sample size supported a deeper researcher-participant relationship, offering richer data (Vasileiou *et al*., 2018; Roy *et al*., 2015). Still, a larger more geographically diverse study with more participants would be beneficial to increase the findings validity and transferability (Waite, 2011; Cambon *et al*., 2012). Additionally, there was no male representation within this study as only female participants took part. Although, this reflects the almost exclusively female composition of the lunchtime staff workforce (Pike, 2010).

The following recommendations were not feasible for this research project due to the researcher being at undergraduate level and time constraints. To strengthen this area of research, it would first be beneficial to adapt this study to a larger more geographically diverse sample to increase the studies transferability and validity (Finfgeld-Connett, 2010; Cambon *et al*., 2012). It could be particularly advantageous to conduct further research in other educational settings, such as secondary schools and specialist schools to establish if there are differences in the influences on those pupils' eating behaviours. Additionally, the LS and pupil relationship should also be investigated from the child's perspective as they are the experts in their own lives (Mason and Danby, 2011). Furthermore, it is recommended to further establish the potential relationship and crucial role LS could play within childhood nutrition research, education and policy, possibly leading to further regulations on LS training and nutritional knowledge.

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