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Childcare providers' perceptions of food and mealtimes: A qualitative approach

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Abstract

This thesis research sought to explore childcare providers' perceptions of nutrition in childcare settings. Drawing upon a social ecological understanding of behaviour, semi-structured interviews were conducted with 13 providers. Written in a two article format, the first article details factors providers perceived as influencing their decisions regarding food and mealtimes for childcare settings; the second article focuses on strategies providers perceived to encourage healthy eating and their reasons for use of these strategies. Providers described being influenced by a range of factors, not receiving pertinent support for assisting healthy nutritional development in childcare settings, and being focused on short-term objectives rather than long-term healthy nutritional development. These results encourage further research into understanding the interconnections between the different influences and developing nutritional materials better suited to providers' needs. Gaining an increased understanding of factors influencing childcare providers' decisions regarding nutrition is vital to encouraging healthy nutritional behaviour development in children.

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Introduction

Raising children who live healthy, fulfilling lives has always been an important task for Canadian parents and communities (Government of Canada, 2001). Despite this commendable intention, Canada has one of the highest rates of childhood obesity in the developed world, with obesity being identified in children as young as 2-years-old (Canadian Council of Food and Nutrition, 2008). According to recent statistics, 18% of Canadian children and youth between the ages of 2 and 17 years satisfy the criteria for being clinically overweight, with an additional 8% classified as obese (Canadian Council of Food and Nutrition). In contrast, in 1978, only 12% percent of Canadian children were classified as overweight and only 3% as obese. Should current trends continue, by 2010, almost half of all school-aged children will be overweight or obese (Canadian Council of Food and Nutrition). Unfortunately, the chances are unlikely that these children will simply outgrow their childhood obesity-weight status and become healthy-weight adults, as research has shown that there is a definite link between childhood and adulthood obesity, with peak fatness in early childhood identified as a key factor in adult obesity (Wells & Ritz, 2001). Children who become obese before the age of six years are more likely to stay obese throughout childhood and have a 50% risk of remaining obese as adults (Canadian Council of Food and Nutrition; Center for Health Improvement, 2005). Furthermore, a multitude of studies has shown that there are numerous negative consequences of childhood and adulthood obesity, which encompass a range of physical, psychological, and social health issues: high cholesterol, hypertension, stroke, gallbladder disease, sleep apnea, and certain cancers, as well as low self-esteem, bullying, and self-blame (Canadian Institute for Health

Information, 2004; Public Health Agency of Canada, 2007; Ontario Ministry of Health, 2004).

The origins of childhood obesity stem from an indeterminate combination of genetic and environmental factors (Lytle, 2005; Stunkard, Berkowitz, & Stallings, 1999; Wells & Ritz, 2001), with one such major contributing factor being the child's "nutritional behaviours," the term used in this thesis to describe behaviour related to food and eating, such as food preferences, food choices, and mealtime behaviours (Brown & Ogden, 2004; Schwarz & Puhl, 2003; Wells & Ritz). While research has found a genetic component involved in childhood obesity, the increase in Canada's childhood obesity rate over the past 30 years –more than doubling amongst girls and boys–cannot be explained solely by genetic factors (Thomas, 2006). This increasing trend has been attributed to environmental and behavioural changes, and, as such, these are the areas that need to be addressed in childhood obesity interventions (Thomas, 2006). In particular, poor nutritional behaviours in childhood have been found to contribute to chronic health problems in adulthood (Joint Steering Committee, 1996). The Healthy Weights for Healthy Kids report (House of Commons, 2007) revealed that almost 60 % of Canadian children aged 2-17 years consumed fewer fruits and vegetables than recommended by *Canada's Food Guide* (Health Canada, 2009). In addition to low fruit and vegetable consumption, Canadian children have diets high in candy, chocolate bars, and soft drinks (Taylor, Evers, & McKenna, 2005). Such nutritional behaviours are matters of much concern, as healthy eating has been linked not only with healthy weight status, but also with improved cognitive function, physical performance levels, and psychosocial health (O'Dea, 2003). Notably, research has revealed that children who met *Canada's Food Guide* (Health Canada, 2009) recommendations for fruit and

vegetable had only a 6% obesity rate, which is well below the national average of 26% (House of Commons). Yet, in spite of the many benefits of healthy nutritional behaviours, the subject of why some children engage in healthy nutritional behaviours while others do not remains insufficiently researched, especially in Canada (Paquette, 2005; Taylor et al., 2005).

Researchers have emphasized the importance that social factors play in the development and maintenance of children's nutritional behaviours. To develop behaviours that will be internalized and maintained throughout children's lives, attitudes and habits must be established during early childhood (Veuglers & Fitzgerald, 2005; Wardle, Guthrie, Sanderson, Birch, & Plomin, 2001; Wells & Ritz, 2001). Evidence has shown that both family-level factors, as children model the nutritional attitudes and behaviours of their parents (Faith, 2005; Brown & Ogden, 2004; Schwartz & Puhl, 2003; Birch, 1998), and broader, community and societal-level factors, such as access to healthy and affordable foods, have large impacts on childhood dietary habits (Mikkelsen & Chehimi, 2007; Morris, Neustadler, & Zidenberg-Cherr, 2004). Still, the majority of childhood dietary research consists of either elementary and middle school-based interventions (Story, Kaphingst, & French, 2006; Thomas, 2006; Tuuri et al., 2009; Whitaker, Wright, Pepe, Seidel & Diaz, 1997) or focused on the perspective of the parent (Benton, 2003; Brown & Ogden, 2004; Evers, Arnold, Hamilton, & Midgett, 2007), which neglects the importance in understanding how early childhood social influences impact children's development. Researching the impact of social influences, other than parents, in the lives of young children has been recommended by several researchers studying the development of healthy dietary behaviours in children (Lumeng, Kaplan-Sanoff, Shuman, & Kannm, 2008; Moore, Nelson,

Marshall, Cooper, Zambas, Brewster, & Atkin, 2005; Needham, Dwyer, Randall-Simpson, & Heeney, 2007; Story, Neumark-Sztainer, & French 2002), with recommendations to use a qualitative research perspective to develop a more in-depth understanding of people's behaviours (Matheson, Spranger, & Saxe, 2002; Taylor et al., 2005). Considering that the most recent statistics show that more than half of Canadian children between the ages of 6 months to 5 years spend a considerable amount of time in childcare (Statistics Canada, 2005), developing a better understanding of food and mealtimes in the childcare setting is crucial for learning more about the complexity of factors that influence children's nutritional behaviours (Taylor et al.).

Literature Review

This literature review will provide an overview of the support for the need to address nutrition in childcare settings by presenting an examination of the following areas: 1) school-based nutritional interventions and the reasons why these interventions are not the most ideal for promoting long-term nutritional behaviour changes; 2) the need for interventions that begin in early childhood; 3) the influence of the social environment on nutritional behaviour development in children; 4) factors involved in teaching and promoting healthy nutritional behaviours; 5) research involving childcare providers, and 6) the importance of qualitative research

School-Based Nutrition Programs

A multitude of studies and statistics demonstrate the consequences of childhood and adulthood obesity (Public Health Agency of Canada, 2007). Such research has sparked nutritional interventions in elementary schools; yet, evaluations of school-based interventions have shown that their effectiveness is minimal in terms of fostering long-

lasting nutritional improvements in children (Jaime & Lock, 2009; Thomas, 2006).

Explanations for why these programs are not successful range from a lack of proper program implementation to the age of the target populations. For example, “Gimme 5 Fruit, Juice, and Vegetable” and “Smart Bodies” were created with the goal of establishing healthier nutritional behaviours in childhood. Reviews of both programs have reported an initial increase in participating children’s daily consumption of fruits and vegetables; yet, for “Gimme 5” children’s fruit and vegetable intake began to regress to pre-intervention levels after three years (Baranowski et al., 2000; Nicklas et al., 1998; Tuuri et al., 2009).

Additionally, for both programs, measurements of the children’s dietary intakes were not tracked longitudinally and the questionnaires were self-reported, calling into question the validity of the initial improvement (Babbie, 1999; Devault et al., 2009; Morris, Neustadler, & Zidenberg-Cherr, 2001). Jaime and Lock’s (2009) review of 18 preschool and elementary school nutrition interventions noted similar limitations, with few studies reporting any change in the children’s nutritional behaviours and weight status.

From a program implementation perspective, a major challenge impacting the success of school-based nutrition programs is the lack of support from teachers. Many obstacles in establishing programs in the school setting have been described as resulting from the challenges in working with teachers to follow-through with intervention protocol (Haire-Joshu et al., 2003). Thomas’s (2006) review of 57 school-based interventions revealed that only four programs showed statistically significant changes between the intervention and control groups for improving children’s obesity rates, and cited better impact when specialists, rather than teachers, were brought in to teach the programs. Challenges in working with teachers were echoed in a school-based intervention by Taylor et al. (2007),

who noted teachers' inabilities to deliver the intervention protocol and recommended similar interventions consider hiring activity coordinators to teach and run the programs in the schools. To better understand why teachers were unwilling or unable to deliver the program protocol, both Levine, Olander, Lefevre, and Cusik (2002) and Day, Strange, McKay, and Naylor (2008) conducted interviews during evaluations of their school-based nutrition programs. Both studies revealed teachers perceived a variety of constraints in properly implementing the interventions, namely, a lack of time and resources. Not surprisingly, the teachers believed these hindrances were major contributing factors in the lack of improvement in the students' nutritional behaviours (Day et al., 2008; Levine et al., 2002).

In addition to the implementation difficulties, school-based programs have been noted to experience limited success in altering children's nutritional behaviours beyond the school-controlled settings. As Nicklas et al. (1998) suggested, the improvement observed in nutritional intake during some school intervention programs (such as that of Baranowski et al., 2000 and Tuuri et al., 2009, discussed at the beginning of this section) is typically short-lived, and not actually representative of a lasting change in the children's behaviour once they leave school. Baranowski et al. (2000) agreed, characterizing the objective of impacting the nutritional behaviours of children outside the school setting as "elusive" (p.107), due in large part to the limited success with parents willing to be involved in the programs. However, in their review of 58 school-based nutrition education interventions, Blom-Hoffman, Wilcox, Dunn, Leff, and Power (2008) faulted the design of many school programs for the lack of parental involvement. They found the majority of programs included families through newsletters and activities based at the school, as opposed to through active roles in the school interventions.

In a similar vein, the lack of improvement in children's long-term nutritional behaviours noted in all of these school-based interventions may be resulting from the interventions being focused entirely on the child – aiming to increase his/her nutritional knowledge or only altering the school's physical environment alone– and ignoring factors such as the social environment of mealtimes and food availability in the children's homes. For example, following an intervention that improved the nutritional content of meals offered at the school, Rees, Richards, and Gregory (2008) compared the nutritional content of the children's lunches either bought at school or brought from home. They found the majority of the children's lunches brought from home contained higher amounts of sugar, sodium, and saturated fat than the school lunches, a finding which lead the researchers to conclude that the intervention was not having an effect on the children's food choices outside the school environment. Gorely, Nevill, Morris, Stensel, and Nevill (2009) also noted a lack of improvement in children's consumption of fruits and vegetables following a school-based intervention. Findings echoed by Veuglers and Fitzgerald (2005), and after revealing that students from schools with healthy menu food choices did not have substantially healthier body weights than students from schools without healthy food options, concluded that offering healthier food alternatives is not an effective intervention for altering children's behaviour.

A final possible reason for the lack of improvement in children's long-term nutritional behaviours following school-based interventions has been suggested to be due to their age. Following a nutrition intervention program with school-aged children that was found to not alter their food preferences, Haire-Joshu et al. (2003) posited the lack of improvement in school programs is tied to children's preference for unhealthy foods being already strongly

established by age eight. This explanation may explain similar findings, as though comprehensive in their designs, elementary school-based programs “It’s All About Kids,” “Exercise Your Options,” and “Smart Bodies” were unable to ameliorate participating children’s preferences for fruits and vegetables (Devault et al., 2009; Dunton, Lagloire, & Robertson, 2009; Tuuri et al., 2009). Likewise, Day et al. (2008) found a lack of improvement in children’s fruit and vegetable preferences and their willingness to try new fruits and vegetables. Taken together, research on school-based nutrition interventions support a contention that, for a variety of reasons, school-based interventions have yet to be proven effective in altering children’s long-term nutritional behaviours. These findings must call into question current interventional designs

The Importance of Early Childhood

If it is already too late to alter lifelong eating habits by the time children enter elementary school, at what age do healthy nutritional behaviours need to be fostered? Research from a variety of fields appears to point to early childhood – which refers to the under-six-years age group – as being a pivotal time period in development that merits further research (Birch & Davidson, 2001; Shonkoff & Phillips, 2000; Whittaker et al., 1997). Early childhood has been characterized as a time when development occurs at a rate faster than any other (Shonkoff & Phillips, 2000). By approximately age two, children have reached a developmental stage where they are capable of interpreting their experiences and acting as a result of this interpretation, due to their newly acquired social awareness (Cashdan, 1994; Shonkoff & Phillips, 2000). Once children reach approximately age three, they have been found to model the typical behaviours of those found in their environments (Brown & Ogden, 2004; Faith, Johnson, & Allison, 1997; Whitaker et al., 1997).

Furthermore, in terms of children's cognitive development, experience-dependent synapse formation is also highest in early childhood (Nelson, 1999). Experience-dependent synaptogenesis, a process that optimizes the individual's adaptation to specific features of the environment, involves the brain encoding new experiences, fostering new brain growth, and refining existing brain structures. Of course, as people possess free will, these changes to the brain do not mean that the person is now "programmed" to behave a certain way; however, they do result in the individual being biased to respond to a situation in a certain way (Nelson, 1999). Much more research is needed to these changes to the brain, especially to determine if the timing of particular environmental exposure is key to the development of obesity (Faith, Johnson, & Allison, 1997; Szyf, McGowan, & Meaney, 2008).

The developmental changes occurring during early childhood factor into children's nutritional behaviour development. In the early development period, life experiences have been found to play a major role in shaping children's preferences for certain foods (Cashdan, 1994; Hendy, 1999; Liem & Menella, 2002). A recent review of children's dietary development by Aldridge, Dovey, and Halford (2009) found that children who were introduced to healthy foods early in life had the strongest chance of developing healthy food preferences and behaviours. Skinner et al. (2002) found that children who were exposed to a wide variety of fruits and vegetables in their first years of life preferred these foods later in life; the most significant predictor of a child's food preferences at age eight was the child's food preferences at age four. Wardle et al. (2001) similarly explored the development of early childhood behaviours in a large sample of 4-5 year old children (all of whom were in the healthy weight range) from obese parents compared to healthy weight parents. Their study assessed children's food preferences, eating style, and activity patterns and found that

children from obese parents showed a preference for high fat foods, less preference for vegetables, higher desire for drinks, food responsiveness, and emotional overeating compared to children from healthy weight parents. The researchers concluded that preventing these negative behaviour patterns from developing while the children were young should result in children not becoming overweight later in life. Brown and Ogden (2004) also stressed the importance of the environment in developing healthy nutritional behaviours, noting consistent associations between parents' and children's motivations for eating as well as their behaviours and attitudes regarding food. Consequently, there is reason to believe that if children are raised from infancy in an environment where healthful behaviours and attitudes dominate, they will adopt healthy nutritional behaviours.

Social Influences on the Development of Children's Nutritional Behaviours

While a preference for sweet and salty foods and a rejection of the sour and bitter have been suggested to be innate and unlearned (Beauchamp, Cowart, Mennella, & Marsh, 1994), all other children's food preferences are thought to be learned, with early childhood being the most significant period for the formation of dietary preferences (Cashdan, 1994; Hendy, 1999). Whereas adults consider such factors as nutritional content, cost, and preparation time, children's food preferences have been found to be based on taste and appearance (Birch, 1998; Cooke, 2007). For example, Nicklaus, Boggio, and Issanchou (2005) examined three-year-old children's food choices during a lunch period where they were free to select their own foods from a buffet and found how the foods were prepared and cooked had a large impact on whether they were chosen or not. Other factors that influence childhood eating behaviours include a fear of new and unfamiliar foods, a predisposition for energy-dense foods, and the ability to eat based on physiological hunger, which is known as

self-regulation (Schwartz & Puhl, 2003). Nonetheless, these biological factors are intertwined with social factors: young children need many exposures to new foods; children are likely to eat foods that teachers, parents, and peers eat; and when children are rewarded with food, they develop a tendency to overeat (Schwartz & Puhl, 2003). Parents have also been found to project their own food preferences onto their children (Mata, Scheibehenne, & Todd, 2007). The amount of control parents exert over their children's food intake and the messages they communicate about food are influential aspects on the children's developing nutritional behaviours (Lytle et al., 1997; Patrick & Nicklas, 2005). Research has found that parenting style – how controlling parents are over the child's food intake and the messages they communicate about food – is an influential aspect on the child's developing nutritional behaviours (Fisher & Birch, 1995; Fisher & Birch, 1999; Lytle et al.). A study by Birch (1998), found that children whose parents exerted the most control over what, when, and how much they ate showed the weakest evidence for regulating energy intake. Conversely, the 'authoritative feeding style' involves parents encouraging the consumption of healthy foods and giving children some control over their food choices by allowing them to choose from a variety of healthy foods (Fisher & Birch, 1999);. This style of parenting has been found to allow children to develop self-regulation regarding food intake (Benton, 2003), which is important because children's capacity to self-regulate can be disrupted when they learn to ignore internal cues and instead rely on external cues such as parental control strategies (Birch et al., 1987). Still, though certain behaviours have been found to be the most conducive to fostering healthy behaviour development, they are often challenging to implement in practice. A study by Benjamin et al. (2009) examined the perceptions of daycare teachers who attempted to implement a mealtime environment that allowed the

children to serve themselves. Unfortunately, teachers perceived these mealtimes as being chaotic and overwhelming; however, whether the teachers were aware of the important consequences of using these strategies was not explored. All of these findings suggest that the development of healthy nutritional behaviours needs to be encouraged and fostered by the child's primary sources of behaviour modeling and teaching.

Factors involved in Promoting Healthy Nutritional Behaviours

For people to be able to teach and promote healthy behaviours in children, two main issues have been found to be particularly important to communicate: 1) knowledge of basic nutrition and healthy weight status for children and 2) the barriers to the development of nutritional behaviours in children.

First, studies have demonstrated that parents' lack of nutritional knowledge should be of concern (Etelson, Brand, Patrick et al., 2003; Variyam, 2001). Hobbie, Baker, and Bayerl (2000) concluded that most new and expectant mothers lacked basic infant nutritional knowledge, a concerning finding, as research by Variyam (2001) found that parents who lacked nutritional knowledge had a higher risk of having overweight children when compared to parents who answered nutritional questions correctly. Taylor, Evers, and McKenna (2005) pointed to another important outcome resulting from an increase in parent's nutritional knowledge: the availability of healthy food choices in the home environment. They found a strong association between the availability of fruits and vegetables in the home and their consumption by youth and hypothesized that parents' nutritional knowledge may affect the foods purchased, and therefore their availability. Parents' perceptions of their children's risk for obesity have also been found to be important for how concerned they are with their children's nutritional behaviours. Goodell, Pierce,

Bravo, and Ferris (2008) found that parents believed that encouraging healthy food and limiting unhealthy food was only necessary when dealing with a child who is overweight, and not necessary for children who are of healthy-weight status. Similarly, Pagnini, Wilkenfeld, King, Booth, and Booth (2007b) revealed that as parents believed obesity was only an issue for older children, they did not need to be concerned with young children's eating habits.

Second, perceived barriers to healthy eating must also be taken into consideration. Bolling, Crosby, Boes, and Stark (2009) found the main reason parents cited for being unable to develop healthy behaviours in their children was the child's reaction to the food. Parents described the main barrier in limiting children's fruit juice intake and increasing their fruit and vegetable intake was their children crying and having temper tantrums. Other perceived barriers to establishing healthy eating habits in toddlers and barriers to providing healthy meals include a lack of time, transportation, and money (Omar, Coleman, & Hoerr, 2001). Pagnini et al. (2007) found parents perceived a lack of time, marketing influences, and using food to comfort children along with the lack of inexpensive and quick healthy foods as being the main causes of childhood obesity. Parents were further found to express the belief that not providing their children with treats was a form of deprivation. Hesketh et al. (2005) also noted parents listing similar barriers, such as marketing influences and the availability of unhealthy foods, as important in influencing children's eating behaviours. They also found that parents perceived unhealthy foods and meals could be balanced by healthy meals. While much can be learned from these studies, they are limited in providing a full explanation of the social environment's impact on children's developing nutritional behaviours as they depict parents and the home setting as the only influences and contexts in

children's lives. As the following section will demonstrate, young children are spending increasing amounts of time in childcare, away from their parents, which warrants similar attention as other social influences.

Early Childcare Providers

Undeniably, social influences play vital roles in the development of children's lifelong nutritional behaviours. As can be seen, though, the majority of studies have been concerned with parents' beliefs and perceptions; comparably less research has focused on the other important social influences in children's lives (Fleischacker, Cason, & Achterberg, 2007; Moore et al., 2005; Story et al., 2006). Over the past decade, however, the proportion of Canadian children in childcare has risen significantly, regardless of the children's demographic background. With children spending on average more than 27 hours per week in childcare (Statistics Canada, 2005), this shift in childcare arrangements reinforces the need for more research studying childcare providers' roles in the development of nutritional behaviours (Birch & Fisher, 1998).

Recent large-scale studies have yielded mixed descriptions of the childcare's nutritional environment. Trost, Messner, Fitzgerald, and Roths (2009) studied a large sample of childcare providers in Kansas and found that while providers reported providing adequate amount of fruits and vegetables and less of unhealthy foods, there was widespread use of foods for celebrations and a lack of training in nutrition. Benjamin et al. (2009) found that the more hours a child spent in daycare the higher his/her body mass index was at ages one and three. But, this was only noted if the child was in someone else's home and not centre-based care or in his/her own home with a non-parent. However, both these studies were quantitative in nature and for that reason Benjamin et al. recommended more in-depth

explorations of the nutritional environment and providers' practices to better understand the reasons for the differences revealed in their study.

Research with childcare providers has found that early childcare providers perceive their role in developing healthy eating behaviours in children in their care to be a core responsibility, due to the large amount of time spent with the children (Moore et al., 2005; Pagnini et al., 2007a). Providers have been found to indicate feelings of responsibility for both the social and health aspects of eating for children in their care. For example, one study revealed that providers took such measures as arranging the setting so the children could eat together around a table and claimed that children ate a greater variety of foods in the childcare setting than at home, as a result of the positive peer pressure at the daycare (Moore et al. 2005). Interestingly, while they share responsibilities in raising children, differences in providers' and parents' attitudes and beliefs regarding childhood nutrition have been noted. In their abilities to improve children's eating behaviours, Lumeng et al. (2008) examined preschool providers and found they expressed confidence in this area, whereas parents have conveyed a lack of confidence (Coleman, Horodyski, Contreras, & Hoerr, 2005; Gracey, Stanley, Burke, Corti, & Beilin, 1996). Such preliminary findings call for more research to examine providers' perceptions, attitudes, and knowledge for further similarities, differences, and possible explanations.

One of the most widespread topics to emerge from studies with childcare providers pertains to their attitudes regarding how parents shape children's nutritional behaviours. Childcare providers have been found to frequently speak negatively about the types of food and parents' general feeding practices. Many providers have been found to believe parents do not prioritize healthy nutritional behaviours in their homes (Needham, Dwyer, Randall-

Simpson, & Heeney, 2007), and that parents put forth little effort or time in providing their children with healthy foods and instead rely on unhealthy convenience foods (Moore et al., 2005; Needham et al., 2007). Similarly, parents are also perceived as showing little interest in the health practices in the childcare setting or in the food offered at the daycare (Fees, Trost, Bopp, & Dzewaltowski, 2009; Moore et al., 2005). As a result of this perceived parental disinterest, few providers reported involving parents in the planning of menus and many disclosed that children's diets at the childcare facility was rarely a topic of discussion with parents (Moore et al., 2005). Needham et al. (2007) further found that as providers felt that because parents allowed the children to eat unhealthily at home, it was impossible to foster healthy eating in the childcare setting. Lumeng et al. (2008) inquired further into providers' views on parents and found that though they were concerned with the children's eating habits, providers felt unqualified to discuss nutritional and food-related issues with parents. Yet, this lack of communication between parents and childcare providers may be resulting in inadequate nutrition for young children. For instance, Briley, Jastow, Vickers, and Roberts-Gray (1999) examined how the foods children eat at home complement the menu at the childcare centre, and found that together, parents and providers were not providing meals and snacks that met children's dietary requirements. As can be seen, there is a need to explore partnerships between parents and childcare providers in developing healthy dietary approaches for young children (Briley et al., 1999; Mooney et al., 2008; Moore et al., 2005). Not only do childcare providers and parents need to work together to deliver healthful nutrition, but as Story et al. (2006) concluded, childcare settings offer a way to reach parents and to make healthful changes at home.

Finally, one of the most frequent recommendations gleaned from research with childcare providers has been the need to develop educational materials for providers regarding nutrition in the childcare setting (Fees, Trost, Bopp, & Dzewaltowski, 2009; Fleischacker et al., 2007; Mooney et al., 2008; Moore et al., 2005; Romaine et al., 2007) Romaine, Mann, Kienapple, and Conrad (2007) examined the knowledge, attitudes, and practices of those in charge of menu planning at childcare centres. They found that few had received nutrition training specific to young children, though most described consulting *Canada's Food Guide* (Health Canada, 2009) when planning menus. A similar study by Moore et al. (2005) found differences in childcare providers ability to discuss concepts of healthy eating, with providers who received formal training in nutrition able to describe basic macronutrients (carbohydrates, lipids, protein) and those who had not using vague terms, such as employing “fresh” synonymously with “healthy.” Not only are materials focusing on nutritional knowledge necessary, but Pagnini et al. (2007) found childcare staff expressed a need for educational materials that focus on how to discuss food and eating with parents.

In conclusion, to establish healthy lifelong nutritional behaviours in children, research emphasizes the need to focus on gaining a strong understanding of young children's social environments. Social influences need to be modelling healthy behaviours and have an awareness of the impact they have on children's long-term nutritional behaviours; settings require healthy foods to be accessible and conducive to healthy behaviours. While much research on nutritional behaviour development has focused on the home settings and parents, less consideration has been given to the other settings and people in young children's lives, such as childcare providers. Thus, the current literature on developing healthy nutritional

behaviours in children suggests gaining an understanding of the nutritional environments of childcares by understanding providers' perceptions of nutritional sources, knowledge and attitudes to be well-warranted.

Research Questions

The objective of my thesis research was to add to the literature on the social environment's influence on children's developing nutritional behaviours by exploring the nutritional environments of home-based and centre-based childcares. The research question was thus, what are childcare providers' perceptions of food and mealtimes in the childcare setting?

Theoretical Framework

To understand people's behaviours and perceptions more completely, it is essential to consider the variety of factors and interactions in their physical and social environments (Bronfenbrenner 1979, 2005; Gregson et al., 2001). Consequently, social ecological theory (Davidson & Birch, 2001; Bronfenbrenner 1979, 2005; Gregson et al., 2001) was drawn upon to achieve an understanding of childcare providers' behaviours and perceptions of nutrition in childcare settings. Social ecological theory is based upon the understanding that people's behaviours are collective products of individual and environmental influences, including a variety of personal characteristics, interactions, community, and societal factors (Gryzwacz & Fuqua, 2000; Stokols, 1996).

Personal characteristics of individuals – their own attitudes, levels of self-efficacy, and beliefs – represent important influences on their behaviours (Gryzwacz & Fuqua, 2000). Yet, research focused exclusively on individual-level factors has proven to be unsuccessful in explaining many health behaviours, and has resulted in a call for a broader view of the

determinants of health. Examining behaviours solely from the perspective of individual-level determinants presents many limitations, such as a failure to recognize the relationship between health and environmental factors (social, structural, and physical). A focus only on the individual assumes behaviour is totally under his/her own control and that a person can perform at will any behaviour with no input or environmental barriers (Stokols, 1996). Yet, without an understanding of environmental factors, researchers are left with incomplete, and thus unreliable descriptions, as the constraining and enabling structures that encourage the development of certain behaviours and perceptions are unknown (Bronfenbrenner, 1979,2005; Pentland, 1999). Hence, it is essential to gain an awareness of the wide range of social influences on behaviour by delving into the community and societal factors that shape their attitudes, behaviours, and perceptions (Bronfenbrenner, 1979, 2005).

Instead of examining people and contexts in isolation, researchers should encompass an analysis of the interactions among subjects and the contexts in which they live (Bronfenbrenner, 2005). Bronfenbrenner described these contexts as systems, with the immediate environment of a person is defined as the microsystem (1979, 2005). The microsystem includes the aforementioned personal characteristics of the person, such as his/her attitudes and beliefs as well as interactions in the immediate settings. For example, when seeking to understand how parents can effectively raise healthy children, one microsystem includes factors such as parents' levels of self-efficacy and their beliefs in their children's capacities (Bronfenbrenner, 2005). These aspects are then further related to factors such as the quality of nutrition education materials and availability of healthy foods (Galvez, Pearl, & Yen, 2010), which are the contexts in which the microsystem exists – the community and society (Davidson & Birch, 2001). Two or more different settings in which

a person lives, and how these settings are linked, are referred to as mesosystems. Beyond the settings in which the person lives, there also exists the exosystem, which refers to a context in which the person is not directly involved in, but has an impact on his/her behaviours. Finally, the macrosystem includes the organization of a particular culture and includes all three previously described systems. Comprehensive in its design, social ecological theory requires consideration of different personal, social and physical variables in these systems and how they are linked to create a fuller understanding of the influences on people's behaviours (Bronfenbrenner, 2005). It is important to bear in mind that for all of these systems, people are recognized as playing active roles in their own development; people are influenced by their environments but they also shape their environments (Bronfenbrenner, 2005). While consideration for the many influential factors acting on people's behaviours is one of social ecological theory's strengths, this breadth is also one of its greatest limitations in practice and research. However, the theory can be made more feasible by focusing on certain aspects of it, depending on the research participants and contexts (Gryzwacz & Fuqua; Wium & Wold, 2009).

Informed by these concepts of social ecological theory (Bronfenbrenner, 1979, 2005; Davidson & Birch, 2001; Gregson et al., 2001) and past research conducted with parents and providers, my thesis examined childcare providers' perceptions of food and mealtimes in the childcare setting. Specifically, the proposed research questions were based on examining three levels of influence, with the understanding that individual, community, and society factors all must be considered when seeking to understand one's perceptions and decisions.

Personal characteristics of the providers, such as their knowledge of childhood nutrition practices, were crucial to explore, as these characteristics are highly influential on

attitudes and behaviours (Davidson & Birch, 2001). Interpersonal factors were also a crucial component involved in this level (Bronfenbrenner, 2005) and included interactions between providers and others in the childcare environment, primarily, the children and their parents. For example, providers were asked if they ever received feedback from parents regarding food or nutrition at the childcare. Better comprehension of this provider-parent partnership is essential, as when parents and providers work together there is a greater chance of children's behaviours being maintained throughout their lives (Bronfenbrenner, 1979, 2005).

Understanding interactions between providers and children was also important, not only because children's dietary habits are influenced by those in their environments (Patrick & Nicklas, 2005), but also because these interactions are bi-directional: how children interact with providers influences providers' behaviours as well (Bronfenbrenner, 1979, 2005).

Next were examined nutritional resources available in the neighbourhood of the childcares, such as vegetable gardens and markets as well as providers' connections with other providers. Whether providers can perform effectively in their roles in raising healthy children depends on their perceptions of the support around them, such as the availability and accessibility of healthy foods (Mikkelsen & Chehimi, 2007; Twiss et al., 2001). There is also a need to develop an understanding of the "neighbourhood food environment," which refers to the availability of healthy foods and to how easily residents can access these foods (Galvez, Pearl, & Yen, 2010; Mikkelsen & Chehimi, 2007). While every community will face different obstacles to practicing healthy nutritional behaviours, common challenges include a lack of transportation or time, a lack of access to affordable, healthy foods, and easy access to unhealthy food (Mikkelsen & Chehimi, 2007; Sloane et al., 2003). Sloane et al. (2003) found considerable differences in the accessibility of healthy foods in a low-

income neighbourhood in comparison to a wealthier neighbourhood, an important finding, as variations in access to healthy foods present obstacles to the residents' development of healthy nutritional behaviours.

Finally, local, provincial, or federal government policies affect the ability of the providers to encourage healthy eating. Providers were asked whether they have ever received any information from the government regarding nutrition in the childcare setting and how useful they find this information to be. While much research has examined this level in terms of what nutritional materials are supplied to providers (Fees et al., 2009; Fleischacker et al., 2007; Mooney et al., 2008; Moore et al., 2005; Romaine et al., 2007), learning how useful providers perceive the information is much less commonly examined.

To conclude, according to social ecological theory, the key to understanding behaviours lies not only in the abilities of the provider or the quality of the childcare setting, but in the interconnections between different environments and individuals. Providers and parents need to work together as partners to enhance the healthy development of children (Bronfenbrenner, 1979,2005). Thus, researchers need to examine the interrelationships between providers, children, parents, and the surrounding environments to understand how to foster healthy nutritional behaviour development in childcare settings.

Research Approach and Methods

In psychology research, when the aim is to explore experiences from the participants' perspectives and determine how perceptions are formed, the most effective research approach is a qualitative one (Ashworth, 2008; Smith, 2008). Qualitative research aims to generate rich, descriptive accounts of the topic being studied, differing from quantitative research where the aim is to count occurrences or the size of associations between entities

(Smith, 2008). Remaining true to the participants' voices throughout the research process, qualitative researchers provide participants with the ability to describe issues in their own terms, resulting in a greater understanding of their behaviour (Lytle, Eldredge, Kotz, Piper, Williams, & Kalina, 1997) and thereby creating information useful for both research and practice (Denzin & Lincoln, 2005; Stake, 2000).

Fleischacker et al. (2007) recommended qualitative research as the ideal approach when researching stakeholders' perspectives of early childhood nutrition, citing the benefits this approach enabled in building trust and understanding with participants. Following a review of the literature on parents' perceptions of childhood obesity, Towns and D'Auria (2009) further championed the importance of qualitative research, concluding that many of the quantitative research techniques prevented a full understanding of parents' perceptions. For example, with the national average of childhood obesity currently at 26%, it should come as a surprise that one national survey found 80% of parents believed that their child was at a healthy weight; 12% responded that they believed their child was overweight, and none believed their child was obese (Ipsos-Reid, 2004). Likewise, Etelson, Brand, and Patrick (2003), found that most parents of overweight children failed to recognize that their children had weight problems. Of the parents surveyed, 23% had overweight children, yet less than 11% perceived their children's weight accurately. Conducted entirely through survey research, these studies left many questions unanswered regarding parental beliefs and attitudes. Questions remained concerning how the parents defined the concept of "healthy weight" and regarding whether the parents were unwilling or embarrassed to admit the weight status of their children (Ipsos-Reid, 2004). Issues with participants understanding concepts were revealed in a study by Jain, Sherman, Chamberlin and Whitaker (2009) who

found many of the constructs used in a nutrition questionnaire were not correctly understood by respondents, leading the researchers to recommend qualitative interviewing for nutritional behaviour research. All of these findings point to the need to conduct further research using methods that allow for a better understanding of people's attitudes and beliefs regarding nutrition.

Appropriately, then, this study used a qualitative research approach as I aimed to understand childcare providers' perceptions of food and mealtimes in the childcare setting (Denzin & Lincoln; Malterud, 2001; Stake, 2000). Since little research has specifically examined childcare providers' perceptions of nutritional behaviour development in the childcare setting, the present study was not testing a specific hypothesis but instead describing findings for the purpose of encouraging further research. Through asking questions that encouraged stories of their personal experiences, a qualitative research approach allowed for the building of rich descriptions of the experiences of the participants. By better understanding the perceptions of providers, I aimed to contribute to research on nutritional behaviour development (Stake, 2000), where a need has been identified to study providers' perceptions of nutrition in the childcare setting (Fleischacker et al., 2007).

The specific focus of my thesis research was the nutritional environments of the childcare settings, and involved the foods offered and the structure of the meal and snack times in the childcares. Providers from centre-based and home-based childcares were chosen to be interviewed as they made decisions that determined the nutritional settings of the childcares and represent one of the main social influences on children's nutritional behaviours (Anliker, Laus, Samonds, & Beal, 1990; Birch, 1998; Brown & Ogden, 2004). Consistent with the in-depth qualitative approach employed, a relatively smaller number of

participants were selected (Ashworth, 2008). In total, participants in this study consisted of 13 early childcare providers from the Ottawa region; 8 were from centre-based daycares while 5 were from home-based daycares. All were female, and between the ages of 32 and 64, though the majority were in their mid-40s. All but two providers had post secondary degrees. Providers' years of experience ranged between 7 and 28 years; however, the majority had mid-20 years of experience working in childcare.

The Research Ethics Board at the University of Ottawa provided ethical approval for this study and all participants provided voluntary informed written consent before each interview. Sampling of participants was conducted through purposive sampling, recruiting providers from childcare centres identified through the yellow pages and online searches throughout the Ottawa area who were involved in the food and mealtimes in their childcare settings. Theoretical sampling was employed, analyzing the data throughout the process and determining the number of interviews based on saturation. Saturation was achieved when interviews were no longer revealing any new information (Cousin, 2009), which was realized after 13 participants. Finally, participants were asked their age, years of experience, and educational background to contextualize their responses.

Method

A qualitative research approach relying on semi-structured interviewing best aligned with the goal to develop an understanding of the childcare providers' perceptions. With the goal of engaging the participant in a dialogue, semi-structured interviews elicit richer descriptions of participants' beliefs, and enabling them to become more like partners in the research (Fontana & Frey, 2005). This interview approach differs from other forms of interviewing. Both qualitative and quantitative researchers utilize interviews as tools for

gathering data, but the approaches diverge considerably in several respects. A quantitative approach using interviews reduces participants' responses to numerical form to allow for analysis, whereas a qualitative approach analyzes the data in terms of participants' perceptions (Smith & Osborn, 2008). More specifically, to collect data in a more conversational-style format, a flexible data-gathering tool is required and achieved through semi-structured interviewing (Ashworth, 2008; Smith & Osborn, 2008). A quantitative approach would also be more likely to use structure interviewing, a form of interviewing where the researcher decides ahead of time what sort of data s/he is looking for, and creates an interview guide that must be strictly followed in each interview, thus, making a structured interview similar to a questionnaire. Conversely, in a semi-structured interview, a rapport is attempted to be established between the interviewer and the participant; while the interviewer has a general idea of what areas the interview should cover, the participant is viewed as the expert and is given the ability to relate his/her experiences, without the researcher imposing views (Smith & Osborn, 2008). Additionally, semi-structured interviews allowed for more questioning into interesting and unexpected responses through the use of probes and follow-up questions (Cousin, 2009; Smith & Osborn, 2008).

The use of individual interviews differs from the method commonly taken by the majority of past qualitative research on childcare providers, where focus groups were employed (Bolling et al., 2009; Goodell et al., 2008; Lumeng et al., 2008; Needham et al., 2007; Omar et al., 2001). Focus groups, however, can result in several drawbacks, including one or more respondents dominating the group, less outspoken respondents not voicing their answers and ideas, and issues related to group dynamics (Fontana & Frey, 2005). A central problem with questioning individuals on their health behaviours is the issue of respondents'

self-presentation (Babbie, 2001), which could be heightened in a group setting. Research into parents' and providers' perceptions have recommended this issue can be best addressed by taking a conversational-style approach with participants and explaining the study as being descriptive and exploratory (Fleischaker, 2007; Jain et al., 2004; Pagnini et al., 2007). However, semi-structured interviewing, as with all forms of interviewing, is not without its limitations, as interviewer characteristics, for example, age and gender, as well as context can have an impact on the participant and willingness to disclose information (Fontana & Frey, 2005).

Through improving the understanding of influences on providers, future research will be able to build on my findings and practically, better-suited materials to aid providers can be created that will have the best chance of meeting their needs, and thereby resulting, it is hoped, in long-term improvements in the nutritional behaviours of children.

Interview Guide

Interviews lasted on average forty minutes and were conducted in a location and time of the provider's choice (either the home or childcare centre). The interviews were guided by past research with providers and parents, but were open to going more in-depth with unanticipated responses from participants. Childcare providers discussed such matters as their views on their own and children's behaviours, how much control they feel they have over children's developing behaviours, their knowledge with regards to nutrition, and what they perceive to be the barriers preventing them from eating healthily.

Based on concepts from social ecological theory (Bronfenbrenner, 1979,2005; Davidson & Birch, 2001; Gregson et al., 2001), a two-section semi-structured interview guide was established (see Appendix). Though not strictly followed, questions were asked

that addressed specific beliefs and behaviours, an approach that has been found to be effective in decreasing distortion of participants' responses (Babbie, 1999). The first section of the guide involved having providers describe the nutritional environment of the childcare setting, and aimed at eliciting descriptions of the nutritional environment of the childcare setting and how it is created, such as how providers encourage eating and what is done if a child refuses to eat the food offered or is hungry outside of a meal or snack-time. The second section involved encouraging providers to describe how and why they made such decisions by prompting them with questions pertaining to personal, community, and societal influences. Questions involved asking what do the providers perceive as being influential on children's eating behaviours, do the children have choices in the types and amounts of foods they consume in the daycare setting, and what do they think a healthy young child's eating should look like. The providers' level of self-efficacy regarding how much of an influence they perceive to have over the children's nutritional behaviours along with barriers to developing healthy eating behaviours in children were also addressed.

Data Procedure and Analysis

All interviews were digitally-recorded and transcribed. All data collected through interviews were analyzed using an approach of constant comparison that consisted of a systematic process to examine the data set for repeated patterns of meaning that were then interpreted in relation to previous literature (Pope, Ziebland, & Mays, 2000; Strauss & Corbin, 1998). Transcript reading and preliminary analysis were done sequentially to allow for emerging themes to influence subsequent transcript analysis. First, interviews were listened to and general summaries of each were created, drawing on the literature on providers' and parents' perceptions of children's nutritional behaviours so as to have a starting point for the sorts of

factors are perceived as being influential (Rubin & Rubin, 2005). Second, the transcripts were then read line by line with interesting and significant responses coded under either anticipated themes or emergent themes. Initial codes were applied to later data, new codes developed as new themes emerged, and some initial codes were revised. Related codes were then grouped together to develop a hierarchical classification scheme. Third, notes were made that related to emerging themes. Fourth, a master list of themes was developed by both examining the written summaries and listening to segments of the interviews again, once more drawing upon the literature (Rubin & Rubin, 2005). Needless to say, my analysis was not the only one possible, as the meanings I have found represent the interaction between myself and the interviews with the providers—one researcher’s response—and consequently reflect my values and influences as well as those of the providers.

Conclusions

This thesis has been written in the two article format rather than the traditional chapter format. Consequently, there is repetition between the two articles, primarily in the theory, methods, and data analysis sections. Through semi-structured interviews with providers, my thesis research examined the variety of factors influencing providers in their decisions that shaped the nutritional environments of their childcare facilities. The first article discusses, on a more general level, the differing factors providers described as influencing their decisions about food and mealtimes for the childcare setting. The second article takes a more specific focus by examining the strategies providers perceived to encourage healthy eating and the reasons behind their use of these strategies. Important to note for this article was that, similar to research conducted with parents’ perceptions of nutrition by Dwyer, Needham, Simpson, and Heeney (2008), providers were not given a definition of “healthy

eating” and were therefore able to describe their own perceptions of what concepts such as ‘healthy eating’ and ‘healthy foods’ meant to them. Though differing in their broad versus narrow focus, the common thread linking the two articles was the rich descriptions gained through use of a qualitative, social ecological approach that enabled a better understanding of the many different levels of influences, and how these influences intertwine, to affect providers.

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Factors influencing childcare providers' food and mealtime decisions: An ecological
approach

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To better understand and promote healthy nutritional behaviour development in children, research suggests the need to develop a stronger comprehension of influences from their social environment. Yet, research has favoured studying parents, with little attention being paid to other important individuals in children's lives, especially from a qualitative research approach. Thus, the goal of this study was to understand the factors influencing early childcare providers' decisions regarding nutrition in the childcare setting. Semi-structured interviews were conducted with 13 home-based and centre-based childcare providers in the Ottawa region. Through use of the social ecological model, results revealed a comprehensive understanding of different personal, community, and societal factors that influence providers in their decisions regarding food and mealtimes. To promote healthy nutritional behaviours in children, the variety of factors that influence nutritional decisions by providers need to be addressed, given the amount of time Canadian children spend in early childcare.

Keywords: Social influences, Childcare, Young children, Nutrition, Food preference development, Social ecological model

Early experiences with food are crucial in developing children's lifelong preferences, behaviours, and attitudes regarding food and eating (Aldridge, Dovey & Halford, 2009; Hendy, 1999; Liem & Menella, 2002; Veuglers & Fitzgerald, 2005; Wardle, Guthrie, Sanderson, Birch, & Plomin, 2001; Wells & Ritz, 2001). All children's food preferences are thought to be learned, with early childhood being the most significant period for laying the foundation for healthy dietary preferences (Cashdan, 1994; Hendy, 1999).

The social environment plays an especially significant role in the development and maintenance of children's nutritional behaviours. Evidence has shown that family-level factors, as children model the nutritional attitudes and behaviours of their parents (Faith, 2005; Brown & Ogden, 2004; Schwartz & Puhl, 2003; Birch, 1998), and broader, community and societal-level factors, such as access to healthy and affordable foods, have important impacts on childhood dietary habits (Mikkelsen & Chehimi, 2007). Children's nutritional behaviours can be shaped in a variety of ways, such as through modelling, use of food as rewards, repeated exposure to new foods, and how food is discussed (Fisher & Birch, 1999; Lytle et al., 1997; Schwartz & Puhl, 2003). Still, while much is known about the impact of experience on children's developing nutritional behaviours, the majority of research focuses on parents (Benton, 2003; Brown & Ogden, 2004; Fleischacker, Cason, & Achterberg, 2007; Moore, Nelson, Marshall, Cooper, Zambas, Brewster, & Atkin, 2005; Story et al., 2006), neglecting the importance other social influences exert on children's development. Not surprisingly, researching the impact of different social influences in the lives of young children has been highlighted in various studies with children (Lumeng, Kaplan-Sanoff, Shuman, & Kannm, 2008; Moore, Nelson, Marshall, Cooper, Zambas, Brewster, & Atkin, 2005; Needham, Dwyer, Randall-Simpson, & Heeney, 2007; Story et al., 2006). Notably, using a qualitative research perspective has been advised to facilitate a stronger understanding of the complexity of factors in children's dietary behaviour development (Matheson, Spranger, & Saxe, 2002; Taylor et al., 2005).

Early Childcare Providers

Childcare providers represent one such social influence that is in need of further research (Birch & Fisher, 1998; Story et al., 2006; Taylor et al., 2005). Given the amount of time children are spending in childcare, providers should be viewed as a major force in shaping children's nutritional behaviours (Birch & Fisher, 1998; Story et al., 2006). Research with childcare providers has revealed a complexity of factors – personal beliefs, interactions with parents, and sources of nutritional information– that influence providers in their decisions regarding nutrition in the childcare setting.

Childcare providers have been found to believe that developing healthy eating behaviours in children and creating positive social and health aspects of mealtimes are among their core responsibilities (Moore, Nelson, Marshall, Cooper, Zambas, Brewster & Atkin 2005; Pagnini et al., 2007). For instance, providers have described arranging the childcare setting to ensure all the children could eat together (Moore et al., 2005). Trost, Messner, Fitzgerald, and Roths (2009) studied a large sample of childcare providers and found that providers reported ensuring they served more fruits and vegetables and less unhealthy foods. Yet, when interviewed, providers have described mealtimes as a trying part of the day due to feeling overwhelmed by the amount of work required during mealtimes (Lumeng et al., 2008). Due to these mixed findings, researchers have emphasized the need for much more in-depth explorations with providers to better understand the nutritional environment of childcare (Benjamin et al., 2009; Needham et al., 2007; Story et al., 2006).

Childcare providers also frequently report reservations about the types of food and general feeding practices of parents (Moore et al., 2005; Needham et al., 2007). Parents have been perceived as showing little interest in the health practices in the childcare settings or in the foods offered at the daycare (Fees, Trost, Bopp, & Dzewaltowski, 2009; Moore et al.,

2005). As a result of this perceived parental disinterest, few providers involve parents in the planning of menus and many said the children's diet at the childcare facility was rarely discussed (Moore et al., 2005). Needham et al. found that as providers believed parents allowed the children to eat unhealthily at home, it was impossible to foster healthy eating in the childcare setting. Lumeng et al. (2008) inquired further into providers' views on parents and found that providers felt unqualified to discuss nutritional and food-related issues with parents. As might be expected, this lack of communication between parents and childcare providers has been found to result in inadequate nutrition and unbalanced meals for the children (Briley, Jastow, Vickers, & Roberts-Gray, 1999). Given their joint responsibility in developing healthy eating behaviours in children, further exploration of how to facilitate better partnerships between providers and parents is well-warranted (Briley et al., 1999; Mooney et al., 2008; Moore et al., 2005).

Government sources of nutritional information sent to providers have also been found to play a role in the nutritional environment of the childcare setting (Fees, Trost, Bopp, & Dzewaltowski, 2009; Fleischacker et al., 2007; Mooney et al., 2008; Moore et al., 2005; Romaine et al., 2007). Romaine et al. (2007) found that though the majority of individuals in charge of meal planning at childcare centres indicated using *Canada's Food Guide* (Health Canada, 2009), few received nutrition training specific to young children. Moore et al. (2007) and Trost et al. (2009) also found childcare providers lacked training regarding nutrition information. However, while research has investigated the use of nutritional resources and level of formal nutritional training with providers, a limitation of these studies is that they do not consider if other sources of nutritional knowledge are used by providers.

Indeed, while research has examined providers' beliefs, relationships with parents, and sources of nutritional information, research is limited in that most studies consider these factors in isolation. There is a dearth of research that examines how these factors act to influence providers. Accordingly, recent research has stressed the need for more comprehensive theory to examine providers' perceptions, attitudes, and knowledge better to understand how the many different factors in their lives influence their choices in the childcare setting (Benjamin et al., 2009; Fleischacker et al., 2007; Lumeng et al., 2008; Needham et al., 2007).

Social Ecological Theory

Social ecological theories offer a broad understanding of the different factors influencing people and consider the context in which people live (Jordan, 2004; Lytle, 2005). As childcare providers' behaviours and attitudes are influenced by a variety of interactions of both their physical and social environments, developing an understanding of these factors and their interconnections is essential. Guided by social ecological theory (Bronfenbrenner, 1979, 2005; Davidson & Birch, 2001; Gregson et al., 2001) and past research on social influences' perceptions of nutrition, understanding how providers make decisions regarding food and mealtimes was developed through the use of questions that encompassed three levels of factors that act on people's behaviours: personal, community, and societal.

The first level of influence acting on a person's behaviour is the most immediate, focuses on the individual, and involved personal characteristics such as attitudes, and self-

efficacy. Interpersonal factors also contributed to this level and involved interactions in the immediate environment; for example, the providers' relationships with the parents of children in their care. (Bronfenbrenner, 1979, 2005). The second level of influence is at the community and examined the availability and accessibility of resources and social support; providers were asked questions concerning use of community resources, such as vegetable markets. The third level of influence concerned societal factors, and involved asking as to whether local, provincial, or federal government policies affect people's behaviours. For instance, providers were asked whether they have received information from government sources regarding nutrition in the childcare setting.

Utilizing questions which considered these levels of influence from social ecological theory (Bronfenbrenner, 1979, 2005; Davidson & Birch, 2001; Gregson et al., 2001), the purpose of this qualitative study was to build on research in the development of children's nutritional behaviours by exploring an important influence in their lives: early childcare providers. The research question was thus, what are the factors influencing decisions regarding food and mealtimes made by childcare providers?

METHOD

Semi-structured interviewing was chosen for this study as this method has been recommended for allowing a more conversational-style research approach, eliciting richer descriptions regarding the participant's beliefs and attitudes, enabling the participant to become more like a partner in the research (Fontana & Frey, 2005; Jain et al., 2004), and allowing the interviewer to delve into more unexpected responses (Cousin, 2009; Smith & Osborn, 2008). As a central dilemma with interviewing individuals on their health

behaviours is the issue of respondents' self-presentation (Babbie, 2001), this issue can be best addressed by taking a conversational-style approach with participants and explaining the study as being descriptive (Fleischaker, 2007; Jain et al., 2004; Pagnini et al., 2007). Using semi-structured interviewing, the interviews were guided by theory and past research with providers and parents, but remained open to exploring unanticipated responses from participants.

The Research Ethics Board at the University of Ottawa provided ethics approval for this study and all participants provided voluntary informed written consent. Sampling of participants was conducted through purposive sampling by recruiting providers from home-based and centre-based childcares from the Ottawa region identified through phone book and online searches. Theoretical sampling was employed by analyzing the data throughout the process and determining the number of interviews based on saturation, that is, when interviews were no longer revealing new information (Cousin, 2009). In total, participants in this study consisted of 13 early childcare providers from the Ottawa region; 8 were from centre-based daycares, while 5 were from home-based daycares. Table 1 shows the participants' characteristics. All were female, and between the ages of 32 and 64, though the majority were in their mid-40s. All except two providers had post secondary degrees. Providers' years of experience ranged between 7 and 28 years; however, the majority had mid-20 years of experience working in childcare. Interviews lasted on average forty minutes and were conducted in a location and time of the provider's choice (either the home or childcare centre setting) and explored the factors influencing providers in how they structure the mealtimes and choose foods for the childcare setting, using the three levels of influence previously discussed.

Data Analysis

All interviews were digitally recorded and transcribed verbatim. All data collected through interviews were analyzed using an approach of constant comparison to examine the data set for repeated patterns of meaning and then interpreted in relation to existing literature (Pope, Ziebland, & Mays, 2000; Strauss & Corbin, 1998). Transcript reading and preliminary analysis were completed sequentially to allow for emerging themes to influence subsequent transcript analysis. Transcripts were read line by line and coded under either anticipated themes or emergent themes. Initial codes were applied to later data, new codes developed as new themes emerged, and some initial codes were revised. Related codes were then grouped together under similar themes of individual, community, and societal factors established by ecological theory (Bronfenbrenner, 1979, 2005; Davidson & Birch, 2001; Gregson et al., 2001). Resulting from this analysis, the main themes of the data are presented below with examples and quotations selected because they are typical of the themes identified.

FINDINGS

Individual

Convenience and making mealtime run smoothly: Many providers spoke of making decisions about what to feed the children or how to run the mealtime based on how it helped the childcare environment run smoothly. For example, one provider justified her decision to switch from serving the children juice to water because spilled water resulted in a simpler clean up. Several home daycare providers described how it was easier to feed the children

heated-up leftovers from their own family's dinner rather than preparing the children a new, separate meal for lunch: "Yeah, well it works out much easier than running around after kids and trying to cook lunch ... everything's much calmer if you just have to heat it up and the kids are calm and sitting at the table." Additionally, providers explained the rationale behind why they ate lunch with the children as because it made it easier for them to keep the children settled.

Attitudes/Beliefs: Many spoke of the challenges in feeding children in the childcare setting as resulting from how the children are accustomed to eating at home with their families. Parents were often perceived as introducing unhealthy eating habits to their children, such as not encouraging or modeling healthy eating at home. One provider described how parents are fostering unhealthy behaviours through a "lack of exposure and modeling." Providers spoke of the importance of early childhood in shaping children's food preferences, explaining that children's early experiences at home are much more influential than their experiences in the daycare, as children who are "picky eaters at home are picky eaters at school." The majority of providers described how parents, for a variety of reasons, have raised children who expect to be given what they prefer to eat as opposed to eating healthily. Resulting from the children's home experiences, providers felt they could only make a minimal impact on the children's nutritional behaviours.

Allowing children to have desserts or juice was perceived as an integral part of childhood. One provider discussed how it is permissible for children, unlike adults, to eat fast food because they are "just little so they don't have to watch [what they eat] as much as we do... they might have a Subway Day or a McDonalds Day, you know, they're just little." Likewise, certain foods were referred to as being "child-friendly" and were typically served

by all providers, such as cheese and crackers or sliced up fruits. Conversely, providers also discussed how they would not offer the children certain foods, because they believed they were not meant for children, such as olives or salad, characterizing these foods as being “adult-oriented.”

Knowledge: All centre-based providers spoke of receiving sources of nutritional advice, in particular *Canada’s Food Guide* (Health Canada, 2009). Few of the home-based providers received such resources. Yet, the majority of providers were found to not perceive formal or official documents on nutrition they had been given as useful or important sources of information. Both home and centre-based childcare providers described feeding young children as being “common sense” and referred to their own experiences as guiding the nutritional environment of the childcare. Many were found to describe personal experiences with children in the daycare or family as influencing their decisions regarding food and mealtimes in their daycares, rather than government publications.

Inconsistencies were also noted in what providers perceived as being a healthy diet for a young child and their health beliefs. Both centre-based and home daycare providers discussed the necessity in limiting grains, such as bread and pasta, with one describing grains as being the “least nutritious” food. Similarly, fruits and vegetables were perceived as not being carbohydrates. Cheese and crackers were described by all providers as being the most popular food served to the children, with the majority referring to it as a healthy choice, despite the high-salt content of both cheese and crackers. One provider spoke of how she avoids feeding children junk food because it makes the children “hyper.”

Self-efficacy: Most providers seemed unsure of how the experiences they provide will impact the child beyond the daycare setting. Instead, many discussed how parents and the

children's early experiences with food before they enter daycare are much more influential than the provider: "I'm not sure we have much influence over what happens outside of school. I think that we do have influence when they're here but the parents will tell me that it doesn't really change what they're eating at home." As one provider summarized, "You can keep introducing, you can keep offering, you can keep modeling, and promoting the healthy stuff, but in the end it's their early experience."

Interactions with Children: Interestingly, providers seemed unaware of how much influence – control, even - the children exerted over what was served in the childcare setting. Foods served for meals and snacks were described as being selected based on what the children were willing to eat. When asked how they decided what foods would be served at the daycare, providers typically responded by saying it was based on "trial and error," "seeing what works," "if we know something isn't going to work we won't serve it again," and "meals that they like we keep." If the children refused to eat a food (after a limited number of attempts – typically three) the food was no longer offered. Some providers were less willing to try new foods because, as one provider explained, at her daycare they were "stuck in our ways with our snacks because we're doing what works."

Children in the higher age range, with more developed verbal skills, were depicted as having the most influence over the food served. One provider spoke of how she didn't believe it was necessary to serve juice to the children at the daycare but eventually "gave in" when the children repeatedly asked to have it served at a party. Similarly, another provider described how: "A lot of them don't even like drinking water – they're like – ewww! I'm not drinking this." Another discussed how "in the afternoons they usually like a junk food

snack and I try and stay clear of that ... but it's kind of hard when they see all the junk food in my cupboard.”

While many providers described the challenges in developing healthy food preferences in children as mainly resulting from parents offering their children alternatives when they refuse a food, many providers discussed how they employed this tactic as well. One provider described how the centre-based childcare menu is created: “We try and bring in something new for them to try, but if say she's [the centre's cook] served it three times and it comes back uneaten then she takes it off. So it's not a hit so she'll come up with something different; we try and introduce something, but we're not crazy; we don't want to have that same meal coming back every time and nobody's liking it.” Many spoke of encouraging the children to try new foods, but described how if the children refuse to eat the new foods, they are given their preferred foods. One provider referred to ensuring that there was always a food offered amongst the snacks that she knew the children would definitely eat because it was important to “be successful” during snack time. Likewise, another provider stated the importance in ensuring that during snack time “there's always something there that they like to eat.”

Interactions with Parents: Nearly all providers spoke of only discussing food or mealtimes in the childcare setting when the parents approached them with the concern that their child was not eating enough. Typical comments included: “we don't really talk too much about nutrition” or how they believe nutrition only needs to be discussed when “the child isn't eating much” or when the parents reach the point that they are “so concerned that her child is not eating.” Resulting from interactions regarding food and eating being limited to only fear that the child is not eating enough, several providers spoke of how they try to encourage

these children to eat more and watch them closely to ensure they are eating. Several providers spoke of how they will ask parents to provide them with a list of foods the children eat at home to guarantee children will have their preferred foods available.

Many providers expressed feeling uncomfortable talking with parents about their child's eating, stating it's "not our place" and how they only discuss food "occasionally" and "I won't usually offer it until they ask because they're touchy." This lack of communication was described even when providers disliked the food parents were sending with their children to the childcare. For instance, several providers spoke of how they dislike when parents pack "Lunchables," (a packaged, processed lunch meal typically consisting of crackers, cheese, meat, and juice) or how they believe parents are giving their children too much juice or milk, but expressed not feeling comfortable discussing these subjects with parents. Providers stated, "That is a problem – children filling up on juice. Parents still give their children too much juice" and "Too much juice is a big one, and even too much milk." One provider explained how, as a result of feeling uncomfortable discussing food choices with parents, she deals with parents sending unhealthy snacks by waiting until the children begins to show boredom and then notifying parents their children are not eating and suggesting a new snack, referring to this as a "roundabout way of getting to parents." The importance in giving tips to parents without being "too pushy" and how providers found it beneficial to speak with parents about their own experiences as parents were similarly noted.

Community

Availability, price, and quality of food: When asked what influences providers in their decisions regarding what foods to serve, for the majority, buying foods for snacks and mealtimes was influenced primarily by cost, quality, and convenience. Foods were

commonly purchased from local grocery stores. Two providers spoke of how in the past, they had the food delivered by a wholesale company but stopped because they found the quality of the food to be lower than what was available in grocery stores. Seasonal variations were also found to be influential in providers' decisions on purchasing produce, with the majority discussing how much more expensive fruits and vegetables are in the winter and how the quality is lower: "I mean the quality's not great and then the price on top is yeah, I wouldn't pay that." Childcare menus were frequently dependent on the changes in seasons: "You kind of look at what's in season and you plan the menu around that way. And the same in the fall - more fall vegetables will come into play than summer vegetables." One provider explained her most recent trip grocery shopping for the daycare:

"This year, there was a sign up saying that because of the weather problems in the States they didn't get as many strawberries as they were expecting and the quality wasn't as good. And I looked at them and said, 'I'm not even buying these on sale.' So this year it's been really hard, especially for the fruits."

Budget restrictions were perceived as being one of the determining factors in choosing foods. One provider described how she would be able to buy a larger variety of "exotic" fruits to try at the childcare if budget were not an inhibitor. Referring to parents, another provider commented, "they're not going to go out and spend the money on the fruits and the vegetables and the good proteins if they know their kids are not going to eat it." Similar thoughts were echoed by a provider who explained how "most people would be like, oh, it's cheaper to buy the chips than the grapes or something. I have noticed that it's definitely more expensive."

Connections with other childcare providers: Providers frequently discussed the amount of social support they derived from being part of the childcare community in Ottawa. Sharing

ideas for successful recipes was cited as being the most common practice amongst daycare and centre-based providers: “there’s a lot of sharing of recipes between the cooks.” Several daycare providers spoke of meeting up with other home daycare providers in the park and having snacks together: “I meet with a few girls around here that do home daycare so we get together all the time.” However, two providers discussed the negative influence socializing with other daycare providers and their children had on the children in their care. One provider detailed how, “We’re outside and we’re playing and there’s another provider across the street who will bring her kids over and they’ll have some sort of snack or something and then all this junk food is coming over and the my kids ask for the snacks and she’ll ask if she can give them some.”

Internet community support: Though not discussed by any of the centre-based childcare providers, out of the five home daycare providers interviewed, three spoke of an alternative to in-person social support, and described the social support derived from belonging to internet communities of home daycare providers. One provider described this online community as

“very useful because it makes you feel like you’re not there all by yourself. You know, in this profession that’s probably the hardest thing; you work alone and you’re the only adult all day long with a bunch of little guys so when you can talk to other people that know what you’re going through – even if they’re not right there.”

The convenience and immediate response of being able to turn to this online source of support was another benefit of belonging to the online groups: “If it’s something that’s frustrating you at the moment, it’s just easy to hop on the computer.”

Community resources: The benefits of community resources were rarely discussed; however, a few providers spoke of the benefits of local resources such as bringing the children on trips to the grocery store, outdoor market, or apple orchards. One provider in particular, whose daycare was located in close proximity to an outdoor fruit and vegetable market, described the opportunities this location presented in terms of taking the children for trips to the market and introducing them to new and fresh local foods, noting how important she perceived these experiences to be positively affecting the children's developing food preferences.

Societal

Nutritional information resources: While all of the centre-based childcare providers were given government information on food and nutrition for early childhood, primarily *Canada's Food Guide* (Health Canada, 2009), fewer discussed resources provided by the City of Ottawa (such as *Growing Healthy* (2010)) or the *Day Nurseries Act* (2007), and very few of the home daycare providers reported receiving such information. Providers frequently referred to the food groups in *Canada's Food Guide* and described the importance of assuring the children were provided with recommended foods: "we have to follow the *Canada Food Guide* and the ministry regulations, with serving proportions and everything." However, as discussed earlier, this information, which providers typically described as being sent "all the time by the health department....we're always getting stuff like that," was not necessarily perceived as meeting the providers' needs, as they described feeding children as "common sense." One provider, when asked how she used the food

guidelines in the daycare setting, described them as “not really anything I didn’t know already.”

‘Junk food society’: Providers were found to frequently refer to what they perceived to be a societal push for eating unhealthy foods as a factor in their own eating behaviours, those of their families, and children in general. Typically, when asked what they believed influences children’s eating, providers responded with comments such as, “a fast food society.”

Unhealthy food was also believed to be promoted to children at a young age. One provider referred to this as “the junk food barrier in society,” which was stopping children from developing healthier eating habits. Children and parents were also perceived to be under pressure to eat at McDonalds and buy processed or packaged food as a result of living in this junk food society: “fast food ...I think that’s the biggest barrier that its everywhere and unhealthy.” Likewise, a few providers spoke of the impact of food advertising on television; how children are easily persuaded by commercials for foods and how this then “makes parenting hard.” One provider explained how this societal trend impacts how she prepares snacks at her daycare: “when I do fresh fruit cocktails I’ll even add – just so they’ll try it - some watered-down syrup ...such a sweet society.”

DISCUSSION

Understanding the factors that shape children’s nutritional environments from parents’ perspectives is well researched (Anliker et al., 1990; Benton, 2003; Brown & Ogden, 2004; Towns & D’Auria, 2009); yet, within the realm of childcare providers’ perspectives such research is limited. Through use of semi-structured interviews based on a social ecological understanding of behaviour, this study illuminated the variety of

individual, community, and societal factors that intertwine to influence providers in their decisions regarding the mealtimes and foods offered in the childcare settings, revealing the complex environment in which childcares operate.

Providers were found to report a number of practices which are consistent with the development of healthy nutritional behaviours in young children, such as serving water as a primary drink or structuring mealtimes with everyone eating together around a table, positive practices that are consistent with past research on providers (Trost, 2009). However, unlike Trost et al.'s research that did not interview providers on the reasons behind these practices, in the present study, providers revealed the motivations behind these decisions which were convenience, as opposed to knowledge of healthy behaviour development. Though they differed in the nutritional information resources provided to them, and consistent with Needham et al.'s (2007), Romaine et al.'s (2007), and Briley et al.'s (1999) findings, both preschool and home daycare providers held a variety of misconceptions regarding the development of nutritional behaviours in children, such as sugar causing children to be hyperactive, an avoidance of grains for children, and a belief that certain foods are meant for children compared to adults. Particularly, knowledge regarding grains in the diets of children is an especially important area for future research to address, as Variyam (2001) found that parents who were unaware of the importance of grains for children had a 14% higher prevalence of overweight children. Providers' knowledge and beliefs were found to play a role not only in determining which foods were chosen for the children, but also *when* certain foods would be served in the childcare setting. Consistent with Trost et al.'s (2009) findings on providers frequently serving unhealthy foods only for celebrations, providers in the present study detailed their control over foods allowed in the

childcare setting, particularly, how they only allowed desserts for birthdays and holidays and special treat days on Fridays. Unfortunately, creating environments with such food restrictions has been linked to children's overeating in the absence of the control as well as sending children contradictory messages of unhealthy foods being tied to positive social occasions (Fisher & Birch, 1999; Johansson et al., 2009).

Interactions in the immediate childcare setting with parents and children were found to factor into providers determining food and mealtime decisions. Providers described parents as negatively shaping children's eating behaviours and consequently limiting the positive influence of the childcare setting, perceptions that are congruous with past research (Fees et al., 2009; Moore et al., 2005; Needham et al., 2007). However, a new and crucial finding of this study was how providers reported discussing food and nutrition with parents exclusively when parents expressed fears that their children are not eating enough. As a result of these discussions, providers would encourage children to eat, regardless of the children's hunger or fullness. Adding to pressures from parents to ensure the children were eating enough food, providers, too, perceived children to appear physically healthier and behave better if they ate a lot. Nutritional guidelines, most commonly *Canada's Food Guide* (Health Canada, 2009), presented additional pressures, as these guidelines were perceived to stress the necessity in children consuming food groups and not on fostering long-term nutritional behaviours.

Another unique finding of this study was that, unlike previous research, the present study explored the role children play in influencing the childcare setting. Interestingly, interactions with the children were found to be one of the most determining factors in the selection of foods for the childcare setting. Providers described how foods were selected

based on the children's preferences, and how, while they tried to introduce new foods, children's refusal of foods resulted in them being eliminated from the menu. Though providers frequently detailed parents catering to their child's preferences, "So if its not something they're particularly fond of they'll just say, 'no I'm not going to eat that,' and then the parent will prepare something else. Whereas here it doesn't happen so they'll eat it," when asked to describe how foods were selected for the childcare setting, providers typically described a similar situation: "If they won't eat it then we just give them more of something else that they will eat." The influence children exerted over providers is a new finding for research in childcare, but is a similar finding to research conducted with parents in the home setting (Bolling et al., 2009; Brewis & Gartin, 2006).

Community-level factors were discussed mainly regarding budget restrictions and accessibility and availability of foods that varied with the seasonal changes. As has been established with previous research (Needham et al., 2007), in the present study, food selection for the childcare settings was affected by budget restrictions, with providers being limited in their selection of fruits and vegetables. Budget restrictions were found to be especially influential in the winter, when providers described a decrease in the availability and quality of food but with an increase in the price. Conversely, in the spring and summer, providers who lived in proximity to apple orchards or fruit and vegetable markets were found to describe the benefits of these resources in the warmer months of the year. These perceptions are important to note, as access to community food outlets have been found to be beneficial not only for those with limited budgets, but also for improving fruit and vegetable consumption and developing healthy nutritional behaviours in children

(Mikkelsen & Chehimi, 2007; Twiss et al., 2001). These findings add to the literature which recommends more research investigate seasonal variations (Fleischacker et al., 2007).

Providers were also found to be influenced by the support from other childcare providers both in their immediate community and, most interestingly and reflecting our technology-dependent times, virtually through the internet. Providers spoke positively regarding support from providers through providing solutions to everyday mealtime challenges, in either the face-to-face or online environment. Yet, several home daycare providers also described the negative influence other providers can present, as they described fellow providers similarly to parents, as being social influences who do not support the development of healthy behaviours in children. Fostering positive social support amongst childcare providers is an area that deserves further study, as social support is one of the most-researched factors in maintaining healthy behaviours (Brug, 2008), but has not been extended to this population.

Finally, providers were also found to detail their struggle against a society that promotes and advertises unhealthy foods to young children. Providers deemed this societal factor to play a major role in shaping children's food preferences (and thus affecting their behaviours in the childcare settings), primarily through advertisements on television and in grocery stores, a perception which is similar to findings from research conducted with parents (Hesketh et al., 2005). These perceptions are supported by research that has found that children exposed to television ads are more likely to prefer the advertised product (Rosenkrantz & Dzewaltowski, 2008).

As these findings demonstrate, though providers described an awareness of the importance of providing children with healthy foods, it was clear that the variety of

previously described factors - interactions with the children and parents and budget and availability of fresh foods -often overtook the providers' efforts to ensure they followed recommendations from resources such as *Canada's Food Guide* (Health Canada, 2009). Though providers reported receiving or being aware of nutritional information from government sources, they described them as being of little value in the childcare setting. This point is important, as much research with childcare providers recommends developing educational materials aimed at increasing individual-level factors, such as knowledge (Romaine et al., 2007). While the present study found a need to increase providers' nutritional knowledge, increasing knowledge alone will do little if the many other factors impacting their decisions regarding food and mealtimes are not addressed. Community-level factors such as limited accessibility and availability of fruits and vegetables in the winter and budget restrictions coupled with children's refusal of foods all contributed to providers being less willing to offer new fruits and vegetables in the childcare setting.

The myriad of interacting factors influencing providers' decisions and perceptions regarding nutrition in childcare settings shows the complexity of the social context in which childcare facilities operate. Unlike the school setting, childcare providers are running businesses, and ensuring that parents are satisfied with how their children are being fed contributes significantly in determining the nutritional environment of the childcare centres. Providers described being pressured by parents to ensure that their children were consuming enough food, which resulted in their ignoring the children's levels of hunger. Yet childcares are also unlike the home setting, as providers are in positions of having to deal with groups of different children possessing a range of experiences, behaviours, food preferences, and allergies.

CONCLUSION

To establish lifelong healthy dietary habits in children, it is important to consider the variety of social environmental factors shaping their development. The results of this research study provided information on the variety of factors that influence the nutritional environments of childcares as perceived by providers from Ottawa home-based and centre-based childcares, and revealed the complex social context in which childcare settings operate. This study confirms findings from past research with childcare providers, but also shed light on areas of influence, such as conversations between providers and parents being limited to discussing that children are not eating enough, the role of the child in determining food and mealtimes, and the impact the internet on home-based childcare providers. This study also showed the inadequacy of government nutritional resources targeted at early childcare providers, as this nutritional information was often discounted as not offering anything useful or new. Though all providers described feeding children as being a matter of common sense and centre-based providers described receiving nutritional information, it was clear these sources of provided information are not dealing with topics that are needed by this group. These findings echo research with parents, where it has been stressed that little is communicated with parents regarding children's nutritional development, despite evidence of the long-term effects that result from these early behaviours (Benton, 2003; Schwartz & Puhl, 2003). Consequently, there is a need to provide education on the development of children's nutritional behaviours.

The generalizability of these results is limited by the small sample size, as well as the use of convenience sampling within the region of one city. Additionally, using semi-structured interviewing resulted in providers having more control over the interview topics covered,

resulting in variability amongst the interviews. Finally, as this study relied upon one method of data collection, interviews combined with observations could have produced richer findings, and should be considered for future research with childcare providers. Nonetheless, these findings provide a foundation for future research that should replicate this study with a variety of providers from diverse contexts and backgrounds and further explore the interconnections amongst the various levels of influence. An area for future research should be to further investigate how children shape the nutritional environment of childcares, by viewing the provider-child relationship as being more reciprocal; how the child acts shapes how the provider acts and what the provider believes about children's eating behaviours. Another interesting area would be the use of the internet amongst home-based childcare providers: How it can be used positively to foster social support as well as the possible negative effects of providers sharing strategies not found to foster healthy development in children.

By using an ecological model, this study provided an understanding of the variety of factors influencing providers of centre-based and daycares in the Ottawa region. It is essential to provide early childcare providers with support and information considering individual, community, and societal factors in order to best develop healthy nutritional behaviours in children, particularly given the amount of time children are spending in childcares.

Appendix A

Table 1. Characteristics of Participants

Age	Setting	Education	Years of Experience
64	Home	Post Secondary	25
54	Centre	Post Secondary	28
54	Home	Post Secondary	15
52	Centre	Post Secondary	24
51	Centre	Post Secondary	19
48	Home	Some Post Secondary	21
48	Home	High School	9
44	Centre	Post Secondary	26
44	Centre	Post Secondary	25
40	Centre	Post Secondary	24
40	Centre	Post Secondary	20
38	Centre	Post Secondary	15
32	Home	Post Secondary	7

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Childcare providers' strategies for supporting healthy eating: A qualitative approach

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Recent research has advocated early childcare settings and providers to be important forces on the developing behaviours of children. Yet, most research on children's nutritional development has focused on the home setting and parents with less attention paid to other important influences. Through semi-structured interviews with childcare providers, this study aimed to develop a better understanding of strategies perceived to encourage healthy eating in childcare settings. Results revealed providers used a range of strategies, many of which focus on short-term goals while not promoting the development of healthy long-term nutritional behaviours. Using an ecological model, use of these strategies was found to result from pressures from the personal and societal levels of influence in particular. Furthermore, the method of semi-structured interviewing allowed for a better understanding of the childcare setting not achieved through quantitative research. These findings can be used to improve nutritional information sources aimed at providers by considering the challenges specific to childcare settings.

Keywords: childcare; nutrition; young children; qualitative research; social influences; strategies

Research has revealed Canadian children have diets poor in fruits and vegetables but plentiful in candy, chocolate bars, and soft drinks (Taylor, Evers, & McKenna, 2005). Such dietary behaviours should be concerning, as healthy diets have been linked with healthy weight status as well as improved cognitive function, physical performance levels, and

psychosocial health (O'Dea, 2003). Early childhood experiences are pivotal in developing children's food preferences (Hendy, 1999; Liem & Menella, 2002), which is significant because it is thought that all food preferences and nutritional behaviours are learned, though just how this learning occurs is not well understood (Cashdan, 1994; Hendy, 1999; Paquette, 2005). What has been well-established is the social environment's paramount role in shaping children's developing nutritional behaviours, particularly for the development of self-regulating food intake. Young children have proven to be capable of self-regulating the amount of food they require based on their physiological needs (Johnson, 2000); however, this capacity to self-regulate can be lost if children, particularly those between the ages of three to five years, are socialized to ignore their internal cues of physiological hunger and fullness and instead rely on external cues, such as parents controlling how much they eat (Birch & Davidson, 2001; Birch, McPhee, Shoba, Pirok, & Steinberg, 1987). To foster the development of self-regulation, research recommends parents employ strategies such as allowing children to eat when they are hungry, and allowing children to serve themselves (Birch, 1998; Birch & Davidson, 2001; Strauss & Knight, 1999).

Still, to date, the majority of research on the impact of the social environment on nutritional behaviour development has focused on parents (Fleischacker, Cason, & Achterberg, 2007; Moore, Nelson, Marshall, Cooper, Zambas, Brewster, & Atkin, 2005; Story, Kaphingst, & French, 2006). Examining the impact of other significant social influences in the lives of young children is crucial in gaining a fuller understanding of how healthy dietary behaviours in children are shaped (Lumeng, Kaplan-Sanoff, Shuman, & Kanm, 2008; Lytle, 2005; Moore et al., 2005; Needham, Dwyer, Randall-Simpson, & Heeney, 2007; Story et al., 2006), with recommendations to use a qualitative research

approach to develop a more well-rounded understanding of how food and nutrition are perceived (Matheson, Spranger, & Saxe, 2002; Taylor et al., 2005).

In recent years, one such social influence deserving of further study has proven to be childcare providers. Over the past decade, the number of Canadian children in childcare has risen significantly, with more than half of Canadian children between the ages of 6 months to 5 years, regardless of their demographic background, typically spending more than 27 hours per week in childcare (Statistics Canada, 2005). This increasing dependence on childcare providers reinforces the need for more research to examine how these individuals are shaping young children's nutritional behaviours (Birch & Fisher, 1998; Paquette, 2005; Taylor et al., 2005). Research conducted with childcare providers has yielded several positive findings regarding their influence on children's developing nutritional behaviours. Providers have been found to perceive their roles in developing healthy eating behaviours in children to be an essential responsibility, including both the social and health aspects of eating (Moore et al., 2005; Pagnini et al., 2007). Providers have reported arranging the childcare setting to ensure everyone could eat together around a table, as they explained this practice encouraged children to eat a greater variety of foods in the childcare setting compared to home (Moore et al., 2006). Trost, Messner, Fitzgerald, and Roths (2009) recently studied a large sample of childcare providers and found providers reported serving the recommended amount of fruits and vegetables and lesser amounts of unhealthy foods. However, due to the large sample sizes involved, these studies are unable to use interviews to explore the motivations behind providers' attitudes and behaviours. These studies are also limited to focusing on how individual-level factors, such as nutritional knowledge, affect providers; more research that examines the variety of factors that influence the behaviours of

providers in the childcare setting is needed. Considering the importance of the social environment during early childhood on lifelong nutritional behaviours, and due to the amount of time many young children spend in childcare settings (Statistics Canada, 2005), these findings all illustrate the need for more in-depth explorations of the nutritional environment of childcare settings with providers.

Social Ecological Theory

To develop a well-rounded understanding of the nutritional environment of childcares, essential is a theoretical framework that enables a broad understanding of the variety of factors that influences childcare providers (Davidson & Birch, 2001; Lytle, 2005).

The first level of influence was the most immediate and involves individual characteristics of the providers, such as nutritional knowledge, as well as interpersonal factors, such as providers' interactions in the immediate environment. Examples of individual characteristics include providers' attitudes and their relationships with parents. Studies focused on understanding the provider-parent relationship have reported less-than-encouraging findings. Childcare providers frequently speak negatively about the feeding practices and types of foods offered by parents (Needham et al., 2007) and have described that children's diets at the childcare facility are rarely discussed with parents (Fees, Trost, Bopp, & Dzewaltowski, 2009; Lumeng et al., 2008; Moore et al., 2005).

Nevertheless, while individual-level factors are often considered in studies with providers, to better understand their decisions and attitudes, it is essential to have an awareness of the wide range of social influences by also examining community factors involved in the development of a person's behaviours and perceptions (Bronfenbrenner,

1979, 2005), which have received considerably less attention. As such, the second level of influence examined focused on the social support perceived by providers and community resources available.

Lastly, the third level was societal and covered factors of societal pressures and government involvement by inquiring whether providers have ever received nutritional information from government, along with its perceived usefulness. This is important, as research with childcare providers has typically focused on how to improve recipe and menu quality or food safety practices, with less consideration for how information is perceived by providers (Fees et al., 2009; Fleischacker et al., 2007; Mooney et al., 2008; Moore et al., 2005; Romaine, Mann, Kienapple, and Conrad, 2007). For example, Romaine et al. interviewed those in charge of planning the menus at childcare centres and found that while most reported using *Canada's Food Guide* (Health Canada, 2009), whether the guide's information was perceived as helpful was not explored. Interestingly, a similar study by Moore et al. that did consider providers' perceptions revealed government-supplied nutritional information for the childcare setting was perceived as offering nothing more than common sense. These studies highlight the need for research to further explore not just if providers receive nutritional materials, but also if they are suited to the providers' needs (Moore et al.; Needham et al., 2007).

As childcare providers' behaviours are influenced by a variety of factors in their environments, developing an understanding of how factors act to influence their decisions regarding strategies used in childcares is essential. Specifically, the present study examined the strategies perceived by home-based and centre-based providers to encourage healthy

eating behaviours and compared these findings to what research recommends for the development of healthy nutritional behaviours in children.

Guided by social ecological theory (Bronfenbrenner, 1979,2005; Davidson & Birch; Gregson et al., 2001) and past research on childcare providers' perceptions of nutrition (Lumeng et al., 2008; Lytle, 2005; Moore et al., 2005; Needham et al.,2007; Story et al., 2006), the present study examines the strategies used by home-based and centre-based childcare providers to encourage healthy eating. The research questions were 1) What strategies do home-based and centre-based providers use to support the development of healthy dietary behaviours in children? And 2) What influences providers to use these strategies? These strategies were then considered with the ecological understanding that different levels of factors influence one's behaviour.

METHODS

Participants

The participants in this study consisted of 13 early childcare providers from the Ottawa region. 8 were from centre-based childcares, regulated by the City of Ottawa, while 5 were from home daycares. Table 1 shows the characteristics of the participants. All providers were female, and between the ages of 32 and 64, though the majority were in their mid-40s. All except two had a post secondary degree. Providers' years of experience ranged between 7 and 28 years, but the majority had mid-20 years of experience working in childcare. Theoretical sampling was employed, that is, the data was analyzed throughout the process with the number of interviews conducted being based on when interviews were no longer revealing new information (Cousin, 2009).

Interview Method

The use of individual interviews differs from the method commonly taken by the majority of past qualitative research on preschool and daycare providers, where focus groups were employed (Bolling et al., 2009, Goodell et al., 2008, Lumeng et al., 2008, Needham et al., 2007, Omar et al., 2001). Focus groups, however, can suffer from several drawbacks, including one respondent dominating the group, less outspoken respondents not voicing their opinions, and issues related to group dynamics (Fontana & Frey, 2005). A central problem with questioning individuals on their health behaviours is the issue of respondents' self-presentation (Babbie, 2001), which could be heightened in a group setting. Research into perceptions of parents and providers of early childcare have recommended this issue can be best addressed by taking a conversational-style approach with participants and explaining the study as being descriptive and exploratory (Fleischaker, 2007; Jain et al., 2004; Pagnini et al., 2007). Semi-structured interviews allowed for questioning into unexpected responses through the use of follow-up questions (Cousin, 2009; Smith & Osborn, 2008). A semi-structured interview guide was created to further ensure consistency while also allowing for flexibility to discuss topics raised by the providers themselves. A review of the literature pertaining to similar studies conducted with parents and providers assisted in the development of the interview guide. Providers were initially asked questions regarding creating the nutritional environment of the childcare setting, such as how they encourage eating in the childcare setting and what is done if a child refuses to eat the food offered or is hungry outside of a meal or snack-time. Next, providers were asked to describe how and why they made such decisions and were prompted with questions pertaining to personal, community, and societal influences

Procedure

The Research Ethics Board at the University of Ottawa provided ethics approval for this study and all participants provided voluntary informed written consent. Purposive sampling was used to recruit providers from home-based and centre-based childcares from the Ottawa region identified through telephone books and online searches. Interviews were held either at the home of the daycare provider or in the childcare setting and lasted on average 41 minutes. Each interview was conducted by the same researcher to ensure consistency.

Data Analysis

Interviews were digitally recorded and transcribed verbatim. The interview data were then analyzed using an approach of constant comparison that entailed summarizing and classifying the data and then relating it to previous literature (Pope, Ziebland, & Mays, 2000; Strauss & Corbin, 1998). To allow for emerging themes to influence subsequent transcript analysis, transcript reading and preliminary analysis were conducted sequentially. First, transcripts were read line by line and coded under either anticipated themes (identified by previous research, such as interactions with parents) or emergent themes (such as use of condiments to encourage vegetable consumption). Initial codes were applied to later data, new codes developed as new themes emerged, and some initial codes were revised. Next, related codes were then grouped together under the main themes of positive strategies, negative strategies, and influences for the development of healthy eating behaviours in children. Resulting from this analysis, the main themes of the data are presented below; with the examples and quotations selected because they are typical of the themes identified.

RESULTS

Following data analysis, the first two sections below cover the study's first focus on the strategies reported by childcare providers to encourage healthy eating, which have been divided into positive and negative strategies, after relating the strategies to the literature on nutritional behaviour development in children. The third section covers the second focus of identifying the range of factors influencing providers to use such strategies.

1) Positive Strategies

Providers reported employing a variety of strategies considered effective in encouraging the development of healthy nutritional behaviours in children (Aldridge, Dovey & Halford, 2009; Birch, 1998; Schwartz & Puhl, 2003). All participants discussed meal and snack time environmental strategies to create a positive experience for the children. Presentation of food was similarly described as being crucial in encouraging healthy nutritional behaviours. Finally, the mealtime was seen as providing an opportunity to teach concepts beyond just eating.

Snack and mealtimes were typically described as needing to occur in a pleasant environment, with all providers and children eating together. Facilitating this type of environment was described as helping to get the children to try new foods; one provider spoke of how she saw lunchtime as her responsibility to "provide a nice environment for them to explore foods." This pleasant setting was achieved through not pressuring children to eat any certain food; one provider described her philosophy towards feeding children as "I provide healthy choices and you decide what to eat – or not eat." Other providers spoke of the importance of "not making meals a power struggle" and how this laidback approach had

a positive influence on encouraging the children to try new foods. Virtually all providers spoke of how their own behaviour affected the children's mealtime experience. One provider described the most successful ways to get children to try new foods as depending on "the way you look and talk about it and if you eat it yourself." Encouraging the children verbally was a widespread strategy; many spoke of encouraging the children to try "just one bite," or even just encouraging the children to smell the unfamiliar food as a first step.

Giving children the opportunity to exert some choice in what they have for snack was described as being important: "If the child feels they have [sic] some control then they are more willing to try new things." One provider similarly encouraged children to exert some control by allowing them to pour their own juice. Providers explained, "Serving themselves, being able to help themselves is a big point... so if you have a plate of apples on the table, and for them to be able to choose what apple piece is for them, at this age, a big deal."

Consistently offering new foods to children was also described as being a key strategy for encouraging children to try new foods, especially new fruits and vegetables. The participants reported presentation of new foods was equally important, as they needed to be served in small portions to not overwhelm the children. Similarly, providers described how certain foods required specific presentation due to children being sensitive to foods' textures and the visual appeal of foods: "definitely colours and textures are important at this age, smells are important too." For instance, many providers stressed the necessity in cutting up fruits and vegetables and leaving the peel or skin on fruits to ensure they remained looking "fresh."

Some providers spoke of spending the mealtime educating the children about the importance of eating healthy foods and teaching children about different aspects of cooking:

“I find the more they do in the kitchen and the more interested they are in learning stuff.” A smaller number of providers spoke of the strategy of introducing new foods “as a fun activity ... we try and do a cooking activity once a month with them.” Another described how she found it helped to involve the children in all the aspects of mealtime, including making a grocery list, grocery shopping, and setting the table.

2) Negative Strategies

While providers all described their intentions to develop healthy nutritional behaviours in children, relating their strategies to the literature on the development of children’s healthy nutritional behaviours revealed that negative strategies were emerging from the interviews (Birch & Davidson, 2001; Birch & Fisher, 1998; Johnson, 2001 Orrell-Valente et al., 2007). Providers employed many strategies focused only on the goal of children consuming healthy foods. Providers’ descriptions of the childcare’s mealtime scheduling were found to encourage children to focus on external rather than internal cues for hunger. Providers also restricted the consumption of unhealthy foods to birthdays, holidays and Fridays.

A common strategy employed to ensure children consumed vegetables involved serving them with ketchup, cheese, dips, and salad dressing, and was perceived as a necessary step, as “if we could put salad dressing with anything they would eat it.” Another provider explained, “I find this generation is all about ketchup; they’ll put ketchup on anything.” Likewise, providers described a strategy of disguising healthy or unfamiliar foods in unhealthy foods “so you’re just you don’t feel you have to add a vegetable to that meal that they’re not going to eat. You can disguise. You can put applesauce or pureed prunes into brownies and nobody would know.” This strategy was described by many providers as

being ideal to “get the healthy stuff into them” or even how it was often “the only way that you’re going to be able to get vegetables into them.”

Contrasting with the descriptions of familiarizing children with foods, providers described how unfamiliar food needed to be well-blended because “if they can see it they won’t eat it.” Similarly, juice was frequently diluted with water, chocolate milk was watered down with plain milk, and white bread that “has the benefits of whole wheat” were commonly cited ways for getting children to eat healthily. Importantly, the success of this strategy of hiding foods was shared with parents: “I just discovered quinoa and what a good source of protein it is, and it’s so much like rice that I just kind of stuck it in the pasta she never even knew it was there. So I said to her mom, ‘you might want to try some of that because she seemed to accept it.’”

With the ultimate objective of having the children eat the healthy foods, using less nutritious food as a reward for eating the nutritious food was another widespread strategy. Providers described giving desserts as a reward for eating the healthy meal or warning the children that they would only get the dessert later in the day if they ate the healthy food now. For instance, children were told they could “get the cookies after we’ve had the vegetables,” or warned that “remember you lost your snack because you didn’t eat the healthy stuff.” Again, one provider spoke of sharing this strategy with parents, and how she advises parents to tell their children that they can get the same amount of dessert compared to how much healthy food they eat: “If you only eat a little bit of dinner you’re only getting a little bit of ice cream but if you eat your whole dinner then you’ll get a bowl of ice cream.”

Many providers spoke of the strategy of having the children eating on a set schedule, and how it takes the children a few weeks to learn to eat all of their lunches because if they

are hungry after providers remind them, “This is why you should eat all your food at lunch.” Or that snack is “not for a few more hours; this is why you should eat all your food at lunchtime so you won’t be starving.” Providers further discussed how it was necessary to have all the children only eat during designated times and how the children must learn the schedule, by instructing them:

“You have to wait until the girls get up from their nap and then you can have your snack. If you ate better at lunch then you would have enough to keep you going... Yeah, they learn the schedule. And then it’s like, ‘ok I better eat all my lunch because it’s going to be like three hours until before I get something else.’”

Providers described the strategy of serving healthy foods the majority of the time and reserving less nutritious food only for parties, special occasions, and on Fridays. When asked about typical foods served to the children, providers spoke of fruits, vegetables, and whole grains, and stated they only had cookies, cupcakes, and cake to celebrate birthdays or other holidays: “on Friday we have a big treat, like you get a rice crispy square on Friday afternoon or maybe a cookie or if we’re having a special occasion – we’ll have a cupcake for the birthdays – special events – Valentine’s Day maybe, that kind of stuff.” One provider described how she only permits the children a snack that is “just completely unhealthy but it’s a treat so we allow it for birthdays.” Many providers spoke of baking cookies with the children to celebrate holidays such as Christmas, Mother’s Day, Valentine’s Day, etc. One provider described how a special day each month is celebrated with treat foods: “we’ll have PJ and Movie day so we’ll have like popcorn and m&ms.” Likewise, providers spoke of serving different foods on Fridays compared to the rest of the week; several served treat foods such as cookies only on Fridays.

3) Factors influencing use of strategies

To develop a better understanding of why providers use these strategies, they were asked questions based on an ecological understanding of behaviour that individual, community, and societal influences all intertwine in their decisions. The most important factors perceived by providers were found to come from the individual and societal levels: their beliefs, experiences in the childcare setting and with their families, interactions with parents, and pressures from societal sources, most commonly, *Canada's Food Guide* (Health Canada, 2009). Community-level factors were not perceived by providers to have as great influence and due to the space limitations of this article will not be discussed.

Individual-level factors were described as being influential on many strategies, particularly in determining the snack and meal-time schedule and serving of food. Having the provider portion out and serve the food was described by many as decreasing the spread of viruses and germs. One provider described her belief in a “huge difference” in the spread of viruses when her childcare switched from allowing the children to choose their own snacks from a common platter compared to having staff at the school hand out the food. Another provider described the time-consuming task of ensuring all the children washed their hands and all the tables had been disinfected before anyone was allowed to eat any food. Likewise, one provider explained, “you run into so many allergies; you’ve got dairy allergies, nut allergies and peanut allergies. And it’s not just anymore where you could just have them at another table; it’s environmental and you can’t have them around anybody that’s had some of these.” Another provider described the range of food constraints that can be found in one group of children: “a gluten-free diet or they’re very strict about the peanut-free diet ... the other one is a child who has religious issues with food and then we have another child that has PKU [phenylketonuria] so she’s on a special diet.” Similarly,

ensuring the providers ate at the same time as the children was described as being a positive, but unrealistic strategy for the childcare setting. Snack and meal time was described as being the best time for providers to prepare for activities that would occur after lunch, as well as being a time when they are busy preparing or cleaning up food. As one provider detailed, “Teachers are allowed to sit with them once – I don’t want to say once their duties are done, but we have to have beds put out, right? Obviously the best time to do it is when they are all sitting at the lunch table.” Not surprisingly, this challenge was especially noted by the home-based childcare providers, as one home-based provider explained, “One person, five kids? There’s usually not time to sit.”

Individual-level factors of beliefs and attitudes about how children should be eating as well as providers’ experiences with their own families also affected providers’ use of strategies in the childcare setting. Children were commonly perceived as being healthy if they ate a lot; children were depicted as being “good eaters” or they “ate very well” if they ate all food offered to them during snack or mealtime in the childcare setting. Children described as eating a lot in the morning but still eating a “ton” at lunch were characterized as being “just good eaters.” Similarly, when asked to describe children who ate healthily in the childcare, providers typically depicted them physically as having “round cheeks” and a “full tummy.” Children who eat more food were additionally perceived to behave differently, acting happier and more energetic: “those that eat well have more energy and those that don’t are usually cranky and irritable,” and “more vibrant” than those that ate poorly.

Experiences with their families also influenced many providers in their decisions. One provider described how she chose to use the strategy of blending vegetables to hide them in sauces in the childcare because “it worked at my house really well... Never tasted it

and never realized it until anybody saw me making it.” Family experiences also influenced some providers to believe there exists a genetic component to food preferences, that is impossible to alter, such as one provider who described, “I think there’s a genetic component to it ... I can see it in my own family...my husband won’t eat onions ... two of my kids would not touch onions they were absolutely and completely against onions... right from the start.”

Interactions between providers and parents were found to play an influential role in determining strategies used by providers. Providers reported rarely speaking with parents about food and eating in the childcares, typically stating, “we don’t really talk too much about nutrition.” A few providers reported relaying nutritional information through newsletters to parents; however, more commonly providers described feeling uncomfortable discussing with parents nutrition and how the children ate in childcare. For the majority, food and nutrition were only discussed “if we’re asked.” Importantly, the exception to this lack of communication was when parents believed their child wasn’t eating enough. One provider explained: “Sometimes the parents are worried about their lunches... even though we do sit with them during lunchtime and we do encourage them to eat. And I’ve also had parents complain that they (the children) aren’t drinking enough so try and get them to drink.” Another described “Some of the parents say to us, ‘oh, he *needs* to have snack.’ Then we’ll make a point of saying, ‘well, you really should just come and have something.’ But if it doesn’t bother their parents and it doesn’t bother them, then we don’t insist that they have snack.” When discussing parents, providers were found to frequently comment on how shocked parents are to learn what their children are eating at the childcares, as children “eat stuff at my house that they won’t eat at their house ... and they’ll eat more at my house than

they will at home.” One provider explained how she even videotaped one young girl eating peas for lunch because her mother did not believe she ate them. Though, when asked if how the children eat at the childcare improves their habits at home, providers disagreed, offering insights such as, “No, they have two different sets of rules – mine and the parents and they know who’s who.”

Pressures from society to ensure the children were eating healthily also proved influential. Providers typically described the importance of following *Canada’s Food Guide* (Health Canada, 2009) in the childcare setting: “we have to follow the *Canada Food Guide*, with serving proportions and everything. We have to provide the right amount of number of fruit and vegetable ...we have to provide protein versus carbohydrate, so each snack and lunch time menu will be according to the number” or “we try and stick to *Canada’s Food Guide*.” Another common reference was to “the Ministry.” For example, “We’re supposed to by the Ministry requirements, so they require so much milk a day and so much fruit a day and that stuff.” Yet, when asked how helpful these sources of information were in their daily lives in childcare, the majority of providers described not typically using them, as feeding young children was perceived as being “common sense.”

DISCUSSION

The findings from this study provide necessary descriptions of how healthy eating is perceived by providers and encouraged in childcare settings. In agreement with past research (Moore et al., 2005), providers described employing many strategies that are consistent with research on developing healthy eating behaviours in children, such as providing a pleasant eating environment, modelling healthy food preferences, and consistently offering unfamiliar foods (Aldridge, Dovey & Halford, 2009; Birch, 1998; Schwartz & Puhl, 2003).

Nevertheless, regarding what can be gleaned from this study to aid providers in supporting healthy nutritional behaviours in children, of particular interest were providers' inability to implement research-recommended strategies and their use of negative strategies. Through employing a social ecological perspective, an understanding of the interconnections among the different factors acting on providers illuminates the complexity of creating childcare environments that are supportive of healthy eating. In particular, interactions with parents, personal beliefs, and societal influences were found to factor into providers' use of control strategies that limited children's opportunities to develop self-regulation over food intake. The findings further revealed the importance qualitative research affords for developing a more well-rounded understanding of nutrition in the childcare setting.

For developing healthy and long-term nutritional behaviours in children, certain strategies are recommended, such as having children and adults eat meals together, allowing children to eat when they are hungry, allowing children to serve themselves portions of food, and involving children in cooking and preparing foods (Birch, 1998; Birch & Davidson, 2001; Lytle et al., 1997; Strauss & Knight, 1999; Young, Anderson, Beckstrom, Bellows, & Johnson, 2003). However, providers described factors that interacted to create real childcare situations which were incompatible with such research-recommended strategies. Allowing children to serve themselves or eat whenever they are hungry was described as impractical due to providers' concerns of children spreading germs and colds. The high number of children on special diets presented providers with additional fears that required the provider to control the foods provided. Likewise, providers described how careful they needed to be when allowing the children to eat due to fears over contamination of foods that would be dangerous for children with allergies. Furthermore, providers

described the impracticality of eating at the same time as the children and the amount of time that is needed preparing for mealtimes. The inability of providers to implement recommended strategies concurs with past research; for example, Trost et al. (2009) found only 23% of providers served food “family-style” (allowing children to choose their own portions from a communal plate) to children in their care. Lumeng et al. (2008) also found teachers in a preschool program to describe mealtimes as being overwhelming when they attempted to implement a family-style mealtime approach.

Reasons as to why providers used negative strategies, such as concealing healthy food in unhealthy foods, using unhealthy food as a reward for eating healthy food, serving food with high sugar or high salt condiments, and limiting access to certain foods were found to be tied to achieving the short-term goal of ensuring children eat healthy foods.

Echoing the findings of past research with providers (Lumeng et al., 2008), providers reported rarely discussing nutrition and food with parents and felt unqualified to raise any nutritional concerns. A consequence of the lack of communication between providers and parents was seen in how providers spoke of children eating differently (in terms of more variety and quantity) in the childcare setting compared to home. Providers perceived the children as eating more healthfully at the childcares as a positive point; however, research on the long-term development of behaviour stresses that in order for healthy behaviours to be long-lasting, it is crucial behaviours be promoted and practiced in a variety of settings (Bronfenbrenner, 1979, 2005; Lytle, 2005; Lytle et al., 1997). Importantly, however, providers described that food *is* discussed when parents approach them with fears that their children are not eating enough, discussions that resulted in providers encouraging the children to eat more at the childcares.

Providers themselves described children as appearing healthier and behaving better if they ate large amounts of food. Providers also described their beliefs in needing to control when certain foods could be served by limiting unhealthy foods for celebrations; how they live in a culture where celebrations are marked with unhealthy foods and unhealthy foods are an integral part of childhood. Additionally, providers spoke of personal experiences with their families and their own positive childhood experiences of birthday and holiday celebrations involving treats. Unfortunately, though well-intended, parents who employ similar controlling strategies have been found to promote the development of obesity by limiting children's opportunities to develop self-control (Costanzo & Woody, 1985).

Adding to their own beliefs and pressure from parents, providers further described *Canada's Food Guide* (Health Canada, 2009) to stress the necessity of young children eating adequate servings from each of the food groups, and not on long-term behaviour development. These findings echo conclusions drawn from research with parents and show the need for nutritional information sources to go beyond stressing the consumption of certain food groups and to cover the importance of long-term nutritional behaviour development (Benton, 2003; Schwartz & Puhl, 2003).

These findings of the different influences that intertwine to pressure providers to encourage children to eat in the absence of hunger and to ignore internal cues for satiety are significant, as these strategies have been found to disrupt children's ability to self-regulate, which has been linked to obesity (Birch et al., 1987). While these findings are new for childcare providers, similar findings have been noted with parents. Orrell-Valente et al. (2007) found that 85% of parents tried to get their children to eat more during mealtimes, ignoring the children's self-regulation of intake. Consequently, while providers perceived

limiting unhealthy foods as a way to foster healthy eating habits, this practice has been found to instead encourage children to eat when these limited foods are served, whether they are hungry or not. As a result, the presence of food, and not hunger, initiates eating (Birth & Davidson, 2001). Developing strategies to help providers deal with these concerns is crucial, as limiting children's control over their food intake at a young age results in long-term consequences on their weight and nutritional behaviours (Birch, 1998).

Finally, a number of strategies described by providers in this study stand in contrast to past research with providers, and illustrate the importance of a qualitative research approach for developing a fuller understanding of providers' behaviours in childcare settings. For instance, providers spoke of serving the children unhealthy or dessert foods only after they had eaten the healthier food or refusing them the snack later in the day if they did not eat their lunches. These practices differ greatly from quantitative research by Trost et al.'s (2009), where it was found that nearly 100% of providers reported not employing any such strategies, such as not serving children vegetables with butter - a finding that could also be made of the providers in this sample -resulting in the conclusion that providers are serving children healthy meals. However, the present study revealed providers reporting vegetables are frequently served with other high-sugar and high-fat condiments, such as ketchup and salad dressing, which could not have been revealed through a closed-ended questionnaire.

IMPLICATIONS FOR PRACTICE

This study provided information on the healthy eating strategies used by a sample of providers in Ottawa home-based and centre-based childcares and the complex social context – involving pressures from parents, children, nutrition education materials - in which they

are delivered. The generalizability of the results is limited by the small sample size, as well as the use of convenience sampling within the region of one city. Additionally, the method of semi-structured interviewing resulted in providers having more control over the interview topics covered, resulting in variability amongst the interviews. Finally, as this study relied upon one method of data collection, interviews combined with observations could have produced richer findings, and should be considered for future research with childcare providers. Nonetheless, the results obtained provide a foundation for future research and provide practical insights into the variety of factors that influence childcare providers.

Future research needs to replicate this study with diverse samples of providers to better understand strategies providers perceive as supporting healthy eating. The importance of using research techniques that go beyond questionnaires has been recommended for better understanding social influences on childhood eating behaviours (Benjamin et al., 2009; Towns & D'Auria, 2009), and was highlighted in the findings. Through semi-structured interviews, providers revealed a number of unanticipated strategies and the challenges providers face which make many recommendations incompatible with the reality of day-to-day life for these providers not previously identified in quantitative studies.

These findings regarding the challenges providers are facing, particularly those who run home-based childcares, are especially important to address in light of research by Benjamin et al. (2009), who found a correlation between the number of hours children spend in daycare and higher body mass indexes at ages one and three. Importantly, this correlation was only noted if the child was in a home daycare and not a centre-based childcare or in his/her own home with a non-parent. Differences between the centre-based and home-based childcare providers noted in the current study included centre-based providers describing

better access to courses on child development and information on food and nutrition. Home-based providers were the only ones to mention using the internet as a source of information on nutrition and as a virtual social support network with other home-based providers. Additionally, home-based childcare providers were the only ones to discuss serving the children re-heated meals from their family's dinners (whereas centre-based childcares have meals cooked specifically for the children), indicating that the children's meals in home-based childcares were dependent on the family's food preferences. Finally, it is possible that many of the unfavourable factors influencing providers could be intensified in home-based childcares. There, with only one adult present, the isolation could heighten the provider's need to control the food situation because of germs/colds/cross-contamination; such individual responsibility could also make the provider less willing to engage in educational food-related activities with children (such as baking). And in contrast to the centre-based childcare, where there are several teachers modeling healthy behaviours, in home daycare there is only one adult to model healthy eating.

The findings of the present study are also important with regards to knowing more about what nutrition education materials should focus on and how they should be created for childcare providers. It is important to communicate to providers how they can aid children in developing healthy dietary habits, especially by being less focused on the immediate goal of fruit and vegetable consumption and more on establishing long-term healthy nutritional behaviours. Schwartz and Puhl (2003) similarly stressed how little is taught to parents about children's nutritional development, despite evidence of the long-term effects that result from these early behaviours. Benton (2003) agreed, concluding that teaching more about child development should be used to develop healthy food preferences in children. There was also

a need identified for educational materials to encourage partnerships between parents and childcare providers in developing healthy dietary approaches (Briley et al., 1999; Mooney et al., 2008; Moore et al., 2005). Still, echoing the findings by Pagnini et al. (2007), providers expressed an openness to improving relations with parents; many wanted educational materials to focus on how they can best discuss nutrition with parents as well as information they could pass on to parents. Moreover, these findings also illustrated the need to develop these materials in conjunction with providers by knowing more about the variety of factors that influence providers as opposed to merely prescribing food and nutrition guidelines that are not specific to the childcare setting (Lytle, 2005). As the influences raised by providers illustrated, it is essential to develop nutritional resources with providers to best recognize the impact of different factors influencing providers' mealtime and food decisions, beyond a narrow focus on nutritional knowledge.

Appendix A

Table 1. Characteristics of Participants

Age	Setting	Education	Years of Experience
64	Home	Post Secondary	25
54	Centre	Post Secondary	28
54	Home	Post Secondary	15
52	Centre	Post Secondary	24
51	Centre	Post Secondary	19
48	Home	Some Post Secondary	21
48	Home	High School	9
44	Centre	Post Secondary	26
44	Centre	Post Secondary	25
40	Centre	Post Secondary	24
40	Centre	Post Secondary	20
38	Centre	Post Secondary	15
32	Home	Post Secondary	7

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Conclusion

This study of childcare providers' perceptions of food and mealtimes yielded contributions to the literature on young children's social environments. Providers of home-based and centre-based childcares were chosen because this study's focus is on the main—though less frequently studied—social influences on children's nutritional behaviours (Anliker, Laus, Samonds, & Beal, 1990; Birch, 1998; Brown & Ogden, 2004). Such providers play crucial roles in influencing children's developing nutritional behaviours, behaviours that have been found to track into adulthood (Wardle et al., 2001). What follows here is a discussion of the most pertinent conclusions of my research.

First, through use of semi-structured interviews based on a social ecological understanding of behaviour, in two articles my study shows the variety of factors that influence providers in constructing the nutritional environments of their childcare facilities. Second, an understanding of the interconnections among the different influencing factors illuminates the complexity of creating childcare environments that are supportive of healthy eating. Third, the limitations of the findings are discussed. Fourth, the findings are viewed in terms of providing a foundation for future research, particularly in examining differences between home-based and centre-based childcares. Lastly, my thesis research demonstrated the advantages a qualitative approach offer for nutritional behaviour research.

Article findings

In the first article, major themes identified as influencing the nutritional environment of childcare settings included providers' attitudes to childhood nutrition, interactions in the childcares, budget restrictions, resisting a “junk food society,” and social support amongst childcare providers. Novel findings identified in this article included how interactions in the

immediate childcare setting between parents and children factored into providers' food and mealtime decisions. Nearly all providers described being pressured by parents to ensure that their children were eating the snacks and meals served. Providers also seemed unaware of how much influence the children themselves exerted regarding foods served in the childcare settings. Providers frequently criticized parents for catering to their children's food preferences; however, when asked how they decided what foods would be served at the childcares, providers typically responded that the decision was based on what the children were willing to eat. Another novel finding of this article's research was that home-based providers receive support from other childcare providers through internet childcare groups.

The second article takes a more focused approach to the strategies providers perceived as encouraging healthy eating in childcare settings and what influenced them in choosing them. Of particular interest in this article was providers' use of strategies that focused on short-term nutritional behaviour goals (primarily, ensuring that children eat the recommended servings of food groups), regardless of how these goals are achieved. The findings of this article suggest the need to develop nutritional materials for childcare providers in conjunction with providers, as opposed to merely prescribing food and nutrition guidelines that are not specific to childcare settings.

Interactions between factors

Through a social ecological perspective, many factors were found to interact in influencing providers in their decisions regarding nutrition in the childcare settings, indicating the complexity of the environment in which childcares operate. Reasons as to why providers relied on some strategies, such as using unhealthy foods to reward healthy eating, were found to result from a general approach of doing, as one provider said,

“whatever it takes to get them [the children] to eat vegetables.” Such attitudes were shaped by interactions with parents, personal beliefs, and societal influences. For example, providers described discussing food and nutrition with parents only when parents expressed fears that their children were not eating enough. Providers, too, viewed children as appearing healthier and better behaved if the children ate a lot, a perception which further influenced providers to encourage children to eat more during snack and mealtimes. Finally, *Canada’s Food Guide* (Health Canada, 2009) was perceived to stress on the necessity of children’s consuming the required food groups and not for fostering long-term nutritional behaviours. Consequently, providers justified various strategies for achieving the short-term goal of getting the children to eat healthy foods: disguising healthy foods in unhealthy foods, using unhealthy foods as a reward for eating healthy, and serving food with high sugar or high salt condiments.

Providers also described factors that interacted to create real childcare situations which were incompatible with such research-recommended strategies as allowing children to develop independence over their food intake and involving children in cooking and food preparation (Birch, 1998; Birch & Davidson, 2001; Strauss & Knight, 1999; Lytle et al., 1997). Providers remarked how careful they needed to be about contamination of foods and the spread of germs, how parents expected them to have mealtimes on a set schedule, how they lived in a culture which marked birthdays with unhealthy foods, and how eating unhealthy foods has become a privilege of childhood. Again adding to providers’ perceptions of the necessity to control children’s food intake, *Canada’s Food Guide* (Health Canada, 2009) was perceived as stressing the necessity of young children eating adequate servings from each of the major food groups rather than as encouraging long-term

nutritional behaviour development. Such insights illustrated the necessity of developing ways for addressing the incompatibility of research-recommended strategies and use of negative strategies in childcare settings. There is a need for nutritional information sources to go beyond stressing that children consume certain food groups and to focus on the importance of providers helping children to develop healthy long-term nutritional behaviours.

This myriad of interacting factors influencing providers' decisions and perceptions regarding nutrition in childcare settings shows the complexity of the social context in which childcare facilities operate. Unlike the school setting, childcare providers are running businesses, and ensuring that parents are satisfied with how their children are being fed contributes significantly in determining the nutritional environment of the childcare centres. Providers described being pressured by parents to ensure that their children were consuming enough food, which resulted in their ignoring the children's levels of hunger. And childcares are also unlike the home setting, as providers are in positions of having to deal with groups of different children possessing a range of experiences, behaviours, food preferences, and allergies.

Limitations

The findings of my thesis research must be considered in light of several limitations. The generalizability of the results is limited due to the small sample size of 13 participants. The use of convenience sampling within the region of one city to locate participants must be taken into consideration, and providers who refused to participate may have expressed differing opinions from those willing to participate. Providers were also not asked to report their own body mass index, which could be a relevant characteristic for future researchers

more focused on obesity, given the importance of parents' body mass index on their children's developing obesity (Skinner, Carruth, Bounds, & Ziegler, 2002; Strauss & Knight, 1999). Additionally, providers may have felt obligated to report socially desirable findings and, similarly, since they were recalling experiences, there is always the issue of memory reliability. Inherent in semi-structured interviewing is the participant's having more control of the interview topics covered, which results in variability in interviews. Finally, I used only one method of data collection, whereas interviews combined with observations could have produced richer findings.

Future Research

Regardless of these limitations, the results provide a foundation for future research, especially considering that childcare providers remain an under-studied group. Such future research could replicate this study with diverse samples of providers, as well as focusing more on the original findings of this study. By viewing the provider-child relationship as reciprocal, future research could investigate further how children shape the nutritional environment of childcares. Another interesting area for future research would be to explore how the internet is used by home-based childcare providers: how is it used positively to foster a social support network as well as negatively to share strategies unfavourable to healthy nutritional development in children.

Furthermore, as seen in the second article, an important goal for future research could be to determine ways in which providers can employ those strategies recommended by research for encouraging the development of healthy nutritional behaviours. Achieving this goal would be dependent on providing nutritional education materials that address the numerous factors influencing providers' behaviours and developing these materials *with*,

instead of just *for*, providers. Given the number of unanticipated strategies and influential factors described by providers, this goal could perhaps only be achieved through working with providers to develop materials that meet their specific needs. Similar to research findings that parents are often unaware of the role they play in their children's development of nutritional behaviours (Benton, 2003), this study found that providers are not creating settings that foster healthy, long-term nutritional behaviours. Finally, another area of importance is enabling providers to discuss their concerns regarding nutrition and food with parents. Not only do nutritional resources need to encourage childcare providers and parents to work together in delivering healthful nutrition, but also, to echo the conclusions of Story et al. (2006), to show childcare settings as a way to reach parents and to make healthful changes in the home. To establish healthy lifelong dietary habits in children, parents and providers need to work together consistently to deliver messages within multiple contexts.

The findings of my thesis gain importance in light of recent research by Benjamin and colleagues (2009), who found that the more hours a child spent in daycare the higher his/her body mass index was at ages one and three. But this finding was remarked only if the child was in another's home-based daycare and not centre-based care or in his/her own home with a non-parent. Differences between the centre-based and home-based childcare providers noted in the current study included centre-based providers describing better access to courses on child development and information on food and nutrition. Home-based providers were the only ones to mention using the internet as a source of information on nutrition and as a virtual social support network with other home-based providers. Additionally, home-based childcare providers were the only ones to discuss serving the children re-heated meals from their family's dinners (whereas centre-based childcares have meals cooked specifically

for the children), indicating that the children's meals in home-based childcares were dependent on the family's food preferences. Finally, it is possible that many of the unfavourable factors influencing providers could be intensified in home-based childcares. There, with only one adult present, the isolation could heighten the provider's need to control the food situation because of germs/colds/cross-contamination; such individual responsibility could also make the provider less willing to engage in educational food-related activities with children (such as baking). And in contrast to the centre-based childcare, where there are several teachers modeling healthy behaviours, in home daycare there is only one adult to model healthy eating.

Qualitative Research

This thesis highlights the advantages of utilizing qualitative research, as a number of findings stand in contrast to past large-scale questionnaire research on daycare providers (Trost et al., 2009); it also illustrates the importance of developing an in-depth understanding of providers' perceptions of childcare settings. In semi-structured interviews, the thirteen providers of this study discussed factors and provided insights that allowed for a more complete understanding of the childcare setting than have been achieved by quantitative methods. For instance, studying a large sample of providers, Trost et al. (2009) reported that the overwhelming majority of providers implemented strategies for supporting healthy eating that are consistent with research recommendations. Nearly all of the providers who participated in Trost's questionnaire reported serving vegetables without butter, suggesting that providers serve children healthier meals. But in the interviews of the present study, providers described a number of unanticipated strategies for encouraging healthy eating in the childcare settings. They reported vegetables being frequently served with high-

sugar and high-fat condiments, the popularity of a high-salt snack (crackers and cheese), the restriction of unhealthy or dessert foods until after children had eaten the healthier food, and the limiting foods if children did not eat during pre-determined mealtimes. All such practices stand in contrast to the quantitative research of Trost et al. (2009).

While providers also reported a number of practices that are consistent with the development of healthy nutritional behaviours in young children, the interviews revealed that they were motivated more by convenience than by knowledge of healthy behaviour development. Although providers described receiving nutritional information from government sources, they rarely used it, claiming that feeding children “common sense.” Yet providers were found to hold a variety of misconceptions regarding the development of nutritional behaviours in children, such as the relation between sugar and hyperactivity, the avoidance of grains for children, and the belief that certain foods are either child or adult-friendly. Consequently, though past research using quantitative measures has been able to gather information from large samples of childcare providers (Fleischacker, Cason, & Achterberg, 2007; Moore, et al., 2005; Story et al., 2006), more in-depth research with providers, such as this thesis provides, can offer insights into the complexity of factors that shape the childcare nutritional environment.

In conclusion, from a sample of providers from centre-based and home-based childcares in the Ottawa region, this study provides a social ecological understanding of the providers’ decisions regarding food and mealtimes, as well as evidence of their understanding of developing healthy nutritional behaviours in childcare settings. Working with childcare providers to develop information sources tailored to their needs should

improve the relationship between providers and parents, and ultimately, better shape the developing nutritional behaviours of young children.

Contributions

Meghan Lynch developed, designed, and undertook this thesis, its analysis and writing.

Dr. Malek Batal supported all aspects of the study development, analysis, and writing and provided advice and input into reviewing the final product.

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Appendix: Semi-Structured Interview Guide

Childcare Information

Number of children attending:

Age range of children:

Years of experience:

Contact's Age:

Contact's educational background:

Background of attending children:

Is all the food provided for the children while they're here, or do they bring it from home:

1) Food and Nutrition in the Childcare setting

a) Where do you buy your food for the school? Is there a menu I could see?

b) Is there a structure to the meals and snacks offered? Same time everyday? All eat together? Around a table?

c) Do you find some foods are easier to get children to eat than others? Which ones?

d) What foods do you find are harder to get children to eat?

e) What do you do when children refuse to eat what is offered during snack/mealtimes?

f) Do you use strategies to encourage healthy eating in the childcare?

g) Have you ever received feedback from parents about the food or mealtime structure at the childcare? (Have parents mentioned children ask for foods at home they have at the childcare? Parents notice different food preferences since children have been at childcare?)

2) Social Ecological Factors

a) How would you describe what a healthy young child's eating looks like? What about an unhealthy child?

b) What have you noticed influences what children like and dislike to eat? (Parents? Other children? Media? Innate?)

- c) When do you think children are able to make choices about what and how much they eat? (Age?)
- d) How much influence do you think you have over how the children eat (i.e. how much of a difference can you make vs. innate preferences of the child)? What sort of things show that you have influence?
- e) Where do you get your information on nutrition? What resources do you primarily use to obtain information on healthy nutrition for your children? E.g., friends, family, tv, internet, physician?
- f) What do you think are the barriers to developing healthy dietary habits in children? (Time? Cost of healthy eating? Effort compared to unhealthy eating? Parents not encouraging healthy eating at home – social support factor? Child's reaction?)
- g) Would you be interested in obtaining nutrition information? On what? (menu and recipe design, food safety, menu evaluation?)
- h) Have you been given any information about food and nutrition in the childcare?