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Influencing factors of children's fruit, vegetable and sugar-enriched food intake in a Finnish preschool setting – Preschool personnel's perceptions

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ABSTRACT

Introduction: A large proportion of young children spend most of their weekdays at preschool in Western countries. In Finland, three meals are included in a full day at preschool. These meals have the potential to promote healthy eating. This study aimed to obtain the personnel's (preschool teachers, day-care nurses) views on the factors influencing children's fruit, vegetable, and sugar-enriched food intake at preschool.

Study design: Four focus groups, in all 14 preschool personnel. Two researchers independently analysed the data using a socio-ecological framework.

Results: At the child level, age, peers, and the child's personality were recognized as factors influencing the fruit and vegetable (FV) and sugar-enriched food intake. At the preschool level, both the physical and social environments were discussed thoroughly, whereas at the societal level, policies of the EU, the state, and the municipality were mentioned as factors that influence what children eat in preschool. The personnel also discussed the interactions between factors both between levels and within levels.

Conclusions: In Finnish preschools, children's food intake is influenced on and within several levels of the socio-ecological model. The identification of the factors influencing food intake allows different methods of intervention at multiple levels to promote healthy eating behaviours in preschools.

1. Introduction

Preschool as a potential setting for health promotion and obesity prevention has attracted increased interest in recent years (Larson, Ward, Neelon, & Story, 2011). A large proportion of children attend some form of preschool or formal childcare, and many children spend a substantial amount of their time there (Blackburn, 2006; Säkkinen & Kuoppala, 2015). This makes preschool an important setting impacting children's energy balance–related behaviours (EBRBs), including dietary habits such as the intake of foods high in sugar and fat (Kremers et al., 2006; Larson et al., 2011). Some previous studies conducted in the United States (US) and Europe have found that fruit and vegetable (FV) intake in preschools, which is part of healthy eating, is low (Ball, Benjamin, & Ward, 2008; Erinosho, Dixon, Young, Brotman, & Hayman, 2011; Gubbels, Raaijmakers, Gerards, & Kremers, 2014; Padget & Briley, 2005). The US studies also found that the intake of sugar is higher than recommended in preschools (Ball et al., 2008; Erinosho et al., 2011; Erinosho, Ball, Hanson, Vaughn, & Ward, 2013; Padget & Briley, 2005). In contrast, findings from some European studies report lower sugar intake among those at preschool compared to children who are not attending preschool (Lehtisalo et al., 2010; Sepp, Lennernas, Pettersson, & Abrahamsson, 2001). A Portuguese study reported significantly higher FV intake among 4–5-year-olds at preschool than those who are taken care of at home (Moreira et al., 2015).

Overall, the major challenges in the diets of preschool children are the lack of FVs and an excessive intake of sugar-enriched foods, including sugary drinks (Erkkola et al., 2009; Lynch, 2015; Svensson et al., 2014). To identify the factors influencing children's food intake at preschool, a socio-ecological model has been found to be a

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useful framework (Sallis, Owen, & Fisher, 2008). The model identifies factors on multiple levels: individual (e.g. age), environmental (e.g. preschool), and societal (e.g. the municipality). Socio-ecological models also propose that these levels interact with each other (e.g. societal to environmental); in addition, several factors on each level can interact with each other. For example, in the preschool environment, interactions can occur between the social (e.g. teachers' self-efficacy) and the physical (e.g. the availability of vegetables) environments (Gubbels, Van Kann, de Vries, Thijs, & Kremers, 2014). Qualitative methods, such as focus groups and interviews, can help researchers delve deeper to understand factors that contribute to food intake in preschoolers and reveal previously undetected interactions (Stewart, Shamdasani, & Rook, 2007).

Prior qualitative studies have focused mostly on parents to understand food and beverage intake at home (De Lepeleere, DeSmet, Verloigne, Cardon, & De Bourdeaudhuij, 2013; Dwyer, Higgs, Hardy, & Baur, 2008; Haerens et al., 2008). Only a few focus groups have been conducted among preschool personnel about food intake at preschool (De Craemer et al., 2013; Lloyd-Williams, Bristow, Capewell, & Mwatsama, 2011), and to the best of our knowledge, no studies have been reported from Finland. The European Toy Box study explored personnel's views on beverage intake (De Craemer et al., 2013). In most of the preschools in that study, only water was offered to drink, but some of the preschools offered chocolate milk and fruit juices. In general, the personnel did not perceive that this practice needed to be changed. In Lloyd-Williams' study carried out in the UK, the focus was on nutrition policy and practices (Lloyd-Williams et al., 2011). The study found that preschool personnel were interested in offering healthy food at preschools, but several factors at the societal level needed to be improved, such as menu planning and the effectiveness of the communication between all levels involved in the food offering. Earlier, an interview study in Sweden (Sepp, Abrahamsson, & Fjellström, 2006) found that the personnel at preschools felt ambivalent and uncertain as teachers in meal situations (Sepp et al., 2006). The results of these studies show that many factors on several levels influence the food intake in preschool.

In Finland, all 3–5-year-old children have the legal right to attend preschool, and about 76% of all children attend preschool (Säkkinen & Kuoppala, 2015). Of those 76% in preschool, about 80% are provided full-time care, which means more than seven hours/day, five days a week. The majority of preschools are arranged by the municipalities for an affordable price (€290 per month at the maximum – about $310 US dollars including all meals), and in addition, lower income families are charged reduced fees. In most municipalities, the menu planning and often also the food preparation is centralized, meaning that all of the preschools in the municipality serve the same food. Children are served three meals per day in preschool: breakfast, a hot lunch, and an afternoon snack. These meals, based on the national recommendations, should cover two-thirds of children's nutrient requirements (Hasunen et al., 2004). Usually FVs are served at each meal; at breakfast as a small piece of fruit or vegetables, at lunch as a salad and sometimes as boiled vegetables, and at afternoon snack as a small piece of fruit or vegetable. Food intake at preschool thus plays a major role in the diets of young children.

The Finnish concepts of permitting every child to attend public preschools, setting national nutrition recommendations for preschools, and as a consequence, serving the children in preschools the same food are quite unique, at least in the context of Europe or the Nordic region. The context in Sweden is similar, whereas the Norwegian context is quite different. Norway has no national nutrition recommendations for what foods should be served at preschools, and the food service system differs in each preschool; some preschools provide three meals per day, others provide hardly any meals (parents bring the food for their child), while most have a mixed system of food provided by the preschool and food brought by parents. The concepts of preschools attended by the majority of children independently of their socio-economic background and of preschools in different municipalities that provide uniform meals according to the national recommendations need to be further studied as environments promoting healthy eating.

The aim of this study was to explore preschool personnel's opinions and perceptions about the influential factors on children's food intake, namely FVs and sugar-enriched foods, in preschool based on the socio-ecological model.

2. Material and methods

This study is part of a larger research project called Increased Health and Well-being in Preschools (DAGIS) that aims to decrease socio-economic inequalities in children's energy balance–related behaviours. A description of the DAGIS study is found elsewhere (Määttä et al., 2015).

2.1. Recruitment

To ensure that the study covered a range of socio-economic levels, the personnel were recruited through preschools situated in low socio-economic neighbourhoods. The definition of a low socio-economic neighbourhood was that it belonged to the lowest tertiary of educational and income levels in the municipality according to national and municipal statistics. Two municipalities were invited to the study. Based on statistics from these municipalities, preschools in low socio-economic areas were selected for the study. After permission was obtained from the municipalities, the principals of the preschools were contacted, and all seven of the contacted preschools agreed to participate. Information letters and consent forms were distributed through the preschools to the preschool personnel, and the personnel were told that participation was voluntary. Written consent was obtained from all of the participants in the focus groups. A recruitment criterion for personnel was that the participants needed to spend most of their work time in groups consisting mainly of 3–5-year-old children. The anonymity and confidentiality of the participants was ensured at all stages of the study; for example, the moderator was not given the participants' names, the discussions were coded anonymously, and the participants were not introduced to each other. The ethics approval for the focus groups was obtained from the Coordinating Ethics Committee of the Hospital District of Helsinki and Uusimaa in May 2014.

2.2. Participants

A total of 14 preschool personnel from the seven preschools participated in four focus groups. All of the participants were women, and they all worked with children in preschool groups. The participants' mean age was 46 years (range 29–59 years). The mean length of working experience in preschools was 19 years (range 4–41 years), and the mean working time at the current workplace was 10 years (range 3 months–25 years). Six of the participants had a degree in early childhood education (bachelor's degree), whereas eight had completed an educational programme in child care that is considered below the bachelor's degree level.

All four focus groups conducted discussions in October 2014. In order to facilitate participation, a number of options for the time and place of the discussions were offered. This resulted in groups with two to five participants. Two focus groups were held during preschool hours, and in total nine individuals participated in these