



Is it better at home with my family? The effects of people and place on children's eating behavior



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ABSTRACT

The people and places children eat with can influence food consumption. This study investigates the people and places Swiss school-aged children ate with over a 7-day period and analyses the effects of eating at home with family on food consumption. Children completed a 7-day food diary documenting the foods they consumed, the people with whom they ate, and the place where they ate. Analyses were conducted for all meals and included 9911 meal occasions. Most meals (80.5%) were consumed at home with family. Generalized estimating equations were used to model the effects of the home-family dyad on the child's chance of consuming a certain food while controlling for age, gender and BMI of the child, education, nationality and BMI of the parent. Compared to eating in other dyads (e.g. school-peers or restaurant-family), eating in the home-family dyad was associated with higher consumption of vegetables (+66% and +142% at weekday lunch and dinner and +180% and +67% at weekend lunch and dinner), lower consumption of sweets (−45% and −49% at weekday lunch and dinner; −43% and −49% at weekend lunch and dinner), and fewer soft drinks (−37% and −61% at weekday lunch and dinner; −66% and −78% at weekend lunch and dinner). This study shows the positive influence of eating at home with the family on food consumption in a sample of Swiss children. Interventions and policies that encourage children and parents to eat together at home could serve as effective prevention against a poor diet.

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1. Introduction

A variety of social, psychological, environmental and interpersonal factors determine eating behaviors in children and adolescents (de Vet, de Ridder, & de Wit, 2011; Herman, Roth, & Polivy, 2003; Pearson, Biddle, & Gorely, 2009; Wang, Beydoun, Li, Liu, & Moreno, 2011). Two key aspects that influence children's food choice are the presence of other people and the place where the food is consumed (Patrick & Nicklas, 2005). The social and physical attributes of mealtimes taken together constitute the social setting where children eat, and can play an important role on children's food choice. Hence, with the term “social setting” we refer to the presence of people (parents, peers, extended family, others) and the

place where children eat (home, restaurants, school, other). Dyads are defined as combinations of people and places (i.e. home-family, school-peers, etc.).

Research studying the effects of people on children's food consumption behavior has mainly focused on the role of parents and, more recently, of grandparents and peers. Parents typically determine the availability and accessibility of food by purchasing and preparing it and can affect children's diet through modeling, monitoring, attitudes and feeding styles (Bürgi et al., 2010; Campbell et al., 2007; Salvy, Elmo, Nitecki, Kluczynski, & Roemmich, 2011; Savage, Fisher, & Birch, 2007). Parental “healthy eating guidance” (i.e. parental teaching, modeling and encouragement) has been shown to be associated with a lower intake of sweetened beverages and unhealthy snacks and a higher consumption of fruit and vegetables in overweight children (Haszard, Skidmore, Williams, & Taylor, 2015). Parent food choice behaviors are correlated with their child's consumption of fruit and vegetables (Hall et al., 2011; Hanson, Neumark-Sztainer, Eisenberg, Story, & Wall, 2005), snacks (Campbell et al., 2007; Hall et al., 2011), dairy

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products (Hanson et al., 2005), and sugary drinks (Campbell et al., 2007). Yet, some parental behaviors, like excessive parental control and pressure to eat, can have unintended negative effects and have been associated with a lower intake of fruit and vegetables and a higher intake of fats (Savage et al., 2007).

Several studies suggest that grandparents tend to provide grandchildren with unhealthy food, generally because they use food as a gift or lack knowledge about the health consequences of poor nutrition (Geoffroy et al., 2013; Li, Adab, & Cheng, 2015; Roberts & Pettigrew, 2010). Finally, peers can exert their influence through three different mechanisms (social facilitation, modeling and impression management) and depending on the specific mechanism at place and the identity of peers (familiar or unfamiliar) their effect on a child's food choice varies (Salvy, de la Haye, Bowker, & Hermans, 2012). Thus, peers have been shown to have both positive and negative influences on children's and adolescent's food choice (Bevelander, Anschütz, & Engels, 2012; Larson et al., 2008; Nørgaard, Nørgaard Hansen, & Grunert, 2013; Salvy et al., 2012). For instance, whereas the consumption of healthy snacks by unfamiliar peers were found to increase the consumption of healthy food among 9–11 years old children, the consumption of healthy food can be seen as “non-cool” and avoided when it conflicts with the image a child wishes to portray among peers (Salvy et al., 2012; Stead, McDermott, Mackintosh, & Adamson, 2011; de la Haye, Robins, Mohr, & Wilson, 2010).

Research studying the effects of place on children's food consumption behavior has mainly examined three settings: restaurants/fast food, schools, and homes. Eating out at a restaurant or a fast food place has been associated with less healthy food choice compared to eating at home (e.g. higher consumption of sugar-sweetened beverages, sweets and savory snacks) (Hagger, Chatzisarantis, & Biddle, 2001; Lachat et al., 2012; Nestle, 2002; Swinburn, Caterson, Seidell, & James, 2004; Woodruff, Hanning, & McGoldrick, 2010). Some evidence suggests that eating at school is associated with a better diet and lower energy intake compared to eating out at restaurant or fast food (Woodruff et al., 2010). However, the association between eating at school and a child's diet quality is still debated and the quality and success of school based lunch programs vary (Clark & Fox, 2009; Gordon et al., 2009; Patrick & Nicklas, 2005). Eating at the home of relatives, neighbors and friends at least once per week has been associated with a poorer quality diet and with being overweight (Ayala et al., 2008).

Several studies have focused on the effect of “family meals” considering the simultaneous effect of people and place. Eating at home with the family appears to be associated with higher intake of fruit, vegetables and dairy and a lower consumption of soft drinks than eating in other social settings (Fulkerson, Larson, Horning, & Neumark-Sztainer, 2014; Hammons & Fiese, 2011; Lee et al., 2014; Scaglioni, Arizza, Vecchi, & Tedeschi, 2011; Woodruff & Hanning, 2008). This social setting dyad shows additional positive outcomes, including a lower prevalence of overweight and of eating disorders and better academic results (Christian, Evans, Hancock, Nykjaer, & Cade, 2013; Fulkerson et al., 2014; Hammons & Fiese, 2011; Skeer & Ballard, 2013). However, when a TV is within view of the child, the quality of diet is reduced (Avery, Bostock, & McCullough, 2015).

In Switzerland, there is a lack of knowledge regarding the effects of people and place on children's eating behaviors. Studies show that 20% of children are overweight or obese in Switzerland (Bochud, Chatelan, Blanco, & Beer-Borst, 2017; Federal Office of Public Health (FOPH), 2014a), and that most children do not meet the recommendations for healthy eating (for example, less than 50% of girls and less than 40% of boys eat fruit and vegetables daily, and meat consumption is higher than recommended) (Federal Food

Safety and Veterinary Office (FFSVO), 2017; Federal Office of Public Health (FOPH), 2014b; Lamprecht & Stamm, 2012). A study of children ages 6–12 in Canton Ticino Switzerland showed that adherence to healthy eating guidelines is very low, with no children adhering to the recommendations for vegetable consumption, and a minority adhering to recommendations for meat (26.9%), fruit (10.4%), and sweet, snacks and soft drinks (9.5%) (Suggs, Della Bella, & Marques-Vidal, 2016). The diet in Canton Ticino is influenced by the geographically close Mediterranean diet, which actually represents a lifestyle, rather than a mere dietary guideline (Bach-Faig et al., 2011). Family meals are culturally important and recommended (Bach-Faig et al., 2011), although no data on their frequency was found. Thus, this study aimed to investigate the place and people children eat with and to analyze the effect of eating at home with the family on children's food consumption in Switzerland. We aimed to know how frequent they were and what effects they had on food consumption of children. This knowledge should help guide decisions about where to emphasize healthy nutrition promotion for children.

2. Methodology

2.1. Participants and design

Data for this study come from the project FAN (Famiglia, Attività fisica, Nutrizione), which was a social marketing program, offered free of charge, designed to promote a healthy food consumption and regular physical activity among families living in Ticino and having a child attending primary school, or first two grades of secondary school (Rangelov & Suggs, 2015). Study procedures were reviewed by the Canton Ticino Ethics Committee and deemed exempt in accordance with Swiss law. Parents were invited to take part in the program through a brochure and information letter distributed to children in the elementary and middle schools of Canton Ticino between May and September 2010. Parents could then register through the FAN Website and provide informed consent to participate in the study. Then, the baseline (BL) survey was sent to all those registered. Among those registered, 735 children were eligible and among them 610 completed the BL survey (for more details about the project, see (Rangelov & Suggs, 2015)). The final sample for this study included 608 children, as two children were excluded because they completed the BL food diary only one day.

2.2. Procedures

Data for this study were collected at BL (September 2010), prior to intervention activities. Parents completed a questionnaire providing sociodemographic data for themselves and their children and information on their own dietary and physical activity attitudes and behaviors. Children completed a paper based open-ended 7-day food diary (Rangelov, Suggs, & Marques-Vidal, 2016), where they reported foods and beverages consumed, who they ate with and where at all meals over one week. Two versions of the 7-day food diary were used. Children in elementary school received the food diary in form of a booklet, with each day on a separate page (the page was divided in meals, with blank space to write the foods consumed, with whom and where). Children in middle school reported their food consumption on a one-page diary for the full week. The information that was asked to children was the same; the only difference was the font used and the space allowed for completion. Children were asked to complete the food diary by themselves, at home daily. The 7-day food diary used for this study is a reliable instrument to collect data from children in this age group (Rangelov et al., 2016).

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