“We don't snack”: Attitudes and perceptions about eating in-between meals amongst caregivers of young children

Emma Jacquier, Anthony Gatrell, Amanda Bingley

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Title: “We don’t snack”: Attitudes and perceptions about eating in-between meals amongst caregivers of young children

Author’s names and affiliations
Emma Jacquier (Faculty of Health and Medicine, Lancaster University, Lancaster, UK and Nestlé Research Center, Lausanne, Switzerland).
Anthony Gatrell (Faculty of Health and Medicine, Lancaster University, Lancaster, UK)
Amanda Bingley (Faculty of Health and Medicine Lancaster University, Lancaster, UK)

Corresponding author/Address for correspondence:
Emma Jacquier
Nestlé Infant Nutrition
12 Vreeland Road,
Florham Park,
NJ 0796
Emma.Jacquier@rd.nestle.com
phone: +1 973-593-7730
cell: +1 201-341-2714
Abstract

“We don’t snack”: Attitudes and perceptions about eating in-between meals amongst caregivers of young children

Objective: Little is known about caregiver attitudes and perceptions towards snacking by toddlers and preschool children outside of the U.S. This qualitative study examined caregiver attitudes and perceptions towards the provision of both foods and beverages in-between meals, along with what constitutes a snack, or snacking occasion, amongst Swiss caregivers.

Study design, setting and participants: This qualitative study used in-depth, in-home interviews (n=17) conducted with caregivers (16 = female, 3 = male, ages = 20-46y, low to high income). The “Food Choice Process Model” was used as a theoretical framework. Interviews explored experiences, attitudes and perceptions about the provision of foods and beverages to children in-between meals (1-5y). Interview transcripts underwent a thematic analysis and key themes were developed from the data.

Results: Five key themes were identified; 1) Timing is everything, 2) Location + food type = snacking, 3) Snacks are junk 4) Snacks are small 5) Not in front of the children. The time at which young children were fed, the location, the food type and the portion size delineated how caregivers conceptualised snacking. Feeding children at 10am and 4pm was not viewed as snacking, nor was providing milk before bedtime.

Conclusions and Implications: Eating in-between meals and snacking may be perceived by caregivers as different concepts and vary according to culture, contexts, time of day, food type and location. Findings highlight some agreement with similar studies conducted in the U.S. but also provide new insights into how the consumption of foods and beverages in-between meals
may vary between geographic settings. Findings indicate opportunities for better defining “snacking” within nutrition study design and how this may inform dietary intake data interpretation.

**Keywords:** Snacking, preschool children, snack definition, nutrition, qualitative
**Introduction**

In the years before going to school, the caregiver must make choices about the timing, frequency and amount of food provided. These choices may influence children’s dietary behaviours and subsequent risk of overweight/obesity (May & Dietz, 2010; Ventura & Birch, 2008) since food preferences and dietary habits are established early in life and may track through to later childhood and adulthood (Fiorito, Marini, Mitchell, Smiciklas-Wright, & Birch, 2010; Nicklaus, 2016; Nicklaus, Boggio, Chabanet, & Issanchou, 2005; Yang & Huffman, 2013). Dietary intake data indicates that dietary patterns amongst toddlers, preschoolers, children and adolescents have shifted from “3 meals a day” to meal occasions interspersed with the consumption of food items in-between tradition meal patterns - contributing more than 25% of children’s daily energy intakes among 2-6 year olds - in various countries of the world (Duffey, Pereira, & Popkin, 2013; Kerr, et al., 2009; Piernas & Popkin, 2010; Rangan, Randall, Hector, Gill, & Webb, 2008; Skinner, Ziegler, Pac, & Devaney, 2004; Z. Wang, Zhai, Zhang, & Popkin, 2012). However, caregivers’ perceptions and attitudes towards the provision of foods and/or beverages in-between meals has been under-researched (Davison, et al., 2015) with the majority of studies in this area being conducted in the U.S. (Blake, et al., 2015; Bleser, Rollins, & Birch, 2014; Fisher, et al., 2015; Younginer, et al., 2016). New insights from alternative other geographic settings cultures and geographies are required to broaden our perspective in this field.

One challenge in understanding caregivers’ experiences about eating in-between meals is the ambiguity in the definition and use of the term “snack” or “snacking” in the literature (Chamontin, Pretzer, & Booth, 2003; Gregori, Foltran, Ghidina, & Berchialla, 2011; Johnson & Anderson, 2010; Wirt & Collins, 2009; Younginer, et al., 2016). Researchers have called for urgent attention to be given to the need for a universal snacking definition (Johnson & Anderson,
Indeed, some authors argue that since the nature of the relationship between snacking and overweight/obesity amongst children and adolescents remains equivocal (Kaisari, Yannakoulia, & Panagiotakos, 2013) - a universal snacking definition would assist nutrition researchers in teasing out the nature of the relationship between snacking and outcomes such as nutrient intakes and overweight or obesity (Gregori, et al., 2011).

In particular, researcher definitions of snacking may vary according to study design (Briefel, et al., 2010; USDA, 2014) or be linked to food group classification systems (Ireland, et al., 2002). The increasingly popular nutrient profiling systems, in their various formats, provide largely subjective definitions and classifications for snacking and snack foods (Johnson & Anderson, 2010; Vlassopoulos, et al., 2016). It is also plausible that the researcher perspective on snacking may be different to that of the participant in a given study. Caregiver perceptions are particularly important, therefore, since dietary survey methodologies which collect food intake data, particularly those involving caregivers of toddlers and preschool children, often ask the participant to name and define the eating occasions (Briefel, et al., 2010).

Culture influences attitudes and perceptions towards foods (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999) and, therefore, may influence attitudes towards snacking in the diets of young children. Such cultural differences are somewhat exemplified in how dietary guidelines and feeding recommendations, in relation to snacking amongst children, vary from country to country (Afeiche, et al., 2016; Janssen, et al., 2005; Maier, Chabanet, Schaal, Leathwood, & Issanchou, 2007). For example, guidance about desired feeding behaviours amongst toddlers and preschool children in the U.S. advocates establishing regular mealtime routines around 4-6 eating occasions per day and providing 3 meals and 2 snacks per day in order to meet nutritional requirements (Kleinman, 2014). Dietary recommendations for young children in France,
emphasise 3 meals and the “4 o’clock” (le quatre heures) along with providing practical recommendations for specific vegetables with an emphasis on the “discovery of new tastes, new flavours and new textures” between the ages of 1-3y (Bocquet, Bresson, Briend, Chouraqui, Darmaun, Dupont, Frelut, Ghisolfi, Goulet, et al., 2003). The Swiss Society for Nutrition mentions specific times of the day for feeding young children in-between meals; namely at 10 o’clock (le dix heures) and 4 o’clock (le quatre heures or le gouter) and provide food-based recommendations for “healthy 10 o’clock and 4’o clock” eating episodes (SSN, 2015, 2016). The Australian Guide to Healthy Eating refers to “core foods” (foods from the major food groups) and “extra foods” (French fries, confectionery, biscuits, soft drinks etc.) and that their consumption be limited to “sometimes” providing between 5-20% of total daily energy intakes. European practices of providing young children with a mid-morning snack have origins in the post-war era of distribution of milk within schools, and in many European cultures, the mid-morning eating episode amongst toddlers and preschoolers persists, although some argue this is now superfluous (Bocquet, Bresson, Briend, Chouraqui, Darmaun, Dupont, Frelut, Ghisolfi, Girardet, et al., 2003). It is not known to what extent cultural practices dietary guidelines around the timing of in-between meal eating episodes influence caregiver attitudes and perceptions about snacking behaviours. Different cultural geographical perspectives in this field are required to broaden our understanding (Gatley, Caraher, & Lang, 2014) and may help support the evolution of dietary guidelines about snacking.

Despite dietary recommendations about the timing of snacking and healthy snack choices for young children, caregiver attitudes and perceptions about the type of food or beverage that constitutes a snack may also vary across cultures and contexts. For example, snacking episodes are known to feature beverages (Piernas & Popkin, 2010) yet beverages do not have the same
satiating properties as solid foods (Mattes, 2006). There is emerging evidence that preschool
children consume more energy from beverages when served a larger beverage serving size and
do not compensate for the energy from beverages when, for example, fruit juice is provided
alongside a solid snack-food (Norton, Poole, & Raynor, 2015). Additionally, questions have
been raised about whether beverages should be considered in a universal definition of snacking
(Johnson & Anderson, 2010). Dietary intake data from Great Britain and the U.S. express
concern over the intakes of sugar-sweetened beverages and fruit juice amongst preschool
children (Fulgoni & Quann, 2012; Ng, Mhurchu, Jebb, & Popkin, 2012). However, the caregiver
perception of beverages vs. solid foods and their role in snacking has been under-researched. as
well.

This study uses qualitative methods to understand caregiver attitudes and perceptions about
feeding toddlers and preschool children in-between meals. This research aims to contribute a
new perspective about how caregivers conceptualise these eating episodes and improve our
understanding of their attitudes and perceptions about the foods and beverages provided in-
between meals. Such findings may help support the development of interventions designed to
improve caregivers’ understanding about the role of snacking in the diets of young children (e.g.
to help meet nutrient requirements) and how to select nutritious snacks for toddlers and
preschool children. These findings may also support the collection and interpretation of dietary
intake data and contribute to the debate about snacking definitions.

This analysis was part of a wider qualitative study (and part of a doctoral research thesis) which
used in-depth interviews to understand the experience, attitudes and perceptions of caregivers
feeding toddlers and preschoolers (Jacquier, Gatrell, & Bingley, 2016). The wider study used in-
dept interviews to glean understandings about general feeding behaviours and included a
particular focus on the portioning of foods and beverages, along with attitudes and perceptions related to beverages in the diets of young children. The in-depth interview from this study contained a series of questions in relation to the provision of foods and drinks in-between traditional mealtimes. The responses to those questions form the basis of the analysis herein. The Food Choice Process Model (Furst, Connors, Bisogni, Sobal, & Falk, 1996; J. Sobal, 2006; J Sobal & Bisogni, 2009) was used as a theoretical framework to inform this study. The model acknowledges that choices about food are complex, situational and dynamic; evolving over the life-course. The three major components are: 1) The Life Course 2) Influences and 3) The personal food system. The framework was used to inform the study and to aid the interpretation of findings.
Materials and methods

Design

The ontological position of this research is a constructivist perspective, which takes a relativist stance. It assumes an interactive relationship between the researcher and the participant, and aims to reconstruct participants’ accounts towards a consensus (Guba & Lincoln, 1998). The consolidated criteria for reporting qualitative research (COREQ) was used to organise and report results (Tong, 2007).

Sampling and participants

To be consistent with the epistemological underpinnings of this study, participants were purposively included to vary in age, gender and income (OFS, 2016). A national database of Swiss landline numbers was used to recruit participants by telephone (Link Qualitative, AG). Screening of the potential participants was undertaken by telephone. Potential participants answered a screening questionnaire to gather demographic data and to check their eligibility for participation. Demographic data for each participant was obtained in relation to age, marital status, income, level of education, number of children in the family, ages of children and whether the participant was born in Switzerland or had migrated to Switzerland (see Table 1).

Inclusion/exclusion criteria for participation reflected the requirements of the larger study and included being the caregiver of a healthy child/children between the ages of 1-5y, aged 18 years or older, residing in the French-speaking region of Switzerland, being primarily responsible for feeding, not employed in a nutrition-related field and not having recently taken part in any studies related to child-feeding.
Ethical approval for this research was obtained from the Faculty of Health and Medicine Research Ethics Committee of Lancaster University, UK and the ethical committee of the canton of Vaud, Switzerland (personal communication, December 2013). All participants were informed verbally about the study aim and protocol. Informed consent was provided in written and verbal formats and digitally recorded. All information was treated confidentially. Participants received compensation of 50 Swiss francs for their participation.

**Interview guide**

An in-depth interview schedule of leading questions was developed, for the wider, doctoral research, based upon the Child Feeding Questionnaire (Birch, et al., 2001) starting with questions used by Sherry et al. (2004) in qualitative research with caregivers of preschool children. It was subsequently adapted to include opening questions about typical meal, snack and beverage pattern in a 24h period. Questions followed about their experience of feeding at mealtimes and the goals of mealtimes; their experience of foods and beverages consumed in-between meals; how they make choices about the types of foods and beverages to feed their children; how they decide upon the quantity of food and beverages to feed their children and how they decide which beverages to provide, and how to portion them (Jacquier & Gatrell, 2016). A specific segment of the interview guide focused on foods and beverages consumed in-between meals. This section referred back to the participant’s description of a typical day and asked open questions such as: “let’s talk about snacking, does it play a role in the feeding of your child? Do the children sometimes eat between meals/are they ever hungry between meals? Are there foods you encourage? Foods you would like them to eat less of? How do you know to feed your child in such a way?”. 

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Since the interview guide was developed from English-language sources, it was first developed and pilot-tested in English with an English-speaking caregiver. The English questionnaire was subsequently translated into French and pilot-tested with two bilingual caregivers of young children. This ensured a consistent translation, along with verifying that all questions were clear and comprehensible.

Data collection and analysis

Face-to-face interviews were conducted in the homes of participants, during March and April, 2014, lasting approximately 60 minutes. All interviews were digitally recorded and field notes were taken during the interviews. Interviews were conducted until saturation was reached, themes were repeated and no new themes were reported by participants.

The recorded interview material was transcribed verbatim, into English, by a professional transcriber. Thematic Analysis (TA) was used for data analysis. TA can be applied to a wide range of theoretical frameworks (Braun & Clarke, 2006) and was applied in an inductive manner (“bottom-up”) guided by the six-phase process described by Braun and Clarke (Braun & Clarke, 2006). The coding was led by one author (EJ). Two authors (AG, AB) oversaw the process and reviewed the quality of the analytical phase. The first two phases of data analysis consisted of familiarisation with the data and open-coding of the data. The first stage was a manual, open-coding process, appropriate for text-based data (Mason, 2002). The initial units were cross-checked against the theoretical framework and similarities and differences were noted. The analysis then proceeded through four stages encompassing; searching for themes, reviewing themes, defining and naming themes, and refinement of the analytical narrative. Central
organising concepts were identified in order to construct key, overarching themes for the larger study (Braun & Clarke, 2013). AtlasTi was then used to electronically review, code, and catalogue the transcripts as analysis moved through the six phases.
RESULTS

Participant characteristics

After providing informed consent, 19 participants, aged 20-46y (mean age = 36y) took part in the study. All resided in the Canton Vaud, in the Lausanne region of Switzerland. Caregivers either worked part-time (n =11) or full-time (n=4) or did not work (n=2). Two male participants were spontaneously joined by their wives, hence two interviews were conducted as a couple.

Table 1. Characteristics of the participants

<table>
<thead>
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<th>Characteristics of the participants (n = 19)</th>
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<td>Caregiver</td>
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<td>Caregiver place of birth</td>
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Emergent themes

Emergent themes in relation to snacking were placed in categories labelled; 1) Timing is everything, 2) Location and food type, 3) Snacks are junk, 4) Portion size is small, 5) Not in front of the children.

Theme 1. Timing is everything

The first of the themes indicated that caregivers were highly influenced by the time of day as to whether the eating occasion was perceived as snacking or not. When asked about the role that snacking played in the daily feeding of the children in their care, typical responses involved the mention of a clock-time. All participants made reference to feeding their children in-between meals at 10 o’clock and 4 o’clock:

Participant FL20: “There is no snacking”. Interviewer: “But are they ever hungry sometimes between meals?” Participant FL20: “It can happen but they must wait for the four o’clock.”

Participant FM04: “No. Not for me. I’m not keen on snacking and things like that. They must wait for the 4 o’clock…I try to get them used to eating at meal times”.

Participant FM07: “Then, if they tell me they’re hungry a little later, I tell them they have to wait until 4:00pm. I don’t like them to eat between meals. I don’t want them to get into the habit of snacking.”

Participant FL08: “Sometimes, they ask (for a snack) …I tell them to look at the clock.”

Participant MM09: “She eats at 4:00pm, but that’s not really snacking.”

Caregivers described how they felt compelled to provide their child with something to eat at 10am since they were aware of other children being fed at the same time:

Participant FL20: “I did not have the ten o’clock when I was little. But since all their friends have something at ten o’clock, I give them something as well.”
Participant FL19: “Let’s say that for the eldest, I saw, when I took him to preschool, I saw that everyone had a small bag for their ten o’clock, and then I thought that I would at least give him something. Then he eats it, or doesn’t, but at least he has something at 10 o’clock like his friends”.

Participant FH18: “They don’t really have time to nibble at things. Her day is planned, we have activities and she waits for her 10 o’clock, like everyone.”

When probed further about why caregivers offer children something to eat at 10am and 4pm, both social, and nutritional, reasons were cited:

Social:

Participant FH18: “It can be a long time before supper. It helps them to wait a little longer, something healthy, to wait for dinner.”

Participant FM03: “We like to eat altogether, as a family. The 4 o’clock means they can wait until six and we can all have supper together.”

Nutritional:

Participant FM07: “Then, we have something at 10:00am… I give them raw carrots, or a small slice of bread and butter, milk. It’s not a full meal, obviously. It’s like a break, something healthy”.

Participant FH13: “Then I give her a small ten o’clock - around ten. So it varies, it can be a cereal bar, it can be dried fruits, or any fruit, I can get her to eat fruit for the 10 o’clock”.

Table 2. Social and nutritional reasons for feeding children and 10am and 4pm

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<th>Social:</th>
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Theme 2: Location + food type = snacking

In light of responses that indicated how time played a large role in determining if an eating occasion was perceived as snacking or not, Participants were further probed to determine the circumstances under which eating in-between meals is perceived as snacking. Two overlapping concepts appeared; namely the location and the food type. According to certain criteria, a almost half of the participants described how a particular location and a particular food-type, considered together, would be was perceived as snacking. For example, sweet foods (e.g. confectionery, biscuits) consumed outside of the home, at special occasions or at weekends were described as snacking:

“I will give them a sweet, if we go out, especially at the weekend.”

Participant FL11: “We mostly come out of our routine when we are at other peoples, when we are invited. Because this is when I let her drink more sweet things, sugary things, you know…”

Participant FL12: “If we are invited to a birthday party, she eats everything she sees and then I tell her, it’s a party, there are snacks, sweets, crisps, there is junk to eat, have it, because at home they don’t have it anyway.”

Participant FM15: “So often we snack in the car because it’s quite a drive home from the school and when I get home it takes time to prepare supper, and for the children it’s a long time.”

Participant FH13: “At times like these, if I see that things are disrupted and we are going out, we are going for a walk or anything else, if he tells me, I’m hungry, I give him a biscuit, something to nibble on.”
Similarly, eating in-between meals at home was considered snacking when the location of food consumption was not at the table. Snacking at home meant in front of the TV, or away from the table.

Participant MM14: “Sometimes at home… we put on the TV…and at that moment we know very well we are eating crisps or crackers or things like that…”

Participant FL08: “Snacking, yes it does happen. I don’t always watch over them, if they’re playing in the room together. Once in a while, I catch them with biscuits in their rooms…I don’t like that.”

Participant FM15: “We can eat crisps together on the sofa because we are watching a film or we prepare popcorn, we are less strict…”.

Theme 3: Snacks are junk

When probed further on what was consumed during eating occasions that caregivers agreed constituted snacking, participants were very specific about what was categorized as a “snack”. Snacks were described as a particular group of unhealthy foods, warranting restriction, by two-thirds of the participants:

Participant FM04: “We’ve got some, crisps, things like that…I know it’s not very good, it’s very salty but once in a while, everyone’s hungry, that’s a snack for us.”

Participant FL08: “I don’t have a snack cupboard. I usually try not to have the bad foods that encourage them to snack, you know, chips and sweets”.

Participant FL20: “Sometimes they have one or two sweets that they must ask for, but I mean, there is never a packet of biscuits, a pack of crisps that we nibble. No, they eat at meal times”.

Participant MM09: “No, they hardly ever snack, I mean apart from sweets. If suddenly they want a sweet, I give them a sweet. But I don’t take out a packet of biscuits because they suddenly feel like nibbling”.

Snacks were described as sweet or salty foods, with a pleasurable, or hedonic, value. Nearly all participants described how they attempted to limit the consumption of these foods.
During the discussion of what constituted a snack-food, beverages were not specifically mentioned as snacks. Interestingly, every participant gave milk to their child before going to bed, but this was not considered as a snack, rather a daily routine habit, but also to ensure the child wasn’t still hungry – an assurance they would be full before going to bed:

Participant FH18: “We thought that she had eaten enough. But then, once she was in bed…she would say, “I didn’t have my milk bottle. I want it.” So now, we actively ask her if she wants it, and we ask her if she wants a small, medium or large one.”

Participant FM15: “And often I wonder, I don’t know if milk in the evening is a habit, because it’s a habit, or whether it’s because they haven’t had enough to eat, they try to compensate with milk.”

In contrast, as discussed, the foods consumed at 10am and 4pm were described as being nutritious food choices, for example, more than half of the participants recounted how the 10am and 4pm eating occasions were an opportunity to encourage children to eat fruit. The only beverages mentioned in relation to the 10am and 4pm eating episodes were milk and water.

Theme 4: Portion size is small
When caregivers were asked how they judged how much of a snack to provide the majority of participants mentioned small quantities of readily available food, involving little or no preparation. Again, beverages were not mentioned in relation to snack portion-sizes:

Participant FH10: “Yes, that’s also why I do small quantities (for a snack) because I can’t ask them to eat a real portion if they are going to eat in between meals.”

Participant FL05: “It’s just a little something, a few bites.”

Participant FL02: “Something small, something to nibble on, something quick”
Conversely, meals were described differently, as involving particular elements in order to be considered a meal. Caregivers talked about balance and variation, protein, vegetables and starchy foods in relation to meals, but not in relation to snacks:

Participant FM04: “Let’s say… in general, at midday, I make a meal that has vegetables and carbohydrates. That’s for sure.”

Participant FL05: “The meal must have proteins, chicken or fish…or from time to time meat. Yes, that’s important for me, to have proteins, so the meal is balanced, as balanced as possible.”

Participant FL07: “For lunch, I make sure they have everything on their plate: one fourth protein, one fourth carbs and half vegetables.”

Theme 5: Not in front of the children

Caregivers themselves took steps to influence children’s eating behaviours by hiding their own snacking behaviour from their children. Caregivers described their admitted to snacking behaviours which were as unrelated to time and purely for pleasure. They also Over half of the participants, including one couple, described how this type of eating behaviour was often hidden from the children, or occurred when they had gone to bed or were out of sight. The following exchange occurred when interviewing both the male (M) and female (F) caregivers of young children:

Interviewer: “So how about snacking?”

Participant FH17: “Right … Snacking.”

Participant MH17 “Not so much.”

Participant FH17 “No, we try not to get them used to it. We like to snack but we hide.”

(Laughter)

Participant FH17 “We nibble something in the kitchen but they don’t necessarily see.”

Participant FH10 : “Actually rarely when they are there with us, well we, it is not good…..we eat some chocolate for example in the evening when they are in bed. We allow ourselves to have small enjoyments like that”.
Participant FL11: “We snack but not in front of them. They might learn our bad habits!”

This conceptualisation of snacking by the caregiver was one described as being amongst adults is purely for pleasure and is perceived as a behaviour that the children should not be exposed to.

**DISCUSSION**

This qualitative study has described how the timing of an eating episode, cultural practices, the location, the food type and the portion size delineated whether or not caregivers perceived their children to be engaged in a snacking episode or not. Culturally relevant eating episodes at 10am and 4pm were not necessarily perceived as snacking *per se* by caregivers.

The exact origins of feeding young children, in-between meals, to according to specific clock-times are not well understood. Indeed, an historic account of the origins of the 10am and 4pm feeding occasions in Switzerland could not be found in the literature. However, similar feeding practices in neighboring countries may provide relevant insights as to the roots of feeding young children according to a specific time. For example, in France, the routine feeding of preschool children at 10am was introduced after the second world war in order to compensate for the fact that certain young children missed breakfast, had poor calcium intakes and aimed to improve their intake of dairy products through the provision of milk (Thibault, et al., 2010). In light of the increased prevalence of childhood overweight and obesity, and reduced numbers of preschool children missing breakfast, the nutrition committee of the French Pediatric Association recommended to remove the systematic morning snack and to focus on education about the importance of breakfast. Mid-morning snacks were recommended for the minority of French
children most at risk of nutritional inadequacies (Bocquet, Bresson, Briend, Chouraqui, Darmaun, Dupont, Frelut, Ghisolfi, Girardet, et al., 2003). The feeding of toddlers and preschoolers according to a clock-time and has not been reported in literature on snacking from the U.S. However, the notion of culturally acceptable snacking (such as the 10am and 4pm) and the more negative conceptualisation of snacking involving specific sweet foods and salty snacks is supported by the theoretical framework used in this study (Jeffery Sobal, Bisogni, Devine, & Jastran, 2006). For instance, Sobal et al. (2006) propose that some decisions about what to feed and when may have a culturally, and socially, recognisable classification. The classification of eating occasions within a personal food system may help to standardise feeding behaviours. Feeding at 10am and 4pm may be a cultural classification used by caregivers to simplify complex decisions about what to feed their children and when. Similarly, all participants reported providing whole cow’s milk before bed. This was not described as snacking by participants but, as suggested by Sobal et al. (2006), may be considered as a personally operational strategy or “routinization” as described by Sobal et al. (2006) to offer themselves assurance their child had eaten enough. In fact, beverages were not described as “snacks” at all. Any future work aimed at developing a universal definition of “snacks”, or “snacking”, will need to carefully consider the inclusion or exclusion of beverages. As they are important sources of calories in the diets of young children but may or may not be classified as a snack according to the participant or researcher perception, or according to a researcher-defined criteria.

When participants described what was fed at 10 am and 4 pm participants listed examples of foods recommended in the Swiss Society for Nutrition (SSN) recommendations “Un dix heures et un goûter sain” (A healthy 10 o’clock and 4 o’clock). Participants only mentioned
water and milk as being consumed at 10am and 4pm which is also consistent with the SSN’s recommendations. Previous studies report that dietary guidelines are poorly adhered to by both adults and older children in Switzerland (de Abreu, Guessous, Gaspoz, & Marques-Vidal, 2014; Suggs, Della Bella, & Marques-Vidal, 2016). Older children are likely to have more autonomous dietary behaviours, whereas the diet of the young child is largely under the caregiver’s control. Future research may indicate if adults attempt to adhere to dietary guidelines for toddlers and preschool children in their care, but not for themselves. In addition, quantitative data would be required to determine actual consumption at 10am and 4pm, and how these eating episodes contribute to total energy, nutrient and food intakes in order to draw conclusions about the dietary behaviours and nutritional impact of these two eating episodes. When participants discussed snacking outside of the 10am and 4pm eating-episodes specific food-types and contexts were described. Namely, snacking would be considered as sweet or salty “junk foods” consumed in a locations other than at the family table, involving a special occasion, family gathering or a weekend treat. Future research in toddlers and preschoolers would warrant examining the impact of location on snacking habits, food and nutrient intakes.

Caregivers described how they attempted to influence children’s eating behaviors by the avoidance of modelling snacking behaviours that were perceived as negative. Adults also admitted to engaging in this concept of. Caregivers described snacking in the absence of the children, or when the children were out of view. The negative attitudes that caregivers hold about snacking, may, therefore, lead caregivers to consciously avoid modelling snacking behaviours in front of their children. implying a negative perception of certain snacking behaviours. A qualitative study from the U.S. also reported that caregivers did not view snacks as “real food”
and also acknowledged that they hid their snacking behaviour from their children (Fisher, et al., 2015).

In contrast to qualitative descriptions about snacks, participants described meals as having particular nutritional components, or composition, that set them apart from snacks, involved preparation and were consumed at the family table. This is in agreement with research from the US amongst caregivers of preschoolers who distinguished between meals and snacks in a similar way (Fisher, et al., 2015). However, unlike these findings from the U.S., where snacking was largely described in hedonic terms and as something problematic (Fisher, et al., 2015) the eating episodes at 10 am and 4pm (although not necessarily viewed as “snacking” by the participant) were described as having a nutritional role (e.g. to help encourage fruit consumption) or a functional/social role such as helping them to last until dinner time and enable the family to eat together. Eating in-between meals, may, therefore, not be a single concept for the caregiver but may fluctuate according to time, location, food type and geography. It may also not be perceived as a negative practice if the wider culture acknowledges the feeding of children in-between meals.

When probed on the portion sizes of snack-foods, participants referred to small portion sizes requiring little or no preparation and being distinctly different from meals. This is in agreement with work from the U.S. in which participants made similar distinctions between meals and snacks (Blake, et al., 2015). However, the same study indicated that many factors determine the portion size of foods offered in-between meals such as the healthfulness of the food, the level of perceived child-hunger and what has been eaten at previous meals. Less is understood about the determinants of portion sizes for beverages provided as snacks. Indeed, sweetened beverages were not mentioned when participants described their perceptions of what constituted a snack.
This is contrary to findings from a qualitative study conducted in Australia amongst parents of children aged 3-5y. They considered “soft drinks” as an “extra food” with the term “treat” most often associated with “extra foods” (Petrunoff, Wilkenfeld, King, & Flood, 2014). In our study, sweetened beverages were only classified as a snack by one participant. Milk and water were provided at 10am, 4pm, and milk was provided before bed, but these routine milk-drinking episodes were not considered as snacking. Future research should focus on how beverage portions are determined, particularly in the context of the snack episode since larger beverage portions may increase the consumption of the beverage and/or food amongst preschool children (Norton, et al., 2015). Over-consumption of sweetened beverages is a risk-factor for childhood overweight and obesity, therefore improved understanding about how caregivers conceptualise the beverage episodes in the diet of toddlers and preschoolers may highlight opportunities for interventions to reduce consumption.

Contrary to findings from the US (Fisher, et al., 2015) participants in this study did not report using snacks to reward children’s behaviour outside of the meal occasion. However, in the larger wider study, participants did report using the promise of a dessert-food item to encourage children to clean their plate. Caregivers may not be aware that urging children to finish their entire meal with the promise of a food reward for doing so may not foster healthy, self-regulating eating habits (Thompson, 2010). Also, since sweet, sweet-foods were commonly offered as part of/immediately following the traditional lunch or dinner meal, this was not classified as a and as such, were typically referred to as a snack but rather a dessert. Nonetheless, the type of food offered following the a meal may have fallen into the a caregiver definition classification of a snack food e.g. chocolate, but not be considered as such due to its proximity to the meal occasion. Previous studies support the notion that snacks,
desserts/treats may be separate concepts for the caregiver (Davison, et al., 2015; Petrunoff, et al., 2014; Younginer, et al., 2016). It is plausible that the same food may be given an alternative label e.g. “dessert” due to either timing, location or proximity to a meal, for example. Dietary survey methodologies which measure children’s food intake, may often ask the participant to define the eating occasion themselves choosing from an appropriate label such as breakfast, lunch, dinner, snack etc., (Briefel, et al., 2010). The National Health and Nutrition Examination Survey (NHANES) define a snack, or snacking occasions as distinct eating occasions that consist of one or more food and beverage items, including plain water (Sebastian, Goldman, & Wilkinson Enns, 2011). Some whereas some dietary intake data are reported as “snacking occasions” using a combination of time periods falling outside the occurrence of the traditional mealtimes clock-time combined with a self-selected label for the eating occasion (D. Wang, van der Horst, Jacquier, & Eldridge, 2016). According to the context, study participants may classify a snack occasion as something else, or, may choose to not report a snack occasion since it may have been considered a “dessert”, or a “treat”. Such terminology are not commonly available as choices in surveys about dietary intake. More research is required to understand how modern-day eating episodes are perceived, and thus named, by study participants since this may have implications for the collection and interpretation of dietary intake data. Alternatively, survey designers may wish to include other labels e.g. dessert/treat/break that could be used in a broader definition of “snack” and later be coded as such. As suggested by Younginer et al., (2016) dietary survey interviewers may even wish to probe for the purpose/context when asking questions about the in-between meal phase during dietary interviews.

**Study limitations**
Qualitative methods are suited for obtaining in-depth attitudinal and behavioural insights and the findings of this qualitative study are not expected to be generalisable to other populations. The participant accounts of eating in-between meals cannot be interpreted as a comprehensive reflection of experiences, attitudes and perceptions. The purposive sampling strategy may have attracted participants that were particularly interested in the feeding of their children. In this study, over half of the sample were University educated which is above the national average in Switzerland. The level of education of caregivers can influence feeding (Saxton, Carnell, Van Jaarsveld, & Wardle, 2009) and this may have influenced participant responses. Future research is required to confirm the study findings. herein.

In conclusion, the findings of this qualitative research indicate how eating in-between meals may be perceived as multiple concepts by the caregivers of toddlers and preschool children. A notable distinction between these findings and findings from the U.S, was the feeding of children in-between meals, according to a specific clock time. Whilst studies involving caregivers from the U.S. agree that foods consumed in-between traditional mealtimes constitute snacking (Younginer, et al., 2016) providing foods in-between meals at a specific time was not observed. However, this study does support the notion that the quality of the food, the location, the purpose and portion size feature as specific characteristics related to how caregivers conceptualise snacking. Nonetheless, beverages were not described in participant conceptualisations of snacking episodes. Further research, in contrasting geographies, and in the context of modern-day eating behaviours, would improve our understanding of caregiver perceptions and attitudes towards the conceptualisation of snacking in the diets of toddlers and preschool children.
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