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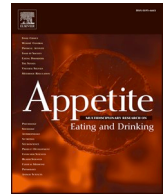
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Youngest versus oldest child: why does mothers' snack choice differ?

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ABSTRACT

Young children frequently consume energy dense snacks, which is one of the factors contributing to childhood overweight. The consumption of more healthy snacks could help in meeting the dietary intake requirements of children. Previous research suggested that mothers of first children showed more health-conscious food behavior compared to mothers of not-first children. However, what is missing from earlier research is an in-depth exploration of differences in considerations to choose a snack and the reasons connected. Therefore, this study aims to characterize differences in mothers' snack choice for their youngest child at 2–3 years and their oldest child when he/she was of the same age. Moreover, this study aims to identify reasons for these differences. A grounded theory approach was used for data collection and analysis. Semi-structured interviews were carried out with 17 Dutch mothers with two or three children. All mothers indicated differences between snacks provided to their youngest child (2–3 years) and their oldest child when it was of the same age. Most frequently mentioned differences were youngest children receive unhealthy snacks at a younger age, the structure regarding snack providing is more fixed, and that youngest children receive less age-specific snacks. Most frequently mentioned reasons for these differences were role-modelling, novelty of the first-born, availability of other types of snacks at home, and school hours of the oldest child. The study provided insights into the possible role of siblings in shaping snack consumption. Results might be relevant for the development of intervention strategies to increase mothers' awareness and to help to meet children's dietary requirements.

1. Introduction

Early in life, children develop their dietary behavior and food preferences (Savage, Fisher, & Birch, 2007). Parents are of great importance in the development of their children's dietary behavior, and related to that, their child's weight status (Larsen et al., 2015; Sleddens et al., 2014). Since children's dietary behavior, as well as the prevalence of overweight, are extrapolated into adulthood (Craigie, Lake, Kelly, Adamson, & Mathers, 2011; Nicklaus, 2016; Singh, Mulder, Twisk, Van Mechelen, & Chinapaw, 2008), food and snack choices of parents for their young children are crucial (Holsten, Deatrick, Kumanyika, Pinto-Martin, & Compher, 2012; Walsh, Meagher-Stewart, & Macdonald, 2015). Children frequently consume energy dense snacks (Boots, Tiggemann, Corsini, & Mattiske, 2015; Gevers, Kremers, de Vries, & van Assema, 2016), which is one of the factors contributing to childhood overweight (Larson & Story, 2013; Piernas & Popkin, 2010). However, as snacks are an important factor in children's daily food intake, more healthy, smaller, and less-energy dense snacks, could help in influencing the dietary intake of children and in developing more healthy eating patterns (Deming et al., 2017; Kachurak, Bailey, Davey, Dabritz, & Fisher, 2019; Xue et al., 2019).

Young children consume foods and snacks mainly in the home environment (Kral & Rau, 2010; Kueppers, Stein, Groth, & Fernandez, 2018). In the home environment the influence on food choices of family members, including siblings, is constantly present (Bogl et al., 2017; Holsten et al., 2012; Horst et al., 2007), an influence which also continues to exist later in life (Pachucki, Jacques, & Christakis, 2011). For the development of healthy dietary behaviors among children, the home environment is considered as an important setting (Haines et al., 2019). Mothers are mainly responsible for providing foods and snacks to their young children (Hardcastle & Blake, 2016; Johnson, Sharkey, Dean, Alex McIntosh, & Kubena, 2011; Jones, 2018; Kueppers et al., 2018), although the role of fathers in providing foods becomes more relevant (Khandpur et al., 2016; Fielding-Singh, 2017). Family structure, including the presence of siblings and parents' marital status, has been shown to influence eating habits (Haines et al., 2019) as well as childhood obesity (Park & Cormier, 2018). The review of Park and Cormier (2018), including six relevant studies on child's birth order and obesity, reported that the youngest child in the household was more likely to be overweight or obese compared to the middle or oldest child (Haugaard, Ajslev, Zimmermann, Ångquist, & Sørensen, 2013; Mosli et al., 2015, 2016; Ochiai et al., 2012). Two studies found the opposite

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or no effect (Chen & Escarce, 2014; Martinovic et al., 2015). Besides which, various studies reported differences in the dietary behavior between oldest and youngest siblings. Vilela et al. (2015) reported that 2-year-old children with older siblings were more likely to consume energy-dense foods every day compared to 2-year-olds without older siblings. Northstone and Emmett (2005) reported that children with older siblings were more likely to eat 'junk food' diets. Likewise, Fisk et al. (2011) reported that 3-year-olds with older siblings were more likely to have a more unhealthy diet. However, there is no evidence that these differences are also present for snacks and no explanations are given about the reasons why different products are consumed.

Our previous research on mothers' considerations when providing snacks to their 2–7 year old children revealed that mothers of first children showed more health-conscious behavior compared to mothers of not-first children (Damen, Luning, Fogliano, & Steenbekkers, 2019). Second and following children received more snacks from their mothers compared to first children. In addition, they were less often served healthy snacks, such as vegetables, rice crackers, bread sticks, and raisins, than first children were. This more health-conscious behavior showed by mothers of first children was also found in a study by Smith, Emmett, Newby, and Northstone (2011), in which first children got more vegetables compared to not-first children. Similarly, Vennerød, Almli, Berget, and Lien (2017) showed that children with older siblings were more exposed to sweet snacks. In addition, mothers of first children experienced more value conflicts when providing (unhealthy) snacks to their children aged 2–7 years (Damen, Luning, Hofstede, Fogliano, & Steenbekkers, 2019), which could imply differences in mothers' snack choice for their youngest child at 2–3 years and their oldest child when he/she was of the same age. Some researchers suggest that these differences could be due to the availability of unhealthy snack foods for older siblings in the home environment, which were not available when they were only child (Brekke, van Odiijk, & Ludvigsson, 2007; Fisk et al., 2011). Others indicate parental time constraints, as parents become busier when having more children (Lawson & Mace, 2008; Lehmann, Nuevo-Chiquero, & Vidal-Fernandez, 2018; North & Emmett, 2000). Moreover, the general parental involvement at home seems less with younger siblings compared to the first-born child, as parents have to spread their attention among more children (Barclay, 2018; Hotz & Pantano, 2015). This parental time constraint of mothers with more than one child could also affect food choices (North & Emmett, 2000). Moreover, it is possible that mothers become less strict when they have more children because the urge to "do all well" might be more relevant to the mothers' first child (Barclay, 2018). As described before, some studies show differences in foods provided to the oldest and youngest child in the household, and some studies present underlying reasons for this. However, no study focused on both the differences as well as the motives mothers have for the snacks provided to the youngest compared to the oldest child in the household.

In our previous study, we observed some differences in snack choices of mothers for the youngest child in the household compared to the older children in the household (Damen, Luning, Fogliano, et al., 2019). However, that study focused on general considerations of mothers in choosing a snack for their children, and not specifically on the differences between siblings. Consequently, the reasons underlying these differences were not explicitly investigated. Therefore, the current study aims to characterize differences and identify reasons for these differences in mothers' snack choice for their youngest child at 2–3 years and their oldest child when he/she was of the same age. Grounded theory (Charmaz, 2014) was used to systematically collect and analyse the data and to construct theories from the data itself.

The findings in this study may help to better clarify the potential role of siblings (if any) in shaping the obesity risk. In addition, the results might be relevant for the development of novel intervention strategies to help mothers meet children's dietary requirements as well as for preventing childhood obesity.

Table 1

Interview guide.

Interview guide
<p><i>General snack providing</i></p> <p>Could you tell something about the providing of snacks to your children?</p> <ul style="list-style-type: none"> - Do you have a certain pattern (week/weekend, moment of the day, other ...) <p>What type of snacks do you provide?</p> <ul style="list-style-type: none"> - How much do you provide? (portion size) - Do you have habits in snack providing? - Where do you give the snacks? (place at home) - Which considerations do you have to give your child a snack? - What are the reasons to (or not to) provide a snack? <p><i>Snacks for your oldest child</i></p> <p>Do you remember when you started giving snacks to your oldest child?</p> <ul style="list-style-type: none"> - If yes, when? <p>Could you tell something about the snack giving to your oldest child?</p> <ul style="list-style-type: none"> - What type of snacks did you give? - When did he or she get a snack? - Which information did you use for choosing snacks? - From whom came this information? (family, internet, health centre, other) <p><i>Snacks for your youngest child</i></p> <p>Do you remember when you started giving snacks to your youngest child?</p> <ul style="list-style-type: none"> - If yes, when? <p>Could you tell something about the snack giving to your youngest child?</p> <ul style="list-style-type: none"> - What type of snacks do you give? - When did he or she get a snack? - Which information did you use for choosing snacks? - From whom came this information? (family, internet, health centre, other) <p><i>Differences between snack giving to the oldest and youngest child</i></p> <p>Do you think there are differences in your snack giving behavior between your youngest child and your oldest child when he/she was 2–3 years old?</p> <ul style="list-style-type: none"> - If yes, what do you think these differences are? - If no, were you consciously working to make no differences? How did this go?

2. Method

2.1. Study design

Semi-structured interviews with 17 mothers were used to characterize differences and the related reasons in snack choices of mothers between the youngest and oldest child in the household. This qualitative approach gives the possibility to work on an explorative way and it is a useful tool to gather diverse and rich data. A grounded theory approach was used for data collection and analysis (Charmaz, 2014). This study took the current snack provision to the youngest child as a base and compared this with the prior snack pattern of the older sibling when he or she had the age of 2–3 years. We explained to the mothers what was meant by the term snacks in the current study before the interview started. This definition was: "all foods, excluding beverages, healthy and unhealthy, consumed in between regular meals", based on definitions used in previous studies (Mercille, Receveur, & Macaulay, 2010; Ovaskainen, Tapanainen, & Pakkala, 2010; Hartmann, Siegrist, & Van Der Horst, 2013; Duffey, Rivera, & Popkin, 2014). An interview guide was developed and used to maintain consistency in interviewing, see for details Table 1.

Interviews were recorded digitally and lasted about 35 min. The research was piloted with two mothers of the target group, who were not involved in the study. Minor changes to the interview guide were made based on the results of the pilot study.

2.2. Recruitment and selection of participants

Social media and snowball sampling (Barros da Silva, Barbieri-Figueiredo, & Van Riper, 2018; Zaranonello & Luomala, 2011) were used to recruit participants. Potential participants (n = 45) filled in a selection questionnaire to gather demographic data and to select participants according to the criteria set for the target group. These criteria were that mothers had two or three children, of which the youngest child was 2 or 3 years old and the oldest sibling not more than 4.5 years

Table 2

Differences related to mothers' snack choice for the youngest child at 2–3 years and the oldest child when he/she was of the same age.

Key themes	Differences	Mothers (n = 17)
Product-related	Youngest child receives unhealthy snacks at a younger age	15
	Youngest child receives less often age-specific snacks	5
	Youngest child is more frequently provided with snacks	4
Time-related	Timing/structure regarding snack providing is more fixed	8
	Snack moment is more hectic with more children	3

older than the youngest. To create a group as homogenous as possible, single mothers and families with more than three children were excluded from this study. In total, 17 mothers were selected to participate in the study.

2.3. Ethical procedure

All mothers provided informed consent before participating in the study. The informed consent form explained that the study was about snacks they provide to their children, however, the exact goal on the differences between their youngest and oldest children was not explained to not influence the data. Besides, we explained them that they could stop at any moment with the interview without giving a reason, that all results would only be used for scientific research and that their data would be handled anonymously. After finalizing the interview, each mother received a gift voucher as compensation.

2.4. Data analysis

Interviews were transcribed and data was qualitatively analyzed with help of the software program MAXQDA (version 12). This program was used to organize, code and assist in analyzing the qualitative data. To ensure anonymity, each participant was given a unique number. A grounded theory approach was used for analyzing the qualitative data. First, the transcribed interviews were read several times. After this, the transcripts of the interviews were coded openly. Two researchers, including the first author, independently coded the interviews. They compared and discussed the assigned codes until consensus on the used codes was attained. Codes with comparable meanings were merged into one code. Categories for differences in snack choices and considerations for these choices were developed by the first author and discussed. Data saturation was reached as after analyzing 14 interviews, no new codes had to be added to the interviews. Subsequently, a table was retrieved with the type and number of differences and the reasons for choosing a certain snack. For constructing the tables, key themes were developed to structure the data, these key themes were derived from the key themes of considerations in snack providing as developed by [Damen, Hofstede, et al. \(2019\)](#). After constructing the tables, a schematic overview was designed to combine all data.

3. Results

3.1. Participant characteristics

All mothers (n = 17) were of Dutch origin and lived in the Netherlands, together with their partner. The average age of the respondents was 33.0 years (SD 3.1 years), ranging from 27 to 40 years. Most participants (n = 15) had a paid job, working on average 26.4 h a week. Almost two-third of the participants (n = 11) were higher educated with a bachelor's degree or higher. Twelve mothers had two children; five mothers had three children. The average age gap between the oldest and the youngest child was 31.8 months (SD = 10.7 months), ranging from 17 to 54 months.

3.2. Mothers' common patterns in snack provision

During the interviews, the mothers made some general remarks, which concerned all children in the household. These remarks revealed a characteristic pattern in the moment of providing a snack and in the type of snacks. All mothers mentioned having a snack provision pattern including (but not necessarily limited to) fruit in the morning and products like cookies and/or candies in the afternoon. Of all 17 mothers, 14 mothers gave fruit to their children every morning. The other three mothers indicated that they usually gave fruit, but not strictly every day. The main explanation for this was that their children did not prefer to eat fruit.

Whereas in the morning the main snack was fruit, the types of snacks given in the afternoon were more diverse. Children had more freedom of choice during the afternoon snack moment, as they could choose from which product category they preferred to have a snack. Most frequently mentioned snacks which mothers provided during the afternoon were candy (n = 13), rice crackers, bread sticks and raisins (n = 12), cookies (n = 11) and crisps (n = 11). For crisps, the majority of the mothers mentioned it was a product for special occasions, such as weekends or parties. In the evening, mothers rarely provided snacks.

Some of the mothers (n = 10) indicated to have a fixed place at home for consuming snacks. In most cases, this was the kitchen table (n = 8). Mothers mentioned finding it important to use a fixed place because it offers their children a moment to relax while eating.

"We always eat and drink at the kitchen table because I think it is important to have a moment of rest and just sit and eat" [Mother 12].

3.3. Differences in mothers' snack choices for the youngest child compared to the oldest

Table 2 shows the differences between mothers' snack choice for their youngest child at 2–3 years and their oldest child when he/she was of the same age. All mothers indicated differences in snacks they provided to their youngest child compared to its older siblings when they were of the same age of 2–3 years. Differences were classified in product-related and time-related differences.

3.3.1. Product-related differences

Product-related differences included the youngest child receives unhealthy snacks at a younger age, and less often age-specific snacks and an increased frequency of providing snacks (**Table 2**). The majority of the mothers (n = 15) mentioned the youngest child received unhealthy snacks such as cookies and candies at a younger age compared to the older siblings. Their youngest children want to eat the same type of snacks and the same portion as their older sibling.

"For the oldest, we were stricter with the snacks compared to the youngest. The youngest child eats sweet snacks like cookies and candies, but also nuts more early compared to the oldest" [Mother 04].

The two mothers, who did not mention to provide their youngest child unhealthy snacks at an earlier age, were conscious in not making this difference.

"If you have noticed that the pattern you have developed works well with the first child, you want to do this the same way with the youngest child"

[Mother 07].

Another product-related difference is that mothers mentioned that their youngest children received less often age-specific snacks, like toddler cookies or dried fruit compared to their oldest child.

"I gave my oldest child snacks meant for toddlers, like unsalted veggie crisps or toddler cookies more often. Nowadays, the youngest does not get these toddler products" [Mother 11].

In addition to the difference in the provision of healthy and age-specific snacks, some mothers also mentioned the increase in frequency of snack provision to their youngest child ($n = 4$), see Table 2.

"My youngest child more often receives a snack compared to my oldest at that age" [Mother 09].

3.3.2. Time-related differences

The changed timing and structure regarding snack providing ($n = 8$) was the most mentioned time-related difference between the youngest and the oldest child. This timing, regarding snacking, became for the youngest child more fixed.

"We have now another structure than I had with the oldest. The oldest could choose herself when she had her nap and got a snack when she was hungry. Now, we have a more fixed structure, because of the school schedule of the oldest. Nap and snack time is more set now" [Mother 15].

The other time-related difference between the youngest and the oldest child mentioned by the mothers was that the snack moment became more hectic with more children ($n = 3$).

"The snacking moment is more hectic now we have two kids, compared with having only one child. When I had only my oldest child, snacking was more a moment of eating together. Now, I am busier" [Mother 07].

3.4. Mothers' reasons explaining different snack choices

Table 3 shows the reasons mentioned by mothers for the differences between their snack choice for the youngest child at 2–3 years and the oldest child when he/she was of the same age. The mothers most frequently mentioned mother-related reasons.

3.4.1. Child-related reasons

Role modelling was the most frequently mentioned reason for differences in mothers' snack choice for their youngest child at 2–3 years and oldest child when he/she was of the same age. The youngest child wants to eat the same snack as the oldest child ($n = 15$). When the youngest child sees the oldest child getting a snack, mothers mentioned that their youngest child wanted that specific snack too.

"Because she is older, and is already more used to eating sweets, cookies and crisps, I cannot say 'yes' to her and 'no' to the youngest ... My

youngest sees her older sister eating those snacks, so she wants to eat the same" [Mother 05].

Mothers also spontaneously mentioned that role modelling might be even more important during main meals. As snacks are usually accepted better, children reject (parts of) the main meals more often, especially when their older sibling rejects it too.

"The youngest is still thinking: if my sisters say they do not like it, then I will also say that I do not like it" [Mother 03].

"They often find snacks tastier, so they will eat them much more easily" [Mother 15].

A few mothers also mentioned the small age gap of their children ($n = 3$) as a reason for differences in snack choice for the youngest child at 2–3 years and the oldest child when he/she was of the same age.

"I do not make a distinction, but that is also because they are only a year and four months apart. So basically in everything, they are both either allowed or not allowed to eat it" [Mother 01].

3.4.2. Mother-related reasons

Mothers mentioned being less strict for their youngest compared to their oldest child at 2–3 years. They addressed it to the novelty of the first-born ($n = 8$) (Table 3). Being a mother for the first time was new and they wanted to do everything well, also with regard to providing snacks.

"I have searched for information about sleeping, eating, regularity ... I think those are things you do with your first child. At least, I did that to see how it should be done. (...) I just wanted to do it all right" [Mother 07].

For the youngest child, mothers mentioned having this feeling of doing perfect less, because they feel more experienced and mature in providing snacks.

"With the oldest, I was much more focused, I tried to do everything as instructed. I listened very well to the advice of the health care center. For the youngest that is different, you follow the rules less strictly; I just give snacks without thinking that much" [Mother 04].

"With my first child I was more cautious while giving snacks; I really relied on the rules. With the second one, I am far more flexible. I think it has to do with experience, being less strict, and thinking it over to a lesser degree" [Mother 15].

Not only for the children is it important to get the same snacks as their siblings, but also for the mother. A frequently mentioned reason ($n = 7$) is that mothers want to treat their children equally thus also when providing snacks (Table 3).

"I want to give both of them the same products, I want to have the feeling that I treat them equally" [Mother 16].

Avoiding conflicts ($n = 5$) is another important reason for the mother.

Table 3

Reasons for differences between mothers' snack choice for the youngest child at 2–3 years and the oldest child when he/she was of the same age.

Key themes	Reasons for differences	Mothers ($n = 17$)
Child-related	Role modelling: the youngest child wants to eat the same as the oldest	15
	The age gap between siblings is small	3
Mother related	The novelty of the first-born/mother is less strict for the youngest child	8
	Mother wants to treat her children equally	7
	Mother wants to avoid conflicts	5
Product-related	Availability of other types of snacks at home	8
	The youngest child joins the snacking of the oldest child	6
Time-related	School schedule of the oldest child causes different snack times	8
	Less time available because of more children	3

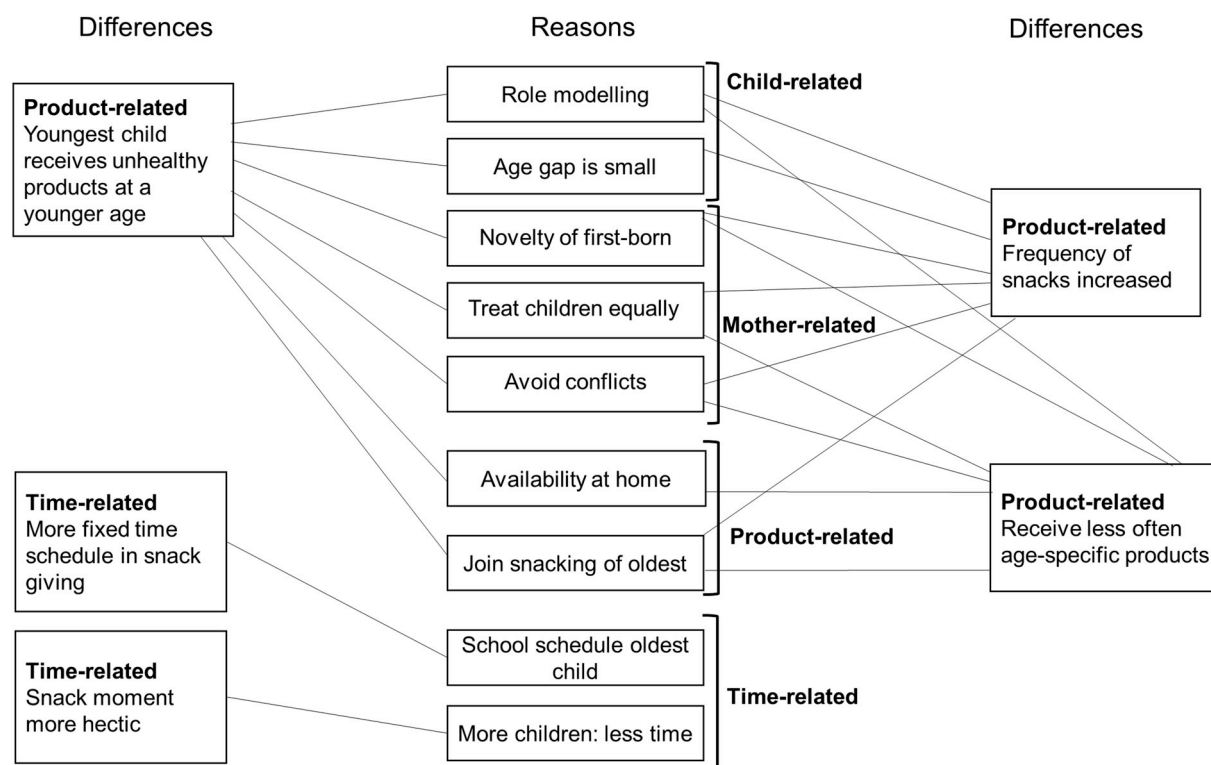


Fig. 1. Relations between differences and underlying reasons in mothers' snack providing to the youngest child at 2–3 years and the oldest child when he/she was of the same age.

"If I give a certain snack to the oldest, but not to the youngest, there will be a fight" [Mother 13].

3.4.3. Product-related reasons

The product-related reason most frequently mentioned by the mothers was the availability of other types of snacks at home. This availability of snacks is different due to the changing preference of the oldest child ($n = 8$). Some mothers explained this change in preference by the other types of products that friends of the child bring to school.

"Up to 4 years, she had little interaction with other children. From the moment she went to school, you really noticed the influence of other children. The result is that she asks for sweets more often. I think that going to school, and being in touch with other children, led to reduced influence from me and more influence from other children" [Mother 17].

Because other products are available in the home environment, mothers bought traditional toddler snacks less often. In addition, mothers mentioned that the youngest child joined the snacking of the oldest ($n = 6$), Table 3.

"Back in the days, when she had his age, she also often got rice crackers and breadsticks. Those were the kind of products available at home. But the youngest never gets those products; we do not have them at home" [Mother 14].

3.4.4. Time-related reasons

One of the differences between snacks provided to the youngest child at 2–3 years and the oldest child when he/she was of the same age, was the more fixed timing regarding snack provision. This effect related to the time schedule of the oldest child and not to the presence of more children in the household. Mothers explained that the school schedule of their oldest child ($n = 8$) determined the fixed schedule (Table 3).

"That shift in the planning is not due to the number of children, but because the oldest has to go to school now. When we eat it is at other times when the oldest comes home from school" [Mother 01].

Some mothers mentioned snack moments to be more hectic. The mothers who experienced this ($n = 3$), related that to the presence of more children in the household.

"It is more hectic now, compared to having only one child. Now one child is already eating while you are preparing the snack for the other child" [Mother 11].

4. Discussion

The current study aimed at identifying differences and reasons for these differences in mothers' snack choice for their youngest child at 2–3 years compared to their oldest child when he/she was of the same age. Previous research found that mothers of first-born children showed more health-conscious behavior. In total, they provided fewer snacks compared to mothers of not-first children, they more often gave healthier perceived snacks and more often used reasons related to health to choose a certain snack (Damen, Luning, Fogliano, et al., 2019). The current study confirms these differences and found other differences as well. Also, the underlying reasons were identified.

4.1. Common patterns in snack provision

Mothers in this study mainly provided fruit in the mornings, whereas they provided products like candies and cookies mostly in the afternoon. This structured behavior is typical for Dutch mothers (Damen, Hofstede, et al., 2019) and clearly different compared to the snack behavior in the U.S., as described by Loth, Nogueira de Brito, Neumark-Sztainer, Fisher, and Berge (2018). They reported U.S. parents to have less control over the type and amount of snacks consumed by their children as well as over the moment of snacking. In the current

study, snacks were mainly consumed at a fixed place in the home. Loth et al. (2018) reported about the fixed place of families to consume main meals, but not for consuming snacks. This shows that the snack environment of Dutch children (created by the mothers) seems to be more consistent and structured compared to the snack environment in the U.S.

The types of snacks provided were similar to the snack consumption reported in the Dutch National Food Consumption Surveys (Ocké et al., 2008; Rossum et al., 2016). The survey showed that fruit, sugar and confectionery, and cakes are products mainly consumed in between meals. The reasons for giving fruit in the morning is that it is healthy and that it is a habit (Damen, Luning, Fogliano, et al., 2019). Other research also showed that habit is an important factor in the food choice of fruit and vegetables (Albani, Butler, Traill, & Kennedy, 2018; Guillaumie, Godin, & Vézina-Im, 2010; Reinaerts, de Nooijer, Candel, & de Vries, 2007). Another reason to provide fruits is the preference of the child (Damen, Luning, Fogliano, et al., 2019). In the current research, children who did not prefer fruit as a snack, were not provided with fruits every day.

4.2. Differences and related reasons

All mothers indicated differences between the snacks they provided to their youngest child and their oldest child when he/she was at the age of 2–3 years. The main findings of the current research are related to each other in Fig. 1, showing which underlying reasons (Table 3) explained the differences (Table 2) in mothers' snack providing to their youngest child (2–3 years) compared to their oldest child at that age.

4.2.1. Child-related reasons

Child-related reasons include role modelling and the small age gap between siblings, as showed in Table 3. All mothers mentioned these reasons to explain product-related differences.

Mothers explained that their youngest child wanted to eat the same snacks and the same amount of snacks as their oldest child consumes. Role modelling of older siblings is also reported by Piernas and Popkin (2010) and Mosli et al. (2015), showing that younger siblings imitate the behavior of their older siblings by consuming larger quantities of foods in presence of their older siblings. In addition, Kramer and Conger (2009) suggested that the youngest child might imitate its older sibling's unhealthy behavior, which might include unhealthy snacking. Because the youngest child wants to eat the same amount and same type of snacks, younger children received unhealthier snacks at a younger age, they received snacks more frequently, and they got toddler specific snacks less often compared to their older siblings when they were of the same age. This is confirmed by other studies, reporting children with older siblings to consume more unhealthy foods, like junk foods and sugar-rich snacks (North and Emmett, 2000; Northstone and Emmett, 2005; Brekke et al., 2007; Fisk et al., 2011). In addition, it is reported that first-born children more often receive healthy food products like vegetables (Smith et al., 2011) and supplementation of vitamins and minerals (Briefel, Hanson, Fox, Novak, & Ziegler, 2006; Garemo, Arvidsson Lenner, Karlge Nilsson, Borres, & Strandvik, 2007) compared to not-first children. These differences may explain the higher risk of childhood obesity among the youngest siblings in the household (Park & Cormier, 2018).

Some mothers mentioned the small age gap between their children as a reason for providing unhealthy snacks at a younger age and the increased frequency of providing snacks. Price (2008) confirms this effect, by indicating that birth order differences between siblings are bigger when their age gap is larger. In the current study, the average age gap between the siblings was 31.8 months ranging from 17 to 54 months. This might explain why only three mothers mentioned the difference due to the small age gap in the current research.

4.2.2. Mother-related reasons

Part of the changing behavior of mothers as they get more children can be caused by the novelty of the first-born effect, see Fig. 1. This effect comes with the lack of experience and the urge 'to do well' with the first-born child (Barclay, 2018; Lewis & Kreitzberg, 1979). It is probable that with having more children, mothers' ideals about raising their children become less strict (Barclay, 2018), as parents become more mature with parenting (Price, 2008). This is also mentioned by the mothers in the current research.

Mothers in the current study mentioned the importance of treating their children equally; and they therefore chose to provide their youngest child with unhealthier snacks at an earlier age, to provide them age-specific snacks less often, and to provide them more snacks compared to their oldest child at 2–3 years. Larsen et al. (2015) reported that children obey less well when they feel that they are treated differently compared to their siblings. Buist, Deković, and Prinzie (2013) reported that differences in parental treatment between siblings could cause behavioural problems among children. Another reason mentioned was that mothers want to avoid conflicts between their children and therefore offered the same type and amount of snacks to siblings. Loth et al. (2018) reported that parents mentioned conflict avoidance as the main reason for letting their child have more influence over the foods served at the main meals. Likewise, Snuggs, Houston-Price, and Harvey (2019) found conflict avoidance as a main goal of parents during main meals. A result of this conflict avoidance could be that parents more often admit to food-related demands of their children, resulting in the provision of less healthy foods or snacks (Norman, Berlin, Sundblom, Elinder, & Nyberg, 2015), which could explain the differences found in the current study.

4.2.3. Time-related reasons

The time-related reasons mothers mentioned are the school schedule of the oldest child, which causes a more fixed snack pattern for the youngest child and the fact that less time is available because of having more children. Each time-related reason seems to explain just one single difference. The parental time-constraint of having several children has an impact on the schedule of snacking as well as on the food choices made (North & Emmett, 2000). The mothers explained the difference due to the more hectic snack moment with the presence of more than one child in the household. With the advent of a second child, the pressure on the mother's time and attention increases (Lehmann et al., 2018) which could explain this more hectic eating moment. In addition, the general parental involvement at home is less present with younger siblings compared to the first-born child as mothers have to divide their attention between several children (Hotz & Pantano, 2015; Barclay, 2018). Although the snacking moment is more hectic, mothers did not mention this to influence the type of snacks given.

4.2.4. Product-related reasons

The availability of other types of snacks at home is one of the product-related reasons mentioned by the mothers in this study. Differences explained by this reason are that the youngest child receives unhealthier snacks at an earlier age, as well as that they receive less age-specific snacks. As the first-born child grows older, there is a shift in the presence of the types of food products at home. This means that there are food products available at home that were not present when the first-born child grew up (Fisk et al., 2011). Many studies reported the association between the type of foods available at home and the consumption pattern of the children in the household (Couch, Glanz, Zhou, Sallis, & Saelens, 2014; Ding et al., 2012; Loth, MacLehose, Larson, Berge, & Neumark-Sztainer, 2016; Wyse, Campbell, Nathan, & Wolfenden, 2011), which confirms our result of mothers providing more unhealthy snacks when these become available at home.

4.3. Research implications

The results of the current research are useful for understanding why there are differences in the dietary behavior between oldest and youngest siblings (Damen, Luning, Fogliano, et al., 2019; Fisk et al., 2011; Northstone & Emmett, 2005; Vilela et al., 2015). In addition, the results could be seen as one of the underlying reasons of the differences in the prevalence of overweight and obesity between the oldest and youngest children in a household as observed in several studies (Haugaard et al., 2013; Mosli et al., 2015; Mosli et al., 2016; Ochiai et al., 2012; Park & Cormier, 2018).

We related the differences in snacks provided to the youngest children at 2–3 years and their oldest sibling when he/she was of the same age with the reasons for these differences. These findings could be useful in the design of novel intervention strategies on preventing childhood obesity as well as to help mothers meet children's dietary requirements. We propose the grouping of differences according to the key-themes as an effective way to categorize the diverse and complicated factors which play a role. In addition, the results show that research on family structure and home (food) environment could provide new insights into food choice behavior of mothers for their children.

4.4. Considerations for further research

Semi-structured interviewing is a widely used method in food choice research of mothers (e.g. Boak et al., 2016; Higginbottom et al., 2018; Lovelace and Rabiee-Khan, 2015; Moore, Tapper, & Murphy, 2010; Pineros-Leano, Tabb, Liechty, Castañeda, & Williams, 2019). Besides, this method was chosen as it appeared from previous research that snack choice for young children is a sensitive topic among mothers, which they do not want to discuss with other mothers in a focus group setting (Damen, Hofstede, et al., 2019). In this study, a comparison is made between the youngest child and older siblings when both were at the age of 2–3 years, so a part of the interview was retrospective. Mothers had to tell about situations of some years ago when their oldest child was of 2–3 years-old. To cover the retrospective effect, future research could consider a longitudinal set-up of the study.

This study focused on differences in mothers' snack providing between their youngest and oldest child and reasons for these differences. However, some mothers spontaneously mentioned to expect some differences, like portion size, and reasons, like role modelling, to be present more clearly during main meals, which was also found by Loth et al. (2018). Therefore, it could be relevant to extend a future study to the consumption of main meals.

5. Conclusions

To our knowledge, this is the first study that shows reasons for differences in mothers' snack choice between their youngest child now and their oldest child at that age. All mothers indicated that there is a difference between snacks provided to their youngest child now and their oldest child at the age of 2–3 years. Mothers mentioned several reasons for these differences, which were classified in child-related, mother-related, time-related and product-related differences and reasons.

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